

CHATSWOOD 'DIVE SITE'

CHATSWOOD, NSW

AIR QUALITY IMPACT ASSESSMENT

RWDI # 2512617

10 December 2025

SUBMITTED TO

Landcom

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EXECUTIVE SUMMARY

This Preliminary Air Quality Impact Assessment report has been prepared by RWDI Australia Pty Ltd (RWDI) to support a state significant development application (SSDA) (ref. SSD- SSD-100006957) for the proposed development known as 'Chatswood 'Dive Site' Built-to-Rent' SSD located at 339 Mowbray Road, Chatswood (the Site).

This report has been prepared to assess potential air quality impacts during the planning proposal stage. Specifically, the report assessed the potential dust impacts associated with the construction of proposed development in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2022). This report also evaluated the potential impact of vehicle emissions from the Pacific Highway and Mowbray Road on the proposed development. In addition to vehicle traffic from nearby roads, potential other emission sources were investigated by reviewing the National Pollutant Inventory (NPI) for sites in the vicinity of the proposed development. Impacts from these sites were assessed to have a negligible risk.

A risk-based approach was adopted to assess dust emissions from the construction of the proposed development in accordance with the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) "Guidance on the Assessment of Dust from Demolition and Construction" (EPUK & IAQM, 2024). The assessment concluded that there would be a low risk of dust impacts from earthworks activity and medium risks from construction and track-out activities if no dust mitigation is applied. With the implementation of recommended mitigation measures, no significant air quality impacts are expected to occur during the construction of the proposed development.

From an air quality perspective, during the operation phase of the Proposed Development, there will be an increase in vehicles traveling and vehicular air contaminant emissions from vehicles traveling on the Pacific Highway and Mowbray Street are the main concern for future residents of the proposed development. A screening model tool developed by Transport of NSW; The Roadside Air Quality Screening Tool (RAQST) was used to assess air quality impacts from vehicle traffic emissions on the Pacific Highway. Cumulative impacts of NO₂, PM₁₀, and PM_{2.5} were assessed against applicable NSW EPA air quality criteria for distances from the Pacific Highway ranging from 50 m for AM and PM peak hour traffic. Worst case traffic scenario was considered: a slow-moving traffic with a vehicle speed of 10 km/h.

The level 1 air quality screening assessment concludes that there are no predicted air quality exceedances at 50 m from the Pacific Highway which is project façade of the BTR residential tower. Overall, the preliminary assessment show that there are no substantial air quality impacts on the proposed development site from the Pacific Highway and Mowbray Road.

This report completes the Level 1 air quality screening assessment in support of the BTR SSDA development.

1 INTRODUCTION

This Air Quality Impact Assessment (AQIA) report has been prepared to support a state significant development application (SSDA) (ref. SSD- SSD-100006957) for the proposed development known as 'Chatswood 'Dive Site' Built-to-Rent' SSD located at 339 Mowbray Road, Chatswood. (the Site).

The proposal involves the site preparation and development of a 23-storey mixed use development, consisting of commercial premises and a residential flat building with 180 build-to-rent dwellings. The building includes 4 storey podium and an additional 19 storey residential tower, including retail premises, services, lobby and communal open space. The proposed works include the preparation of the site, including connection of services and utilities and site fill to align with existing public domain.

A proposal for SSD requires the preparation of an Environmental Impact Statement (EIS). This report has been prepared in support of the EIS, and its purpose is to address/include the following (as relevant):

- Be prepared in accordance with the relevant NSW Environment Protection Authority (EPA) guidelines.
- Identify the existing and proposed future pollution/odour sources, particularly if the proposed use is to be a more sensitive, identify impacts (including cumulative impacts) from the proposed development and consider at a high-level the suitability of the site for the use from an air quality perspective.
- Recommend design choices or planning controls that can mitigate air quality impacts and land use conflicts.

1.1 Objectives

The purpose of this assessment is to document the process, objectives, and outcomes of the AQIA for the proposed development. This AQIA provides the following details:

- the existing environment;
- the land zoning of the site and neighbouring area;
- the closest existing sensitive receivers;
- relevant air quality criteria;
- construction air quality predictions for the proposed development and assumptions used in the assessment;
- predicted ground-level concentrations from vehicle emissions surrounding the area development;
- identification of the National Pollutant Inventory (NPI) sites near the project and evaluation of impacts of each NEPM-listed pollutant; and
- recommendations to minimise air quality impacts on affected receivers, if required.

The AQIA has been completed with reference to relevant guidelines and policies, namely:

- Air Quality relevant policies and guidelines from 'State Environmental Planning Policy (Infrastructure) 2007' (SEPP, 2007);
- Climate Averages Australia, Bureau of Meteorology (BOM, 2024);
- Environmental Protection Authority (EPA) guideline entitled "Approved Methods for the Modelling and Assessment of Air Pollutants in NSW" (NSW EPA, 2022);
- Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) "Guidance on the Assessment of Dust from Demolition and Construction" (EPUK & IAQM, 2024);



- 'Good Practice Guide for The Assessment and Management of Air Pollution from Road Transport Projects' released by The Clean Air Society of Australia & New Zealand (CASANZ, 2023); and
- State of NSW and Environment Protection Authority, Air Emissions in My Community web tool Substance information (NSW EPA, 2013); and
- NSW Government Department of Planning – 'Development Near Rail Corridors and Busy Roads – Interim Guideline' (DoP, 2008);

