Foxground and Berry Bypass

Design Report: Operational Noise Management

Final Design

FBB-NV-01-RED-FD-01

Prepared for:

Date: 16 March 2015

DOCUMENT CONTROL

Title	Design Report: Operational Noise Management			
Prepared for	Fulton Hogan			
Project Ref	FBB-NV-001			
	Name	**Position**	**Signed/Approved**	**Date**
Originator	Tom Evans	Acoustic Engineer	TE	16/03/2015
Review	Matthew Verth	Project Manager	MV	16/03/2015
Approval	Matthew Stead	Project Director	MS	16/03/2015

Details of Revisions

Rev	Date	Description	WVR No.	Approved
00	03/07/2014	Detailed Design	0016	MS
01	02/09/2014	Final Design	0016	MS
02	09/10/2014	100% comments incorporated	0016	MV
03	14/11/2014	Final Design Report Rev2	0016	MV
04	16/03/2015	Final Design Report Rev3	0016	MV

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

GLOSSARY

A-Weighted	A spectrum adaptation that is applied to measured noise levels to approximate human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
Day(time)	For road traffic noise, the daytime period is taken to be between 7 am and 10 pm.
dB	Decibel—a unit of measurement used to express sound level, based on a logarithmic scale. We typically perceive a 10 dB increase in sound as a doubling of that sound level.
dB(A)	Units of A-weighted sound levels.
DGA	Dense Graded Asphalt
EA	Environmental Assessment
ENMM	Roads and Maritime Services *Environmental Noise Management Manual*
FBB	Foxground and Berry Bypass
FH	Fulton Hogan
L_{90}	The sound pressure level exceeded for 90% of the measurement period. For 90% of the measurement period, it was louder than the L_{90}.
L_{eq}	Equivalent Noise Level—Energy averaged noise level over the measurement time.
$L_{eq,1h}$	Equivalent (energy averaged) noise level over a one-hour period. Used to assess road traffic noise for some non-residential receivers.
$L_{eq,15h}$	Equivalent (energy averaged) noise level over the daytime period. Used to assess road traffic noise for residences.
$L_{eq,9h}$	Equivalent (energy averaged) noise level over the night time period. Used to assess road traffic noise for residences.
L_{max}	The maximum noise level measured during a period, using the fast time weighting on a sound level meter.
Night(-time)	For road traffic noise, the night-time period is taken to be between 10 pm and 7 am.
RBL	Rating Background Level – the medium value of the assessment background level for the period over all of the days measured.
RMS	Roads and Maritime Services (Roads and Maritime)
RNP	Department of Environment, Climate Change and Water *NSW Road Noise Policy*
SMA	Stone Mastic Asphalt
SWTC	Scope of Works & Technical Criteria

1. INTRODUCTION

1.1 Project Background

The Foxground and Berry Bypass (FBB) will provide a four-lane divided highway (two lanes in each direction) with median separation for 11.6 kilometres of the Princes Highway. The upgrade will include a bypass of the existing winding highway at Foxground and a bypass of Berry with access ramps at the north and south of the town.

The project's northern limit of work is located at the southern extent of the Gerringong Upgrade (currently under construction). The southern limit of work is about 250 m south of the existing Schofields Lane.

1.2 Description of Report

This Operational Noise Assessment design report has been prepared for the Fulton Hogan (FH) FBB Final Design. The purpose of this design report is to document how the project operational noise obligations have been addressed and satisfied.

The acoustic assessment has been undertaken based on relevant sections of:

- Minister's Condition of Approval.
- FBB Scope of Works and Technical Criteria (SWTC).

This design report provides the following information in relation to this Final Design:

- Applicable operational noise criteria.
- A description of the prevailing ambient noise environment.
- Summary of inputs into the acoustic assessment.
- Details of changes from the Roads and Maritime Services (RMS) Reference Design.
- Noise contour maps for design years 2017 and 2027.
- An assessment of maximum noise levels to evaluate sleep disturbance impacts.
- Identification of noise-sensitive receivers exposed to noise levels exceeding relevant assessment criteria in 2027.
- Noise mitigation measures incorporated into the design.
- Options for alternative designs of mitigation measures where relevant.

2. DESIGN COMPLIANCE

2.1 Minister's Conditions of Approval

The Minister's Condition of Approval C14 for the FBB states that:

> C14. *Unless otherwise agreed by the Director General, within 6 months of commencing construction, the Proponent shall, in consultation with the EPA, prepare and submit for the approval of the Director General, a review of the operational noise mitigation measures proposed to be implemented for the project. The review shall:*
>
> (a) *confirm the operational noise predictions of the project based on detailed design.*
>
> (b) *review the suitability of the operational noise mitigation measures identified in the documents listed under condition A1* [Environmental Assessment Report] *to achieve the criteria outlined in the* Road Noise Policy *(DECCW, 2011), based on the operational noise performance of the project predicted under (a) above; and*
>
> (c) *where necessary, investigate additional feasible and reasonable noise mitigation measures to achieve the criteria outlined in the* Road Noise Policy *(DECCW, 2011).*

This report provides advice to the design team regarding any change in predicted operational noise levels relative to the RMS Reference Design, and informs the design of noise mitigation measures.

This report will be updated as the design progresses, with the review of the operational noise mitigation measures prepared based on the constructed design.

2.2 SWTC

Appendix A provides a Design Criteria Checklist against the requirements of the SWTC and Appendices.

The key SWTC clauses relevant to the operational noise assessment of the design are summarised below.

2.2.1 Appendix 4 Clause 4.25

Clause 4.25 states, broadly, that:

- Operational mitigation provided by FH shall not comprise at-residence treatments.
- Certain residences were shown to require at-residence treatments in the RMS Reference Design. These treatments will be administered by RMS.
- Consideration shall be given to noise mitigation for Mark Radium Park.
- Noise mitigation is not required for commercial or industrial premises.
- As a minimum, certain prescribed noise barriers must be included in the design.

Operational noise levels are to be assessed against the applicable new road and redeveloped road criteria provided by the *Road Noise Policy* (RNP) prepared by the NSW Department of Environment, Climate Change and Water (DEECW) and released in 2011.

RMS has developed noise modelling for the project based on the concept design in the Environmental Assessment (RMS Reference Design), and provided this RMS Noise Data to FH. This data may be used during the design stages in the design and identification of noise mitigation measures.

Where the constructed design varies from the RMS Reference Design, FH must undertake noise modelling using prescribed technical parameters and demonstrate compliance with the operational noise criteria for the year of opening (2017) and ten years after opening (2027).

Specifically, Clause 4.25(e) states that the design and mitigation provided for the road must be undertaken:

> *(e)(ii) to maintain operational noise levels of 60 dB(A) / 55dB(A) LA eq 15hr (day) or less and 55dB(A) / 50dB (A) LAeq9hr (night) or less, for the years 2017 (at opening) and 2027 (ten years after opening) for redeveloped / new roads respectively as appropriate at the locations identified by the respective noise contour lines described in Figures 9.20.1.1-9 and 9.20.2.1-9 of Appendix 9 of the Scope of Works and Technical Criteria.*

2.2.2 Appendix 4 Clause 4.26

Clause 4.26 broadly requires FH to prepare an Operational Noise Management Report as part of the design documentation for the noise mitigation measures. This is in accordance with Minister's Condition of Approval C14.

This report will be updated as the design progresses, with the final Operational Noise Management Report prepared based on the constructed design.

2.3 Assessment Criteria

The RNP defines the relevant assessment criteria for FBB. The criteria relevant to this project are the:

- 'New' and 'Redeveloped' road traffic noise assessment criteria for residential land uses.
- 'Open Space (Passive Use)' criterion, which is used to assess noise levels in Mark Radium Park.
- Assessment criteria for places of worship and aged care facilities.
- Relative increase criteria for residences.

2.3.1 Residential Land Use Assessment Criteria

The road traffic noise assessment criteria defined by the RNP for residential land uses are presented in Table 2.3-1.

Table 2.3-1 – Road Traffic Noise Assessment Criteria for Residences

Road Category	Type of Project / Land Use	Assessment Criteria, dB(A)	
		Day 7 am – 10 pm	Night 10 pm – 7 am
Freeway / arterial / sub-arterial	Existing residences affected by noise from new freeway / arterial / sub-arterial road corridors.	$L_{eq,15h}$ 55 (external)	$L_{eq,9h}$ 50 (external)
	Existing residences affected by noise from existing freeways / arterial / sub-artierial road corridors.	$L_{eq,15h}$ 60 (external)	$L_{eq,9h}$ 55 (external)

The criteria apply externally at a distance of 1 m from the façade of residences and at a height of 1.5 m above floor height. At this location, the criteria include an allowance of +2.5 dB to account for noise reflected from the façade. When measuring or predicting in the free-field, noise levels should be increased by +2.5 dB to account for this.

In order to determine if the 'New' or 'Redeveloped' criteria apply to an individual residence, it is necessary to follow the procedures set out in the Environmental Noise Management Manual (ENMM, RTA, 2001).

Broadly, the new road criteria apply at a receiver where there is no 'existing road traffic noise exposure' or if the receiver is subject to a new source of road traffic noise as a result of a project. 'Existing road traffic noise exposure' is defined as noise levels that exceed $L_{eq,15h}$ of 55 dB(A) (daytime) or $L_{eq,9h}$ of 50 dB(A) (night-time).

A receiver is considered to be subject to noise from a new source if the project would result in any of the following:

- A new road where a road of the same category did not previously exist.
- A new road within an existing corridor that was previously undeveloped.
- An alignment or realignment producing noise at the receiver from a different direction which makes a significant contribution to noise exposure, on top of any increase in traffic noise from the same direction as at present. A significant increase in traffic noise is taken to be an increase of more than 2 dB(A) at any exposed façade.

For a receiver to be eligible for the consideration of noise mitigation from a 'Redeveloped' road, the predicted noise levels must either:

- Exceed the noise criteria and be significantly affected by the project. Significantly affected is taken to be an increase of more than 2 dB(A) at any exposed façade.
- Be considered to be 'acute'. Residential receivers are considered acutely affected where noise levels exceed $L_{eq,15h}$ 65 dB(A) (daytime) or $L_{eq,9h}$ 60 dB(A) (night-time).

For a receiver to be eligible for the consideration of noise mitigation from a 'New' road, the predicted noise levels must exceed the applicable criteria.

2.3.2 Other Land Use Assessment Criteria

The open space – passive use criterion, relevant to the assessment of road traffic noise levels at Mark Radium Park, is presented in Table 2.3-2. Criteria for places of worship and aged care facilities are also presented, as they are relevant to some land uses adjacent to the Project.

Table 2.3-2 – Road Traffic Noise Assessment Criteria for Other Land Uses

Existing sensitive land use	Assessment Criteria, dB(A)		Additional considerations
	Day 7 am – 10 pm	**Night 10 pm – 7 am**	
Open space – passive use	$L_{eq,15h}$ 55 (when in use)	n/a	Passive recreation is characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion e.g. reading.
Places of worship	$L_{eq,1h}$ 40 (internal)	$L_{eq,1h}$ 40 (internal)	The criteria are internal. Consideration should also be given to other outdoor areas, where outdoor services, weddings or funerals may occur. In these cases, it may be appropriate to apply the passive open space criteria.
Aged care facilities	Refer to Table 2.3-1		Residential land use noise assessment criteria should be applied to these facilities.

2.3.3 Relative Increase Criteria

The RNP also specifies additional relative increase criteria for residential land uses, with the aim of mitigating overly significant increases in noise levels at residences, even where the final noise level may be below the applicable criterion from Table 2.3-1.

The relative increase criteria are shown in Table 2.3-3. Where these criteria are exceeded, the residence should be considered for mitigation.

Table 2.3-3 – Relative Increase Criteria for Residences

Road Category	Type of Project / Land Use	Assessment Criteria, dB(A)	
		Day 7 am – 10 pm	**Night 10 pm – 7 am**
Freeway / arterial / Sub-arterial	New road corridor / redevelopment of existing road	Existing traffic $L_{eq,15h}$ + 12 dB (external)	Existing traffic $L_{eq,9h}$ + 12 dB (external)

The RNP notes that a relative increase of 12 dB represents slightly more than an approximate doubling of perceived loudness and is therefore likely to trigger community reaction.

Where the existing road traffic noise level is less than 30 dB(A), the existing traffic noise level for the purpose of defining the relative increase criteria is deemed to be 30 dB(A).

2.3.4 Sleep Disturbance Guidelines

The RNP includes a discussion of current knowledge regarding sleep disturbance due to road traffic noise, and states “despite intensive research, the triggers for and effects of sleep disturbance have not yet been conclusively determined.”

Current research does indicate that the main acoustic characteristic that influences sleep disturbance is the emergence (e.g. magnitude) and number of noisy events heard distinctly above the background level. The RNP suggests that intermittent noisy events, such as truck pass-bys, could be assessed on the basis of emergence events determined as the difference between L_{max} levels and the steadier L_{eq} or L_{90} levels.

The RNP makes reference to Practice Note iii of the *Environmental Noise Management Manual* (ENMM) which suggests that the $L_{eq,9h}$ road traffic noise guidelines should sufficiently account for sleep disturbance impacts except where both of the following conditions are met:

- the L_{max} emergence over the ambient $L_{eq,1h}$ is greater than 15 dB(A) and
- the L_{max} level is greater than 65 dB(A).

In these cases, additional consideration of sleep disturbance impacts may be required.

3. EXISTING ENVIRONMENT

The Project area extends from the intersection of Toolijooa Road and the Princes Highway, south of Gerringong, to about 250 m south of the intersection of the Princes Highway and Schofields Lane, south of Berry. Defining features include Toolijooa Ridge, the Broughton Creek floodplain and the Foxground bends area.

The area incorporates a mix of land uses including pastureland and agricultural properties, rural residential areas and the town of Berry with its associated urban residential, recreational, commercial and light industrial areas.

3.1 General Description

Residences, businesses and other community facilities (such as churches and open spaces) are located along the Project alignment at varying distances from the existing highway and project alignment.

The rural areas to the north of Berry are dominated by pastureland and rural settlement patterns. Generally, the existing noise level experienced at residences in this area is relatively low except for the sensitive receivers located in close proximity to the existing highway. In particular, residences located next to the existing highway between Toolijooa Road and Tindalls Lane are exposed to high traffic noise levels due to the braking and acceleration of vehicles on the steep grades and sharp bends that characterise this section of the existing highway.

Within Berry, the existing highway runs directly through town along Queen Street. Businesses and residences located along Queen Street experience a high level of traffic noise. Noise associated with the existing traffic along Queen Street also affects surrounding residences and businesses that do not have a direct frontage to the highway.

South of Berry, Mark Radium Park and the Bupa Aged Care Facility are located along the Princes Highway.

Residences and churches located along North Street currently experience a low noise environment and are largely unaffected by the existing highway. Traffic volumes are relatively low, although local traffic travelling from the north of Berry to Kangaroo Valley Road uses North Street to avoid congestion along Queen Street.

Residences located at Huntingdale Park Estate and other residential areas along Kangaroo Valley Road also experience a relatively quiet noise environment. There is a small buffer separating residences along Huntingdale Park Road and the existing highway which shields these residences from highway traffic noise to some degree.

The noise assessment undertaken as part of the Environmental Assessment (EA) process identified and considered potential noise impacts for 591 noise sensitive receiver locations, shown in Appendix E of the EA. The noise-sensitive receivers near the Project alignment comprise isolated rural houses and the low density urban area of Berry and surrounds.

These receiver locations have been considered as part of this Final Design Report. The noise-sensitive receiver locations are shown on the Figures included in Appendix A of this Operational Noise Management Report.

3.2 Noise Monitoring

Noise monitoring was undertaken at 10 locations around the project area as part of the Environmental Assessment. The monitoring was undertaken for the purposes of:

- Defining the existing traffic noise exposure in key areas of the project.
- Validating the predictions of the road traffic noise model developed for the project.
- Defining the background noise levels in the project area.

Table 3.2-1 lists the location of the noise monitoring locations. The noise monitoring locations are summarised in the Figures in Appendix B.

Table 3.2-1 – Noise Monitoring Locations

Location reference	Address	Comment
BG1	**46 Princes Highway, Broughton Village**	**40 m from existing Princes Highway**
BG2	10 Austral Park Road, Broughton	460 m from existing Princes Highway
BG3	200 Princes Highway, Berry	165 m from existing Princes Highway
BG4	111 Princes Highway, Berry	270 m from existing Princes Highway
BG5	132 North Street, Berry	5 m from North Street. No significant influence from existing Highway noise.
BG6	92 North Street, Berry	
BG7	2 The Gables, Berry	5 m from Kangaroo Valley Road
BG8	Andersons Lane, Berry	100 m from existing Princes Highway.
BG9	Andersons Lane, Berry	300 m from existing Princes Highway.
BG10	Andersons Lane, Berry	600 m from existing Princes Highway.

The measured day and night ambient noise levels reported in the Environmental Assessment at each location are shown in Table 3.2-2. The measured background noise levels are also presented for information on the typical background noise levels throughout the project area. Note that the daytime background levels are split between “day” and “evening” as they are used to assess construction noise, which is assessed based on different time periods to road traffic noise.

The project Environmental Assessment notes that the ambient $L_{eq,15h}$ and $L_{eq,9h}$ noise levels are typically controlled by road traffic noise for each of the monitoring locations.

The measured noise levels indicate that road traffic noise levels are relatively significant at locations near to the existing Highway but are relatively low at locations removed from it. Background noise levels throughout the project area are low, and typically indicative of rural areas.

The measured levels also indicate that the RNP relative increase criterion will not affect the operational noise assessment as existing noise levels are sufficiently high that the design of noise mitigation will be controlled by the RNP criteria for noise from ‘New’ or ‘Redeveloped’ road corridors.

Table 3.2-2 – Road Traffic Noise Monitoring Results

Location reference	Ambient road noise level L_{eq} dB(A)		Rating Background Level (RBL), dB(A)		
	Day $L_{eq,15h}$, 7 am – 10 pm	Night $L_{eq,9h}$, 10 pm – 7 am	Day, 7 am – 6 pm	Evening, 6 pm – 10 pm	Night 10 pm – 7 am
BG1	**60**	**56**	**48**	**40**	**40**
BG2	50	48	40	40	40
BG3	53	49	41	39	38
BG4	53	44	41	39	37
BG5	58	46	35	35	35
BG6	56	46	36	36	35
BG7	63	52	37	37	37
BG8	56	54	44	41	33
BG9	52	48	41	39	35
BG10	49	44	38	36	33

4. MODELLING METHODOLOGY

4.1 General

A key requirement of the SWTC is consistency with the RMS Reference Design that informed the design of noise mitigation measures during the Environmental Assessment.

To this end, the following noise models have been developed:

- Existing scenario with 2011 traffic volumes. This model is for the purposes of validating noise model predictions and quantifying existing exposure at sensitive receiver locations.
- Existing 'No Build' scenario with 2017 and 2027 traffic volumes. These models are for the purposes of quantifying existing exposure over the considered time horizon should the project not have occurred.
- FH Final Design with 2017 and 2027 traffic volumes.
- RMS Reference Design with 2017 and 2027 traffic volumes. These models are for the purposes of providing a benchmark. Where the predictions from the FH Final Design increase relative to the RMS Reference Design, then additional mitigation may need to be considered.

Table 4.1-1 summarises the inputs for each noise model.

Table 4.1-1 – Noise Model Inputs

Noise model	Inputs
Existing 2011	▪ Digital terrain model provided in RMS Information Document 16 ▪ Existing (2011) traffic volumes documented in Environmental Assessment *Noise and Vibration Technical Paper*. ▪ Receiver locations identified in the Environmental Assessment *Noise and Vibration Technical Paper*.
'No Build' 2017 and 2027	▪ Digital terrain model provided in RMS Information Document 16 ▪ 'No Build' 2017 and 2027 traffic volumes documented in Environmental Assessment *Noise and Vibration Technical Paper*. ▪ Receiver locations identified in the Environmental Assessment *Noise and Vibration Technical Paper*.
FH Final Design 2017 and 2027	▪ FH Issue for Construction Alignment provided on 17 November 2014, including noise barriers at North Street and Huntingdale Park Road ▪ Digital terrain model provided in RMS Information Document 16 for areas outside of main corridor ▪ 2017 and 2027 traffic volumes sourced from SWTC Appendix 9 Table 9.9 and Table 9.10 respectively. ▪ Receiver locations identified in the Environmental Assessment *Noise and Vibration Technical Paper*.

RMS Reference Design 2017 and 2027	▪ RMS Reference Design alignment provided in Information Document 35 ▪ Digital terrain model provided in RMS Information Document 16 for areas outside of main corridor ▪ North Street wall alignment as provided in the RMS Reference Design, 4 m high. Chainages and lengths as described in SWTC Appendix 9 Table 9.12. ▪ Huntingdale Park Road wall alignment, 4 m high, based on chainages and lengths as described in SWTC Appendix 9 Table 9.12. ▪ 2017 and 2027 traffic volumes sourced from SWTC Appendix 9 Table 9.9 and Table 9.10 respectively. ▪ Receiver locations identified in the Environmental Assessment *Noise and Vibration Technical Paper*.

It should be noted that receiver locations have been based on the 591 locations identified in the Environmental Assessment *Noise and Vibration Technical Paper*.

