



**TERRANOVIS PTY LTD
LOTS 2, 103 & 126 MADDINGTON ROAD
MADDINGTON**

**STATE PLANNING POLICY 5.4
NOISE MANAGEMENT PLAN**

JULY 2022

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ACOUSTIC ASSESSMENT
LOTS 2, 103 & 126 MADDINGTON ROAD
MADDINGTON

Job No: 22217

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FOR

TERRANOVIS PTY LTD

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1. INTRODUCTION

Herring Storer Acoustics was commissioned by Terranovis Pty Ltd to undertake an acoustical assessment of noise received within the development located at Lots 2, 103, 126 Maddington Road, Maddington.

As part of the study, the following was carried out:

- Monitor noise received within the development from vehicles travelling on Tonkin Highway.
- Determine by noise modelling the noise levels that would be received within the development from vehicles travelling on Tonkin Highway.
- Assess the predicted noise levels received at residence for compliance with the requirements of the WAPC State Planning Policy 5.4 “Road and Rail Noise” (SPP 5.4).
- If exceedances are predicted, comment on possible noise amelioration options for compliance with the appropriate criteria.

For information, the Subdivision plan is attached in Appendix A.

2. SUMMARY

Under the WAPC State Planning Policy 5.4, for this development, the appropriate “Noise Targets” to be achieved under SPP 5.4, external to a residence are:

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}

The policy states that the “outdoor targets are to be met at all outdoor areas as far as reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines”. The Policy also states, under Section 6 – Policy Measures that “a reasonable degree of acoustic amenity for living areas on each residential lot”. The policy recognises that “it may not be practicable to meet the outdoor noise targets”.

The Policy states the following acceptable internal noise levels:

Internal

Living and Work Areas	$L_{Aeq(Day)}$ of 40 dB(A)
Bedrooms	$L_{Aeq(Night)}$ of 35 dB(A)

For this development, compliance with the requirements of SP 5.4, noise modelling and assessment are based on the day period for residence located adjacent to Tonkin Highway, as compliance with the day period would yield compliance with the night period.

Noise contours from vehicles travelling along Tonkin Highway are provided in Appendix B, with lots requiring “Quiet House Design” Packages and/or Notification on the Title shown in Appendix C.

3. CRITERIA

3.1 NOISE

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 “Road and Rail Noise”. The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)

When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

- a) noise-sensitive land-use within the policy’s trigger distance of a transport corridor as specified in **Table 1**;
- b) New or major upgrades of roads as specified in **Table 1** and maps (**Schedule 1,2 and 3**); or
- c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3**); or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.

Policy trigger distances (Section 4.1.2)

Table 1 identifies the State’s transport corridors and the trigger distances to which the policy applies.

The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.

Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent.”

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

Table 2 sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

In the application of the noise targets the objective is to achieve:

- indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	New/Upgrade	Noise Targets		
		Outdoor		Indoor
		Day (L _{Aeq} (Day) dB) (6 am-10 pm)	Night (L _{Aeq} (Night)dB) (10 pm-6 am)	(L _{Aeq} dB)
Noise-sensitive land-use and/or development	New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor	55	50	L _{Aeq} (Day) 40(Living and work areas) L _{Aeq} (Night) 35 (bedrooms)
Roads	New	55	50	N/A
	Upgrade	60	55	N/A
Railways	New	55	50	N/A
	Upgrade	60	55	N/A

Notes:

- *The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.*
- *For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.*
- *The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.*
- *Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.*

Noise Exposure Forecast (Section 6.2)

*When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:*

- *no further measures is required;*
- *noise-sensitive land-use and/or development is acceptable subject to deemed-to-comply mitigation measures; or*
- *noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/or development is subject to mitigation measures outlined in a noise management plan.”*

3.2 APPROPRIATE CRITERIA

Based on the above, the following criteria are proposed for this development:

External

Day	55 dB(A) L_{Aeq}
Night	50 dB(A) L_{Aeq}

Internal

Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

Additional to these criteria, noise received at an outdoor area, where practicable, should also achieve an L_{Aeq} of 50 dB(A) during the night period.

4. MEASUREMENTS AND OBSERVATIONS

Noise logging was conducted in the vicinity of the site from 27 June 2022 to 1 July 2022. The noise data logger was located 30m to the west of Tonkin Highway, between the road and Tarling Place, which bounds the development.

The automatic noise data logger records sound pressure levels in accordance with Australian Standard 2702-1984: *Acoustics - Method for Measurement of Road Traffic Noise*. The logger used records statistical noise level data, of which the L_{A10} , L_{Aeq} and L_{A90} levels are reported. These are defined below:

- L_{A10} The noise level exceeded for 10% of the time (in this instance, the noise level exceeded for 6 minutes in each 1-hour period).
- L_{Aeq} The energy equivalent noise level for the 1-hour period. A single number value that expresses the time-varying sound level for the 1-hour period as though it were a constant sound level with the same total sound energy as the time-varying level.
- L_{A90} The noise level exceeded for 90% of the time (in this instance, the noise level exceeded for 54 minutes in each 1-hour period).

The logger used was a NSRT MK3 noise data logger. The Noise Logger was calibrated prior to and after use with a Bruel and Kjaer 4230 Calibrator. All equipment used is currently factory calibrated. Calibration certificates are available on request.

The results of the noise logging are summarised in Table 4.1.