2 PROJECT DESCRIPTION

2.1 Project Location

The site known as the Chatswood 'Dive Site' consists of 20 lots located at 339 Mowbray Road, 569 Pacific Highway, 589 Pacific Highway, L 591 Pacific Highway, 607 Pacific Highway, 5 Bryson Street, and 8 Bryson Street, Chatswood. The site details are listed in below Table 2-1:

Table 2-1: Site Details

Address	Lot/Section/Plan
339 Mowbray Road, Chatswood	1/-/DP243111, 2/-/DP537580, 5/-/DP65670, 18/-/DP60346, 4/-/DP65670, 6/-/DP65670, 2/-/DP221896, 5/-/DP524631, 6/-/DP66854
569 Pacific Highway, Chatswood	1/-/DP204133
589 Pacific Highway, Chatswood	1/-/DP216408, 1/-/DP508715, 3/-/DP58646
L 591 Pacific Highway, Chatswood	1/-/DP503447
607 Pacific Highway, Chatswood	1/-/DP537580, 3/-/DP455907, 4/-/DP455907
5 Bryson Street, Chatswood	3/-/DP961402
8 Bryson Street, Chatswood	6/-/DP72759
Bryson Street, Chatswood	2/-/DP1223080

The site is located within the Willoughby City Local Government Area, approximately 7km north of Sydney CBD, and approximately 650 metres south of Chatswood Train Station and 650 metres north-west of Artarmon Train Station. The site is situated within the Chatswood CBD.

The site has a total area of approximately 18,854 square metres, however the BTR site is 2,789 square metres.

The site is located on the corner of Pacific Highway and Mowbray Road, with a northern site frontage to Nelson Street. The site is surrounded by detached residential development to the north, west and partially south. To the south of the south of the site includes functioning industrial uses. The site's eastern interface is to a functioning entrance to the Sydney Metro line and acts as a buffer to the rail line directly east.

The current site context is illustrated in the image below.



Figure 2-1: Aerial view of the site (Source: FK)

Figure 2-2 presents the Project location and surrounding land zoning.

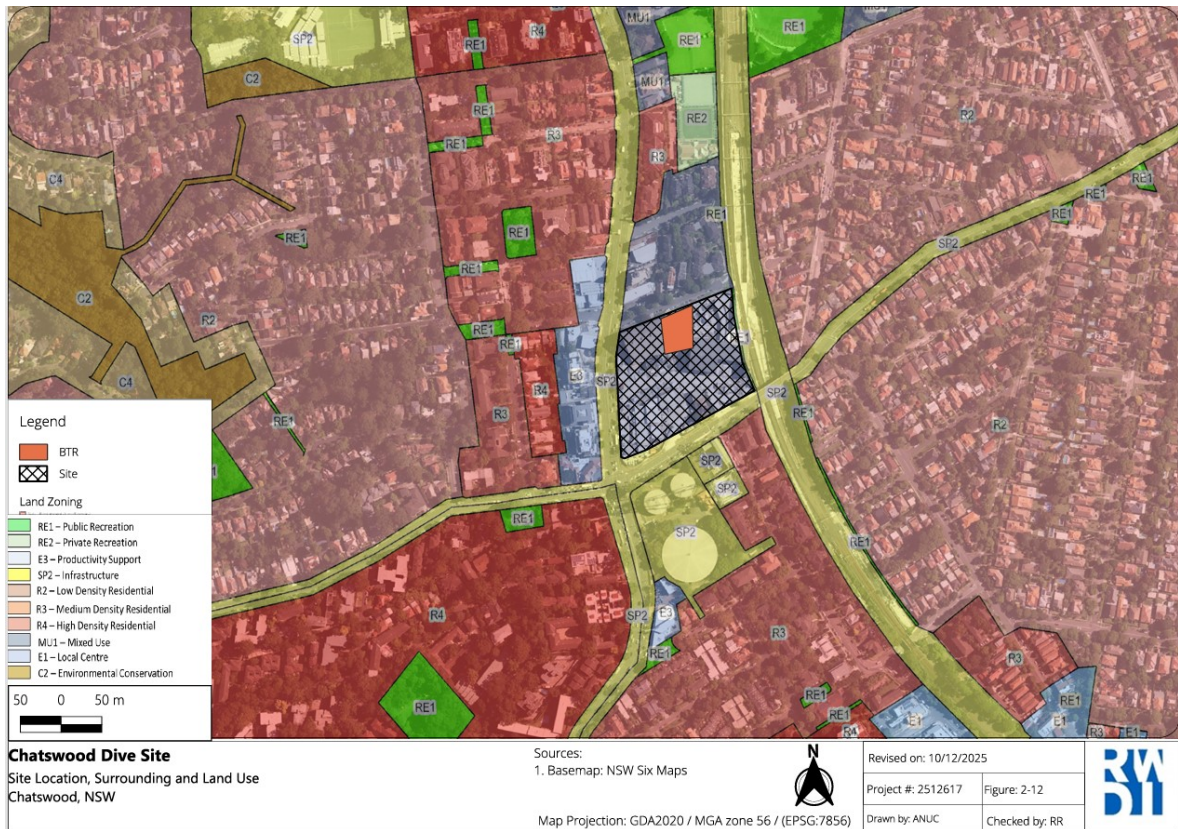


Figure 2-2: Site Location and Surrounding Land Zoning

Proponent

The landowner and Proponent is as follows:

- Landowner: Sydney Metro ABN 12 354 063 515
- Proponent: Landcom ABN 79 268 260 688

Landcom is in the final stages of completing the transaction of the site from Sydney Metro. Sydney Metro has given landowners consent for the lodgement of the SSDA.