Receiver locations were also provided by RMS in Shapefile format as part of Information Document 60. However, only 169 locations were included in this Shapefile. To supplement this and meet the requirement to assess noise at 591 locations, additional locations were identified based on the aerial photos in the Environmental Assessment *Noise and Vibration Technical Paper*. While this may lead to some minor differences in receiver locations between the EA and this assessment, it is considered unlikely that it would alter the assessment outcomes, which are controlled by the nearest receptors to the project alignment (typically included in the RMS provided Shapefile).

4.2 Noise Model Parameters

Prescribed road traffic noise modelling parameters and procedures are defined in SWTC Appendix 4, Clause 4.25 (h).

The SWTC requirements and our interpretation are summarised in Table 4.2-2.

Table 4.2-2 – Noise Modelling Parameters

SWTC App 4 Clause 4.25 (h) Reference	Parameter	Noise Model
i.	Daytime vehicle speed – main carriageways	100 km/h
	Night time vehicle speed – main carriageways	100 km/h
	Local roads (including service road and access roads) and ramps	Existing road speeds Ramps based on speed limit detailed in Appendix H of EA Noise & Vibration Technical Paper.
ii.	Traffic volumes for 2017 (at opening)	Refer Appendix B – taken from Table 9.9 and Table 9.10 of Appendix 9 of SWTC.
	Traffic volumes for 2027	
iii.	Road traffic noise prediction algorithm.	Calculation of Road Traffic Noise (CoRTN) 1988.

	'Appropriate adjustments for NSW noise descriptors'	The 15 hour and 9 hour traffic flows have been divided by 15 and 9 respectively to obtain hourly L_{10} predictions from CoRTN. 3 dB has been subtracted from the L_{10} levels to obtain $L_{eq,15h}$ and $L_{eq,9h}$ noise levels. The low flow CoRTN correction has been disabled.
iv.	Three source heights.	▪ 0.5 m above ground for car exhausts, car engines, car tyres (single source string) ▪ 0.5 m above ground for truck tyres ▪ 1.5 m above ground for truck engines ▪ 3.6 m above ground for truck exhausts
	Source corrections.	▪ -0.6 dB for truck engines ▪ -8.6 dB for truck exhausts
v.	Pavement types	Dense Graded Asphalt (DGA) for existing roads and on/off ramps. Stone Mastic Asphalt (SMA) for main corridor of new highway.
	Pavement corrections	▪ 0 dB for DGA ▪ -2.2 dB for cars for SMA ▪ -4.3 dB for truck tyres for SMA
vi.	Receiver height	▪ 1.5 m above ground for ground floor receiver ▪ 4.5 m above ground for first floor receiver
vii.	Ground absorption factor	50%
viii.	Search radius	3 km
ix.	Grid spacing and height above ground	▪ 20 m grid ▪ 1.5 m above ground
x.	Model validation	Refer Section 4.3 .
xi.	Safety factor (does not contribute to 2 dB(A) reasonable and feasible allowance).	+1 dB(A) as incorporated in EA stage predictions
xii.	Façade reflection correction	+ 2.5 dB at 1 m from façade
	ARRB Australian condition correction	▪ -1.7 dB daytime ▪ +0.5 dB night-time

Appendix 4 Clause 4.25 (h) (iv) was updated during the tender stage (November 2013) to state that the truck exhaust correction should be modified to -8.4 dB. This has not been adopted, as the Environmental Assessment used a correction factor of -8.6 dB. Regardless, truck exhausts are not the controlling noise source at receivers and a 0.2 dB change in source level will have negligible influence on predicted noise levels.

Note that we have used the speed limits for roads detailed in the EA Noise and Vibration Technical Paper, which consist of measured average day and night speed limits for local roads, which may differ from posted speeds. In order to maintain consistency with the RMS Reference Design, these measured speed limits have been used rather than the posted speed limits as required by the SWTC Appendix 4.

4.3 Noise Model Validation

Table 4.3-3 compares the predicted daytime and night-time road traffic noise levels for the existing 2011 alignment to those measured as part of the EA assessment. The road traffic noise levels predicted for the same scenario as part of the EA assessment are also presented for comparison.

Table 4.3-3 – Noise Model Validation

Location reference	Daytime $L_{eq,15h}$ road traffic noise level, dB(A)				Night time $L_{eq,9h}$ road traffic noise level, dB(A)			
	Measured	EA	Design	Diff (Design – Measured)	Measured	EA	Design	Diff (Design – Measured)
BG1	62	64.1	63.5	1.5	58.4	59.2	59.7	1.3
BG2	52.2	51.5	50.6	-1.6	49.3	46.6	46.9	-2.4
BG3	55.9	54.7	54.1	-1.8	51.2	49.8	50.3	-0.9
BG4	55.9	53.8	53.7	-2.2	46.7	48.6	49	2.3
BG5	58.4	58	57.3	-1.1	48.9	48.7	48.3	-0.6
BG6	58.1	57.6	56.8	-1.3	48.1	48.2	47.5	-0.6
BG7[1]	65.6	61.8	59.7	-5.9	54.8	50.8	50.2	-4.6
BG8	58.9	61.3	60.1	1.7	56.5	56.1	57	0.5
BG9	54.3	55.6	55.3	1	50.7	50.2	51.3	0.6
BG10	51.4	51.4	50.9	-1.3	46	46	45.7	-0.3

1. This location was near a corner and was not used for validation in the EA.

Excluding Location BG7, which the EA states was located near a corner that appears to have a high number of cars accelerating past, the predicted levels are typically within 2 dB of the measured levels, and the calibration is within the documented accuracy of CoRTN of ±3 dB(A) within 600 m.

A comparison was also carried out between the RMS 2027 Reference Design predictions (provided in Appendix I of the Noise and Vibration Technical Paper) and our RMS 2027 Reference Design noise model. For locations near the main road corridor and therefore controlling noise mitigation predictions, the predicted noise levels from our RMS Reference Design noise model were typically found to have a similar agreement to above. Note that differences may arise between models due to changes in inputs and variations between versions of software modelling packages. However, the current model is expected to provide sufficient accuracy to ascertain any changes between the FH Final Design and the RMS Reference Design.

5. OPERATIONAL NOISE ASSESSMENT

5.1 Consistency with EA

To ensure consistency with the EA stage predictions, the Final Design noise modelling has been conducted by comparing differences between the Final Design predictions and predictions from the RMS Reference Design. This has allowed the following assessment process:

- Where differences in predicted noise levels have been identified, an analysis has been undertaken as to whether this is a result of a change in road geometry and alignment and, if so, whether additional roadside mitigation measures are required.
- Where there is a desire to modify noise mitigation measures for urban design reasons, then an assessment is undertaken to ensure that there is no change in predicted noise levels at residences. Refer to Section 6 for a discussion of alterations to noise mitigation measures that have been considered.

Predicted noise levels for each sensitive receiver are included in Appendix C. Note that the predictions include the noise barriers at North Street and Huntingdale Park Road as discussed further in Section 6. The Tables in Appendix C identify where there has been any change in predicted noise level between the RMS Reference Design and FH Final Design.

Noise contours for the FH Final Design for 2017 and 2027 are included as Appendix D.

5.2 Assessment Against Criteria

5.2.1 RNP criteria

Without noise mitigation, a total of 130 receivers exceed the appropriate “Redeveloped” or “New Road” noise criteria from the RNP. The EA proposed the following noise mitigation measures that have been incorporated into the FH Final Design:

- North Street noise barrier to mitigate noise to those receivers on North Street exposed to road traffic noise from a new source.
- Huntingdale Park Road noise mound / barrier to mitigate noise to receivers on Huntingdale Park Road exposed to increased road traffic noise levels.
- House treatments to those receivers where the noise criteria are not able to be reasonably met with noise barriers, such as isolated rural receivers. RMS will administer the house treatments.

The mitigation measures are discussed further in Section 6.

The relevant “Redeveloped” or “New Road” criteria for each receiver are summarised in Appendix C, with comparison against the predicted noise levels with noise mitigation from noise barriers. Note that mitigation provided via house treatments is not included in the Tables in Appendix C.

5.2.2 Acutely affected receivers

With the implementation of noise mitigation measures, no sensitive receivers are predicted to be acutely affected (exposed to predicted noise levels greater than 65 dB(A) $L_{eq,15h}$ or 60 dB(A) $L_{eq,9h}$) as a result of the project. However, the predictions in Appendix D identify that 52 receivers will be exposed to levels above the acutely affected criteria in 2027 due to noise from traffic using Queen Street. It is noted that:

- The project will contribute to a decrease in noise levels at these receivers (typically 5 dB) due to a reduction in traffic using Queen Street.
- The predicted contribution of the revised Princes Highway alignment to noise levels at these receivers is at least 10 dB below that from Queen Street and does not contribute to the overall predicted noise levels at these locations.

As these receivers are not directly affected by project works, and will benefit from diversion of traffic from Queen Street, they are not considered eligible for additional mitigation.

5.2.3 Sleep Disturbance

The EA provides discussion on existing levels of maximum noise level emergence at two of the monitoring locations (Location BG2 and Location BG9), selected as typical of existing receivers north and south of Berry near to the existing Princes Highway alignment. These maximum events are typically the result of truck movements at night.

The night time emergence event summary from the EA at BG2 and BG9 are reproduced in Figure 5-1 and Figure 5-2 respectively. It can be seen that existing emergence events (calculated as L_{max} less $L_{eq,1h}$ over the night time period) do exceed the 15 dB(A) sleep disturbance goal from Practice Note iii of the ENMM.

The project would be expected to typically reduce sleep disturbance events at noise sensitive receivers where the road is not being moved closer to the residence, through a combination of reducing road gradients, reducing relatively sharp turns and allowing heavy vehicles to use the Highway at a relatively steady speed. This would be expected to reduce maximum noise events associated with truck engines and exhaust brakes.

Despite this, receivers exposed to a new road, or where the Highway is relocated substantially closer, would be likely to be exposed to emergence events exceeding 15 dB(A) above the background L_{eq} level. This will be mitigated to some degree by the provision of mitigation measures as discussed in Section 6, with the likelihood of emergence events decreasing at receivers further from the new road as maximum noise levels (which are representative of acoustic point sources at distance) will be attenuated with distance at twice the rate of the overall L_{eq} traffic noise levels (which are representative of acoustic line sources).

Overall, neither the RNP nor the ENMM specify requirements for noise barriers and other forms of mitigation to reduce the occurrence of sleep disturbance events, particularly as mitigation methods such as barriers will also reduce the L_{eq} levels and therefore have little effect on emergence. Reduction of the likelihood of sleep disturbance events is typically provided by programs to reduce truck exhaust brake noise through management of driver behaviour and appropriate design of new vehicles.

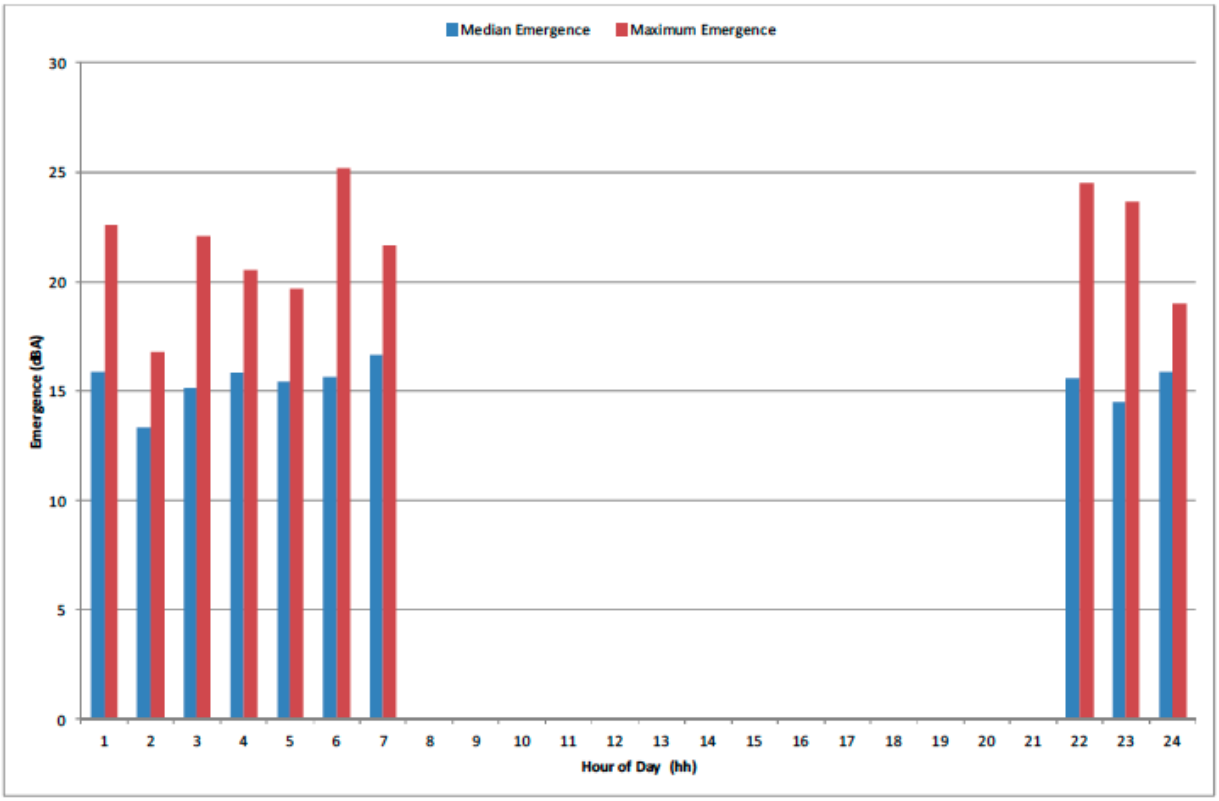

Figure 5-1: Emergence events at BG2 – 10 Austral Park Rd, Broughton (source: EA Appendix E).

Figure 5-2: Emergence events at BG9 – Andersons Ln, Berry (source: EA Appendix E).

5.3 Changes Due to Final Design

Table 5.3-1 presents those receivers where an increase in noise levels has been predicted with the FH Final Design relative to the RMS Reference Design. For the context of the overall impact of the project at these receivers, the predicted 'No Build' noise levels are also presented for 2027. Note that only the night time levels are presented as these are the controlling criteria, when considering the relevant criteria from the RNP.

Table 5.3-1 – Receivers with Increase in Predicted Noise Level with Final Design

Location reference	Night time $L_{eq,9h}$ road traffic noise level, dB(A)			Comment
	2027 'No Build'	2027 'Build'	Change from Ref Design due to Final Design	
5	**60**	**55**	**+1**	Project resulting in substantial reduction in noise levels relative to 'No Build' scenario. Final noise levels meet RNP 'Redeveloped Road' criterion.
6	63	54	+2	
7	54	49	+1	
8	55	50	+1	
9	54	49	+1	
27	42	47	+1	Predicted noise levels comply with RNP 'New Road' criteria.
29	50	54	+1	These receivers are located near the revised Austral Park Road Interchange design. Impacts at these receivers are discussed in Section 6.5
30	52	53	+1	
31	59	54	+2	
32	54	50	+1	
33a	57	58	+3	
34	50	47	+1	Predicted noise levels comply with RNP 'New Road' criteria.
59	52	55	+2	Impacts at 59, 62 and 64 are discussed in Section 6.5 Note 63 is a Garage.
62	54	60	+4	
63	54	58	+3	
64	54	59	+4	
347	42	49	+1	Predicted noise levels comply with RNP 'New Road' criteria.
353	43	49	+1	Predicted noise levels comply with RNP 'New Road' criteria.
355	50	59	+1	Identified for RMS House Treatment – Refer Section 6.5
367	45	55	+1	Near North Street Barrier – Refer Section 6.2
374	49	59	+1	Identified for RMS House Treatment – Refer Section 6.5
381	48	47	+1	Predicted noise levels comply with

383	43	50	+1	RNP ‘New Road’ criteria.
384	47	54	+1	Identified for RMS House Treatment – Refer Section 6.5
397	48	48	+1	Predicted noise levels comply with RNP ‘New Road’ criteria.
473	65	55	+1	Project resulting in substantial reduction in noise levels relative to ‘No Build’ scenario. Final noise levels meet RNP ‘Redeveloped Road’ criterion.

As discussed above in Table 5.3-1, the majority of increases do not affect the noise mitigation requirements and compliance with criteria at sensitive receivers. However, there are some predicted changes in noise levels that may influence the noise mitigation design and these are discussed further in Section 6.

For all other sensitive receivers not identified in Table 5.3-1, predicted noise levels with the FH Final Design are as for the RMS Reference Design.

6. OPERATIONAL NOISE MITIGATION

The comparison of the RMS Reference Design to the FH Final Design indicate that there is little or no difference between the predicted road traffic noise levels at the majority of noise-sensitive receivers.

Specific areas where differences have been predicted or where changes to the operational noise mitigation measures are being considered are discussed in the following sections:

- Section 6.2 – North Street noise barrier (NB01): assessment of tapering of the barrier ends.
- Section 6.4 – Mark Radium Park: assessment of potential road traffic noise barrier.
- Section 6.5 – Other receptor locations: assessment of any changes in noise levels at other receptor locations.

6.1 Road surface

Operational noise mitigation is provided by the road surface of the main carriageway, which is surfaced with Stone Mastic Asphalt (SMA). SMA typically provides a road surface correction, relative to Dense Graded Asphalt (DGA) surfaces, of:

- -2.2 dB for cars
- -4.3 dB for truck tyres.

This is consistent with the RMS Reference Design, which also nominated an SMA surface for the main carriageway.

Ramps and local road upgrades will be surfaced with DGA.

6.2 North Street Noise Mound – NB01

6.2.1 Overall

The North Street noise mound (NB01) is a 4 m high noise barrier designed to mitigate road traffic noise for residences along North Street.

The mitigation provided by NB01 is consistent with the RMS Reference Design, with the exception that a minor increase in predicted noise levels has been identified at Receiver 367 as discussed in Table 5.3-1.

Receiver 367 is St. Patrick's Catholic Church, and the predicted 2027 daytime noise level is 56 dB(A) $L_{eq,15h}$ (not façade-corrected). With windows closed, assuming a typical 20 dB reduction across a closed window, the predicted internal noise level would comply with the 40 dB(A) L_{eq} internal criterion for places of worship. With windows open the outdoor-to-indoor reduction is likely to be in the order of 10 dB, the predicted noise level would exceed the criterion but this would also be the case with the RMS Reference Design.

The additional mitigation required to maintain a consistent noise level with the RMS Reference Design involves a 200 mm height increase in the noise mound across the extent shown in Figure 6-1. This increase in barrier height will be incorporated into the FH Final Design.

Figure 6-1: Mound height increase (200 mm, shown in blue) proposed to maintain RMS Reference Design levels at Receiver 367.

A minor increase in noise levels is also predicted at Receivers 347, 350, 353, 374, 381, 383, 384 and 397. Receivers 350, 374 and 384 are already identified for house treatment by RMS, and are discussed in Section 6.5 . The predicted 2027 noise levels at the remaining receivers still comply with the RMS 'New Road' criteria and no additional mitigation is required.

6.2.2 Eastern End – North Street Noise Mound

The eastern end of the North Street barrier has been modelled for the FH Final Design, with the predicted noise levels at nearby receiver locations compared to those determined for the RMS Reference Design to ascertain whether there was any increase in road traffic noise levels with the FH Final Design noise barrier location.

It is necessary to taper the end of this barrier as it is composed of an earth mound. The comparison of the FH Final Design predicted noise levels to the RMS Reference Design levels indicates that the eastern end of this barrier may be tapered for the final 30 metres of the modelled barrier with negligible change (≤0.3 dB) in predicted noise levels at residences. The case for tapering this barrier is also supported by the fact that tapering barrier ends addresses the visual amenity objectives set out in the *Noise Wall Design Guideline* (RTA, 2007).

The length of the tapered section is shown in Figure 6-2.