TABLE 4.1 - SUMMARY OF MEASURED NOISE LEVELS

Measurement Location	Measured/Calculated Noise Level, dB(A)		
	L_{A10}	$L_{Aeq, \text{ day (6am to 10pm)}}$	$L_{Aeq, \text{ night (10pm to 6am)}}$
30m Tonkin Highway Edge	68.8	65.8	61.5

5. MODELLING

To determine the noise levels from traffic on Tonkin Highway, acoustic modelling was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN)¹ algorithms.

The input data for the model included:

- Topographical data, with the ground level within the development based on natural ground levels as per Google Earth and provided subdivision layout.
- Cadastral subdivisional layout as supplied by client (Shown in Appendix A).
- Traffic data as per Table 5.1 (Shown in Appendix E); and
- Adjustments as listed in Table 5.2.

¹ *Calculation of Road Traffic Noise* UK Department of Transport 1987

TABLE 5.1 - NOISE MODELLING INPUT DATA

Parameter	Tonkin Highway (Current) 2016	Tonkin Highway (Future) 2041
Traffic Volumes	47,400 vpd	123,000 vpd
Percentage traffic 0600 – 2400 hours (Assumed)	94%	94%
Heavy Vehicles (%) (Assumed)	14.5%	14.5%
Speed (km/hr)	100km/hr	100km
Road Surface	10mm Chip Seal (Assumed)*	Dense Graded Asphalt

A 10mm chip seal with an adjustment of +2.5 dB has been assumed as a representative surface.

TABLE 5.2 – ADJUSTMENTS FOR NOISE MODELLING

Description	Value
Façade Reflection Adjustment	+2.5 dB
Conversion from L_{A10} (18 hour) to L_{Aeq} (16 hour) (Day)	-3.5 dB*

* Based on measured results listed in Table 4.1.

Based on the noise monitoring, the difference between the $L_{Aeq,(16hr)}$ and $L_{Aeq,(8hr)}$ is -4.3 dB, hence, the night period is the critical period for compliance. Hence, achieving compliance with the night period criteria would also result in compliance with the day period criteria.

The following three modelling scenarios were run to ascertain the practicability of the use of a noise barrier.

1. No noise barrier
2. 1.8m noise barrier on Eastern side of Tarling Place
3. 2.4m noise barrier on Eastern side of Tarling Place.

The location of the proposed noise barrier is shown on Appendix A.

6. DISCUSSION / RECOMMENDATION

Under the WAPC State Planning Policy 5.4, for this development, the appropriate “Noise Targets” to be achieved under SPP 5.4, external to a residence are:

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}

The policy states that the “outdoor targets are to be met at all outdoor areas as far as reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines”. The Policy also states, under Section 6 – Policy Measures that “a reasonable degree of acoustic amenity for living areas on each residential lot”. The policy recognises that “it may not be practicable to meet the outdoor noise targets”, however it is recommended that consideration be taken for individual lots be designed in such a way to protect the Outdoor Living Area.

The Policy states the following acceptable internal noise levels:

Internal

Living and Work Areas	$L_{Aeq(Day)}$ of 40 dB(A)
Bedrooms	$L_{Aeq(Night)}$ of 35 dB(A)

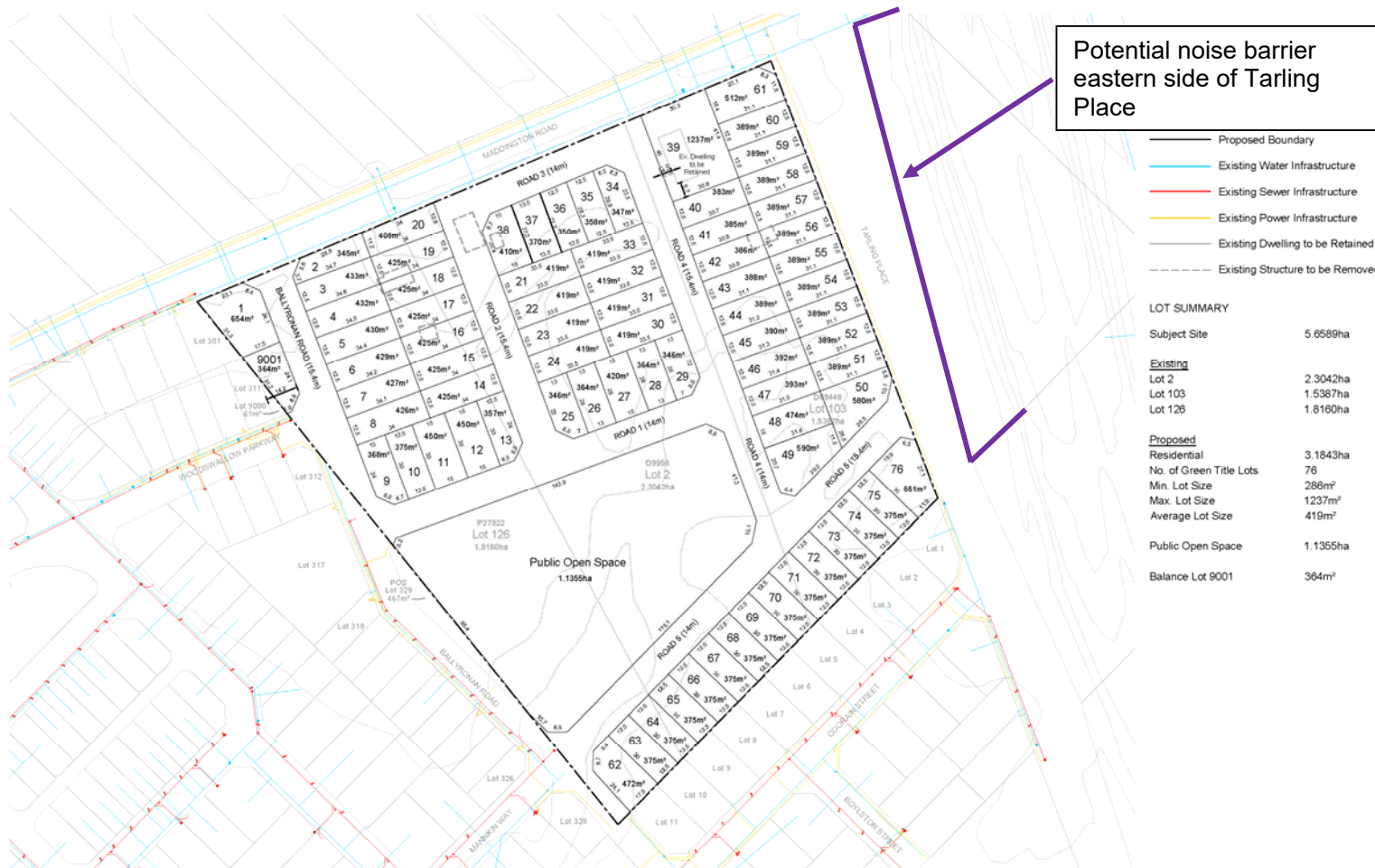
For this development, compliance with the requirements of SP 5.4, noise modelling and assessment are based on the night period for residence located adjacent to Tonkin Highway, as compliance with the night period would yield compliance with the day period