2.2 Proposed Development

The Chatswood 'Dive Site' Concept SSDA involves the construction of a 23-storey (including ground floor) residential flat building with 180 build-to-rent dwellings. BTR SSDA will seek consent for:

Site subdivision and construction of a high density 23-storey mixed-use building for the delivery of 180 apartments, including a mixed-use podium and residential tower with a height of approximately 79.25m, and associated services, including the:

- Ground floor, including 5 residential dwellings facing the future streetscape, residential lobby and internal services, commercial/retail tenancies, services, lift shaft and fire stairs.
- Level 1 and 2 Podium, including 8 dwellings per floor inclusive of 5 terraces on Level 1, 37 car spaces total, services, lift core and fire stairs.
- Level 3 Podium, including the communal internal amenity area and communal outdoor space, services, lift core and fire stairs

- Level 4-10 Tower, including 8 dwellings, services, lift core and fire stairs
- Level 11-22 Tower, including 9 dwellings, services, lift core and fire stairs.
- Civil works, earthworks, and external landscaping, consisting of a mix of hard and green space and a public art feature.

The layout of the Project is shown in Figure 2-3.

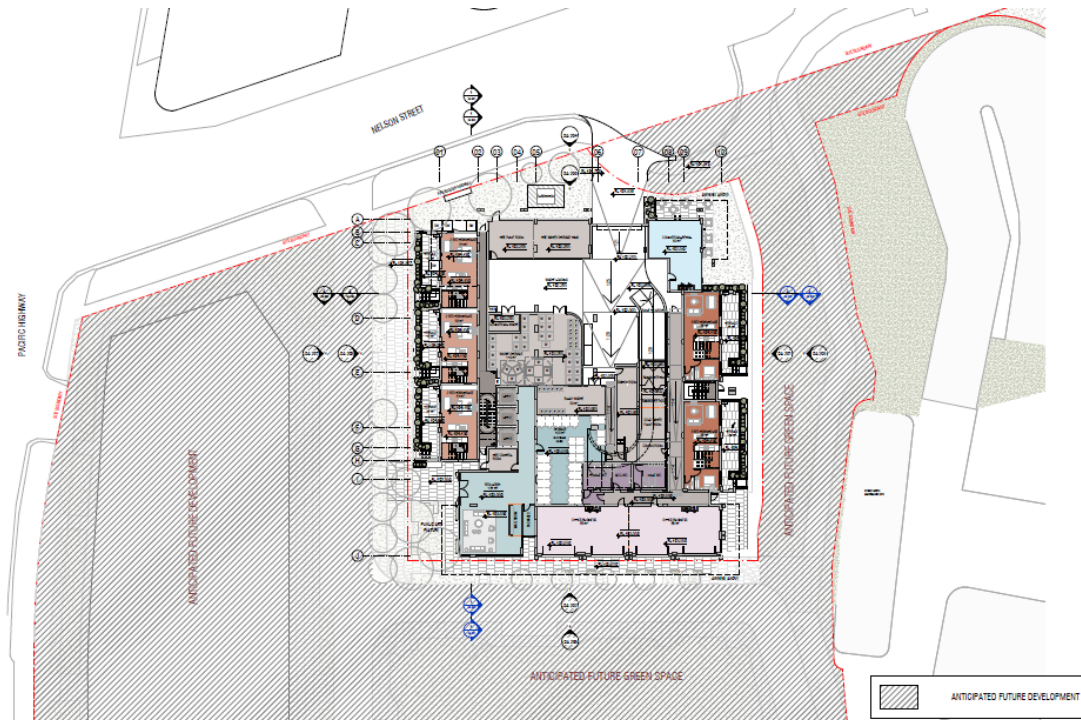


Figure 2-3: Proposed Site Layout- Ground floor Plan (Source: FK Australia dated 3 December 2025)