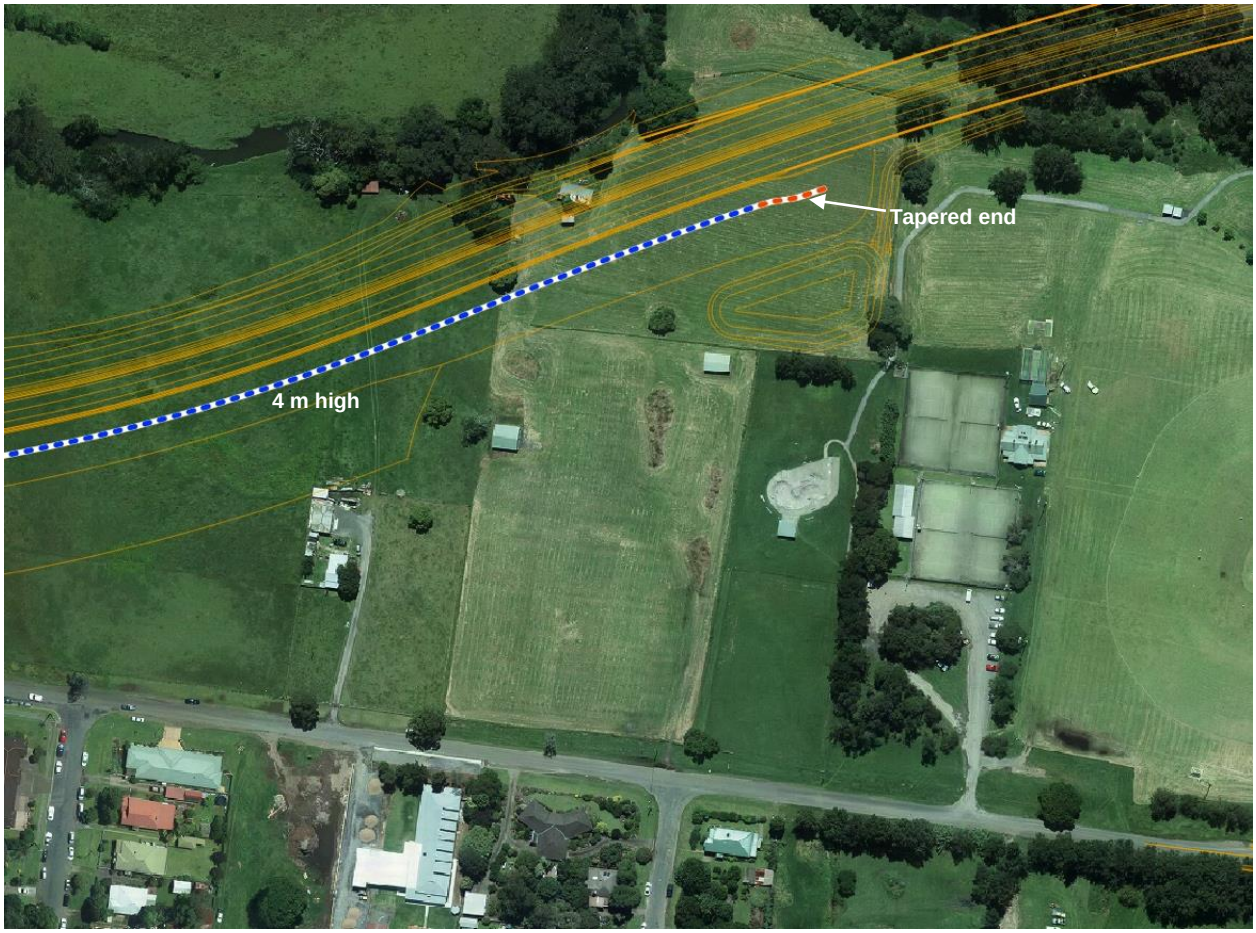

Figure 6-2: Eastern end of barrier NB01, orange section indicating length where noise mound may be tapered as an end treatment.

6.2.3 Western End – North Street Noise Mound

The western end of this barrier has been modelled for the FH Final Design, with the predicted noise levels at nearby receiver locations compared to those determined for the RMS Reference Design to ascertain whether there was any increase in road traffic noise levels with the altered design and barrier location. The noise modelling for both cases recognises that property 438 (35 Kangaroo Valley Road, Lot 10 DP28943) has been acquired as part of the project and has therefore not been considered in the noise barrier design.

The Environmental Assessment stage assumed a constant height 4 m barrier. It is necessary to taper the end of this barrier as it is composed of an earth mound. Tapering will also assist in addressing the visual amenity aspects of the *Noise Wall Design Guideline*.

The comparison of the Final Design predicted noise levels to the RMS Reference Design levels indicates that the eastern end of this barrier may be tapered for the final 15 metres of the modelled barrier with negligible change (≤0.3 dB) in predicted noise levels at residences.

The relevant locations of the tapered wall sections are presented in Figure 6-3.

Figure 6-3: Western end of barrier NB01, orange section indicating length where noise mound may be tapered as an end treatment.

6.3 Huntingdale Park Road Noise Barrier (NB02)

The Huntingdale Park Road noise barrier comprises a noise mound and an 800 mm high noise barrier for the northern section. It has been modelled based on the FH Final Design and the predicted noise levels meet the RMS Reference Design levels.

The noise mound and barrier for the Final Design are shown in Figure 6-4. The barrier is shown in blue with the mound shown as shaded.

Figure 6-4: Huntingdale Park Road noise mound (shaded) and 800 mm high barrier (shown in blue).

6.4 Mark Radium Park Noise Barrier

SWTC Appendix 4, Clause 4.25 (f) states:

> *An at-road noise mitigation barrier must be investigated during design and provided, where feasible, on the western side of Mark Radium Park extending from Victoria Street to the northern limit of the park.*

As shown in Table 2.3-2, the RNP provides a noise criterion of 55 dB(A) $L_{Aeq,15h}$ for 'open space – passive use' such as Mark Radium Park. In order to investigate an at-road noise barrier at this location, the following situations have been assessed:

- Year 2027 'No Build' Situation based on existing road alignments
- Year 2027 'Build' Situation based on the FH Final Design.

Figure 6-5 presents the predicted daytime $L_{eq,15h}$ road traffic noise levels at Mark Radium Park for both the Year 2027 'Build' and 'No Build' situations. It can be seen that the Year 2027 road traffic noise levels with the existing roads are marginally higher than the predicted Year 2027 project road traffic noise levels. The predicted noise levels for both situations exceed the 55 dB(A) $L_{eq,15h}$ criterion for passive recreation areas.

Additional noise mitigation (i.e. an at-road noise barrier) is typically only considered in situations where noise levels are significantly affected by the project, which is an increase of more than 2 dB above the noise levels from the existing road. This does not occur at Mark Radium Park due to the Project and as noted, the Project Year 2027 noise levels are actually lower than the Year 2027 no-build scenario.

However, in order to address SWTC Appendix 4 Clause 4.25 (h), the noise reduction that could be achieved at Mark Radium Park through the use of at-road noise barriers has been investigated.

Two barrier locations have been considered:

- Barrier located along the eastern edge of Queen Street Link Road.
- Barrier of similar length located on the top of the retaining wall between Queen Street Link Road and southbound Princes Highway carriageway opposite Mark Radium Park (barrier on main carriageway).

Figure 6-6 presents the noise reduction achieved with varying noise barrier heights for the two barrier locations when assessed at a typical location within Mark Radium Park.

Figure 6-5: Predicted 2027 'Build' and 'No Build' $L_{eq,15h}$ traffic noise levels at Mark Radium Park

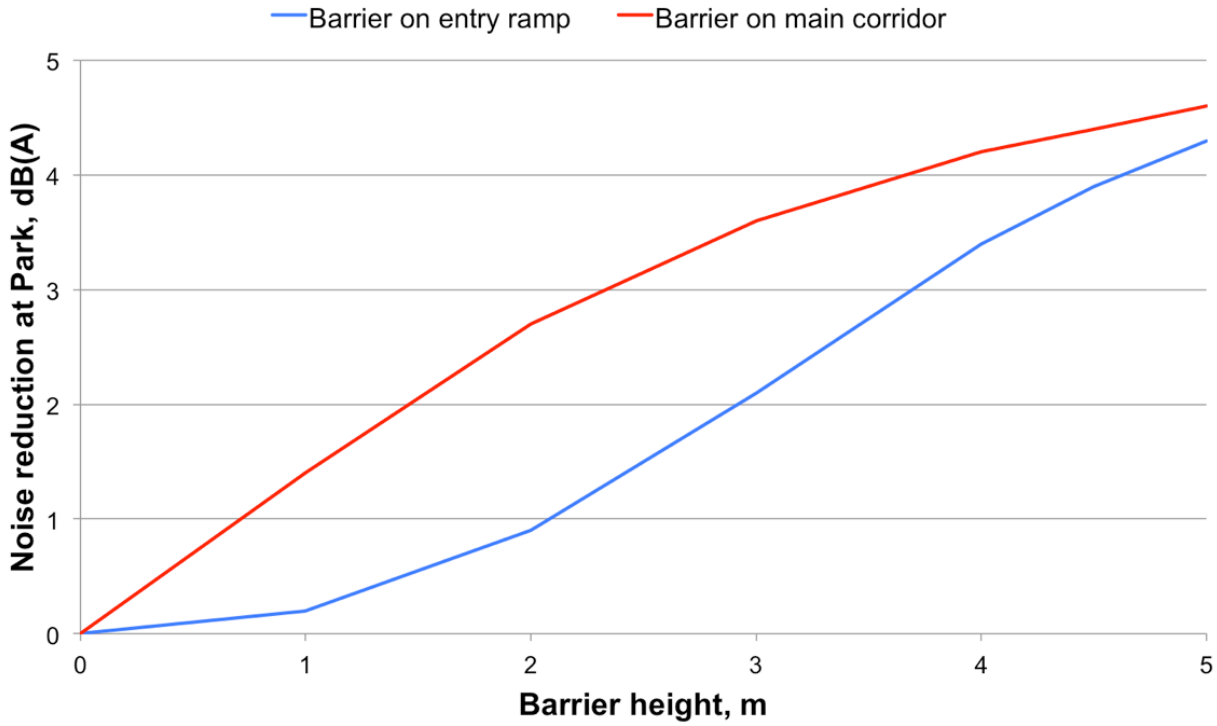

Figure 6-6: Noise reduction at Mark Radium Park with varying noise barrier heights

Figure 6-7 presents the noise reduction achieved across Mark Radium Park with a 4 m high barrier on the main corridor (shown in blue and white), which is the more effective of the two barrier options. It can be seen that the reduction achieved does not exceed 4 dB(A) across the Mark Radium Park area, and is typically 2 to 3 dB(A).

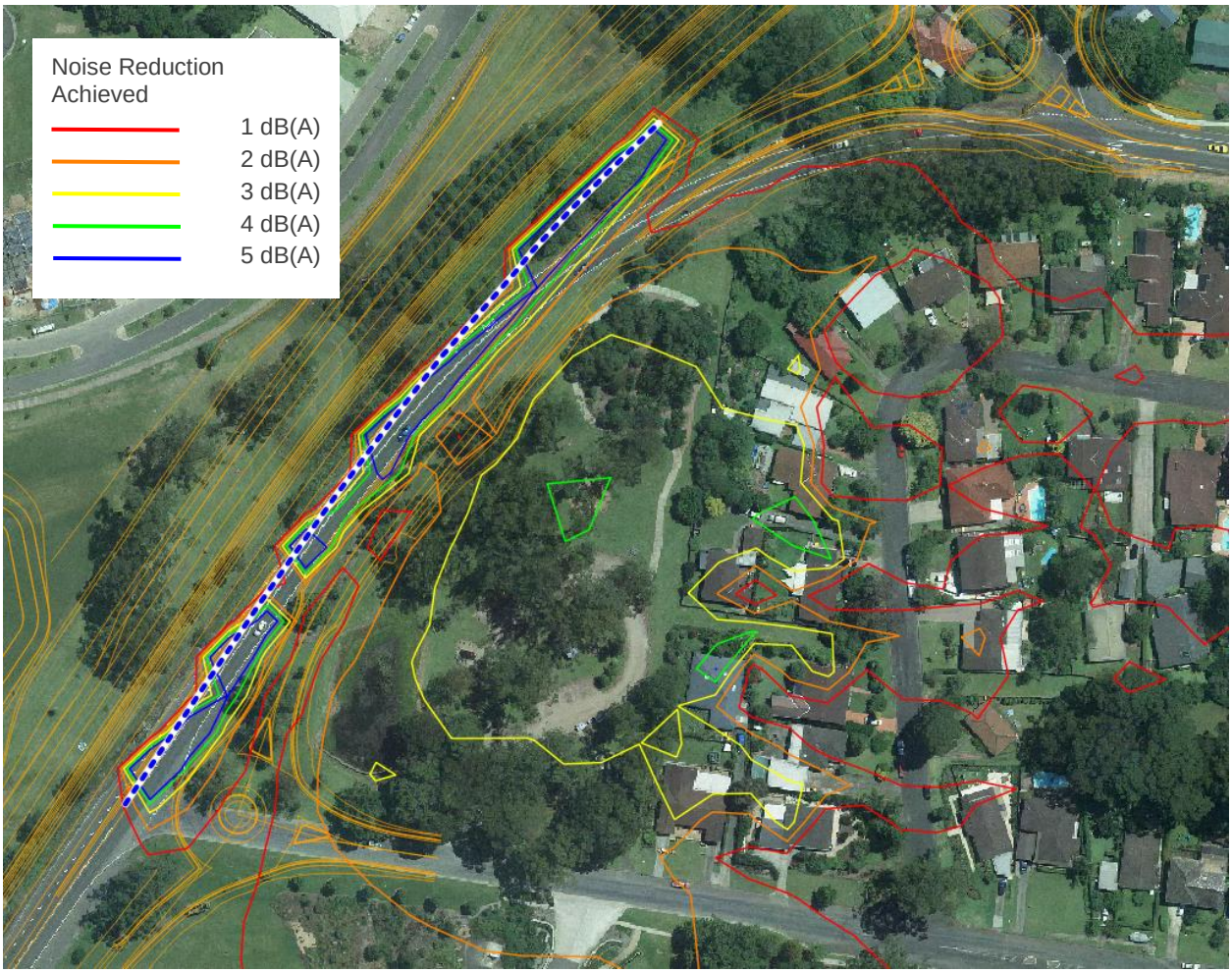

Figure 6-7: Noise reduction achieved across Mark Radium Park with 4 m barrier on eastern edge of main carriageway

The results in Figure 6-6 and Figure 6-7 are assessed as follows:

- The NSW RNP definition of *'reasonable'*:
  - A review of Figure 6-6 and Figure 6-7 shows that the best-case noise reduction (barrier on main corridor) achieved by a barrier of 4 m in height is only 4 dB(A). Providing a barrier on this basis is not considered reasonable, as the RNP states that, *'ideally, a noise wall/mound should be able to reduce noise levels by at least 5 decibels'*.
- A comparison of the Year 2027 no-build and build scenarios:
  - As stated above, the 'No Build' scenario is predicted to result in higher Year 2027 road traffic noise levels in the park than the build scenario. It would not be reasonable to provide a barrier on this basis when considering the RNP statement '*To make such a judgement…consideration may be given to existing and future levels of noise, and projected changes in noise levels'.*

- An assessment of the Year 2027 build scenarios with a 4 m barrier adjacent against the open space-passive used criterion:
- The Year 2027 road traffic noise levels at the centre of the park would be 56 to 57 dB(A) $L_{eq,15h}$ with a 4 m high barrier in place. Therefore a noise barrier does not achieve the 55 dB(A) $L_{Aq,15h}$ noise criterion in the centre of the Park.

Based on the above assessment it is not considered that providing mitigation to Mark Radium Park via a noise barrier is reasonable and/or feasible.

6.5 Other Receptor Locations

6.5.1 Properties Receiving House Treatments

Table 6.5-1 presents the properties listed for architectural treatment by RMS on the noise contour maps in Appendix 9 of the SWTC. Both the original RMS exceedance (e.g. exceedance based on RMS Reference Design and the relevant Redeveloped or New Road criteria) and the predicted change resulting from the FH Final Design are presented. This allows the impact of any change on the potential house treatments to be assessed. Note that the final exceedance would be the RMS exceedance plus the change due to the FH Final Design.

Table 6.5-1 – Predicted Changes in Noise Levels at Properties Being Investigated for House Treatments

Receiver	RMS Reference Design Exceedance, dB(A)	Change Due to FH Final Design, dB(A)
14a	**+4**	**0**
17a	+3	-3
22a	+9	-1
23	+3	-1
25	+9	-2
28	+4	0
29	+3	+1
30	+2	+1
33a	+5	+3
73	+3	0
110	+2	0
299	+6	-1
355	+2	+1
374	+3	+1
384	+3	+1
386	+4	0
439	+4	0
445	+3	0
451	+4	0

The EA states that a specific treatment type (Architectural treatment type 1) would be provided for properties with exceedances up to 10 dB(A). A second architectural treatment type (type 2) is provided for exceedances over 10 dB(A). Therefore, relatively minor increases in the noise levels at these properties would not alter the physical nature of the treatments as the overall exceedance remains below 10 dB(A) at all properties.

It should also be noted that, due to the change in the FH Final Design, architectural treatment may no longer be required at Receiver 17a.

6.5.2 Austral Park Road and Berry North Interchange

Increases in predicted traffic noise levels for the FH Final Design, relative to the RMS Reference Design, have been observed at a small number of properties near the Austral Park Road Interchange and the Berry North Interchange. This is due to changes in design at these interchanges relative to the RMS Reference Design, with the main carriageway horizontal and vertical alignment changing.

All residences in this area where an increase is observed for the FH Final Design relative to the RMS Reference Design are listed in Table 6.5-2. Only those properties where the FH Final Design predicted noise level exceeds the New Road criteria have been presented, and any non-residential receivers (i.e. garages) have been excluded based on RMS Schedule 43B.

Table 6.5-2 – Summary of Road Traffic Noise Level Increases as a Result of Final Design

Location reference	Night time $L_{eq,9h}$ road traffic noise level, dB(A)			Location
	2027 'No Build'	2027 'Build'	Change from Ref Design due to Final Design	
29	50	54	+1	Near revised Austral Park Road Interchange.
30	52	53	+1	
31	59	54	+2	
32	54	50	+1	
33a	57	58	+3	
59	52	55	+2	Near Berry North Interchange. Resulting from 2 m lower level of Detailed Design road relative to RMS Reference Design.
62	54	60	+4	
64	54	59	+4	

Of these eight properties:

- Receivers 29, 30 and 33a are already receiving at-property mitigation. The predicted change in noise levels relative to the RMS Reference Design does not change the treatment provided based on the RMS noise margin (refer Section 6.5.1).
- The project results in a reduction in noise levels of between 3 and 5 dB(A) at receivers 31 and 32 relative to the noise levels with the existing alignment. It is not reasonable and feasible to achieve RMS 'New Road' criteria, or offset the increase as part of the FH Final Design at these properties through roadside noise barriers as the houses are isolated and situated significantly higher than the road. As the project does not increase noise levels at

these properties and additional mitigation is not reasonable and feasible, it is not considered that at-residence treatments need to be provided. These recommendations are in accordance with the procedures for assessing reasonable and feasible mitigation outlined in ENMM Practice Note iv.

- Receivers 59, 62 and 64 have already been acquired by RMS.

Therefore, it is not considered that the FH Final Design necessitates a change in the scope or level of at-residence treatments required as part of the project.

7. CONCLUSION

This Operational Noise Assessment design report has been prepared for the Fulton Hogan (FH) FBB Final Design. An acoustic assessment of the design has been undertaken based on relevant sections of:

- Minister's Condition of Approval.
- FBB Scope of Works and Technical Criteria (SWTC).

The road traffic noise predictions indicate that the FH Final Design is largely consistent with the RMS Reference Design, with no change in predicted noise levels between the two designs at most noise sensitive receiver locations. Where changes in noise levels have occurred, these are typically minor (approximately 1 dB) and do not necessitate additional noise mitigation measures. A small 200 mm increase in height for a section of the North Street noise mound will be included in the design to address a minor increase of 1 dB at one receiver.

The assessment has also indicated that:

- Tapering of the North Street noise mound is possible as an end treatment.
- A noise barrier to mitigate noise to Mark Radium Park is not considered reasonable as the level of attenuation provided is relatively low and the predicted noise levels at the park with the existing scenario are higher than with the project.
- There will be no changes to the scope and level of house treatments based on the FH Final Design predictions. Based on a reduction in predicted noise level at Receiver 17a with the FH Final Design, architectural treatments may not longer be required at this receiver.

Appendix A provides a Design Criteria Checklist against the requirements of the SWTC and Appendices.

7.1 Review and improvement

Ongoing assessment of the design will be undertaken as it progresses through to construction such that there is no increase in noise levels at properties, relative to the RMS Reference Design, that would result in an exceedance of the relevant criteria.

Comments received on the Detailed Design stage report from both RMS and the Project Verifier, and our responses are included as Appendix F.

APPENDIX A:
DESIGN CRITERIA CHECKLIST

Table A-1 summarises the requirements of the SWTC and Appendices relevant to operational noise management and the section of this report in which the requirements are addressed.