Noise contours from vehicles travelling along Tonkin Highway are provided in Appendix B with lots that require "Quiet House Design" Packages and/or Notification on the Title shown in Appendix C.

Noise contours indicate that regardless of the implementation of a noise barrier along the eastern edge of Tarling place, the "Quiet House Design" package requirements would be the same.

APPENDIX A

SUBDIVISION PLAN



Potential noise barrier eastern side of Taring Place

- Proposed Boundary
- Existing Water Infrastructure
- Existing Sewer Infrastructure
- Existing Power Infrastructure
- Existing Dwelling to be Retained
- - - Existing Structure to be Removed

LOT SUMMARY

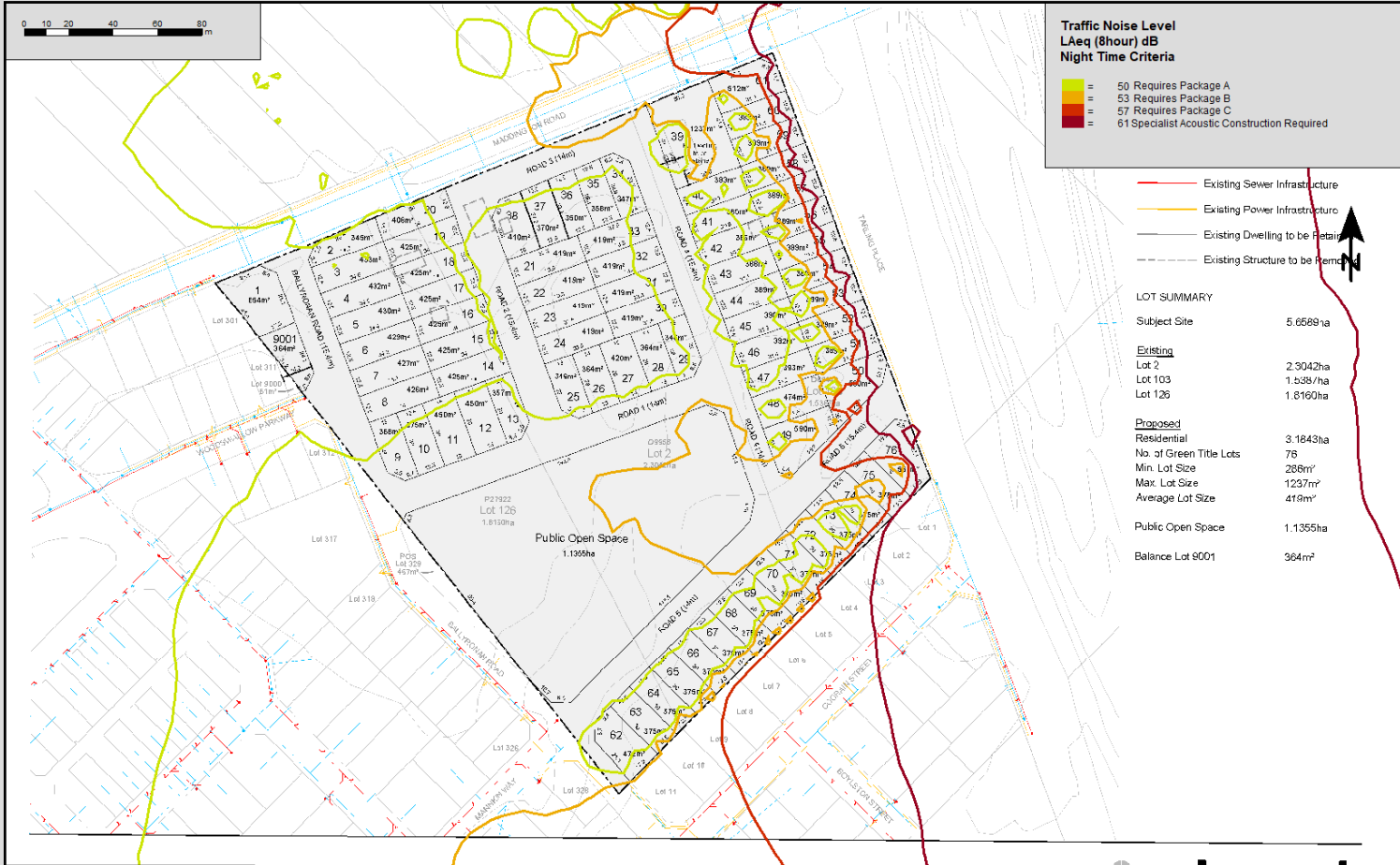
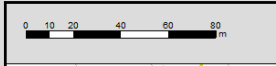
Subject Site	5.6589ha
Existing	
Lot 2	2.3042ha
Lot 103	1.5387ha
Lot 126	1.8160ha
Proposed	
Residential	3.1843ha
No. of Green Title Lots	76
Min. Lot Size	286m ²
Max. Lot Size	1237m ²
Average Lot Size	419m ²
Public Open Space	1.1355ha
Balance Lot 9001	364m ²