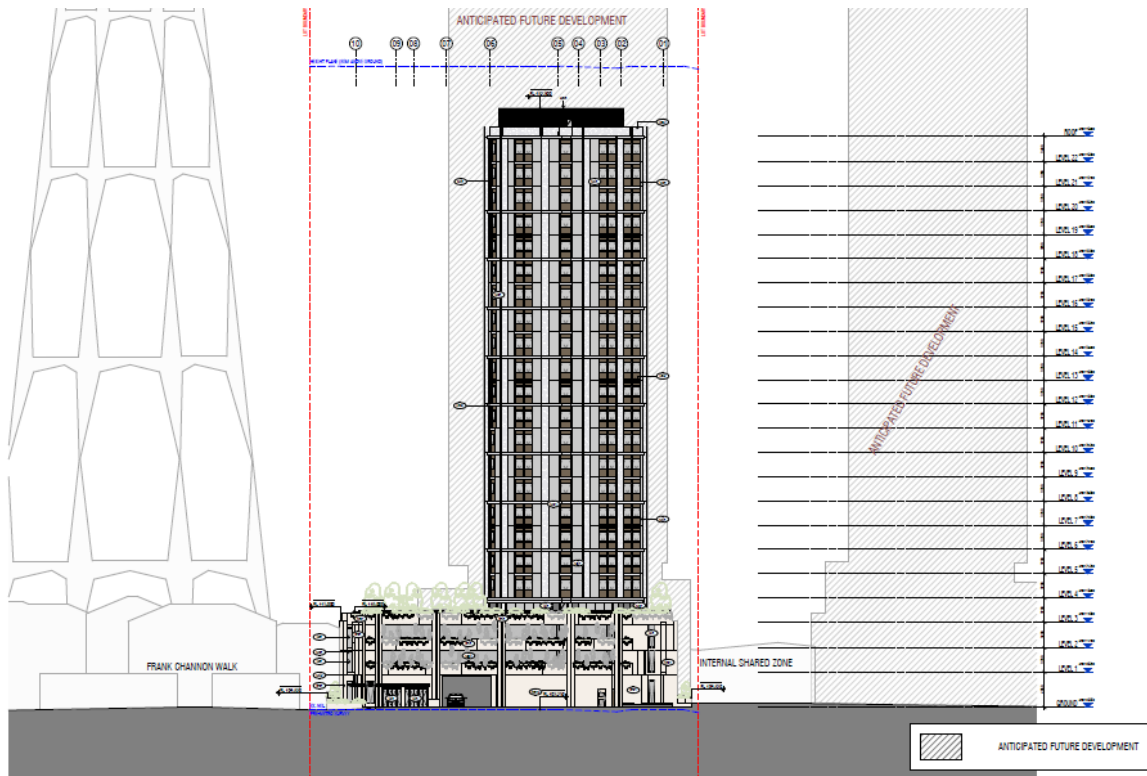


Figure 2-4: Proposed Site Layout – North Elevation (Source: FK Australia dated 3 December 2025)

2.3 Potential Sources of Air Contaminant Emissions Associated with the Project

Air contaminant emissions are likely to occur during the construction and operation of the proposed Development at 339 Mowbray Road, 569 Pacific Highway, 589 Pacific Highway, L 591 Pacific Highway, 607 Pacific Highway, 5 Bryson Street, and 8 Bryson Street, Chatswood. The most likely air contaminant sources for construction and operation are discussed in the following sections.

2.3.1 Construction Phase

At the time of preparing this assessment, a detailed construction programme was not developed, but the following stages and typical activities can be expected from this project. A summary of potential construction emissions is provided in Table 2-2.

Table 2-2: Construction Air Quality Emissions

Construction Stage	Key Air Quality Emissions
Land clearing/ demolition	<ul style="list-style-type: none"> Not Applicable as the site is cleared of all existing land features.

Construction Stage	Key Air Quality Emissions
<p style="text-align: center;">Excavation</p>	<ul style="list-style-type: none"> • Dust emissions from bulk earthworks. • Exhaust emissions from diesel power plant, equipment, and vehicles. • Potential odour emissions if contaminants are encountered during bulk earthworks. • Topsoil/material handling, including stockpiling, material loading and material haulage
<p style="text-align: center;">Construction of Structures</p>	<ul style="list-style-type: none"> • Dust emissions from the construction of buildings to the northern, western and eastern lot in stages. • Exhaust emissions from diesel power plant, equipment, and vehicles.
<p style="text-align: center;">Track out Construction of Roads</p>	<ul style="list-style-type: none"> • Dust emissions from bulk earthworks. • Exhaust emissions from diesel power plant, equipment, and vehicles.

Dust Emissions:

Dust emissions are expected from all the construction stages as identified in Table 2-2.

Dust or airborne particles present in the air at elevated levels can be hazardous to human health or cause a nuisance. Potential health effects of airborne particles are closely related to particle size. The most common particle size distributions considered in air quality studies are:

- PM_{2.5}: Particulate matter (PM) consisting of particles less than 2.5 µm (micrometres) in diameter – for assessment against health-based criteria;
- PM₁₀: PM consisting of particles less than 10 µm in diameter – for assessment against health-based criteria;
- TSP: total suspended particulates, generally up to 100 µm in diameter – for assessment against predominantly nuisance-based criteria; and
- Deposited dust particles – for assessment of dust nuisance.

PM₁₀ and PM_{2.5} are typically invisible, while larger particulates are typically visible to the naked eye.

During the temporary phase of construction, earthwork activities, including the moving of material and truck movements along haul roads (wheel-generated dust), short-term elevated levels of PM₁₀ and PM_{2.5} are likely to occur.

Exhaust Emissions:

It is likely that all stages of the construction would involve the use of diesel-fuelled equipment such as excavators, haulage trucks, cranes and light vehicles.

The use of diesel-fuelled equipment generates air pollutants including oxides of nitrogen (NO_x), carbon monoxide (CO) and particulate matter (mainly PM_{2.5}). Construction equipment is expected to move around the Site, and resulting exhaust emissions would be discontinuous, transient and mobile.