Table A-1 – Design Criteria Checklist

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0069	SWTC	5.10.2 Noise mitigation measures and structures	5.10.2	48	Noise mitigation measures and structures must be: (a) provided in accordance with the requirements of the Environmental Documents; (b) designed in accordance with "RMS Noise Wall Design Guidelines 2007"; and (c) integrated with the urban and landscape design. (d) RMS Noise data can be relied upon to the extent that the design of the noise walls and the road alignment, geometry and pavement surfaces are the same as in the Principal's preliminary concept design provided as Information Document ID35.The Contractor must verify its own noise model if; (i) the Contractor's Design road alignment, geometry or pavement surface is at variance with ID35; (ii) the height and extent of noise barriers referenced within the Contractors Design is less than that as described by ID35.	FBB-NV-01	Yes	All Sections

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0333	SWTC Appendix 4	Noise Mitigation	4.25 (b)	16	(b) RMS commissioned AECOM to determine the extent of noise mitigation and treatments to be applied to residences as detailed in Section 9.11 of Appendix 9 of the Scope of Work and Technical Criteria. The at-residence noise mitigation treatments will be undertaken by RMS. The Contractor must not undertake any at-residence treatments to address the operational noise mitigation requirements of the Environmental Documents.	FBB-NV-01	Yes	Section 6.5.1
0334	SWTC Appendix 4	Noise Mitigation	4.25 (c)	16	(c) The Contractor must comply with the operational noise mitigation requirements of the Environmental Documents using noise mitigation and treatments other than at-residence treatments.	FBB-NV-01	Yes	Section 6
0335	SWTC Appendix 4	Noise Mitigation	4.25 (d)	16	(d) Notwithstanding the requirements of Practice Note ii of ENMM noise mitigation measures are not required at commercial or industrial premises.	FBB-NV-01	Yes	Section 6.5.1
0336	SWTC Appendix 4	Noise Mitigation	4.25 (e)	16	(e) Further to any other requirements of the Environmental Documents and the Environmental Assessment in relation to noise mitigation measures, the Contractor must design and provide at-road operational noise mitigation measures:	FBB-NV-01	Yes	Section 6
0337	SWTC Appendix 4	Noise Mitigation	4.25 (e) (i)	17	(i) notwithstanding and so as not to be constrained by any financial, costing, feasibility or other constraints on types of mitigation identified in the ENMM; and	FBB-NV-01	Yes	Section 6

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0338	SWTC Appendix 4	Noise Mitigation	4.25 (e) (ii)	17	(ii) to maintain operational noise levels of 60 dB(A) / 55dB(A) $L_{Aeq15hr}$ (day) or less and 55dB(A) / 50dB (A) L_{Aeq9hr} (night) or less, for the years 2017 (at opening) and 2027 (ten years after opening) for redeveloped / new roads respectively as appropriate at the locations identified by the respective noise contour lines described in Figures 9.20.1.1-9 and 9.20.2.1-9 of Appendix 9 of the Scope of Works and Technical Criteria.	FBB-NV-01	Yes	Section 6 Appendix E
0339	SWTC Appendix 4	Noise Mitigation	4.25 (f)	17	(f) At-road operational noise mitigation measures must be contained within the Site, Local Road Works Corridors and existing road reserves.	FBB-NV-01	Yes	Section 6
0340	SWTC Appendix 4	Noise Mitigation	4.25 (f)	17	(f) At-road noise mitigation barriers must be provided, as a minimum, at the locations and with the lengths and heights detailed In Table 9.12 of Appendix 9 of the Scope of Works and Technical Criteria.	FBB-NV-01	Yes, note tapering of barrier ends for urban design	Section 6.2 Section 6.3
0341	SWTC Appendix 4	Noise Mitigation	4.25 (f)	17	(f) An at-road noise mitigation barrier must be investigated during design and provided, where feasible, on the western side of Mark Radium Park extending from Victoria Street to the northern limit of the park.	FBB-NV-01	Yes	Section 6.4
0342	SWTC Appendix 4	Noise Mitigation	4.25 (g)	17	(g) RMS has developed noise modelling for the project based on the preliminary concept design in the Environmental Documents. The outputs from modelling are provided as RMS Noise Data. The Contractor may use the RMS Noise Data in the preparation of the design of the Project Works for the design stages detailed in Appendix 24 of this Scope of Works and Technical Criteria for noise mitigation measures including but not limited to noise walls, road geometry, road alignment, pavement surfacing and at-residence treatments.	FBB-NV-01	Yes	Section 4 Section 5.1 Appendix D

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0343	SWTC Appendix 4	Noise Mitigation	4.25 (h)	17	(h) Where the Contractor, in the preparation of the design of the Project Works; A. uses alternative noise walls, road geometry, road alignment, or pavement surfacing that are at variance with the preliminary concept design in the Environmental Documents; or B. uses noise wall heights and extents less than as described in the preliminary concept design in the Environmental Documents, the Contractor must undertake noise modelling on the design of the Project Works to predict the 2017 (at opening) and 2027 (ten years after opening) noise contours for redeveloped / new roads respectively as appropriate for the whole of the Construction Site and surrounding properties.	FBB-NV-01	Yes	Section 5.1 Section 6
0344	SWTC Appendix 4	Noise Mitigation	4.25 (h)	18	(h) The noise modelling must:	FBB-NV-01	Yes	Section 4
0345	SWTC Appendix 4	Noise Mitigation	4.25 (h) (i)	18	(i) use the following 85th percentile traffic speeds for all vehicles: Main Carriageways; 15hr 7am – 10pm (day): 100 km/hr Main Carriageways; 9hr 10pm – 7am (night): 100 km/hr Local Roads, (including Service Road and Access Roads) and Ramps: Posted Traffic Speed identified in Figure 9.2 of Appendix 9 of Scope of Works And Technical Criteria.	FBB-NV-01	Partial. Note comments regarding speeds on local roads / ramps in Section 4.2	Section 4.2
0346	SWTC Appendix 4	Noise Mitigation	4.25 (h) (ii)	18	(ii) use the traffic volumes for years 2017 (at opening) and 2027 (ten years after opening) identified in Tables 9.9 and 9.10 respectively of Appendix 9 of the Scope of Works and Technical Criteria;	FBB-NV-01	Yes	Section 4.2 Appendix C

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0347	SWTC Appendix 4	Noise Mitigation	4.25 (h) (iii)	18	(iii) calculate noise levels using a software implementation of Calculation of Road Traffic Noise (CoRTN) 1988 with appropriate adjustments for NSW noise descriptors;	FBB-NV-01	Yes	Section 4.2
0348	SWTC Appendix 4	Noise Mitigation	4.25 (h) (iv)	18	(iv) apply three source heights: 0.5m for car exhausts / engines and car / truck tyre noise; 1.5m for truck engines; and 3.6m for truck exhausts; with source corrections of -0.6 dB(A) and -8.4 dB(A) for truck engines and truck exhausts respectively. The Design Documentation must detail how these corrections are applied;	FBB-NV-01	Yes	Section 4.2
0349	SWTC Appendix 4	Noise Mitigation	4.25 (h) (v)	18	(v) use pavement corrections of +3dB(A) for concrete, 0 dB(A) for dense graded asphalt and -2.2dB(A)/-4.3dB(A) for light/heavy vehicles for stone mastic asphalt at source. The Design Documentation must detail how these corrections are applied to each component of the three source heights;	FBB-NV-01	Yes	Section 4.2
0350	SWTC Appendix 4	Noise Mitigation	4.25 (h) (vi)	18	(vi) adopt a minimum receiver height of 1.5m above ground level and 4.5m above ground level for single and double storey premises respectively;	FBB-NV-01	Yes	Section 4.2
0351	SWTC Appendix 4	Noise Mitigation	4.25 (h) (vii)	18	(vii) adopt a ground absorption factor of 50%;	FBB-NV-01	Yes	Section 4.2
0352	SWTC Appendix 4	Noise Mitigation	4.25 (h) (viii)	18	(viii) for the generation of noise contours adopt a maximal search radius = 3000. For point calculations ensure the radius captures all significant noise sources at the receiver location.;	FBB-NV-01	Yes	Section 4.2
0353	SWTC Appendix 4	Noise Mitigation	4.25 (h) (ix)	19	(ix) for the generation of noise contours adopt a grid space = 20, and height above ground = 1.5m;	FBB-NV-01	Yes	Section 4.2

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0354	SWTC Appendix 4	Noise Mitigation	4.25 (h) (x)	19	(x) validate the model by comparing measured existing noise levels with the predicted noise levels modelled using the Contractor's concurrently collected traffic and noise data. Calibration adjustments should only be completed where there is strong justification (i.e. calibration adjustment equals monitored noise levels less modelled noise levels);	FBB-NV-01	Yes	Section 4.3
0355	SWTC Appendix 4	Noise Mitigation	4.25 (h) (xi)	19	(xi) add a safety factor of 1.0dB(A) to the 'build' and 'no-build' noise levels. The safety factor should not contribute to the 2dBA feasible and reasonable allowance; and	FBB-NV-01	Yes	Section 4.2
0356	SWTC Appendix 4	Noise Mitigation	4.25 (h) (xii)	19	(xii) include a +2.5dB(A) facade reflection and ARRB's Australian condition correction at 1m from façade conditions.	FBB-NV-01	Yes	Section 4.2
0357	SWTC Appendix 4	Noise Mitigation	4.25 (i)	19	(i) Further to the requirements of section 4.25(c), the Contractor must design and provide at road noise mitigation operational noise mitigation measures to:	FBB-NV-01	Yes	Section 6
0358	SWTC Appendix 4	Noise Mitigation	4.25 (i) (i)	19	(i) maintain operational day and night noise levels at noise-sensitive receiver locations for the year 2027 to no greater than those identified in Information Document ID48;	FBB-NV-01	Yes	Section 5.2 Section 6
0359	SWTC Appendix 4	Noise Mitigation	4.25 (i) (ii)	19	(ii) comply with the NSW Government's Road Noise Policy (OEH, 2011) and ENMM for the year 2017 and 2027 at all noise-sensitive receivers (where the term 'noise-sensitive receiver' is as defined in ENMM) including those that have been constructed or have been granted development approval by the relevant Authority under the provisions of the Environmental Planning and Assessment Act 1979 prior to 22 July 2013; and	FBB-NV-01	Yes	Section 5.2 Section 6

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0360	SWTC Appendix 4	Noise Mitigation	4.25 (i) (iii)	19	(iii) ensure that noise impacts do not result in additional at-residence treatments being required to those identified in Section 9.11 of Appendix 9 of the Scope of Work and Technical Criteria when assessed in accordance with Road Noise Policy (OEH, 2011) and ENMM.	FBB-NV-01	Yes	Section 6.5.1
0362	SWTC Appendix 4	Noise Mitigation	4.25 (j)	19	(j) Low noise pavements must be provided on the Main Carriageways, Connections and Ramps, including on Main Carriageway bridges.	FBB-NV-01	Yes	Section 6
0367	SWTC Appendix 4	Operational Noise Management Report	4.26	20	Further to the requirements of condition C14. of the Planning and Infrastructure Minister's Approval, and in addition to the requirements of some of the other Environmental Documents:	FBB-NV-01	Yes	All Sections
0368	SWTC Appendix 4	Operational Noise Management Report	4.26 (a)	20	(a) The Contractor must prepare an Operational Noise Management Report as a part of the Design Documentation for the noise mitigation measures.	FBB-NV-01	Yes	All Sections
0369	SWTC Appendix 4	Operational Noise Management Report	4.26 (b)	20	(b) The Contractor must undertake a noise study on the certified and verified Design Documentation of the Project Works and include a report on this study in the operational noise management report.	FBB-NV-01	Yes	All Sections
0370	SWTC Appendix 4	Operational Noise Management Report	4.26 (b)	20	(b) The operational noise management report must be included as part of the review of proposed operational noise mitigation measures required by condition C14. of the Planning and Infrastructure Minister's Approval.	FBB-NV-01	To be completed	All Sections
0371	SWTC Appendix 4	Operational Noise Management Report	4.26 (b)	20	(b) The noise study must use the input variables of traffic (speed, volume, composition and growth) and acoustic inputs identified in section 4.25(g) of this Appendix 4.	FBB-NV-01	Yes	Section 4

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0372	SWTC Appendix 4	Operational Noise Management Report	4.26 (c)	20	(c) In addition to the requirements of the other Environmental Documents the noise study and report must address and include:	FBB-NV-01	Yes	All Sections
0373	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (i)	20	(i) a description of the prevailing ambient noise environment;	FBB-NV-01	Yes	Section 3
0374	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (ii)	20	(ii) the results of noise modelling and proposed mitigations required by section 4.25 of this Appendix 4;	FBB-NV-01	Yes	Section 5 Section 6 Appendix D Appendix E
0375	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (ii)	20	(iii) the results of all field survey and noise monitoring required to calibrate the modelling required by section 4.25(g) of this Appendix 4. As a minimum, noise monitoring must include those sensitive receivers which have been identified and monitored in the Environmental Documents;	FBB-NV-01	Yes	Section 3.2 Section 4.3
0376	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (iv)	21	(iv) details on the noise-sensitive receivers and noise monitoring locations, including distances to the nearest roads where roads are located close to the noise monitors;	FBB-NV-01	Yes	Section 3.2 Appendix B
0377	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (v)	21	(v) a site plan showing the noise-sensitive receivers and noise monitoring locations;	FBB-NV-01	Yes	Appendix B
0378	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (vi)	21	(vi) aerial photographs showing the noise-sensitive receivers and noise monitoring locations;	FBB-NV-01	Yes	Appendix B

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0379	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (vii)	21	(vii) details on the positioning of noise loggers at each noise monitoring location, including photographs of the noise logger in its monitoring position;	FBB-NV-01	Partial. The EA did not provide photographs of locations.	Section 3.2 Note that monitoring undertaken as part of the EA has been used. The EA did not provide photographs. Noise logging charts are provided in the EA.
0380	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (viii)	21	(viii) charts and a summary table of measured and / or computed noise modelling parameters, including the LAmax, LA10, LAeq and LA90, at 15-minute intervals for each 24-hour period of the noise monitoring survey;	FBB-NV-01	Partial. Noise logging charts are provided in the EA.	
0381	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (ix)	21	(ix) a table summarising the noise parameters measured;	FBB-NV-01	Yes	Section 3.2
0382	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (x)	21	(x) tabulations of average annual daily traffic (AADT) predictions for the day and night time periods;	FBB-NV-01	Yes	Appendix C
0383	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xi)	21	(xi) summaries of the computational algorithms used in the noise model and justification for their selection, the location of noise-sensitive receivers and how the modelling parameters were addressed;	FBB-NV-01	Yes	Section 4.2
0384	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xii)	21	(xii) summaries of any calibration adjustment/s determined by comparing monitored existing noise levels to modelled noise levels using concurrently collected traffic and noise data (i.e. calibration adjustment = monitored noise levels – modelled noise levels);	FBB-NV-01	Yes	Section 4.2 Section 4.3

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0385	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xiii)	21	(xiii) summaries of the safety factors applied to the noise model to reduce design and operational risks and improve modelling confidence limits;	FBB-NV-01	Yes	Section 4.2
0386	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xiv)	21	(xiv) a table summarising the relevant noise modelling parameters computed at the monitoring locations and comparisons with the design noise objectives and requirements of the Environmental Documents and section 4.25(g) of this Appendix 4;	FBB-NV-01	Yes	Section 4.2
0387	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xv)	21	(xv) sensitivity and statistical analysis of key data in order to estimate confidence interval and reliability;	FBB-NV-01	Yes	Section 4.2 Section 4.3
0388	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xvi)	21	(xvi) well presented noise contour maps for years 2017 and 2027 detailing the L_{Aeq9hr} (night) and $L_{Aeq15hr}$ (day) and identifying all noise-sensitive receiver locations. The contour maps must be presented for intervals of not greater than 5 dB(A) and extend out to 45 dB(A);	FBB-NV-01	Yes	Appendix E
0389	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xvii)	22	(xvii) an assessment of maximum noise levels to evaluate sleep disturbance impacts and determination of mitigation options;	FBB-NV-01	Yes	Section 5.2.3
0390	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xviii)	22	(xviii) details on all noise-sensitive receivers that are predicted to exceed the Road Noise Policy (base criteria and allowance criteria) for the year 2027 (10 years after opening);	FBB-NV-01	Yes	Section 5.2.1 Appendix D
0391	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xix)	22	(xix) identification of noise-sensitive receivers predicted to have noise levels, for the year 2027 (10 years after opening), at an acute noise level or above; and	FBB-NV-01	Yes	Section 5.2.2 Appendix D

FH Item Number	Document \ Standard	Section	Reference \ Clause	Page	Requirement \ Description	Design Lot	Compliance	Design Report Reference
0392	SWTC Appendix 4	Operational Noise Management Report	4.26 (c) (xx)	22	(xx) identification of all at-road operational noise mitigation measures.	FBB-NV-01	Yes	Section 6
0693	SWTC Appendix 9	Noise Modelling	9.11 (a)	28	(a) The 2027 Daytime Noise Contours are plotted on Figure 9.20.1 and the 2027 Nighttime Noise Contours are plotted on Figure 9.20.2.	FBB-NV-01	Yes	Appendix D
0694	SWTC Appendix 9	Noise Modelling	9.11 (b)	28	(b) At-residence noise mitigation treatments will be provided by RMS at the locations identified on Figures 9.20.1 and 9.20.2.	FBB-NV-01	Yes	Section 6.5.1
0695	SWTC Appendix 9	Noise Modelling	9.11 (c)	28	(c) The traffic volumes in Tables 9.9 and 9.10 must be used for noise modelling, as required by Appendix 4 of the Scope of Works and Technical Criteria.	FBB-NV-01	Yes	Appendix B
0696	SWTC Appendix 9	Minimum At-Road Noise Mitigation Measures	9.12	31	At-road mitigation measures must be provided, as a minimum, at the location and with the length and height detailed in Table 9.11. **Table 9.11:** * Location: Berry - adjacent ot southbound Main Carriageway; Chainage: Ch 16370-17600; Length(m)=1230; Max. height(m)=4.0 above the road pavement * Location: Berry - adjacent to northbound Exit Ramp to Kangaroo Valley Road; Chainage: Ch 17680-17930; Length(m)=250; Max. height(m)=4.0	FBB-NV-01	Yes	Section 6.2 Section 6.3

APPENDIX B: SENSITIVE RECEIVERS

APPENDIX C: TRAFFIC VOLUMES

Table C-1 – Existing Traffic Volumes (2011)

Road	Section	Daytime (7 am – 10 pm)			Night time (10 pm – 7 am)		
		Speed (km/h)	Light vehicles	Heavy vehicles	Speed (km/h)	Light vehicles	Heavy vehicles
Princes Highway	North Berry	61	7389	1016	65	629	261
Queen Street	Berry	50	8628	1058	50	691	258
Princes Highway	South Berry	90	9394	1151	94	772	281
Kangaroo Valley Road	West Princes Highway	60	1336	89	64	68	2
Tannery Road	All	56	1501	86	58	87	5
Woodhill Mountain Road	North Queen Street	73	871	55	78	42	1
Huntingdale Park Road	West Kangaroo Valley Road	50	321	6	50	17	0
North Street	All	50	624	38	50	32	1

Table C-2 – 'No Build' Traffic Volumes (2017)

Road	Section	Daytime (7 am – 10 pm)			Night time (10 pm – 7 am)		
		Speed (km/h)	Light vehicles	Heavy vehicles	Speed (km/h)	Light vehicles	Heavy vehicles
Princes Highway	North Berry	61	10385	1252	65	765	300
Queen Street	Berry	50	11972	1367	50	863	294
Princes Highway	South Berry	90	13037	1489	94	939	320
Kangaroo Valley Road	West Princes Highway	60	1630	96	64	83	2
Tannery Road	All	56	1919	110	58	111	7
Woodhill Mountain Road	North Queen Street	73	1063	68	78	51	2
Huntingdale Park Road	West Kangaroo Valley Road	50	701	13	50	50	2
North Street	All	50	735	38	50	44	1

Table C-3 – 'No Build' Traffic Volumes (2027)

Road	Section	Daytime (7 am – 10 pm)			Night time (10 pm – 7 am)		
		Speed (km/h)	Light vehicles	Heavy vehicles	Speed (km/h)	Light vehicles	Heavy vehicles
Princes Highway	North Berry	61	13039	1572	65	961	377
Queen Street	Berry	50	14988	1711	50	1079	368
Princes Highway	South Berry	90	16320	1864	94	1175	400
Kangaroo Valley Road	West Princes Highway	60	2120	125	64	108	2
Tannery Road	All	56	2615	150	58	152	9
Woodhill Mountain Road	North Queen Street	73	1383	88	78	66	3
Huntingdale Park Road	West Kangaroo Valley Road	50	1402	26	50	99	6
North Street	All	50	921	47	50	55	1

Table C-4 – 'Build' Traffic Volumes (2017)

Road	Section	Daytime (7 am – 10 pm)			Night time (10 pm – 7 am)		
		Speed (km/h)	Light vehicles	Heavy vehicles	Speed (km/h)	Light vehicles	Heavy vehicles
Princes Highway	North Berry NB	100	6172	609	100	432	140
	North Berry SB	100	5808	636	100	450	158
Princes Highway	Berry Bypass NB	100	5723	572	100	402	127
	Berry Bypass SB	100	5355	590	100	415	147
Princes Highway	South Berry NB	100	7187	718	100	505	160
	South Berry SB	100	6787	771	100	502	160
Berry North Interchange	NB On Ramp	80	444	44	80	31	10
	SB Off Ramp	60	449	49	60	35	12
Kangaroo Valley Interchange	NB On Ramp	80	361	36	80	25	8
	SB Off Ramp	60	383	42	60	30	10
	NB Off Ramp	80	1825	182	80	128	41
	SB On Ramp	60	1799	204	60	133	42
Queen Street	All	50	3145	339	50	231	80
Kangaroo Valley Road	West Princes Highway	60	1630	96	64	83	2
Tannery Road	All	56	1461	84	58	85	5

		Speed (km/h)	Light vehicles	Heavy vehicles	Speed (km/h)	Light vehicles	Heavy vehicles
Woodhill Mountain Road	North Queen Street	73	1063	68	78	51	2
Huntingdale Park Road	West Kangaroo Valley Road	50	701	13	50	50	2
North Street	All	50	1091	133	50	88	32

Table C-5 – 'Build' Traffic Volumes (2027)

