

Report

**Air Quality – 35-37 Dwyer Street and 372-374
Mann Street, North Gosford**

Stockbridge Properties Ptd Ltd

Job: 24-181

Date: 29 April 2025

Astute Environmental Consulting

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Approved for release by G. Galvin

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Astute Environmental Consulting Pty Ltd
15 Argon Street, Carole Park, QLD 4300
PO Box 6147, Clifford Gardens, QLD 4350
ABN – 50 621 887 232

admin@astute-environmental.com.au
www.astute-environmental.com.au

1 INTRODUCTION

This Astute Environmental Consulting report accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), in respect of a State Significant Development Application (SSDA) for a proposed mixed-use development at 35-37 Dwyer Street and 372-374 Mann Street, North Gosford.

Section 2.119 (2) (c) of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (NSW Government, 2024) states:

the development is of a type that is not sensitive to traffic noise or vehicle emissions, or is appropriately located and designed, or includes measures, to ameliorate potential traffic noise or vehicle emissions within the site of the development arising from the adjacent classified road.

1.1 Project Site

The project site is known as 35-37 Dwyer Street and 372-374 Mann Street, North Gosford and is legally known as Lot 4-5 in DP 15954, Lot 2A in DP 407164 and Lot 31 in DP 553523.

The site is irregularly shaped and has an area of 7,038.5 m². The site has a frontage of 86 m to Dwyer Street to the north and 34.2 m to Mann Street to the east.

An aerial photograph of the site is provided in Figure 1-1 below.



Figure 1-1: Local Area and Site

1.2 Project Description

The project is a mixed-use development which includes site preparation works, the construction of three buildings ranging in height from seven to 22 storeys, containing residential apartments, commercial/retail floor area and basement car parking, and the construction of a private road, landscaping and public domain improvements.

The current site plans are Revision F dated 24 January 2025.

2 REVIEW

2.1 Background

As shown in Figure 1-1 above, Mann Street, a classified road, sits adjacent to the most north easterly part of the site.

As the future uses will be sensitive as defined by NSW EPA (2022), and the setback from the curb to the building will be approximately 5 metres, consideration should be given to how the development can be designed to ameliorate potential vehicle emissions within the site, in particular at ground level facing Mann Street. Amelioration of vehicle emissions can be achieved via a number of design factors as discussed below.

2.2 Impact of Peak Hour Emissions

To assess the risk that vehicle emissions may pose, the Roadside air quality screening tool¹ (RAQST) (Transport for NSW, 2023; Transport for NSW, 2023b) was used. It is noted that the tool is regarded as typically being overly conservative (Transport for NSW, 2023).

The required inputs for the tool and the values adopted are included in Table 2-1 below. Vehicle traffic data was taken from the *Transport Assessment, 372-374 Mann Street & 35-37 Dwyer Street, North Gosford* (Ason Group, 2025)².

The existing traffic volumes were summarised in Section 2.5 of the Traffic Report. The morning and afternoon peaks along Mann Street were 1,239 vehicles per hour and 1,578 vehicles per hour respectively. For the calculations, the afternoon peak was adopted.

The existing outbound (north) and inbound (south) traffic during the afternoon was 645 vehicles per hour and 964 vehicles per hour respectively. Typical growth in the Sydney region is in the order of 1% to 3% per year. There are no Transport for NSW counting stations nearby. However, the Pacific Motorway data for Calga shows a small decrease over time. Therefore, rather than no growth, we have adopted a 2% per year growth. For the 2036 scenario, the afternoon peak based on the measured data from was calculated to be 2,001 vehicles per hour.