Subdivision Plan
 Lots 2 (227), 103 (235) and 126 (219) Maddington Road, Maddington

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APPENDIX B

$L_{Aeq(16hr)}$ DAY NOISE CONTOURS



**Traffic Noise Level
LAeq (8hour) dB
Night Time Criteria**

50	Requires Package A
53	Requires Package B
57	Requires Package C
61	Specialist Acoustic Construction Required

- Existing Sewer Infrastructure
- Existing Power Infrastructure
- Existing Dwelling to be Retain
- - - Existing Structure to be Demolish

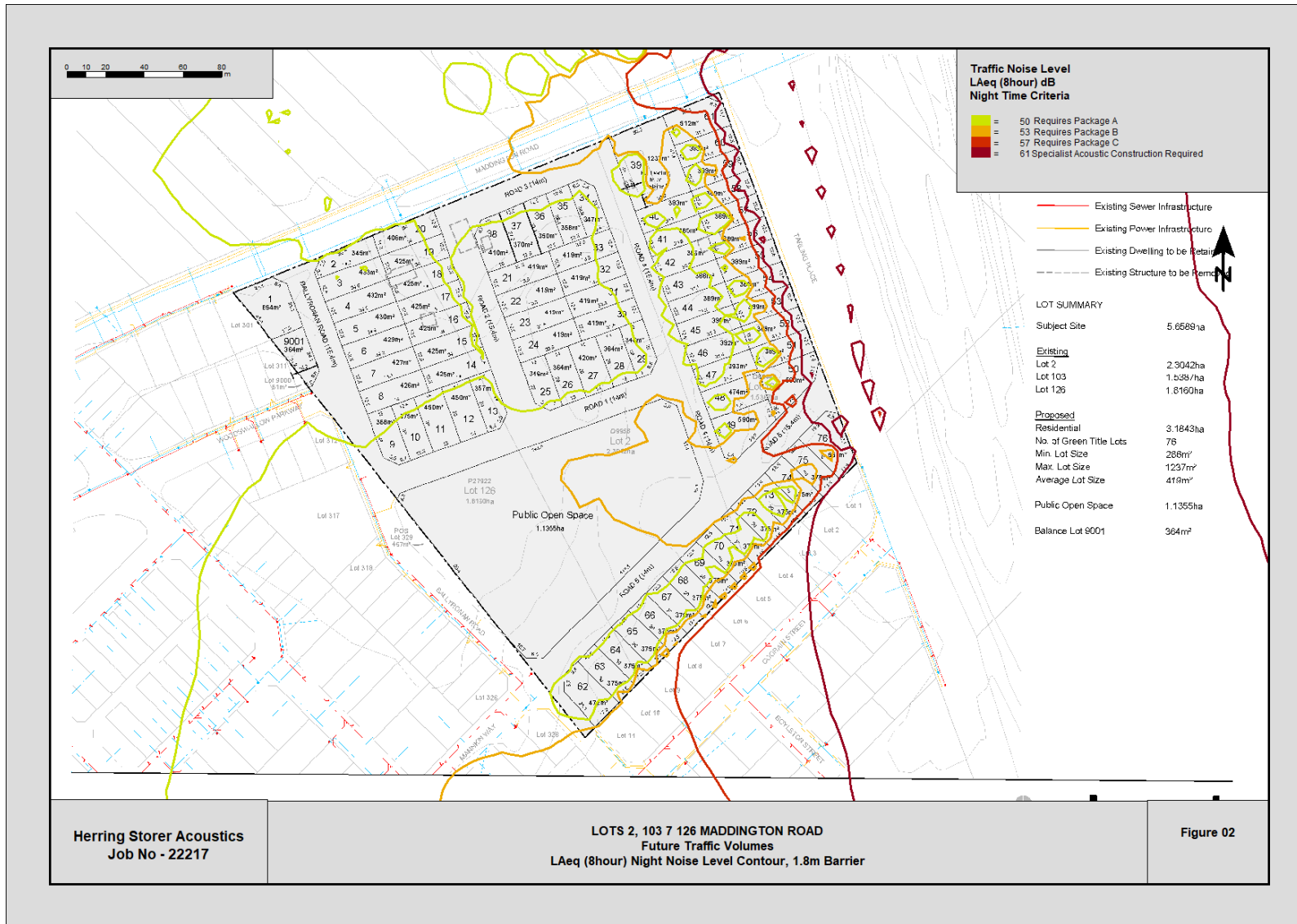
LOT SUMMARY

Subject Site	5.6589ha
Existing	
Lot 2	2.9042ha
Lot 103	1.538/ha
Lot 126	1.8160ha
Proposed	
Residential	3.1843ha
No. of Green Title Lots	76
Min. Lot Size	208m ²
Max. Lot Size	1237m ²
Average Lot Size	419m ²
Public Open Space	1.1355ha
Balance Lot 9001	364m ²