A qualitative assessment of potential dust emissions impacts is provided in Section 5 and mitigation measures are recommended in Section 6.

Odour:

If air contaminants are encountered during excavation works, odour emissions may occur. At this stage, no air contaminants are expected to be encountered during earthworks and therefore, odour emissions have not been assessed further for the construction phase.

2.3.2 Operational Phase

Potential sources of operational air contaminants from the Project would be combustion from increased traffic movements.

A summary of potential operational air contaminant emissions is provided in Table 2-3. A more detailed discussion of each emissions source is provided below.

Table 2-3: Operational Air Contaminant Emissions

Source Type	Key Air Contaminant Emissions
Traffic Emissions	<ul style="list-style-type: none">• Combustion exhaust emissions including NO_x and PM.• Fugitive PM emissions from nearby roadways and carpark.

Traffic emissions

Increased patronage to the area due to the Project may increase the number of vehicle movements on nearby roads which in turn would increase vehicle emissions.

3 AIR QUALITY CRITERIA

3.1 Introduction

Land-use planning has an important influence on air quality and, therefore, air quality should be a prime consideration for long-term planning, so that land is used and allocated in ways that minimise emissions and reduce the exposure of people to air pollution.

The Environmental Protection Authority (EPA) developed a guideline (“the Approved Methods”) that sets out applicable impact assessment criteria for several air pollutants (NSW EPA, 2022).

Transport and Infrastructure SEPP 2021 refers to guidelines that must be considered where development has a frontage to classified road is proposed in, or adjacent to, specific roads and railway corridors under Clause 2.119 – Development with Frontage to a Classified Road. The objective of clause is:

1. The objective of this section are:
 - to ensure that new development does not compromise the effective and ongoing operation and function of classified roads, and
 - to prevent or reduce the potential impact of traffic noise and vehicle emissions on development adjacent to classified roads.
2. The consent authority must not grant consent to development on land that has a frontage to a classified road unless it is satisfied that:
 - where practicable and safe, vehicular access to the land is provided by a road other than the classified road, and
 - the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development as a result of—
 - I. the design of the vehicular access to the land, or
 - II. the emission of smoke or dust from the development, or
 - III. the nature, volume or frequency of vehicles using the classified road to gain access to the land, and
 - 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.

In addition, major roads can impact air quality due to the volume of traffic they carry. Therefore, NSW DoP, 2008 (the Guideline) assists in reducing the health impacts of adverse air quality from road traffic on sensitive adjacent development. The Guideline assists in the planning, design, and assessment of development in, or adjacent to, rail corridors and busy roads.

When air quality should be a design consideration:

- Within 10 m of a congested collector road (traffic speeds of less than 40 km/h at peak hour) or a road grade > 4% or heavy vehicle percentage flows > 5%;
- Within 20 m of a freeway or main road (with more than 2,500 vehicles per hour, moderate congestion levels of less than 5% idle time and average speeds of greater than 40 km/h);

- Within 60 m of an area significantly impacted by existing sources of air pollution (road tunnel portals, major intersection/roundabouts, overpasses, or adjacent major industrial sources); or
- As considered necessary by the approval authority based on consideration of site constraints and associated air quality issues.

Section 4.0 of the guideline provides the following guidance on developments located next to busy roads, which have challenges in terms of how to provide an acceptable level of air quality for the occupants and users of the development. Therefore, the following principles should be taken into consideration during the design stage to achieve improved air quality:

- Minimising the formation of urban canyons that reduce dispersion. Having buildings of different heights interspersed with open areas and setting back the upper stories of multi-level buildings, helps to avoid urban canyons.
- Incorporating an appropriate separation distance between sensitive uses and the road using broad scale site planning principles such as building siting and orientation. The location of living areas, outdoor space and bedrooms and other sensitive uses (such as childcare centres) should be as far as practicable from the major source of air pollution.
- Ventilation design and openable windows should be considered in the design of development located adjacent to roadway emission sources. When the use of mechanical ventilation is proposed, the air intakes should be sited as far as practicable from the major source of air pollution.
- Using vegetative screens, barriers, or earth mounds where appropriate to assist in maintaining local ambient air amenity. Landscaping has the added benefit of improving aesthetics and minimising visual intrusion from an adjacent roadway.

3.2 Pollutants of Interest

The primary sources of air emissions in the area immediately surrounding the proposed development are expected to be vehicles travelling along the Pacific Highway, and Mowbray Road. Air pollutant emissions emitted by motor vehicle exhausts include:

- Carbon Monoxide (CO);
- Nitrogen Oxides (NO_x);
- Particulate matter less than 2.5 µm in aerodynamic diameter (PM_{2.5});
- Particulate matter less than 10 µm in aerodynamic diameter (PM₁₀);
- Sulphur dioxide (SO₂); and
- Volatile Organic Compounds (VOCs).

3.3 Impact Assessment Criteria

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The criteria presented in the Approved Methods (NSW EPA, 2022) are consistent with the National Environment Protection Council's National Environment Protection (Ambient Air Quality) Measure (NEPC, 2021). The below section summarises the air quality criteria for the pollutants relevant to the study.