¹ “the tool”

² “the Traffic Report”

Table 2-1: Model Inputs

Variable	Input	Comment
Year	2036	Default
Traffic Period	Peak hour	User Selected
Road Type	Arterial	Based on definitions in Transport for NSW (2023)
Number of lanes in each direction	4	Based on aerial imagery.
Median width	0 m	
Lane width	3 m	
Traffic volume per lane as peak hour	Afternoon peak 1,962 veh/hr (includes 2% annual growth) Outbound 389 veh/hr per lane Inbound 611 veh/hr per lane	Calculated from Transport Assessment, 372-374 Mann Street & 35-37 Dwyer Street, North Gosford, P2437r01, 14/03/2025, Ason Group
Traffic Composition	Level 2	Default
Peak hour speed	30 km/hr	Default
Road gradient	Flat	Gradient is slight.
Distance to curb	5 m	User selected
Background data	See below	See below

Background data is required as part of the assessment. Background air quality in the area as measured at Wyong and is relatively good. Data for the recent years 2022 to 2024 was analysed and it was found that 2023 was an overly wet year. Irrespective of this, for conservatism the maximum concentrations for the three years were adopted as shown in Table 2-2 below. NO_x was calculated by converting the NO and NO₂ concentrations on an hourly basis from ppm to µg/m³ concentrations and then adding these together to calculate NO_x. Negative values were set to zero.

The results are compared to the relevant criterion from NSW EPA (2022) in Table 2-3 below. Compliance is predicted at 5 m.

Table 2-2: Adopted Background Air Quality Data

Pollutant	Averaging Period	Statistic	Value (µg/m ³)	Year
NO _x	1 hour	Maximum	173.3	2022
	Annual	Average	8.2	2023
PM ₁₀	24 hour	Maximum	43.7	2024
	Annual	Average	15.0	2024
PM _{2.5}	24 hour	Maximum	15.9	2023
	Annual	Average	4.9	2023

Table 2-3: Predicted Road Increment and Cumulative Concentrations – 5 m from curb

Pollutant	Averaging Period	Increment ($\mu\text{g}/\text{m}^3$)	Increment and Background ($\mu\text{g}/\text{m}^3$)	Criterion ($\mu\text{g}/\text{m}^3$)	Compliance
NO _x	1 hour	54.5	227.8	N/A	N/A
	Annual	10.9	19.1	N/A	N/A
NO ₂	1 hour	N/A	132.3	164	N/A
	Annual	5.1	12.7	31	Yes
PM ₁₀	24 hour	3.8	47.5	50	Yes
	Annual	1.5	16.5	25	Yes
PM _{2.5}	24 hour	2.3	18.2	25	Yes
	Annual	0.9	5.8	8	Yes

2.3 Design Factors

The results above show compliance for all criterion at 5 m from the curb along Mann Street. As Dwyer Street has lower traffic volumes, by default it will also comply. I note that the setback to the building is over 5 m at ground level with a distance of approximately 7 m from the curb to the closest use, which is commercial.

This does not negate the requirement for design factors, but indicates a low risk at or near ground level during peak hour as assessed.

Regarding amenity in the sensitive locations (commercial and residential) facing Mann Street (which carries the majority of the traffic), these should have windows and doors that are closable and can be considered sealed to reduce air entering the areas. This is an effective mitigation strategy during times of poor background air quality, for example from dust storms or bushfires.

Air conditioning should be provided in each sensitive location (residential or commercial place) so that windows, especially those facing Mann Street, can remain closed during periods of poor air quality. If installed, intakes for air conditioning systems (i.e. makeup air) should be placed as to avoid facing Mann Street where possible, especially at ground level. The Mechanical Spatial and Concept Layout Drawings prepared by Curzon + Partners (DAB1-100 rev J) indicates that this is the case. The drawings also indicate that split system air conditioning units are proposed for the units with the condenser outside on the balconies.

To achieve the desired outcome for commercial uses (as opposed to residential), air conditioning or ventilation systems should comply with *AS1668.2-2012 The use of ventilation and air-conditioning in buildings Mechanical ventilation in buildings* (Standards Australia, 2012).

3 CONCLUSION

Having regard to Section 2.119(2)(c) of State Environmental Planning Policy (Transport and Infrastructure) 2021, the design and location of the site can be done in a way that ensures the amelioration of vehicle emissions. To achieve this, considering the peak hour traffic on Mann Street the following recommendations are made:

- a. Each residential or commercial use should have doors and windows that are closable; and
- b. Each residential or commercial use should have air conditioning so that the use can be closed and air condition run if required.

4 REFERENCES

Ason Group, 2025. *Transport Assessment, 372-374 Mann Street & 35-37 Dwyer Street, North Gosford, P2437r01, 14/03/2025*, Sydney: Ason Group .

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