Road	Section	Daytime (7 am – 10 pm)			Night time (10 pm – 7 am)		
		Speed (km/h)	Light vehicles	Heavy vehicles	Speed (km/h)	Light vehicles	Heavy vehicles
Princes Highway	North Berry NB	100	10368	755	100	726	174
	North Berry SB	100	9868	789	100	765	196
Princes Highway	Berry Bypass NB	100	9198	762	100	646	169
	Berry Bypass SB	100	8748	790	100	678	197
Princes Highway	South Berry NB	100	10719	888	100	753	197
	South Berry SB	100	10237	954	100	757	198
Berry North Interchange	NB On Ramp	80	1075	78	80	75	18
	SB Off Ramp	60	1023	82	60	79	20
Kangaroo Valley Interchange	NB On Ramp	80	777	64	80	55	14
	SB Off Ramp	60	778	70	60	60	17
	NB Off Ramp	80	2298	190	80	161	42
	SB On Ramp	60	2241	209	60	166	43
Queen Street	All	50	5094	453	50	376	106
Kangaroo Valley Road	West Princes Highway	60	2120	125	64	108	2
Tannery Road	All	56	1393	80	58	81	5
Woodhill Mountain Road	North Queen Street	73	1383	88	78	66	3
Huntingdale Park Road	West Kangaroo Valley Road	50	1402	26	50	99	6
North Street	All	50	1091	133	50	98	32

APPENDIX D:
PREDICTED ROAD TRAFFIC NOISE LEVELS

Table D-1 – Predicted Daytime Road Traffic Noise Levels

Receiver		Criteria		Predicted Daytime Noise Levels $L_{eq,15h}$ dB(A)						Acute in 2027	Change, dB	
Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
1	GF	Redeveloped	60	67	62	62	68	63	63		-5	0
2	GF	New Road	55	44	45	45	45	46	46		1	0
3	GF	Redeveloped	60	68	59	59	69	61	61		-8	-1
4	GF	New Road	55	41	44	44	42	45	45		3	0
5	GF	Redeveloped	60	62	58	58	63	59	59		-4	1
6	GF	Redeveloped	60	66	56	56	67	58	58		-9	2
7	GF	Redeveloped	60	57	53	53	58	54	54		-4	1
8	GF	Redeveloped	60	58	53	53	59	54	54		-5	1
9	GF	Redeveloped	60	57	52	52	58	54	54		-4	1
10	GF	Redeveloped	60	56	46	46	57	48	48		-9	0
11	GF	New Road	55	52	53	53	53	55	55		1	0
11a	GF	New Road	55	45	51	51	46	52	52		6	0
12	GF	Redeveloped	60	56	49	49	57	51	51		-6	0
13	GF	Redeveloped	60	63	49	49	64	51	51		-13	0
14	GF	New Road	55	52	53	53	53	54	54		1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
14a	GF	Redeveloped	60	54	56	56	55	57	57		2	0
15	GF	Redeveloped	60	55	48	48	56	50	50		-7	0
16	GF	Redeveloped	60	59	52	52	60	53	53		-7	0
17	GF	New Road	55	52	48	48	53	50	50		-3	0
17a	GF	Redeveloped	60	59	59	59	60	60	60		0	-2
18	GF	New Road	55	51	47	47	52	49	49		-3	0
19	GF	Redeveloped	60	57	56	56	58	57	57		-1	0
20	GF	Redeveloped	60	57	54	54	58	56	56		-3	0
21	GF	Redeveloped	60	60	53	53	61	54	54		-7	0
22	GF	Redeveloped	60	55	51	51	56	53	53		-3	0
22a	GF	Redeveloped	60	55	60	60	56	62	62		5	-1
23	GF	New Road	55	53	55	55	54	56	56		3	-1
24	GF	Redeveloped	60	56	53	53	58	55	55		-3	0
25	GF	New Road	55	56	60	60	57	61	61		4	-2
26	GF	New Road	55	48	48	48	49	50	50		1	0
27	GF	New Road	55	44	50	50	45	52	52		7	1
28	GF	New Road	55	53	57	57	55	58	58		4	0
29	GF	New Road	55	53	56	56	54	58	58		4	1
30	GF	New Road	55	55	56	56	56	57	57		1	1
31	GF	Redeveloped	60	61	57	57	62	59	59		-4	2