3.3.1 Carbon Monoxide

As per NSW EPA 2013, Carbon monoxide (CO) is a colourless, odourless gas and is a product of the incomplete combustion of fuels in motor vehicles. CO can have harmful effects on human health. These effects (which depend on exposure time and concentration in ambient air) are related to the formation of carboxy haemoglobin in the blood, which reduces the capacity of the blood to carry oxygen. People suffering from heart disease are most at risk.

Elevated concentrations of CO in ambient air mainly occur in areas with high traffic density and poor dispersion. Highest concentrations of CO are found at the kerbside with concentrations decreasing rapidly with increasing distance from the road. Table 3-1 summarises the air quality criteria for CO as per NSW EPA the Approved Methods.

Table 3-1: Impact Assessment Criteria – Carbon Monoxide (CO)

Pollutant	Averaging Period	Concentration
Carbon Monoxide (CO)	15 minutes	100 mg/m ³ (87 ppm)
	1 hour	30 mg/m ³ (25 ppm)
	8 hours	10 mg/m ³ (9 ppm)

3.3.2 Nitrogen Dioxide (NO₂)

As per NSW EPA 2013, Oxides of nitrogen (NO_x) mainly consist of nitric oxide (NO) and nitrogen dioxide (NO₂), which are collectively referred to as NO_x. NO is a colourless gas with a sweet odour, while NO₂ is a reddish-brown gas with a biting acrid odour.

The reactive nature of NO₂ makes it a particular concern for human health. It can cause inflammation of the respiratory system and increase susceptibility to respiratory infection. Exposure to elevated concentrations of NO₂ has also been associated with increased mortality, particularly related to respiratory disease, and increased hospital admissions for asthma and heart disease patients.

NO will be converted to NO₂ in the atmosphere after leaving a car exhaust. Table 3-2 summarises the air quality criteria for NO₂ as per NSW EPA the Approved Methods.

Table 3-2: Impact Assessment Criteria – Nitrogen Dioxide (NO₂)

Pollutant	Averaging Period	Concentration
Nitrogen Dioxide (NO ₂)	1 hour	164 µg/m ³ (8 pphm)
	Annual	31 µg/m ³ (1.5 pphm)

Note pphm = parts per hundred million

3.3.3 Particulate Matter (PM)

As per NSW EPA 2013, Particulate matter refers to matter suspended in ambient air, including solid particles, liquid droplets and aggregates of particles and liquids. The term “particulate matter” refers to a category of airborne particles, typically less than 30 microns (μm) in diameter and ranging down to 0.1 μm and is termed total suspended particulate (TSP). Emissions of particulate matter less than 10 μm and 2.5 μm in diameter (referred to as PM_{10} and $\text{PM}_{2.5}$ respectively) are considered important pollutants due to their ability to penetrate into the respiratory system.

In the case of the $\text{PM}_{2.5}$ category, recent health research has shown that this penetration can occur deep into the lungs. Potential adverse health impacts associated with exposure to PM_{10} and $\text{PM}_{2.5}$ include impact on cardiovascular health. People with heart or lung diseases, children and older adults are the most likely to be affected by exposure to particle pollution.

Combustion sources such as road transport are the major sources of PM_{10} and $\text{PM}_{2.5}$ emissions. Table 3-3 summarises the air quality criteria for PM_{10} and $\text{PM}_{2.5}$ as per NSW EPA the Approved Methods.

Table 3-3: Impact Assessment Criteria – Particulate Matter

Pollutant	Averaging Period	Concentration
Particulate Matter (PM_{10})	24 hours	50 $\mu\text{g}/\text{m}^3$
	Annual	25 $\mu\text{g}/\text{m}^3$
Particulate Matter ($\text{PM}_{2.5}$)	24 hours	25 $\mu\text{g}/\text{m}^3$
	Annual	8 $\mu\text{g}/\text{m}^3$

3.3.4 Sulphur Dioxide (SO_2)

As per NSW EPA 2013, Sulphur dioxide (SO_2) is a colourless gas with a pungent irritating smell. SO_2 emissions can mix with water vapour to form acids (acid rain) that can damage vegetation, alter the mineral content in soils, and corrode materials. Current scientific evidence links short-term exposure to SO_2 (ranging from 5 minutes to 24 hours) with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms. Studies show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.

The main sources of SO_2 in the air are industries that process materials containing sulphur (i.e. wood pulping, paper manufacturing, metal refining and smelting, textile bleaching, wineries etc.). SO_2 is also present in motor vehicle emissions, however since Australian fuels are relatively low in sulphur, high ambient concentrations are not common. Table 3-4 summarises the air quality criteria for SO_2 as per NSW EPA the Approved Methods.

Table 3-4: Impact Assessment Criteria – Sulphur Dioxide (SO_2)

Pollutant	Averaging Period	Concentration
Sulphur Dioxide (SO_2)	1 hour	215 $\mu\text{g}/\text{m}^3$ (7.5 pphm)
	24 hours	57 $\mu\text{g}/\text{m}^3$ (2 pphm)

3.3.5 Volatile Organic Compounds (VOCs)

As per NSW EPA 2013, VOCs can simply be considered as the sum of hydrocarbons (excluding methane) and oxygenated hydrocarbons. VOCs are emitted by a wide range of both natural and human-made sources including trees and grass, aerosols and solvents, paints, road transport and residential wood heaters. VOCs that are often typical of these sources include Benzene, Toluene, Ethylbenzene and Xylenes (often referred to as 'BTEX').