Herring Storer Acoustics
Job No - 22217

LOTS 2, 103 7 126 MADDINGTON ROAD
Future Traffic Volumes
LAeq (8hour) Night Noise Level Contour

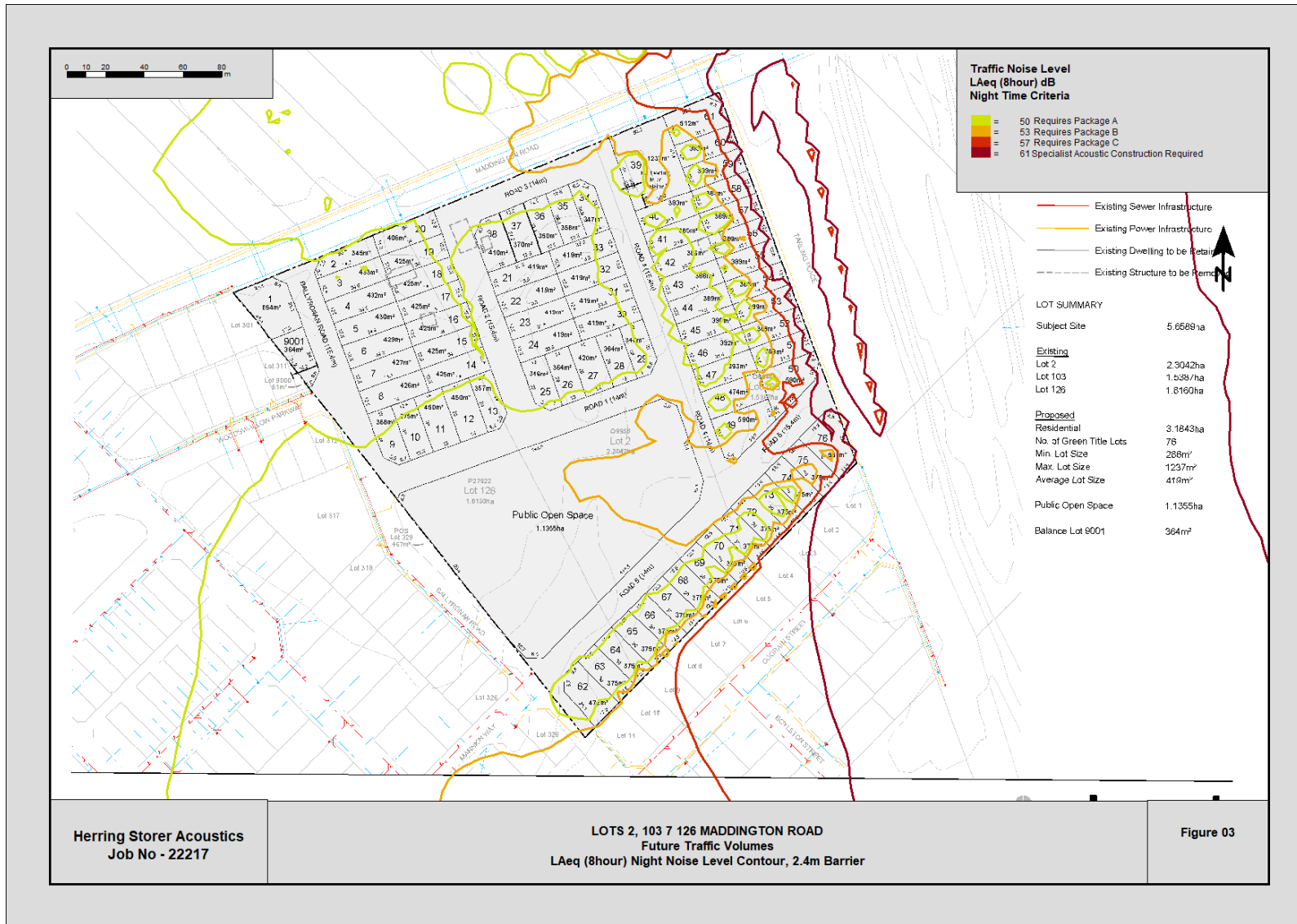
Figure 01



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LOTS 2, 103 7 126 MADDINGTON ROAD
 Future Traffic Volumes
 LAeq (8hour) Night Noise Level Contour, 1.8m Barrier

Figure 02



APPENDIX C

LOTS REQUIRING “QUIET HOUSE” DESIGN AND / OR NOTIFICATIONS

SCENARIO 2 – “QUIET HOUSE” DESIGN REQUIREMENTS

Note: Alternative constructions to those listed for are acceptable, provided they are assessed, and a report is submitted by a suitably qualified acoustic consultant.