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
32	GF	Redeveloped	60	56	53	53	57	55	55		-3	1
33	GF	Redeveloped	60	56	54	54	57	55	55		-2	0
33a	GF	Redeveloped	60	59	60	60	60	62	62		1	3
34	GF	New Road	55	52	50	50	54	51	51		-2	1
35	GF	New Road	55	52	51	51	53	53	53		0	0
36	GF	Redeveloped	60	56	53	53	57	55	55		-3	0
37	GF	Redeveloped	60	55	53	53	56	55	55		-1	-1
38	GF	Redeveloped	60	60	60	60	61	62	62		0	-1
39	GF	Redeveloped	60	56	52	52	57	53	53		-3	0
40	GF	New Road	55	50	48	48	51	49	49		-2	0
41	GF	Redeveloped	60	59	59	59	60	61	61		1	0
42	GF	Redeveloped	60	55	55	55	56	57	57		0	0
43	GF	New Road	55	53	51	51	54	53	53		-1	0
44	GF	New Road	55	47	44	44	48	45	45		-3	0
45	GF	New Road	55	45	41	41	46	43	43		-4	0
46	GF	Redeveloped	60	56	51	51	57	53	53		-4	0
47	GF	New Road	55	44	40	40	45	41	41		-4	0
48	GF	Redeveloped	60	54	47	47	55	48	48		-7	0
49	GF	New Road	55	50	48	48	51	49	49		-1	0
50	GF	New Road	55	53	51	51	54	53	53		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
51	GF	Redeveloped	60	55	52	52	56	53	53		-3	0
52	GF	New Road	55	49	46	46	50	48	48		-2	-1
53	GF	Redeveloped	60	57	57	57	58	58	58		0	0
54	GF	New Road	55	50	49	49	51	51	51		-1	0
55	GF	New Road	55	51	49	49	52	51	51		-1	-1
56	GF	Redeveloped	60	59	59	59	60	60	60		1	0
57	GF	Redeveloped	60	58	53	53	59	55	55		-4	0
58	GF	Redeveloped	60	61	58	58	62	60	60		-3	0
59	GF	Redeveloped	60	54	56	56	55	58	58		3	2
60	GF	Redeveloped	60	56	54	54	57	55	55		-2	-1
61	GF	Redeveloped	60	56	53	53	57	54	54		-3	-1
62	GF	Redeveloped	60	56	61	61	57	62	62		5	4
63	GF	Redeveloped	60	56	60	60	58	61	61		4	3
64	GF	Redeveloped	60	56	61	61	57	62	62		5	4
65	GF	Redeveloped	60	61	56	56	62	57	57		-5	0
67	GF	Redeveloped	60	65	56	56	66	58	58		-8	0
68	GF	Redeveloped	60	68	57	56	69	59	58		-10	0
69	GF	New Road	55	58	58	48	59	59	50		0	0
70	GF	Redeveloped	60	69	57	51	71	59	52		-12	0
71	GF	New Road	55	56	56	50	57	57	52		0	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
72	GF	Redeveloped	60	62	59	38	63	60	41		-3	0
73	GF	New Road	55	56	56	54	57	58	57		1	0
74	GF	Redeveloped	60	63	61	45	64	61	48		-4	0
75	GF	Redeveloped	60	64	60	49	66	60	51		-5	0
76	GF	New Road	55	53	48	42	55	49	45		-5	0
77	GF	New Road	55	51	48	44	53	49	46		-3	0
78	GF	New Road	55	53	48	45	54	49	47		-5	0
79	GF	New Road	55	69	59	52	70	61	54		-10	0
80	GF	Redeveloped	60	61	53	49	62	54	50		-8	0
81	GF	New Road	55	47	44	41	48	45	43		-2	0
82	GF	New Road	55	50	47	43	51	48	45		-3	0
83	GF	Redeveloped	60	58	51	45	59	53	47		-7	0
84	GF	New Road	55	49	47	44	51	48	46		-3	0
85	GF	New Road	55	64	56	52	65	57	52		-8	0
86	GF	Redeveloped	60	60	54	50	61	55	51		-6	0
87	GF	Redeveloped	60	58	53	50	59	54	50		-5	0
88	GF	New Road	55	49	47	45	50	48	46		-2	0
89	GF	New Road	55	51	46	44	52	48	45		-3	0
90	GF	Redeveloped	60	57	52	49	58	53	50		-5	0
91	GF	New Road	55	53	49	46	54	50	47		-4	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
92	GF	New Road	55	54	54	50	55	55	52		0	0
93	GF	New Road	55	51	57	57	52	59	59		7	-1
94	GF	Redeveloped	60	59	54	50	60	56	51		-4	0
95	GF	New Road	55	63	58	42	64	58	40		-6	0
96	GF	New Road	55	58	60	54	59	60	53		2	0
97	GF	New Road	55	68	62	50	69	64	50		-5	0
98	GF	New Road	55	71	65	50	72	67	50	Yes	-5	0
99	GF	New Road	55	58	54	51	59	55	51		-3	0
100	GF	New Road	55	53	55	53	54	55	52		1	0
101	GF	Redeveloped	60	61	56	50	62	57	50		-5	0
102	GF	New Road	55	56	60	54	57	60	54		3	0
103	GF	Redeveloped	60	64	58	50	65	60	50		-5	0
104	GF	Redeveloped	60	54	53	51	55	54	52		-2	0
105	GF	Redeveloped	60	66	60	49	67	62	50		-5	0
106	GF	Redeveloped	60	55	52	50	56	53	50		-2	0
107	GF	Redeveloped	60	56	52	48	57	53	49		-4	0
108	GF	New Road	55	67	61	49	68	63	50		-5	0
109	GF	New Road	55	50	51	49	51	52	50		0	0
110	GF	New Road	55	50	54	54	51	56	56		4	0
111	GF	Redeveloped	60	60	55	49	61	56	49		-4	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
112	GF	New Road	55	48	49	48	49	51	50		2	0
113	GF	Redeveloped	60	59	54	45	60	55	45		-5	0
114	GF	Redeveloped	60	55	50	47	56	52	48		-4	0
115	GF	New Road	55	72	66	42	73	67	40	Yes	-6	0
116	GF	New Road	55	52	55	53	53	56	54		3	0
117	GF	New Road	55	50	52	51	51	52	50		1	0
118	GF	New Road	55	71	66	42	72	67	40	Yes	-5	0
119	GF	New Road	55	53	55	50	54	56	51		2	0
120	GF	New Road	55	51	49	48	52	50	48		-2	0
121	GF	New Road	55	53	50	47	55	51	48		-3	0
122	GF	New Road	55	53	49	45	54	50	45		-4	0
123	GF	New Road	55	49	45	42	50	47	43		-3	0
124	GF	New Road	55	52	49	47	53	51	48		-3	0
125	GF	New Road	55	73	67	49	74	68	48	Yes	-5	0
126	GF	New Road	55	51	48	46	52	50	48		-2	0
127	GF	New Road	55	47	48	47	48	50	49		2	0
128	GF	New Road	55	48	43	41	48	46	43		-3	0
129	GF	New Road	55	50	46	44	51	48	46		-3	0
130	GF	New Road	55	50	46	44	51	48	46		-3	0
131	GF	New Road	55	50	47	45	51	49	47		-2	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
132	GF	Redeveloped	60	56	51	47	57	53	48		-4	0
133	GF	New Road	55	52	49	45	53	50	46		-3	0
134	GF	New Road	55	75	68	41	75	69	40	Yes	-6	0
135	GF	New Road	55	49	46	44	50	48	46		-2	0
136	GF	New Road	55	50	46	43	51	49	45		-2	0
137	GF	New Road	55	49	49	48	50	50	48		0	0
138	GF	New Road	55	58	61	54	59	61	54		3	0
139	GF	New Road	55	48	44	42	49	47	45		-2	0
140	GF	New Road	55	46	42	40	47	45	43		-2	0
141	GF	New Road	55	52	48	44	53	49	45		-4	0
142	GF	New Road	55	49	48	47	50	50	48		0	0
143	GF	New Road	55	49	51	48	50	52	48		2	0
144	GF	New Road	55	48	51	50	49	52	51		3	0
145	GF	New Road	55	50	51	50	51	52	51		1	0
146	GF	New Road	55	45	42	41	46	44	42		-2	0
147	GF	New Road	55	48	49	48	50	50	49		1	0
148	GF	New Road	55	45	43	42	46	45	44		-1	0
149	GF	New Road	55	50	50	49	51	51	50		0	0
150	GF	New Road	55	46	43	41	47	45	42		-3	0
151	GF	New Road	55	48	45	43	49	48	45		-2	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
152	GF	New Road	55	46	44	42	47	46	44		-1	0
153	GF	New Road	55	75	66	42	76	70	44	Yes	-5	0
154	GF	New Road	55	47	48	46	48	49	47		1	0
155	GF	New Road	55	46	44	42	47	46	44		-1	0
156	GF	New Road	55	48	46	44	49	47	45		-2	0
157	GF	New Road	55	46	44	42	47	45	42		-2	0
158	GF	New Road	55	51	48	45	52	50	47		-2	0
159	GF	New Road	55	45	43	41	46	45	43		-1	0
160	GF	New Road	55	48	45	43	49	47	45		-2	0
161	GF	New Road	55	47	44	42	48	46	44		-2	0
162	GF	New Road	55	45	43	42	46	45	43		-1	0
163	GF	New Road	55	74	68	42	75	69	41	Yes	-6	0
164	GF	New Road	55	56	59	53	57	60	54		3	0
165	GF	New Road	55	49	46	44	50	47	44		-2	0
166	GF	New Road	55	45	43	41	46	45	43		-1	0
167	GF	New Road	55	49	49	47	50	50	48		1	0
168	GF	New Road	55	46	43	41	47	45	42		-2	0
169	GF	New Road	55	44	42	40	45	44	42		-1	0
170	GF	New Road	55	46	43	42	47	46	44		-1	0
171	GF	New Road	55	56	59	53	57	59	53		3	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
172	GF	New Road	55	49	48	46	50	49	47		0	0
173	GF	New Road	55	44	47	46	45	49	48		4	0
174	GF	New Road	55	52	48	44	53	49	43		-4	0
175	GF	New Road	55	44	42	40	46	44	42		-2	0
176	GF	New Road	55	46	43	41	47	45	43		-1	0
177	GF	New Road	55	46	43	42	47	46	44		-1	0
178	GF	New Road	55	44	46	45	45	48	47		3	0
179	GF	New Road	55	55	59	54	56	59	53		3	0
180	GF	New Road	55	46	43	41	47	45	42		-2	0
181	GF	New Road	55	72	66	42	73	68	42	Yes	-5	0
182	GF	New Road	55	45	48	47	46	49	48		4	0
183	GF	New Road	55	57	60	54	58	60	54		3	0
184	GF	New Road	55	46	49	47	47	50	48		3	0
185	GF	New Road	55	72	66	46	73	67	45	Yes	-5	0
186	GF	New Road	55	45	43	42	46	45	43		-2	0
187	GF	New Road	55	45	42	41	46	45	43		-2	0
188	GF	New Road	55	46	43	41	47	46	44		-2	0
189	GF	New Road	55	44	48	47	45	49	48		4	0
190	GF	New Road	55	49	47	45	50	49	47		-2	0
191	GF	Redeveloped	60	57	51	44	58	53	45		-5	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
192	GF	Redeveloped	60	64	58	42	65	60	42		-5	0
193	GF	New Road	55	45	43	42	46	44	42		-2	0
194	GF	New Road	55	47	47	46	48	49	48		1	0
195	GF	Redeveloped	60	65	59	46	66	61	46		-5	0
196	GF	New Road	55	72	66	43	73	67	41	Yes	-5	0
197	GF	New Road	55	45	48	47	46	50	49		4	0
198	GF	New Road	55	55	59	54	56	59	53		3	0
199	GF	New Road	55	47	49	47	48	52	50		4	0
200	GF	New Road	55	50	47	44	51	48	44		-3	0
201	GF	New Road	55	46	43	41	47	45	43		-2	0
202	GF	New Road	55	46	43	41	47	45	43		-2	0
203	GF	New Road	55	47	44	42	48	45	42		-3	0
204	GF	New Road	55	72	63	39	73	68	42	Yes	-5	0
205	GF	New Road	55	44	48	47	45	49	48		5	0
206	GF	New Road	55	47	47	46	48	49	48		1	0
207	GF	New Road	55	44	43	41	46	44	42		-1	0
208	GF	New Road	55	70	64	46	71	65	45		-6	0
209	GF	New Road	55	72	66	42	73	68	42	Yes	-5	0
210	GF	New Road	55	55	59	54	56	59	54		3	0
211	GF	New Road	55	47	48	47	48	49	48		1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
212	GF	Redeveloped	60	54	49	43	56	51	44		-5	0
213	GF	New Road	55	70	64	46	71	66	46	Yes	-6	0
214	GF	Redeveloped	60	66	60	42	67	62	42		-5	0
215	GF	New Road	55	44	49	48	45	50	49		5	0
216	GF	New Road	55	47	44	42	48	46	43		-3	0
217	GF	New Road	55	44	43	41	45	44	42		-1	0
218	GF	New Road	55	53	48	43	54	50	43		-4	0
219	GF	New Road	55	50	55	52	51	55	51		4	0
220	GF	New Road	55	46	48	47	47	49	48		2	0
221	GF	New Road	55	48	45	43	49	46	43		-3	0
222	GF	New Road	55	45	44	42	46	45	43		-1	0
223	GF	New Road	55	70	64	46	71	65	45		-6	0
224	GF	Redeveloped	60	59	53	40	60	55	40		-5	0
225	GF	New Road	55	46	49	48	47	50	49		4	0
226	GF	New Road	55	46	48	47	47	49	48		2	0
227	GF	New Road	55	66	60	40	67	62	40		-6	0
228	GF	New Road	55	56	60	54	57	60	54		3	0
229	GF	New Road	55	47	44	42	48	46	43		-2	0
230	GF	New Road	55	46	44	43	47	45	43		-2	0
231	GF	New Road	55	72	63	40	73	68	42	Yes	-5	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
232	GF	New Road	55	53	57	53	54	58	54		4	0
233	GF	New Road	55	45	50	49	46	51	50		5	0
234	GF	New Road	55	47	48	47	48	49	48		2	0
235	GF	New Road	55	45	43	41	46	45	43		-1	0
236	GF	New Road	55	50	46	44	50	48	45		-2	0
237	GF	New Road	55	46	50	49	47	51	50		4	0
238	GF	New Road	55	45	43	41	46	45	43		-1	0
239	GF	New Road	55	49	46	44	50	48	46		-2	0
240	GF	New Road	55	72	66	43	73	67	41	Yes	-5	0
241	GF	Redeveloped	60	56	51	44	58	53	44		-5	0
242	GF	New Road	55	53	50	47	54	51	47		-3	0
243	GF	New Road	55	69	63	47	70	64	46		-6	0
244	GF	Redeveloped	60	56	51	45	57	53	46		-4	0
245	GF	New Road	55	48	45	43	49	46	43		-3	0
246	GF	New Road	55	46	44	43	47	47	45		-1	0
247	GF	New Road	55	70	64	46	71	66	46	Yes	-6	0
248	GF	New Road	55	45	43	41	46	45	43		-1	0
249	GF	New Road	55	49	45	42	50	47	43		-3	0
250	GF	New Road	55	46	44	42	47	45	42		-3	0
251	GF	New Road	55	56	60	54	57	60	54		3	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
252	GF	New Road	55	48	50	48	49	51	49		3	0
253	GF	New Road	55	49	50	48	50	51	49		1	0
254	GF	New Road	55	50	49	47	51	50	48		0	0
255	GF	New Road	55	54	50	47	55	52	48		-3	0
256	GF	Redeveloped	60	66	60	43	67	62	42		-6	0
257	GF	New Road	55	54	58	53	55	58	53		4	0
258	GF	New Road	55	51	48	46	52	50	47		-2	0
259	GF	Redeveloped	60	67	61	47	68	62	46		-5	0
260	GF	Redeveloped	60	56	51	44	57	52	44		-5	0
261	GF	New Road	55	49	45	42	50	47	44		-3	0
262	GF	New Road	55	46	44	42	48	45	42		-2	0
263	GF	New Road	55	46	43	40	47	45	42		-2	0
264	GF	New Road	55	45	43	41	47	45	42		-2	0
265	GF	New Road	55	47	45	44	48	47	46		-1	0
266	GF	New Road	55	46	44	44	47	46	45		-1	0
267	GF	New Road	55	47	46	45	48	48	47		0	0
268	GF	New Road	55	44	49	48	45	50	49		5	0
269	GF	New Road	55	68	62	43	69	64	43		-6	0
270	GF	New Road	55	46	43	41	47	45	43		-2	0
271	GF	New Road	55	48	46	45	49	48	47		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
272	GF	New Road	55	53	57	54	54	58	54		4	0
273	GF	New Road	55	44	49	49	45	50	49		5	0
274	GF	New Road	55	69	63	47	70	65	47		-5	0
275	GF	New Road	55	46	44	42	47	45	43		-2	0
276	GF	New Road	55	48	45	43	50	47	44		-3	0
277	GF	New Road	55	49	48	46	50	50	48		-1	0
278	GF	New Road	55	67	62	43	68	63	42		-5	0
279	GF	New Road	55	47	45	44	48	47	45		-1	0
280	GF	New Road	55	51	55	52	52	56	53		4	0
281	GF	New Road	55	45	49	48	46	51	50		5	0
282	GF	Redeveloped	60	65	59	42	66	61	42		-5	0
283	GF	New Road	55	48	45	43	50	47	45		-3	0
284	GF	New Road	55	68	62	48	69	63	46		-5	0
285	GF	New Road	55	45	49	48	46	51	50		5	0
286	GF	New Road	55	45	44	42	46	45	43		-1	0
287	GF	New Road	55	46	48	47	47	49	48		2	0
288	GF	New Road	55	47	45	44	48	47	46		-1	0
289	GF	New Road	55	47	46	45	48	48	47		0	0
290	GF	New Road	55	48	46	45	49	48	47		-1	0
291	GF	New Road	55	47	45	44	48	47	46		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
292	GF	New Road	55	48	46	45	49	48	47		-1	0
293	GF	New Road	55	56	60	55	57	60	54		3	0
294	GF	Redeveloped	60	66	60	43	67	62	43		-5	0
295	GF	New Road	55	50	49	47	51	50	47		-1	0
296	GF	New Road	55	53	49	46	54	50	45		-4	0
297	GF	New Road	55	70	64	47	71	65	46		-6	0
298	GF	New Road	55	46	44	42	47	45	43		-2	0
299	GF	New Road	55	48	57	57	49	58	58		9	-2
300	GF	New Road	55	55	59	54	56	60	54		4	0
301	GF	New Road	55	45	50	49	46	51	50		5	0
302	GF	New Road	55	47	45	43	48	46	44		-2	0
303	GF	New Road	55	46	43	42	47	45	43		-2	0
304	GF	New Road	55	56	60	55	57	60	54		3	0
305	GF	New Road	55	68	62	44	69	63	42		-5	0
306	GF	Redeveloped	60	54	49	44	55	50	43		-5	0
307	GF	New Road	55	52	49	46	53	50	46		-3	0
308	GF	New Road	55	70	64	47	71	65	46		-6	0
309	GF	New Road	55	45	43	41	47	45	43		-2	0
310	GF	New Road	55	46	45	44	47	47	46		-1	0
311	GF	New Road	55	46	50	49	47	51	50		4	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
312	GF	New Road	55	47	46	45	48	47	46		-1	0
313	GF	New Road	55	47	46	45	48	48	47		-1	0
314	GF	New Road	55	47	46	45	48	48	46		0	0
315	GF	New Road	55	49	47	46	50	49	48		-1	0
316	GF	New Road	55	58	62	56	59	62	55		3	0
317	GF	New Road	55	45	50	49	46	50	49		5	0
318	GF	New Road	55	52	48	44	53	50	44		-4	0
319	GF	New Road	55	54	50	46	55	51	46		-4	0
320	GF	New Road	55	71	65	47	72	66	46	Yes	-6	0
321	GF	New Road	55	46	44	42	47	45	43		-2	0
322	GF	New Road	55	68	62	43	69	64	43		-5	0
323	GF	New Road	55	46	45	43	47	46	44		-1	0
324	GF	New Road	55	71	65	47	72	66	46	Yes	-6	0
325	GF	New Road	55	53	49	45	55	51	46		-4	0
326	GF	New Road	55	52	50	48	53	51	48		-2	0
327	GF	New Road	55	47	47	46	48	49	48		0	0
328	GF	New Road	55	49	47	46	50	49	48		-1	0
329	GF	New Road	55	56	60	55	57	61	56		4	0
330	GF	New Road	55	46	40	39	47	51	50		4	0
331	GF	New Road	55	70	63	43	71	65	43		-6	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
332	GF	New Road	55	51	47	43	53	49	44		-4	0
333	GF	New Road	55	46	45	43	47	46	44		-1	0
334	GF	New Road	55	71	66	48	73	67	46	Yes	-5	0
335	GF	New Road	55	47	46	45	49	47	45		-1	0
336	GF	New Road	55	53	48	43	54	50	44		-4	0
337	GF	New Road	55	46	46	45	47	48	47		0	0
338	GF	New Road	55	48	46	45	49	48	47		-1	0
339	GF	New Road	55	48	47	46	49	48	47		-1	0
340	GF	New Road	55	48	46	45	49	48	47		-1	0
341	GF	New Road	55	47	46	45	49	48	46		-1	0
342	GF	New Road	55	56	59	54	57	60	55		3	0
343	GF	New Road	55	50	49	48	51	51	49		0	0
344	GF	New Road	55	68	62	44	69	63	43		-6	0
345	GF	New Road	55	69	64	48	70	65	47		-5	0
346	GF	Redeveloped	60	57	53	48	58	54	47		-4	0
347	GF	New Road	55	46	51	50	47	52	51		6	1
348	GF	New Road	55	53	49	46	54	51	47		-3	0
349	GF	New Road	55	47	45	44	48	47	45		-1	0
350	GF	New Road	55	52	56	53	53	57	54		4	0
351	GF	New Road	55	71	66	48	72	67	47	Yes	-5	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
352	GF	New Road	55	47	45	43	49	46	44		-2	0
353	GF	New Road	55	46	51	50	47	53	52		6	1
354	GF	New Road	55	70	64	44	71	65	43		-6	0
355	GF	New Road	55	57	61	56	58	62	56		4	1
356	GF	New Road	55	68	62	47	69	64	47		-6	0
357	GF	New Road	55	51	48	45	53	50	46		-3	0
358	GF	New Road	55	46	49	48	47	50	49		3	0
359	GF	New Road	55	45	49	48	46	51	50		4	0
360	GF	New Road	55	52	49	46	53	50	46		-3	0
361	GF	New Road	55	47	45	43	48	47	45		-2	0
362	GF	New Road	55	68	62	44	69	64	44		-5	0
363	GF	New Road	55	71	66	48	72	67	47	Yes	-5	0
364	GF	New Road	55	45	44	43	47	46	44		-1	0
365	GF	New Road	55	47	46	45	48	47	45		-1	0
366	GF	New Road	55	53	50	47	54	51	46		-3	0
367	GF	New Road	55	52	58	56	53	58	55		6	1
368	GF	New Road	55	69	63	44	70	64	43		-6	0
369	GF	New Road	55	49	46	44	50	47	45		-2	0
370	GF	New Road	55	46	49	48	47	50	49		3	0
371	GF	New Road	55	49	48	47	50	49	47		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
372	GF	Redeveloped	60	66	58	42	67	62	43		-5	0
373	GF	New Road	55	53	48	45	54	51	46		-4	0
374	GF	New Road	55	56	61	57	57	62	58		5	1
375	GF	New Road	55	69	63	48	70	64	47		-6	0
376	GF	New Road	55	47	45	44	48	47	45		-1	0
377	GF	Redeveloped	60	57	52	46	58	54	47		-4	0
378	GF	New Road	55	69	64	45	70	65	44		-5	0
379	GF	New Road	55	54	50	47	55	51	47		-4	0
380	GF	New Road	55	70	64	47	71	66	47	Yes	-5	0
381	GF	New Road	55	50	49	47	51	51	49		0	1
382	GF	New Road	55	68	60	42	69	64	44		-5	0
383	GF	New Road	55	46	52	52	47	54	54		6	1
384	GF	New Road	55	53	58	57	54	59	58		5	2
385	GF	New Road	55	51	50	49	52	52	51		-1	0
386	GF	New Road	55	57	56	56	58	58	58		0	0
387	GF	New Road	55	52	48	44	53	49	44		-4	0
388	GF	New Road	55	48	51	51	49	53	53		5	0
389	GF	New Road	55	47	46	45	48	48	47		-1	0
390	GF	New Road	55	46	45	44	47	47	45		-1	0
391	GF	New Road	55	48	46	45	49	48	46		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
392	GF	New Road	55	48	52	52	49	53	53		5	0
393	GF	New Road	55	67	61	45	68	62	44		-6	0
394	GF	New Road	55	72	66	45	73	67	44	Yes	-6	0
395	GF	New Road	55	54	50	47	55	52	48		-3	0
396	GF	New Road	55	46	50	50	47	52	52		5	0
397	GF	New Road	55	50	50	49	51	51	49		0	1
398	GF	Redeveloped	60	55	49	45	56	52	47		-4	0
399	GF	New Road	55	72	66	48	73	68	48	Yes	-5	0
400	GF	Redeveloped	60	62	57	45	63	58	44		-5	0
401	GF	Redeveloped	60	58	53	47	59	54	46		-4	0
402	GF	New Road	55	51	48	47	52	50	48		-1	0
403	GF	New Road	55	48	51	51	49	53	53		3	0
404	GF	New Road	55	70	62	43	71	66	45	Yes	-5	0
405	GF	New Road	55	53	50	47	54	51	47		-3	0
406	GF	Redeveloped	60	55	50	46	56	52	46		-4	0
407	GF	New Road	55	49	47	45	50	48	46		-2	0
408	GF	New Road	55	69	61	44	70	64	45		-6	0
409	GF	New Road	55	68	62	49	69	64	48		-5	0
410	GF	New Road	55	47	46	45	48	48	47		0	0
411	GF	New Road	55	69	60	44	70	64	46		-6	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
412	GF	New Road	55	51	49	47	52	51	49		-1	0
413	GF	New Road	55	68	62	49	69	64	49		-5	0
414	GF	New Road	55	69	62	46	70	64	46		-6	0
415	GF	New Road	55	68	62	49	69	63	49		-5	0
416	GF	New Road	55	49	52	52	50	53	53		3	0
417	GF	New Road	55	68	62	46	69	64	47		-6	0
418	GF	Redeveloped	60	57	52	48	58	54	49		-4	0
419	GF	New Road	55	52	48	46	53	50	47		-2	0
420	GF	Redeveloped	60	54	50	46	55	52	47		-4	0
421	GF	New Road	55	69	61	45	70	64	47		-6	0
422	GF	New Road	55	47	46	45	49	48	47		-1	0
423	GF	New Road	55	68	60	48	69	64	50		-5	0
424	GF	New Road	55	50	47	45	52	49	46		-3	0
425	GF	New Road	55	67	62	50	68	63	49		-5	0
426	GF	New Road	55	68	60	45	69	64	48		-6	0
427	GF	New Road	55	66	60	48	67	62	49		-5	0
428	GF	New Road	55	50	47	45	51	48	45		-2	0
429	GF	New Road	55	69	63	50	70	65	51		-5	0
430	GF	New Road	55	63	58	47	65	59	46		-5	0
431	GF	New Road	55	49	47	45	50	48	45		-2	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
432	GF	New Road	55	54	51	49	55	52	49		-2	0
433	GF	Redeveloped	60	58	54	48	59	55	48		-4	0
434	GF	New Road	55	67	61	52	68	62	51		-6	0
435	GF	New Road	55	53	53	52	54	54	54		0	0
436	GF	Redeveloped	60	65	59	50	66	61	51		-5	0
437	GF	New Road	55	48	46	45	49	47	45		-2	0
439	GF	New Road	55	55	57	56	56	58	57		2	0
440	GF	New Road	55	48	46	45	49	48	47		-1	0
441	GF	New Road	55	47	46	45	48	48	47		0	0
442	GF	Redeveloped	60	65	59	50	66	60	50		-5	0
443	GF	New Road	55	52	50	49	53	52	51		-1	0
444	GF	New Road	55	50	49	48	51	50	49		-1	0
445	GF	New Road	55	52	56	56	53	57	57		4	0
446	GF	Redeveloped	60	64	59	51	65	60	50		-5	0
447	GF	New Road	55	46	45	45	47	47	46		0	0
448	GF	New Road	55	46	46	45	47	48	47		1	0
449	GF	Redeveloped	60	65	59	44	66	61	47		-6	0
450	GF	Redeveloped	60	65	59	44	66	60	47		-6	0
451	GF	New Road	55	60	59	57	61	60	58		-1	0
452	GF	Redeveloped	60	60	55	49	61	56	51		-5	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
453	GF	New Road	55	67	59	50	68	62	51		-6	0
454	GF	New Road	55	50	49	49	51	51	51		-1	0
455	GF	New Road	55	52	51	50	53	53	52		-1	0
456	GF	Redeveloped	60	66	60	44	67	61	46		-6	0
457	GF	Redeveloped	60	56	50	40	57	52	43		-5	0
458	GF	Redeveloped	60	68	61	54	69	62	54		-7	0
459	GF	New Road	55	67	62	43	69	63	46		-6	0
460	GF	Redeveloped	60	58	53	42	59	54	45		-5	0
461	GF	Redeveloped	60	57	51	38	58	52	40		-6	0
462	GF	Redeveloped	60	66	60	53	67	63	57		-3	0
463	GF	New Road	55	47	47	47	48	48	48		0	0
464	GF	New Road	55	52	51	50	53	52	51		-1	0
465	GF	New Road	55	49	48	48	50	50	50		-1	0
466	GF	Redeveloped	60	63	58	46	64	59	48		-6	0
467	GF	Redeveloped	60	66	61	48	67	62	51		-5	0
468	GF	New Road	55	50	50	50	51	51	51		0	0
469	GF	New Road	55	59	56	56	60	57	57		-3	0
470	GF	Redeveloped	60	63	57	44	64	58	46		-6	0
471	GF	Redeveloped	60	62	57	44	64	58	47		-6	0
472	GF	Redeveloped	60	62	57	46	63	58	48		-5	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
473	GF	Redeveloped	60	67	58	56	68	60	59		-8	1
474	GF	New Road	55	50	50	50	51	51	51		0	0
475	GF	New Road	55	52	51	51	53	53	53		-1	0
476	GF	Redeveloped	60	62	56	43	63	57	45		-6	0
477	GF	Redeveloped	60	55	53	53	56	55	55		-2	0
478	GF	New Road	55	50	48	48	51	50	50		-1	0
479	GF	Redeveloped	60	65	60	45	66	61	47		-6	0
480	GF	New Road	55	51	50	49	53	51	50		-1	0
481	GF	Redeveloped	60	58	55	54	59	56	55		-3	0
482	GF	Redeveloped	60	65	58	57	66	59	59		-7	0
483	GF	New Road	55	52	50	50	53	52	52		-1	0
484	GF	Redeveloped	60	55	54	54	56	55	55		-1	0
485	GF	Redeveloped	60	58	54	46	59	55	47		-5	0
486	GF	New Road	55	49	47	45	50	48	47		-1	0
487	GF	New Road	55	52	51	50	53	52	51		-1	0
488	GF	Redeveloped	60	57	54	53	58	55	54		-3	0
489	GF	Redeveloped	60	66	60	60	67	61	61		-6	0
490	GF	New Road	55	52	51	50	53	52	51		-1	0
491	GF	Redeveloped	60	59	57	57	60	58	58		-2	0
492	GF	New Road	55	48	48	48	49	49	49		1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
493	GF	New Road	55	51	51	51	52	53	53		0	0
494	GF	Redeveloped	60	56	55	55	57	56	56		0	0
495	GF	New Road	55	49	48	48	50	49	49		-1	0
496	GF	Redeveloped	60	54	51	46	55	51	47		-4	0
497	GF	New Road	55	52	50	47	53	51	49		-2	0
498	GF	New Road	55	52	51	51	53	53	53		0	0
499	GF	Redeveloped	60	57	54	53	58	56	56		-2	0
500	GF	Redeveloped	60	64	61	61	65	63	63		-2	0
501	GF	New Road	55	51	47	44	52	48	45		-3	0
502	GF	New Road	55	53	52	52	54	53	53		-1	0
503	GF	Redeveloped	60	60	56	56	61	58	58		3-	0
504	GF	Redeveloped	60	54	54	54	56	55	55		0	0
505	GF	New Road	55	53	52	52	54	53	53		-1	0
506	GF	New Road	55	53	53	53	54	55	55		0	0
507	GF	New Road	55	52	50	49	53	52	52		-2	0
508	GF	New Road	55	50	48	47	51	49	48		-2	0
509	GF	Redeveloped	60	59	56	56	61	58	58		-3	0
510	GF	Redeveloped	60	63	62	62	64	63	63		-1	0
511	GF	New Road	55	53	51	51	54	53	53		-1	0
512	GF	New Road	55	51	50	49	52	51	50		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
513	GF	Redeveloped	60	59	56	56	60	57	57		-3	0
514	GF	Redeveloped	60	59	59	59	60	61	61		0	0
515	GF	New Road	55	53	53	53	54	55	55		0	0
516	GF	New Road	55	50	48	48	51	50	50		-1	0
517	GF	New Road	55	48	47	46	49	48	47		-2	0
518	GF	Redeveloped	60	55	53	53	56	55	55		-1	0
519	GF	Redeveloped	60	56	56	56	57	57	57		0	0
520	GF	New Road	55	50	49	49	51	50	50		-1	0
521	GF	New Road	55	53	51	51	54	52	52		-1	0
522	GF	New Road	55	51	49	49	52	51	51		-1	0
523	GF	New Road	55	52	52	52	53	54	54		0	0
524	GF	New Road	55	49	48	48	50	50	50		-1	0
525	GF	New Road	55	51	49	49	52	50	50		-1	0
526	GF	New Road	55	51	49	49	52	50	50		-1	0
527	GF	Redeveloped	60	60	60	60	61	62	62		0	0
528	GF	New Road	55	51	49	49	52	51	51		-1	0
529	GF	Redeveloped	60	55	53	53	56	55	55		-1	0
530	GF	New Road	55	49	48	48	50	50	50		-1	0
531	GF	New Road	55	54	54	54	55	55	55		1	0
532	GF	New Road	55	54	53	53	55	54	54		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
533	GF	New Road	55	47	46	46	48	48	48		-1	0
534	GF	New Road	55	45	43	43	46	44	44		-2	0
535	GF	New Road	55	49	48	48	50	49	49		-1	0
536	GF	Redeveloped	60	60	60	60	61	61	61		0	0
537	GF	New Road	55	53	54	54	54	55	55		1	0
538	GF	New Road	55	47	46	46	48	47	47		-1	0
539	GF	Redeveloped	60	55	53	53	56	55	55		-2	0
540	GF	New Road	55	49	48	48	50	49	49		-1	0
541	GF	New Road	55	49	48	48	50	50	50		-1	0
542	GF	Redeveloped	60	59	59	59	60	60	60		0	0
543	GF	New Road	55	52	51	51	53	52	52		-1	0
544	GF	New Road	55	49	47	47	50	49	49		-1	0
545	GF	New Road	55	49	48	48	50	49	49		-1	0
546	GF	New Road	55	49	48	48	50	49	49		-1	0
547	GF	New Road	55	49	48	48	50	50	50		0	0
548	GF	New Road	55	49	48	48	50	49	49		-1	0
549	GF	New Road	55	49	48	48	50	49	49		-1	0
550	GF	New Road	55	45	43	43	46	45	45		-1	0
551	GF	New Road	55	51	50	50	52	52	52		-1	0
552	GF	New Road	55	51	50	50	52	51	51		-1	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
553	GF	New Road	55	49	47	47	50	48	48		-2	0
554	GF	New Road	55	48	46	46	49	48	48		-1	0
555	GF	New Road	55	50	48	48	51	50	50		-1	0
556	GF	New Road	55	50	48	48	51	50	50		-1	0
557	GF	New Road	55	48	46	46	49	48	48		-1	0
558	GF	Redeveloped	60	59	57	57	60	58	58		-2	0
559	GF	Redeveloped	60	61	59	59	62	61	61		-2	0
560	GF	Redeveloped	60	61	59	59	62	61	61		-1	0
561	GF	Redeveloped	60	60	58	58	61	59	59		-2	0
562	GF	Redeveloped	60	62	60	60	63	62	62		-2	0
563	GF	Redeveloped	60	58	56	56	59	57	57		-2	0
564	GF	Redeveloped	60	63	59	59	64	60	60		-5	0
565	GF	Redeveloped	60	58	56	56	59	57	57		-2	0
566	GF	Redeveloped	60	55	53	53	56	54	54		-2	0
567	GF	Redeveloped	60	55	54	54	56	55	55		-2	0
568	GF	Redeveloped	60	56	54	54	57	55	55		-1	0
569	GF	Redeveloped	60	56	54	54	57	55	55		-1	0
570	GF	Redeveloped	60	55	54	54	57	55	55		-1	0
571	GF	Redeveloped	60	55	54	54	56	55	55		-1	0
572	GF	New Road	55	53	51	51	54	52	52		-2	0

Ref	Floor	Designation	$L_{eq,15h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
573	GF	New Road	55	53	51	51	55	53	53		-2	0
574	GF	New Road	55	54	52	52	55	53	53		-2	0
575	GF	New Road	55	54	52	52	55	53	53		-2	0
576	GF	Redeveloped	60	54	52	52	55	54	54		-2	0
577	GF	Redeveloped	60	55	53	53	56	54	54		-2	0
578	GF	Redeveloped	60	58	56	56	59	58	58		-2	0
579	GF	Redeveloped	60	61	57	56	62	58	57		-4	0
580	GF	Redeveloped	60	64	59	59	65	60	60		-5	0
581	GF	Redeveloped	60	65	59	59	66	60	60		-6	0
582	GF	Redeveloped	60	64	58	58	65	60	60		-5	0
583	GF	Redeveloped	60	64	57	57	65	59	59		-6	0
584	GF	Redeveloped	60	63	57	57	64	59	59		-5	0
585	GF	Redeveloped	60	63	58	58	64	59	59		-5	0
586	GF	Redeveloped	60	63	57	57	64	59	59		-5	0
587	GF	Redeveloped	60	62	57	57	63	59	59		-4	-1
588	GF	Redeveloped	60	61	57	57	62	59	59		-4	-1
589	GF	Redeveloped	60	61	56	56	62	57	57		-4	-1
590	GF	Redeveloped	60	63	59	53	64	60	55		-4	0
591	GF	Redeveloped	60	57	54	53	58	55	54		-3	0