VOCs have a range of health impacts including irritation of the eyes, nose and throat, headaches, and damage to the organs and central nervous system. Benzene is a known carcinogen, and a key VOC linked with the combustion of motor vehicle fuels. Table 3-4 summarises the air quality criteria for the 4 VOCs known as BTEX (Benzene, Toluene, Ethylbenzene and Xylene), as per NSW EPA the Approved Methods.

Table 3-5: Impact Assessment Criteria – BTEX

Pollutant	Averaging Period	Concentration
Benzene	1 hour	29 µg/m ³ (0.009 ppm)
Toluene	1 hour	360 µg/m ³ (0.09 ppm)
Ethylbenzene	1 hour	8,000 µg/m ³ (1.8 ppm)
Xylene	1 hour	190 µg/m ³ (0.04 ppm)

4 EXISTING ENVIRONMENT

4.1 Local Meteorology

Meteorological conditions strongly influence air quality. Most significantly, wind speed, wind direction, temperature, relative humidity and rainfall affect the dispersion of air pollutants. The following sub-sections discuss the local meteorology near the Project site.

4.1.1 Long-Term Climate

Long-term meteorological data for the area surrounding the site is available from the Sydney Airport AMO (Site Number: 066037) operated by the Bureau of Meteorology (BoM). The Sydney Airport AMO is located approximately 16 km south of the Site and records wind speed, wind direction, temperature, humidity and rainfall.

Long-term climate statistics are presented in Table 4-1. Temperature data recorded at the Sydney Airport AMO indicate that January is the hottest month of the year, with a mean daily maximum temperature of 26.7°C. July is the coolest month with a mean daily minimum temperature of 7.4°C. June is the wettest month with an average rainfall of 124 mm falling over 9 days. There are, on average, 96 rain days per year, delivering 1096 mm of rain.

Table 4-1: Climate Averages for Sydney Airport AMO

Obs.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9am Mean Observations													
Temp (°C)	22.4	22.3	21.1	18.2	14.6	11.9	10.8	12.5	15.7	18.4	19.9	21.6	17.4
Hum (%)	70	73	73	71	73	74	71	65	62	61	64	66	69
3pm Mean Observations													
Temp (°C)	24.8	24.8	23.9	21.7	19.0	16.6	16.1	17.2	19.0	20.7	22.1	23.9	20.8
Hum (%)	60	63	61	59	58	57	52	49	51	54	56	58	57
Daily Minimum and Maximum Temperatures													
Min (°C)	19.0	19.2	17.7	14.4	11.1	8.8	7.4	8.4	10.7	13.4	15.6	17.7	13.6
Max (°C)	26.7	26.5	25.5	23.1	20.2	17.7	17.2	18.5	20.8	22.8	24.2	26.0	22.4
Rainfall													
Rain (mm)	94.7	117.6	122.9	107.8	98.4	123.0	72.5	77.4	59.8	71.3	81.0	73.0	1099.9
Rain (days)	8.3	8.6	9.6	8.5	8.3	8.7	6.8	6.8	6.8	7.9	8.3	7.8	96.4

Figure 4-1 presents the annual wind-roses for 9 am and 3 pm from the Sydney Airport AMO (from 1939 to 2025). The wind-rose diagram indicates a notable emphasis of north-westerly, westerly and south winds at 9 am and south-southeasterly and north-easterly winds at 3 pm.

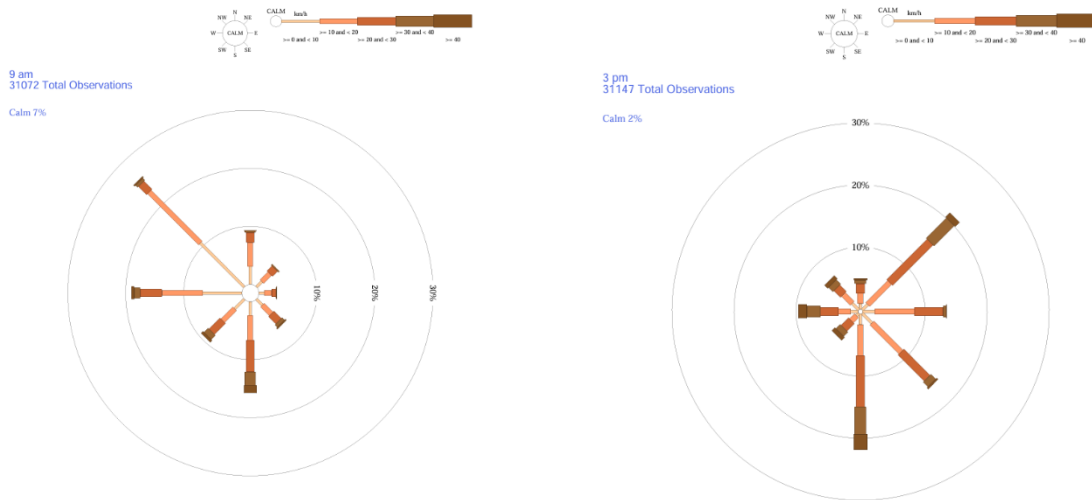


Figure 4-1: Sydney Airport 9 am and 3 pm Annual Wind Roses – Wind Speed in km/h (01 Apr 1939 to 10 Aug 2025)

4.1.2 Wind

The dispersion of dust emissions is primarily influenced by the following meteorological factors:

- wind speed and direction;
- wind profile and turbulence intensity (which are affected by terrain);
- temperature gradient, which affects atmospheric stability and is determined from wind speed, cloud cover and solar radiation; and
- mixing height, which is the depth of the atmospheric boundary layer, where most of the dispersion occurs.