Requires “Package A” Quiet House Design and Notification on Titles

Requires “Package B” Quiet House Design and Notification on Titles

Requires “Package C” Quiet House Design and Notification on Titles

Requires “Package D” Quiet House Design and Notification on Titles



- LEGEND**
- Application Area
 - Existing Boundary
 - Existing Contours / Survey
 - Proposed Boundary
 - Existing Water Infrastructure
 - Existing Sewer Infrastructure
 - Existing Power Infrastructure
 - Existing Dwelling to be Retained
 - Existing Structure to be Removed

LOT SUMMARY

Subject Site	5.6589ha
Existing	
Lot 2	2.3042ha
Lot 103	1.5387ha
Lot 126	1.8160ha
Proposed	
Residential	3.1843ha
No. of Green Title Lots	76
Min. Lot Size	298m ²
Max. Lot Size	1237m ²
Average Lot Size	419m ²
Public Open Space	1.1355ha
Balance Lot 9001	364m ²

Subdivision Plan
 Lots 2 (227), 103 (235) and 126 (219) Maddington Road, Maddington

SCENARIO 3 – “QUIET HOUSE” DESIGN REQUIREMENTS

Note: Alternative constructions to those listed for are acceptable, provided they are assessed, and a report is submitted by a suitably qualified acoustic consultant.

Requires “Package A” Quiet House Design and Notification on Titles

Requires “Package B” Quiet House Design and Notification on Titles

Requires “Package C” Quiet House Design and Notification on Titles

Requires “Package D” Quiet House Design and Notification on Titles



- LEGEND**
- Application Area
 - Existing Boundary
 - Existing Contours / Survey
 - Proposed Boundary
 - Existing Water Infrastructure
 - Existing Sewer Infrastructure
 - Existing Power Infrastructure
 - Existing Dwelling to be Retained
 - Existing Structure to be Removed

LOT SUMMARY

Subject Site	5.6589ha
Existing	
Lot 2	2.3042ha
Lot 103	1.5387ha
Lot 126	1.8160ha
Proposed	
Residential	3.1843ha
No. of Green Title Lots	76
Min. Lot Size	298m ²
Max. Lot Size	1237m ²
Average Lot Size	419m ²
Public Open Space	1.1355ha
Balance Lot 9001	364m ²

Subdivision Plan
 Lots 2 (227), 103 (235) and 126 (219) Maddington Road, Maddington

APPENDIX D

“QUIET HOUSE” DESIGN – GENERAL INFORMATION

Road Traffic and Passenger Rail - Quiet House Requirements
(Based on Table 3 of State Planning Policy 5.4 2019)

Exposure Category	Orientation to corridor	Acoustic ratings					Mechanical ventilation/air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor Living areas	
A Quiet House A	Facing	Bedroom and Indoor Living and work areas ➤ $R_w + C_{tr}$ 45dB	Bedrooms: ➤ $R_w + C_{tr}$ 28dB Indoor Living and work areas: ➤ $R_w + C_{tr}$ 25dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 28 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 25 dB	➤ $R_w + C_{tr}$ 35dB	➤ At least one outdoor living area located on the opposite side of the building from the transport corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces
	Side On	Bedrooms: ➤ $R_w + C_{tr}$ 25dB Indoor Living and work areas: ➤ $R_w + C_{tr}$ 22dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 25 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 22 dB				
	Opposite	No specific requirements	No specific requirements				
B Quiet House B	Facing	Bedroom and indoor living and work areas ➤ $R_w + C_{tr}$ 50dB	Bedrooms ➤ $R_w + C_{tr}$ 31dB Indoor Living and work areas: ➤ $R_w + C_{tr}$ 28dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 31 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 28 dB	➤ $R_w + C_{tr}$ 35dB	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces
	Side-On	Bedrooms ➤ $R_w + C_{tr}$ 28dB Indoor Living and work areas: ➤ $R_w + C_{tr}$ 28dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 28 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 25 dB				
	Opposite	Bedrooms ➤ $R_w + C_{tr}$ 25dB Indoor Living and work areas: ➤ $R_w + C_{tr}$ 25dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 25 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 22 dB				
C Quiet House C	Facing	Bedroom and indoor living and work areas ➤ $R_w + C_{tr}$ 50dB	Bedrooms ➤ No External doors to bedrooms facing the corridor Indoor Living and work areas ➤ $R_w + C_{tr}$ 31dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 31dB) Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 31dB	➤ $R_w + C_{tr}$ 40dB	➤ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	➤ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces.
	Side-on		Bedrooms ➤ $R_w + C_{tr}$ 31dB Indoor Living and work areas ➤ $R_w + C_{tr}$ 28dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 31 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 28 dB			
	Opposite		Bedrooms: ➤ $R_w + C_{tr}$ 28dB Indoor Living and work areas: ➤ $R_w + C_{tr}$ 28dB	Bedrooms: Window size dependant ➤ Minimum $R_w + C_{tr}$ 28 dB Indoor Living and work areas Window size dependant ➤ Minimum $R_w + C_{tr}$ 25 dB			

D Quiet House C	Facing	Bedroom and indoor living and work areas R_w+C_{tr} 55dB Must be Masonry	Bedrooms ➤ No External doors to bedrooms facing the corridor Indoor Living and work areas R_w+C_{tr} 34dB	Bedrooms: Window size dependant ➤ Minimum R_w+C_{tr} 34dB) Indoor Living and work areas Window size dependant Minimum R_w+C_{tr} 34dB	➤ R_w+C_{tr} 40dB	At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces.
	Side-on		Bedrooms ➤ R_w+C_{tr} 34dB Indoor Living and work areas R_w+C_{tr} 31dB	Bedrooms: Window size dependant ➤ Minimum R_w+C_{tr} 34 dB Indoor Living and work areas Window size dependant Minimum R_w+C_{tr} 31 dB			
	Opposite		Bedrooms: ➤ R_w+C_{tr} 31dB Indoor Living and work areas: R_w+C_{tr} 31dB	Bedrooms: Window size dependant ➤ Minimum R_w+C_{tr} 31 dB Indoor Living and work areas Window size dependant Minimum R_w+C_{tr} 28 dB			