Table D-2 – Predicted Night-time Road Traffic Noise Levels

Receiver		Criteria		Predicted Night time Noise Levels $L_{eq,9h}$ dB(A)						Acute in 2027	Change, dB	
Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
1	**GF**	Redeveloped	**55**	**64**	**58**	**58**	**65**	**59**	**59**		**-6**	**0**
2	GF	New Road	50	41	41	41	42	43	43		1	0
3	GF	Redeveloped	55	65	56	56	66	57	57		-8	-1
4	GF	New Road	50	38	40	40	39	42	42		3	0
5	GF	Redeveloped	55	59	54	54	60	55	55		-5	1
6	GF	Redeveloped	55	62	53	53	63	54	54		-9	2
7	GF	Redeveloped	55	53	49	49	54	50	50		-4	1
8	GF	Redeveloped	55	54	49	49	55	50	50		-5	1
9	GF	Redeveloped	55	53	49	49	54	50	50		-4	1
10	GF	Redeveloped	55	53	42	42	54	44	44		-10	0
11	GF	New Road	50	49	49	49	50	50	50		0	0
11a	GF	New Road	50	42	47	47	43	48	48		5	0
12	GF	Redeveloped	55	53	46	46	54	47	47		-7	0
13	GF	Redeveloped	55	60	46	46	61	47	47		-14	0
14	GF	New Road	50	49	48	48	50	50	50		0	0
14a	GF	Redeveloped	55	51	53	53	52	54	54		2	0
15	GF	Redeveloped	55	52	44	44	53	46	46		-7	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
16	GF	Redeveloped	55	56	48	48	57	49	49		-8	0
17	GF	New Road	50	48	44	44	49	46	46		-4	0
17a	GF	Redeveloped	55	56	55	55	57	56	56		-1	-2
18	GF	New Road	50	48	43	43	49	45	45		-4	0
19	GF	Redeveloped	55	54	52	52	55	53	53		-2	0
20	GF	Redeveloped	55	54	50	50	55	51	51		-4	0
21	GF	Redeveloped	55	57	48	48	58	50	50		-8	0
22	GF	Redeveloped	55	52	47	47	53	49	49		-4	0
22a	GF	Redeveloped	55	52	58	58	53	59	59		6	0
23	GF	New Road	50	49	51	51	50	52	52		2	-1
24	GF	Redeveloped	55	53	49	49	54	50	50		-4	0
25	GF	New Road	50	53	56	56	54	57	57		4	-2
26	GF	New Road	50	44	45	45	45	46	46		0	0
27	GF	New Road	50	41	46	46	42	48	48		6	1
28	GF	New Road	50	50	53	53	51	54	54		3	0
29	GF	New Road	50	49	52	52	50	54	54		3	1
30	GF	New Road	50	51	52	52	52	53	53		1	1
31	GF	Redeveloped	55	58	53	53	59	54	54		-5	2
32	GF	Redeveloped	55	53	49	49	54	50	50		-3	1
33	GF	Redeveloped	55	53	50	50	54	51	51		-2	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
33a	GF	Redeveloped	55	56	57	57	57	58	58		1	3
34	GF	New Road	50	49	46	46	50	47	47		-3	1
35	GF	New Road	50	48	47	47	49	49	49		-1	0
36	GF	Redeveloped	55	53	50	50	54	51	51		-3	0
37	GF	Redeveloped	55	52	50	50	53	51	51		-2	-1
38	GF	Redeveloped	55	57	56	56	58	57	57		0	-1
39	GF	Redeveloped	55	52	48	48	53	49	49		-4	0
40	GF	New Road	50	47	44	44	48	45	45		-3	0
41	GF	Redeveloped	55	56	55	55	57	56	56		0	0
42	GF	Redeveloped	55	52	51	51	53	52	52		-1	0
43	GF	New Road	50	49	47	47	50	49	49		-2	0
44	GF	New Road	50	44	40	40	45	41	41		-4	0
45	GF	New Road	50	42	37	37	43	38	38		-5	0
46	GF	Redeveloped	55	53	47	47	53	48	48		-5	0
47	GF	New Road	50	41	36	36	42	37	37		-5	0
48	GF	Redeveloped	55	51	43	43	52	44	44		-8	0
49	GF	New Road	50	46	44	44	47	45	45		-2	0
50	GF	New Road	50	50	47	47	51	48	48		-2	0
51	GF	Redeveloped	55	52	48	48	53	49	49		-4	0
52	GF	New Road	50	45	43	43	46	44	44		-2	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
53	GF	Redeveloped	55	54	53	53	55	54	54		-1	0
54	GF	New Road	50	47	45	45	48	46	46		-1	0
55	GF	New Road	50	47	45	45	48	47	47		-2	0
56	GF	Redeveloped	55	55	55	55	56	56	56		0	0
57	GF	Redeveloped	55	55	50	50	56	51	51		-4	1
58	GF	Redeveloped	55	58	55	55	59	56	56		-3	0
59	GF	Redeveloped	55	51	54	54	52	55	55		3	2
60	GF	Redeveloped	55	53	50	50	54	51	51		-3	-1
61	GF	Redeveloped	55	53	49	49	54	50	50		-4	-1
62	GF	Redeveloped	55	53	58	58	54	60	60		5	4
63	GF	Redeveloped	55	53	57	57	54	58	58		4	3
64	GF	Redeveloped	55	53	58	58	54	59	59		5	4
65	GF	Redeveloped	55	58	52	52	59	53	53		-6	0
67	GF	Redeveloped	55	61	52	52	62	54	54		-8	0
68	GF	Redeveloped	55	65	53	52	66	55	54		-11	0
69	GF	New Road	50	51	51	44	52	51	46		-1	0
70	GF	Redeveloped	55	66	53	46	67	55	48		-12	0
71	GF	New Road	50	49	49	45	50	50	48		0	0
72	GF	Redeveloped	55	55	52	35	56	53	37		-3	0
73	GF	New Road	50	51	51	50	52	53	53		0	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
74	GF	Redeveloped	55	57	53	41	58	54	44		-4	0
75	GF	Redeveloped	55	60	53	45	61	54	47		-6	0
76	GF	New Road	50	49	43	40	50	44	41		-6	0
77	GF	New Road	50	47	43	41	48	44	42		-4	0
78	GF	New Road	50	50	44	42	50	45	43		-6	0
79	GF	New Road	50	66	56	49	67	57	50		-10	0
80	GF	Redeveloped	55	58	49	45	59	51	46		-9	0
81	GF	New Road	50	43	39	38	44	40	39		-4	0
82	GF	New Road	50	45	42	40	46	43	41		-3	0
83	GF	Redeveloped	55	55	48	42	56	49	43		-7	0
84	GF	New Road	50	45	41	40	46	43	42		-4	0
85	GF	New Road	50	62	52	47	62	53	48		-9	0
86	GF	Redeveloped	55	57	50	46	58	51	47		-7	0
87	GF	Redeveloped	55	55	49	45	55	50	46		-5	0
88	GF	New Road	50	45	42	41	46	44	43		-3	0
89	GF	New Road	50	47	43	40	48	45	42		-4	0
90	GF	Redeveloped	55	54	48	45	55	50	46		-5	0
91	GF	New Road	50	50	45	42	51	46	43		-5	0
92	GF	New Road	50	49	48	46	50	49	48		-1	0
93	GF	New Road	50	47	54	54	48	55	55		7	-1

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
94	GF	Redeveloped	55	56	51	46	57	52	46		-5	0
95	GF	New Road	50	60	55	37	61	55	36		-6	0
96	GF	New Road	50	52	57	50	52	58	50		5	0
97	GF	New Road	50	65	59	45	65	61	47	Yes	-5	0
98	GF	New Road	50	68	62	44	69	64	46	Yes	-5	0
99	GF	New Road	50	54	51	46	55	52	47		-3	0
100	GF	New Road	50	49	51	48	50	52	49		2	0
101	GF	Redeveloped	55	58	53	46	58	54	46		-4	0
102	GF	New Road	50	49	57	51	50	57	50		7	0
103	GF	Redeveloped	55	61	55	45	61	57	46		-5	0
104	GF	Redeveloped	55	51	49	46	52	50	47		-2	0
105	GF	Redeveloped	55	62	57	44	63	58	45		-5	0
106	GF	Redeveloped	55	51	49	46	52	50	47		-2	0
107	GF	Redeveloped	55	53	49	44	54	50	45		-4	0
108	GF	New Road	50	64	58	44	64	59	45		-5	0
109	GF	New Road	50	47	47	45	48	48	45		1	0
110	GF	New Road	50	47	51	51	48	52	52		4	0
111	GF	Redeveloped	55	57	52	44	57	53	45		-4	0
112	GF	New Road	50	44	46	45	45	47	46		2	0
113	GF	Redeveloped	55	56	51	40	57	52	41		-5	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
114	GF	Redeveloped	55	52	47	43	52	48	44		-4	0
115	GF	New Road	50	69	63	36	69	64	36	Yes	-6	0
116	GF	New Road	50	47	52	50	48	52	49		5	0
117	GF	New Road	50	47	48	46	48	49	47		1	0
118	GF	New Road	50	68	63	36	69	64	36	Yes	-5	0
119	GF	New Road	50	46	52	47	47	53	47		6	0
120	GF	New Road	50	48	45	43	49	47	45		-2	0
121	GF	New Road	50	50	46	43	51	48	45		-4	0
122	GF	New Road	50	50	46	40	51	47	41		-4	0
123	GF	New Road	50	46	42	38	47	43	39		-3	0
124	GF	New Road	50	49	46	43	50	47	44		-3	0
125	GF	New Road	50	70	64	43	71	65	44	Yes	-5	0
126	GF	New Road	50	48	45	43	49	46	44		-2	0
127	GF	New Road	50	43	45	44	43	46	44		3	0
128	GF	New Road	50	45	41	38	45	43	39		-3	0
129	GF	New Road	50	47	42	40	48	44	42		-4	0
130	GF	New Road	50	47	43	41	48	45	43		-3	0
131	GF	New Road	50	47	43	41	48	45	43		-3	0
132	GF	Redeveloped	55	53	48	42	54	50	44		-4	0
133	GF	New Road	50	49	45	40	50	47	42		-3	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
134	GF	New Road	50	71	65	36	72	66	36	Yes	-6	0
135	GF	New Road	50	46	42	40	47	44	42		-3	0
136	GF	New Road	50	47	43	39	48	45	41		-3	0
137	GF	New Road	50	46	45	43	47	47	45		0	0
138	GF	New Road	50	50	58	51	51	58	50		8	0
139	GF	New Road	50	45	41	39	46	43	41		-3	0
140	GF	New Road	50	43	39	37	44	41	39		-3	0
141	GF	New Road	50	49	45	40	50	46	41		-4	0
142	GF	New Road	50	45	45	43	46	46	44		0	0
143	GF	New Road	50	44	49	45	45	49	45		5	0
144	GF	New Road	50	44	48	47	45	48	46		3	0
145	GF	New Road	50	46	47	46	47	49	48		2	0
146	GF	New Road	50	41	39	37	42	40	38		-3	0
147	GF	New Road	50	45	46	45	46	47	46		1	0
148	GF	New Road	50	42	40	38	43	42	40		-2	0
149	GF	New Road	50	47	47	46	48	48	46		0	0
150	GF	New Road	50	43	40	37	44	41	38		-3	0
151	GF	New Road	50	45	42	39	46	44	41		-2	0
152	GF	New Road	50	43	40	38	44	42	40		-2	0
153	GF	New Road	50	72	65	39	73	67	40	Yes	-5	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
154	GF	New Road	50	44	45	43	45	46	44		2	0
155	GF	New Road	50	43	40	38	44	42	40		-2	0
156	GF	New Road	50	45	42	39	46	44	41		-2	0
157	GF	New Road	50	43	40	37	44	42	39		-3	0
158	GF	New Road	50	48	46	42	49	47	43		-2	0
159	GF	New Road	50	42	40	38	43	42	40		-2	0
160	GF	New Road	50	45	42	39	45	43	40		-2	0
161	GF	New Road	50	44	41	38	45	43	40		-2	0
162	GF	New Road	50	42	40	38	43	42	40		-2	0
163	GF	New Road	50	71	65	36	72	66	37	Yes	-6	0
164	GF	New Road	50	48	57	51	49	57	50		8	0
165	GF	New Road	50	46	43	40	47	44	41		-2	0
166	GF	New Road	50	42	40	38	43	42	40		-1	0
167	GF	New Road	50	45	46	43	46	47	44		1	0
168	GF	New Road	50	43	40	37	43	41	38		-2	0
169	GF	New Road	50	41	39	37	42	40	38		-2	0
170	GF	New Road	50	42	40	38	43	42	40		-2	0
171	GF	New Road	50	48	56	50	49	57	50		8	0
172	GF	New Road	50	45	45	43	46	46	43		0	0
173	GF	New Road	50	40	43	42	41	45	43		4	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
174	GF	New Road	50	49	45	39	50	46	40		-4	0
175	GF	New Road	50	41	39	37	42	40	37		-2	0
176	GF	New Road	50	43	40	38	44	42	40		-2	0
177	GF	New Road	50	43	40	38	44	42	40		-2	0
178	GF	New Road	50	41	42	41	41	44	43		3	0
179	GF	New Road	50	48	56	50	49	56	49		8	0
180	GF	New Road	50	43	40	37	43	41	38		-2	0
181	GF	New Road	50	69	63	37	69	64	37	Yes	-5	0
182	GF	New Road	50	41	44	43	42	45	44		4	0
183	GF	New Road	50	49	57	51	50	58	51		8	0
184	GF	New Road	50	42	46	44	43	47	44		5	0
185	GF	New Road	50	68	63	41	69	64	42	Yes	-5	0
186	GF	New Road	50	42	39	37	43	41	39		-2	0
187	GF	New Road	50	42	39	37	43	41	39		-2	0
188	GF	New Road	50	43	40	38	44	42	40		-2	0
189	GF	New Road	50	40	45	44	41	46	45		5	0
190	GF	New Road	50	46	44	42	47	45	43		-2	0
191	GF	Redeveloped	55	53	48	39	54	50	41		-5	0
192	GF	Redeveloped	55	61	55	36	62	57	38		-5	0
193	GF	New Road	50	42	39	37	43	41	39		-2	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
194	GF	New Road	50	44	44	43	45	45	44		1	0
195	GF	Redeveloped	55	62	57	42	63	58	42		-5	0
196	GF	New Road	50	68	63	37	69	64	37	Yes	-5	0
197	GF	New Road	50	41	45	44	42	46	45		4	0
198	GF	New Road	50	48	56	51	49	57	51		8	0
199	GF	New Road	50	41	46	44	42	48	45		6	0
200	GF	New Road	50	47	44	40	48	45	40		-3	0
201	GF	New Road	50	43	40	38	44	42	39		-2	0
202	GF	New Road	50	43	39	37	44	42	40		-2	0
203	GF	New Road	50	44	41	38	45	42	39		-3	0
204	GF	New Road	50	69	62	36	70	64	37	Yes	-5	0
205	GF	New Road	50	40	45	44	41	46	45		5	0
206	GF	New Road	50	43	44	43	44	45	44		1	0
207	GF	New Road	50	41	39	37	42	41	39		-2	0
208	GF	New Road	50	67	61	41	67	62	42	Yes	-5	0
209	GF	New Road	50	69	63	37	69	64	37	Yes	-5	0
210	GF	New Road	50	48	56	51	49	57	51		8	0
211	GF	New Road	50	43	44	43	44	46	45		1	0
212	GF	Redeveloped	55	51	46	38	52	48	40		-4	0
213	GF	New Road	50	67	61	41	68	63	42	Yes	-5	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
214	GF	Redeveloped	55	63	57	37	64	59	38		-5	0
215	GF	New Road	50	40	46	45	40	47	46		6	0
216	GF	New Road	50	44	41	38	45	43	40		-3	0
217	GF	New Road	50	41	39	37	42	41	39		-1	0
218	GF	New Road	50	50	45	38	51	47	40		-4	0
219	GF	New Road	50	43	52	48	44	52	48		9	0
220	GF	New Road	50	43	44	43	44	45	44		2	0
221	GF	New Road	50	45	42	39	45	43	39		-3	0
222	GF	New Road	50	42	40	38	43	41	39		-1	0
223	GF	New Road	50	67	61	41	68	62	42	Yes	-5	0
224	GF	Redeveloped	55	56	50	34	56	52	36		-5	0
225	GF	New Road	50	42	46	45	43	47	46		4	0
226	GF	New Road	50	43	44	43	44	46	45		2	0
227	GF	New Road	50	63	57	34	64	59	36		-5	0
228	GF	New Road	50	48	57	51	49	57	50		8	0
229	GF	New Road	50	44	41	38	45	42	39		-2	0
230	GF	New Road	50	43	41	39	44	42	40		-2	0
231	GF	New Road	50	69	62	36	70	64	38	Yes	-5	0
232	GF	New Road	50	46	54	50	46	55	50		8	0
233	GF	New Road	50	41	46	45	42	47	46		6	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
234	GF	New Road	50	43	44	43	44	46	45		2	0
235	GF	New Road	50	42	40	38	43	41	39		-1	0
236	GF	New Road	50	46	43	40	47	45	42		-3	0
237	GF	New Road	50	42	47	46	43	48	47		5	0
238	GF	New Road	50	42	40	38	43	41	39		-1	0
239	GF	New Road	50	46	43	40	47	45	42		-2	0
240	GF	New Road	50	68	63	37	69	64	38	Yes	-5	0
241	GF	Redeveloped	55	53	48	39	54	50	41		-5	0
242	GF	New Road	50	49	46	42	50	48	44		-2	0
243	GF	New Road	50	66	60	41	67	61	42	Yes	-5	0
244	GF	Redeveloped	55	53	48	41	54	50	42		-4	0
245	GF	New Road	50	45	42	39	45	43	40		-2	0
246	GF	New Road	50	43	41	39	44	43	41		-1	0
247	GF	New Road	50	67	61	41	68	63	42	Yes	-5	0
248	GF	New Road	50	42	40	38	42	41	39		-1	0
249	GF	New Road	50	45	42	38	46	43	39		-3	0
250	GF	New Road	50	43	40	37	43	41	38		-2	0
251	GF	New Road	50	48	57	51	49	57	50		8	0
252	GF	New Road	50	43	48	46	44	49	46		5	0
253	GF	New Road	50	46	47	45	47	48	45		1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
254	GF	New Road	50	46	46	44	47	47	45		0	0
255	GF	New Road	50	51	47	42	52	48	43		-3	0
256	GF	Redeveloped	55	63	57	37	64	59	38		-5	0
257	GF	New Road	50	46	55	50	46	55	49		9	0
258	GF	New Road	50	48	45	42	48	47	44		-2	0
259	GF	Redeveloped	55	63	58	42	64	59	43		-5	0
260	GF	Redeveloped	55	53	48	39	54	49	40		-4	0
261	GF	New Road	50	45	42	38	46	43	39		-3	0
262	GF	New Road	50	43	40	37	44	42	39		-2	0
263	GF	New Road	50	43	40	37	43	41	37		-2	0
264	GF	New Road	50	42	40	37	43	41	38		-2	0
265	GF	New Road	50	43	41	40	44	43	42		-1	0
266	GF	New Road	50	43	40	39	44	42	41		-1	0
267	GF	New Road	50	44	43	42	45	45	44		-1	0
268	GF	New Road	50	40	46	45	41	47	46		6	0
269	GF	New Road	50	65	59	37	66	61	39	Yes	-5	0
270	GF	New Road	50	42	40	38	43	41	38		-2	0
271	GF	New Road	50	45	42	40	46	44	42		-1	0
272	GF	New Road	50	46	54	50	46	55	51		8	0
273	GF	New Road	50	40	46	45	41	47	46		6	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
274	GF	New Road	50	66	60	42	67	62	43	Yes	-5	0
275	GF	New Road	50	42	40	37	43	42	39		-2	0
276	GF	New Road	50	45	42	39	46	44	40		-3	0
277	GF	New Road	50	46	45	43	47	46	44		-1	0
278	GF	New Road	50	64	59	38	65	60	38		-5	0
279	GF	New Road	50	44	42	40	45	44	42		-1	0
280	GF	New Road	50	44	52	49	45	53	50		8	0
281	GF	New Road	50	41	46	45	42	47	46		5	0
282	GF	Redeveloped	55	62	56	37	63	58	38		-5	0
283	GF	New Road	50	45	42	39	46	43	40		-2	0
284	GF	New Road	50	64	59	42	65	60	43		-5	0
285	GF	New Road	50	41	45	44	42	47	46		5	0
286	GF	New Road	50	42	40	38	43	42	40		-1	0
287	GF	New Road	50	42	44	43	43	46	45		2	0
288	GF	New Road	50	44	42	41	45	44	43		-1	0
289	GF	New Road	50	44	42	41	45	44	43		-1	0
290	GF	New Road	50	44	42	41	45	44	43		-1	0
291	GF	New Road	50	43	42	41	44	43	42		-1	0
292	GF	New Road	50	45	43	41	46	45	43		-1	0
293	GF	New Road	50	48	57	52	49	57	50		8	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
294	GF	Redeveloped	55	63	57	38	64	58	38		-5	0
295	GF	New Road	50	47	45	42	48	47	44		-1	0
296	GF	New Road	50	50	46	41	51	47	42		-4	0
297	GF	New Road	50	67	61	42	68	62	42	Yes	-5	0
298	GF	New Road	50	43	40	38	44	42	40		-2	0
299	GF	New Road	50	44	53	53	45	54	54		9	-2
300	GF	New Road	50	48	57	52	48	57	51		9	0
301	GF	New Road	50	41	46	45	42	47	46		5	0
302	GF	New Road	50	44	41	39	45	43	40		-2	0
303	GF	New Road	50	42	40	38	43	41	39		-2	0
304	GF	New Road	50	48	57	52	49	58	51		9	0
305	GF	New Road	50	65	59	38	65	60	38		-5	0
306	GF	Redeveloped	55	51	46	39	52	47	39		-5	0
307	GF	New Road	50	49	45	40	50	47	42		-3	0
308	GF	New Road	50	66	61	42	67	62	43	Yes	-5	0
309	GF	New Road	50	42	40	38	43	41	39		-2	0
310	GF	New Road	50	43	41	40	44	43	42		-1	0
311	GF	New Road	50	42	46	45	43	48	47		5	0
312	GF	New Road	50	44	42	41	45	44	43		-1	0
313	GF	New Road	50	44	43	42	45	44	43		-1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
314	GF	New Road	50	44	43	42	45	44	43		-1	0
315	GF	New Road	50	46	44	43	47	46	44		-1	0
316	GF	New Road	50	50	59	53	51	59	51		9	0
317	GF	New Road	50	41	45	44	42	47	46		5	0
318	GF	New Road	50	49	45	39	50	47	41		-4	0
319	GF	New Road	50	50	46	41	51	48	43		-4	0
320	GF	New Road	50	68	62	42	69	63	42	Yes	-5	0
321	GF	New Road	50	43	41	39	44	42	40		-2	0
322	GF	New Road	50	64	59	38	65	60	38		-5	0
323	GF	New Road	50	43	41	39	44	42	40		-2	0
324	GF	New Road	50	68	62	42	68	63	43	Yes	-5	0
325	GF	New Road	50	50	46	41	51	48	42		-3	0
326	GF	New Road	50	48	46	43	49	48	45		-2	0
327	GF	New Road	50	44	43	42	45	45	44		0	0
328	GF	New Road	50	46	44	43	47	46	44		-1	0
329	GF	New Road	50	48	57	52	49	58	52		9	0
330	GF	New Road	50	42	46	45	43	47	46		4	0
331	GF	New Road	50	66	60	38	67	62	39	Yes	-6	0
332	GF	New Road	50	48	44	39	49	46	40		-4	0
333	GF	New Road	50	43	41	39	44	43	41		-1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
334	GF	New Road	50	68	63	42	69	64	43	Yes	-5	0
335	GF	New Road	50	44	42	41	45	44	42		-1	0
336	GF	New Road	50	50	45	39	51	47	40		-4	0
337	GF	New Road	50	43	42	41	44	44	43		0	0
338	GF	New Road	50	45	43	42	46	45	44		-1	0
339	GF	New Road	50	45	43	42	46	45	43		-1	0
340	GF	New Road	50	45	43	42	46	45	43		-1	0
341	GF	New Road	50	44	43	41	45	44	42		-1	0
342	GF	New Road	50	48	56	51	49	57	51		8	0
343	GF	New Road	50	47	46	44	48	47	45		0	0
344	GF	New Road	50	65	59	39	65	60	39		-6	0
345	GF	New Road	50	66	61	43	67	62	43	Yes	-5	0
346	GF	Redeveloped	55	54	50	43	55	51	44		-4	0
347	GF	New Road	50	41	47	46	42	49	48		6	1
348	GF	New Road	50	50	47	43	51	48	44		-3	0
349	GF	New Road	50	44	42	40	45	43	41		-2	0
350	GF	New Road	50	44	53	50	45	54	50		9	0
351	GF	New Road	50	68	62	42	69	64	43	Yes	-5	0
352	GF	New Road	50	44	42	39	45	43	40		-2	0
353	GF	New Road	50	42	48	47	43	49	48		6	1

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
354	GF	New Road	50	66	61	39	67	62	39	Yes	-5	0
355	GF	New Road	50	49	59	54	50	59	53		10	1
356	GF	New Road	50	65	59	42	66	61	43	Yes	-5	0
357	GF	New Road	50	48	45	41	49	46	41		-3	1
358	GF	New Road	50	43	45	44	44	46	45		2	0
359	GF	New Road	50	42	46	45	43	47	46		4	0
360	GF	New Road	50	49	46	42	50	47	43		-3	0
361	GF	New Road	50	44	42	40	45	43	41		-2	0
362	GF	New Road	50	65	59	38	66	61	40	Yes	-5	0
363	GF	New Road	50	68	62	42	69	64	43	Yes	-5	0
364	GF	New Road	50	42	41	39	43	42	40		-1	0
365	GF	New Road	50	44	42	40	44	44	42		-1	0
366	GF	New Road	50	50	46	41	51	48	43		-3	0
367	GF	New Road	50	44	55	52	45	55	52		11	1
368	GF	New Road	50	65	60	39	66	61	39	Yes	-5	0
369	GF	New Road	50	45	43	41	46	44	41		-2	0
370	GF	New Road	50	42	46	45	43	47	46		4	0
371	GF	New Road	50	46	44	42	47	46	44		-1	0
372	GF	Redeveloped	55	63	56	37	64	59	39		-5	0
373	GF	New Road	50	50	46	41	51	48	43		-4	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
374	GF	New Road	50	49	58	54	49	59	54		10	1
375	GF	New Road	50	65	60	42	66	61	43	Yes	-5	0
376	GF	New Road	50	44	42	40	45	44	42		-1	0
377	GF	Redeveloped	55	54	49	42	55	51	43		-4	0
378	GF	New Road	50	66	61	39	67	62	40	Yes	-5	0
379	GF	New Road	50	50	46	41	51	48	43		-4	0
380	GF	New Road	50	67	61	42	68	62	43	Yes	-5	0
381	GF	New Road	50	47	46	44	48	47	45		-1	1
382	GF	New Road	50	65	59	39	66	61	40	Yes	-5	0
383	GF	New Road	50	42	49	49	43	50	50		7	1
384	GF	New Road	50	46	54	53	47	54	53		7	1
385	GF	New Road	50	48	47	46	49	48	47		-1	0
386	GF	New Road	50	49	53	53	50	55	55		5	0
387	GF	New Road	50	49	45	40	50	46	41		-4	0
388	GF	New Road	50	44	48	48	45	50	50		5	0
389	GF	New Road	50	44	43	42	45	44	42		-1	0
390	GF	New Road	50	43	42	40	44	43	41		-1	0
391	GF	New Road	50	45	43	41	46	44	42		-1	0
392	GF	New Road	50	43	48	48	44	50	50		6	0
393	GF	New Road	50	64	58	40	64	59	41		-5	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
394	GF	New Road	50	69	62	39	69	64	40	Yes	-5	0
395	GF	New Road	50	51	47	43	52	48	43		-3	0
396	GF	New Road	50	43	46	46	44	48	48		4	0
397	GF	New Road	50	47	46	44	48	48	46		0	1
398	GF	Redeveloped	55	52	47	42	53	49	44		-4	0
399	GF	New Road	50	69	63	43	70	65	44	Yes	-5	0
400	GF	Redeveloped	55	59	54	40	60	55	40		-5	0
401	GF	Redeveloped	55	54	50	42	55	51	43		-4	0
402	GF	New Road	50	48	45	43	49	47	45		-2	0
403	GF	New Road	50	45	48	48	46	49	49		3	0
404	GF	New Road	50	67	60	39	68	63	41	Yes	-5	0
405	GF	New Road	50	50	46	42	51	48	44		-3	0
406	GF	Redeveloped	55	51	47	41	52	48	42		-4	0
407	GF	New Road	50	46	44	42	47	45	43		-2	0
408	GF	New Road	50	66	59	40	67	61	41	Yes	-6	0
409	GF	New Road	50	65	59	43	66	61	45	Yes	-5	0
410	GF	New Road	50	44	43	42	45	44	43		0	0
411	GF	New Road	50	65	59	40	66	61	42	Yes	-6	0
412	GF	New Road	50	48	46	44	49	48	46		-2	0
413	GF	New Road	50	65	59	44	66	61	45	Yes	-5	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
414	GF	New Road	50	66	59	40	66	61	42	Yes	-6	0
415	GF	New Road	50	64	59	44	65	60	45		-5	0
416	GF	New Road	50	46	47	47	47	49	49		2	0
417	GF	New Road	50	65	58	40	66	61	43	Yes	-6	0
418	GF	Redeveloped	55	53	49	44	54	51	46		-4	0
419	GF	New Road	50	49	45	42	50	47	44		-2	0
420	GF	Redeveloped	55	51	47	42	52	48	43		-4	0
421	GF	New Road	50	66	59	41	67	61	43	Yes	-6	0
422	GF	New Road	50	44	43	42	45	45	43		-1	0
423	GF	New Road	50	65	58	44	66	61	46	Yes	-5	0
424	GF	New Road	50	47	44	41	48	45	41		-3	0
425	GF	New Road	50	64	59	45	65	60	46		-5	0
426	GF	New Road	50	65	58	41	66	61	44	Yes	-5	0
427	GF	New Road	50	63	56	42	64	58	44		-5	0
428	GF	New Road	50	46	44	41	47	45	42		-2	0
429	GF	New Road	50	66	60	45	67	62	47	Yes	-5	0
430	GF	New Road	50	60	54	41	61	56	42		-5	0
431	GF	New Road	50	46	43	40	47	45	42		-2	0
432	GF	New Road	50	51	48	45	51	49	46		-2	0
433	GF	Redeveloped	55	55	50	43	56	51	43		-5	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
434	GF	New Road	50	64	56	45	65	59	48		-6	0
435	GF	New Road	50	48	49	49	49	50	50		1	0
436	GF	Redeveloped	55	62	56	46	62	57	46		-5	0
437	GF	New Road	50	45	43	41	46	44	42		-2	0
439	GF	New Road	50	52	53	53	53	54	54		1	0
440	GF	New Road	50	45	43	42	45	44	43		-1	0
441	GF	New Road	50	44	43	42	45	44	43		0	0
442	GF	Redeveloped	55	61	56	46	62	57	47		-5	0
443	GF	New Road	50	48	47	46	49	48	47		-1	0
444	GF	New Road	50	46	45	45	47	46	46		-1	0
445	GF	New Road	50	50	52	52	51	53	53		2	0
446	GF	Redeveloped	55	61	55	45	62	57	47		-5	0
447	GF	New Road	50	43	42	41	44	43	42		-1	0
448	GF	New Road	50	43	43	42	43	44	43		1	0
449	GF	Redeveloped	55	64	51	41	64	52	43		-12	0
450	GF	Redeveloped	55	63	51	42	64	52	43		-12	0
451	GF	New Road	50	58	54	53	59	55	54		-4	0
452	GF	Redeveloped	55	58	48	46	58	49	47		-9	0
453	GF	New Road	50	64	57	46	65	59	48		-6	0
454	GF	New Road	50	47	45	45	48	47	47		-1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
455	GF	New Road	50	49	48	47	50	49	47		-1	0
456	GF	Redeveloped	55	64	52	41	65	53	43		-12	0
457	GF	Redeveloped	55	54	43	38	55	44	39		-11	0
458	GF	Redeveloped	55	65	57	50	66	58	50		-8	0
459	GF	New Road	50	66	53	40	67	54	42		-13	0
460	GF	Redeveloped	55	56	45	40	57	46	41		-11	0
461	GF	Redeveloped	55	55	43	35	56	44	36		-12	0
462	GF	Redeveloped	55	64	54	51	65	55	52		-10	0
463	GF	New Road	50	43	43	43	44	44	44		0	0
464	GF	New Road	50	49	47	46	50	49	48		-1	0
465	GF	New Road	50	46	45	45	47	46	46		-1	0
466	GF	Redeveloped	55	62	49	42	62	50	43		-12	0
467	GF	Redeveloped	55	65	53	46	65	54	47		-12	0
468	GF	New Road	50	47	46	46	48	47	47		-1	0
469	GF	New Road	50	55	52	52	56	53	53		-4	0
470	GF	Redeveloped	55	61	49	41	62	50	43		-12	0
471	GF	Redeveloped	55	61	49	42	62	50	43		-12	0
472	GF	Redeveloped	55	60	49	43	61	50	44		-12	0
473	GF	Redeveloped	55	64	54	53	65	55	54		-9	1
474	GF	New Road	50	47	46	46	48	47	47		-1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
475	GF	New Road	50	49	47	47	50	49	49		-1	0
476	GF	Redeveloped	55	60	48	40	61	49	41		-12	0
477	GF	Redeveloped	55	52	49	49	52	51	51		-2	0
478	GF	New Road	50	46	45	45	47	46	46		-1	0
479	GF	Redeveloped	55	64	51	41	65	52	43		-12	0
480	GF	New Road	50	49	46	46	50	47	47		-3	0
481	GF	Redeveloped	55	55	52	52	56	53	53		-3	0
482	GF	Redeveloped	55	62	55	55	63	56	56		-8	0
483	GF	New Road	50	48	46	46	49	48	48		-1	0
484	GF	Redeveloped	55	52	50	50	52	51	51		-2	0
485	GF	Redeveloped	55	57	46	42	58	47	43		-11	0
486	GF	New Road	50	46	42	41	47	43	42		-4	0
487	GF	New Road	50	49	47	47	50	48	48		-2	0
488	GF	Redeveloped	55	54	50	50	55	51	51		-4	0
489	GF	Redeveloped	55	63	56	56	64	57	57		-6	0
490	GF	New Road	50	49	47	47	50	48	48		-2	0
491	GF	Redeveloped	55	56	53	53	57	54	54		-2	0
492	GF	New Road	50	44	44	44	45	45	45		0	0
493	GF	New Road	50	48	47	47	49	48	48		0	0
494	GF	Redeveloped	55	52	51	51	53	52	52		-1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
495	GF	New Road	50	45	44	44	46	45	45		-1	0
496	GF	Redeveloped	55	53	44	42	54	45	43		-9	0
497	GF	New Road	50	50	44	43	51	46	45		-6	0
498	GF	New Road	50	49	48	48	50	49	49		-1	0
499	GF	Redeveloped	55	54	51	51	55	52	52		-3	0
500	GF	Redeveloped	55	61	58	58	62	59	59		-3	0
501	GF	New Road	50	49	42	41	50	43	42		-7	0
502	GF	New Road	50	49	48	48	50	49	49		-1	0
503	GF	Redeveloped	55	56	54	54	57	55	55		-2	0
504	GF	Redeveloped	55	51	50	50	52	51	51		-1	0
505	GF	New Road	50	50	48	48	51	49	49		-1	0
506	GF	New Road	50	50	49	49	51	51	51		0	0
507	GF	New Road	50	49	46	46	50	47	47		-3	0
508	GF	New Road	50	47	44	44	48	45	45		-3	0
509	GF	Redeveloped	55	56	53	53	57	55	55		-2	0
510	GF	Redeveloped	55	59	58	58	60	59	59		-1	0
511	GF	New Road	50	50	48	48	51	49	49		-2	0
512	GF	New Road	50	48	45	45	49	46	46		-3	0
513	GF	Redeveloped	55	56	53	53	56	54	54		-2	0
514	GF	Redeveloped	55	56	56	56	57	57	57		0	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
515	GF	New Road	50	50	49	49	51	51	51		0	0
516	GF	New Road	50	46	44	44	47	45	45		-1	0
517	GF	New Road	50	45	42	42	46	43	43		-3	0
518	GF	Redeveloped	55	52	50	50	53	51	51		-2	0
519	GF	Redeveloped	55	53	52	52	53	53	53		0	0
520	GF	New Road	50	47	45	45	48	46	46		-1	0
521	GF	New Road	50	49	47	47	50	48	48		-2	0
522	GF	New Road	50	47	46	46	48	47	47		-1	0
523	GF	New Road	50	49	48	48	50	49	49		0	0
524	GF	New Road	50	46	44	44	46	46	46		-1	0
525	GF	New Road	50	47	45	45	48	46	46		-1	0
526	GF	New Road	50	47	45	45	48	46	46		-2	0
527	GF	Redeveloped	55	57	57	57	58	58	58		0	0
528	GF	New Road	50	47	46	46	48	47	47		-1	0
529	GF	Redeveloped	55	52	49	49	53	51	51		-1	0
530	GF	New Road	50	46	44	44	47	46	46		-1	0
531	GF	New Road	50	50	50	50	51	51	51		0	0
532	GF	New Road	50	50	49	49	51	50	50		-1	0
533	GF	New Road	50	44	42	42	44	43	43		-1	0
534	GF	New Road	50	41	39	39	42	40	40		-2	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
535	GF	New Road	50	46	44	44	46	45	45		-1	0
536	GF	Redeveloped	55	56	56	56	57	57	57		0	0
537	GF	New Road	50	50	50	50	51	51	51		0	0
538	GF	New Road	50	43	42	42	44	43	43		-2	0
539	GF	Redeveloped	55	52	50	50	52	51	51		-2	0
540	GF	New Road	50	46	44	44	46	45	45		-1	0
541	GF	New Road	50	46	44	44	46	46	46		-1	0
542	GF	Redeveloped	55	56	55	55	57	56	56		0	0
543	GF	New Road	50	48	47	47	49	48	48		-1	0
544	GF	New Road	50	45	43	43	46	45	45		-1	0
545	GF	New Road	50	45	44	44	46	45	45		-1	0
546	GF	New Road	50	45	44	44	46	45	45		-1	0
547	GF	New Road	50	45	44	44	46	46	46		0	0
548	GF	New Road	50	45	44	44	46	45	45		-1	0
549	GF	New Road	50	45	44	44	46	45	45		-1	0
550	GF	New Road	50	41	39	39	42	40	40		-1	0
551	GF	New Road	50	48	47	47	49	48	48		-1	0
552	GF	New Road	50	47	46	46	48	47	47		-1	0
553	GF	New Road	50	45	43	43	46	44	44		-2	0
554	GF	New Road	50	44	42	42	45	44	44		-1	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
555	GF	New Road	50	46	44	44	47	46	46		-1	0
556	GF	New Road	50	46	44	44	47	46	46		-1	0
557	GF	New Road	50	44	43	43	45	44	44		-1	0
558	GF	Redeveloped	55	56	53	53	57	54	54		-3	0
559	GF	Redeveloped	55	58	55	55	59	57	57		-2	0
560	GF	Redeveloped	55	57	55	55	58	57	57		-1	0
561	GF	Redeveloped	55	56	54	54	57	55	55		-2	0
562	GF	Redeveloped	55	59	57	57	59	58	58		-2	0
563	GF	Redeveloped	55	54	52	52	55	53	53		-2	0
564	GF	Redeveloped	55	60	55	55	61	56	56		-5	0
565	GF	Redeveloped	55	55	52	52	55	53	53		-2	0
566	GF	Redeveloped	55	51	49	49	52	50	50		-2	0
567	GF	Redeveloped	55	52	50	50	53	51	51		-2	0
568	GF	Redeveloped	55	52	50	50	53	51	51		-2	0
569	GF	Redeveloped	55	52	50	50	53	51	51		-1	0
570	GF	Redeveloped	55	52	50	50	53	51	51		-1	0
571	GF	Redeveloped	55	52	50	50	53	51	51		-2	0
572	GF	New Road	50	50	47	47	50	48	48		-2	0
573	GF	New Road	50	50	47	47	51	49	49		-2	0
574	GF	New Road	50	50	48	48	51	49	49		-2	0

Ref	Floor	Designation	$L_{eq,9h}$ dB(A)	2017 'No Build'	2017 'Build'	2017 Project levels	2027 'No Build'	2027 'Build'	2027 Project levels	Acute in 2027	'Build' – 'No Build'	FH Detailed – RMS Ref
575	GF	New Road	50	51	48	48	51	49	49		-2	0
576	GF	Redeveloped	55	51	48	48	52	50	50		-2	0
577	GF	Redeveloped	55	51	49	49	52	50	50		-2	0
578	GF	Redeveloped	55	55	52	52	56	54	54		-2	0
579	GF	Redeveloped	55	56	52	52	57	53	53		-3	0
580	GF	Redeveloped	55	58	56	56	60	57	57		-3	0
581	GF	Redeveloped	55	59	55	55	60	56	56		-4	0
582	GF	Redeveloped	55	59	55	55	60	56	56		-4	0
583	GF	Redeveloped	55	58	54	54	60	56	56		-4	0
584	GF	Redeveloped	55	58	54	54	60	56	56		-4	0
585	GF	Redeveloped	55	58	54	54	59	56	56		-4	0
586	GF	Redeveloped	55	58	54	54	59	56	56		-4	0
587	GF	Redeveloped	55	57	54	54	58	55	55		-3	-1
588	GF	Redeveloped	55	57	53	53	58	55	55		-3	-1
589	GF	Redeveloped	55	56	52	52	57	54	54		-3	-1
590	GF	Redeveloped	55	61	52	50	62	53	51		-9	0
591	GF	Redeveloped	55	54	50	50	55	51	51		-3	0

APPENDIX E:
OPERATIONAL NOISE CONTOURS

APPENDIX F:
RESPONSE TO RMS & PV COMMENTS