Alternative construction may be used as long as deemed equivalent by a qualified Acoustic Consultant, ie "Specialist Acoustic Advice"

APPENDIX E

MRWA FUTURE TRAFFIC DATA

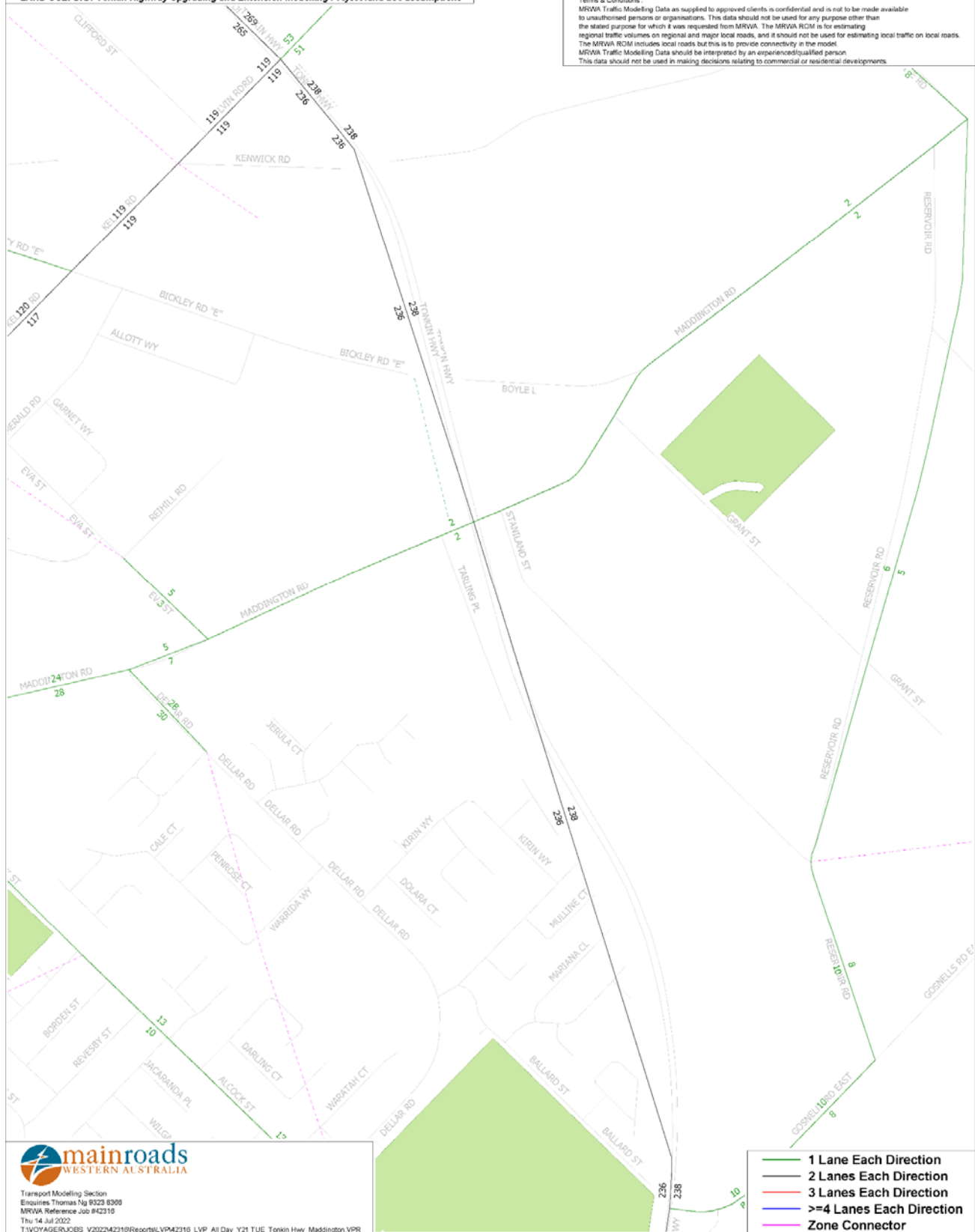
2021 ROM24 Scenario - Link Volume Plot for Tonkin Highway, Maddington Noise Assessment All Day Tonkin Highway Upgrading and Extension Modelling Project

MODEL ASSUMPTIONS

NETWORK: 2021 Tonkin Highway Upgrading and Extension Modelling Project network assumptions
LAND USE: 2021 Tonkin Highway Upgrading and Extension Modelling Project land use assumptions

ROM24 Multi-Modal Model V4.40 24-Hour Traffic Volumes (Factor X 100)

Terms & Conditions:
MRWA Traffic Modelling Data as supplied to approved clients is confidential and is not to be made available to unauthorised persons or organisations. This data should not be used for any purpose other than the stated purpose for which it was requested from MRWA. The MRWA ROM is for estimating regional traffic volumes on regional and major local roads, and it should not be used for estimating local traffic on local roads. The MRWA ROM includes local roads but this is to provide connectivity in the model. MRWA Traffic Modelling Data should be interpreted by an experienced/qualified person. This data should not be used in making decisions relating to commercial or residential developments.



Transport Modelling Section
Enquiries Thomas Ng 8323 8300
MRWA Reference Job #42315
Thu 14 Jul 2022
T:\VOYAGER\JOBS_V2022\42315\Report\LP42315_LVP_All Day_Y21_TUE_Tonkin Hwy_Maddington_VPR



MRWA ROM24 Data Project - 10 June 2020

(Licensed to)

2041 ROM24 Scenario - Link Volume Plot for Tonkin Highway, Maddington Noise Assessment All Day

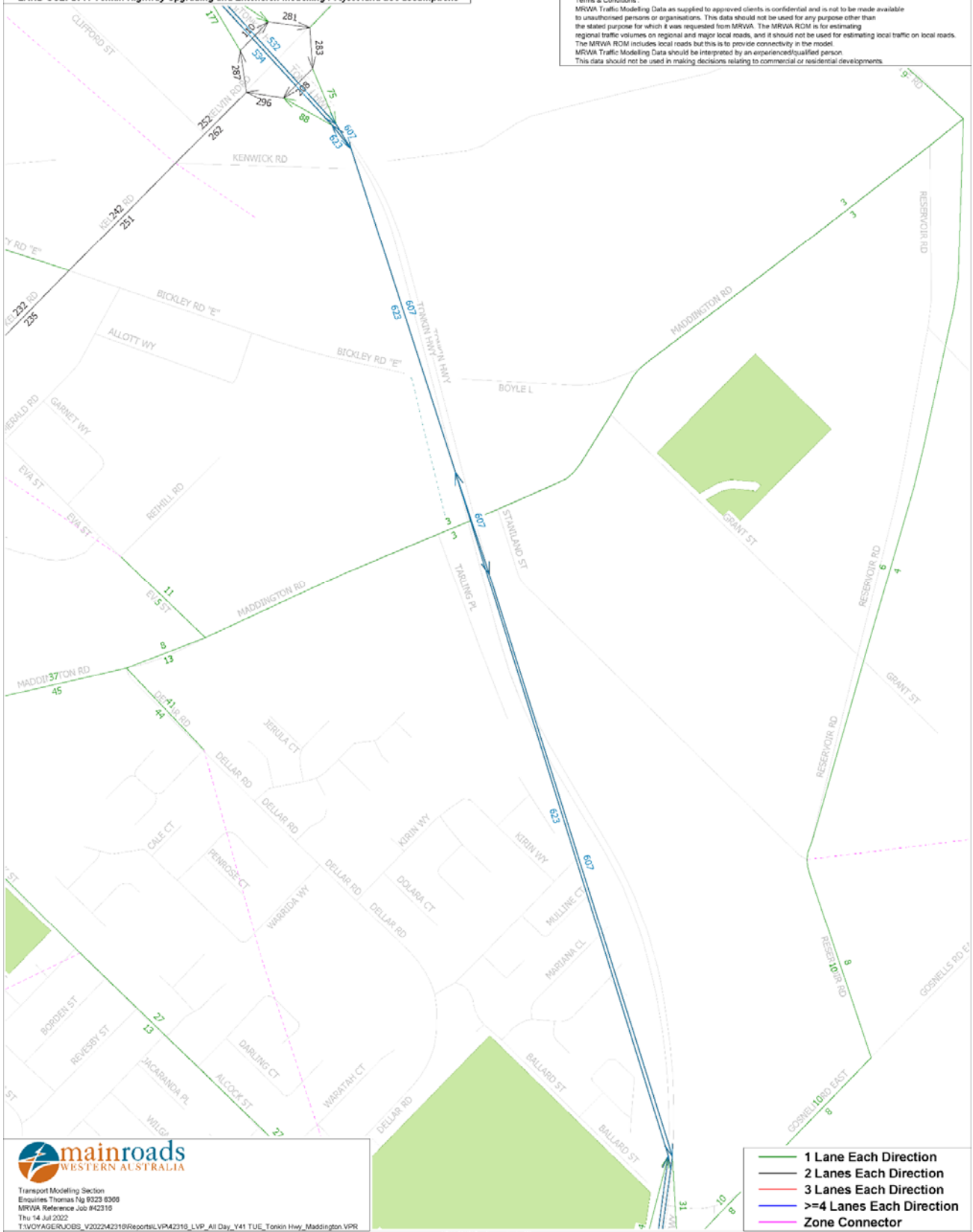
Tonkin Highway Upgrading and Extension Modelling Project

MODEL ASSUMPTIONS

NETWORK: 2041 Tonkin Highway Upgrading and Extension Modelling Project network assumptions
LAND USE: 2041 Tonkin Highway Upgrading and Extension Modelling Project land use assumptions

ROM24 Multi-Modal Model V4.40 24-Hour Traffic Volumes (Factor X 100)

Terms & Conditions:
 MRWA Traffic Modelling Data as supplied to approved clients is confidential and is not to be made available to unauthorised persons or organisations. This data should not be used for any purpose other than the stated purpose for which it was requested from MRWA. The MRWA ROM is for estimating regional traffic volumes on regional and major local roads, and it should not be used for estimating local traffic on local roads. The MRWA ROM includes local roads but this is to provide connectivity in the model. MRWA Traffic Modelling Data should be interpreted by an experienced/qualified person. This data should not be used in making decisions relating to commercial or residential developments.



mainroads
WESTERN AUSTRALIA

Transport Modelling Section
 Enquiries Thomas Ng 8323 8300
 MRWA Reference Job #42316
 Thu 14 Jul 2022
 T:\VOYAGER\JOBS_V2022\42316\Report\LVPA2316_LVP_All Day_Y41 Tue_Tonkin Hwy_Maddington_VPR

- 1 Lane Each Direction
- 2 Lanes Each Direction
- 3 Lanes Each Direction
- >=4 Lanes Each Direction
- Zone Connector