Wind speed and atmospheric stability are examined with respect to flow direction to investigate typical flow regimes and directions of poor dispersion.

Observations of wind speed and direction recorded at the Sydney Olympic Park Station (Archery Centre) AWS – Station# 066212, have been used to describe typical wind patterns in the area surrounding the Site.

Figure 4 2 to Figure 4 7 show the annual and seasonal “wind rose” plots from Sydney Olympic Park Station (Archery Centre) AWS for the period from 2019 to 2023. As can be seen, winds from the north-west octants, east and south-east octants are most common in the annual wind roses.

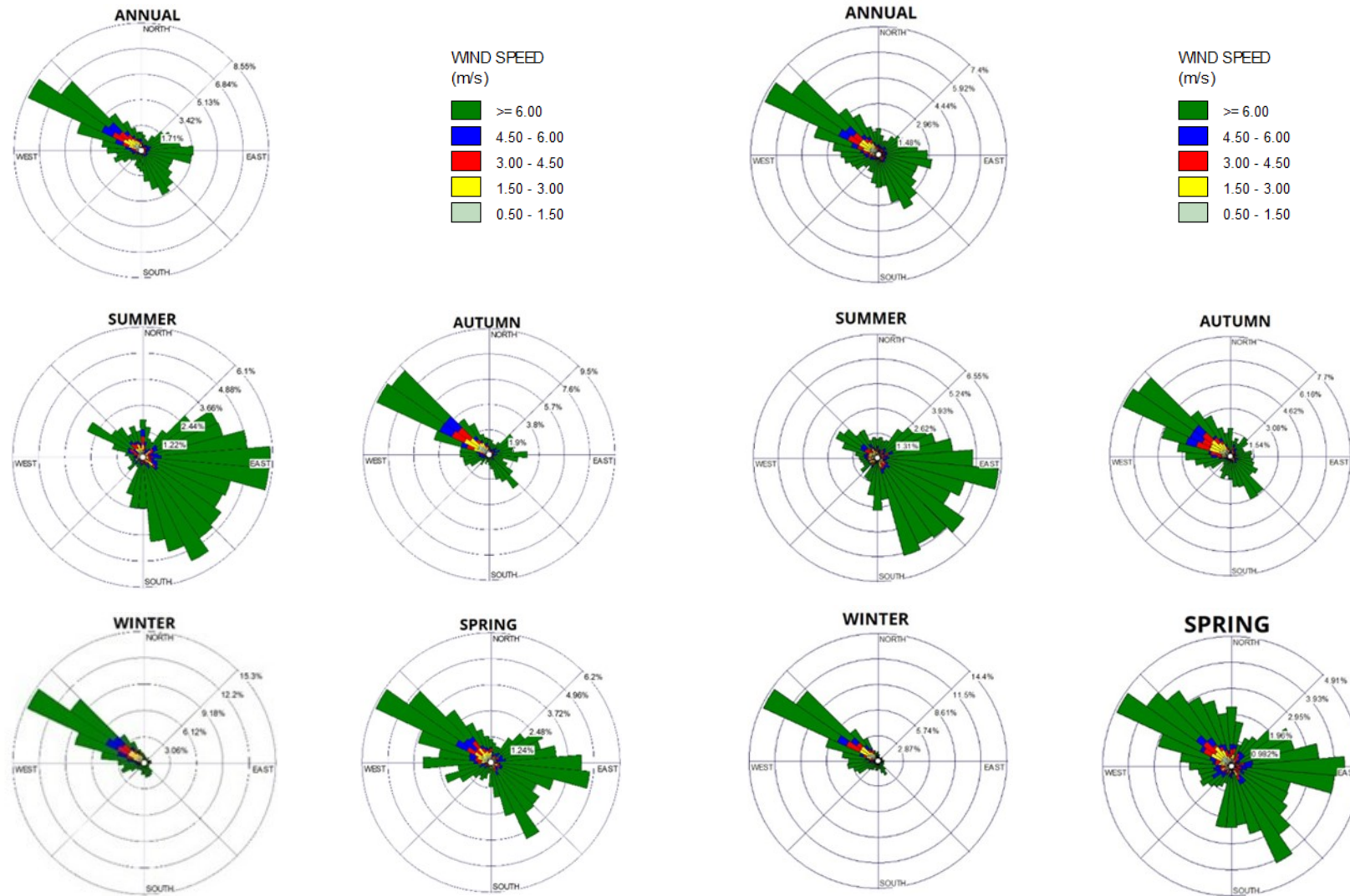


Figure 4 2: Sydney Olympic Park Station AWS Wind Roses, 2019

Figure 4-2: Sydney Olympic Park Station AWS Wind Roses, 2020

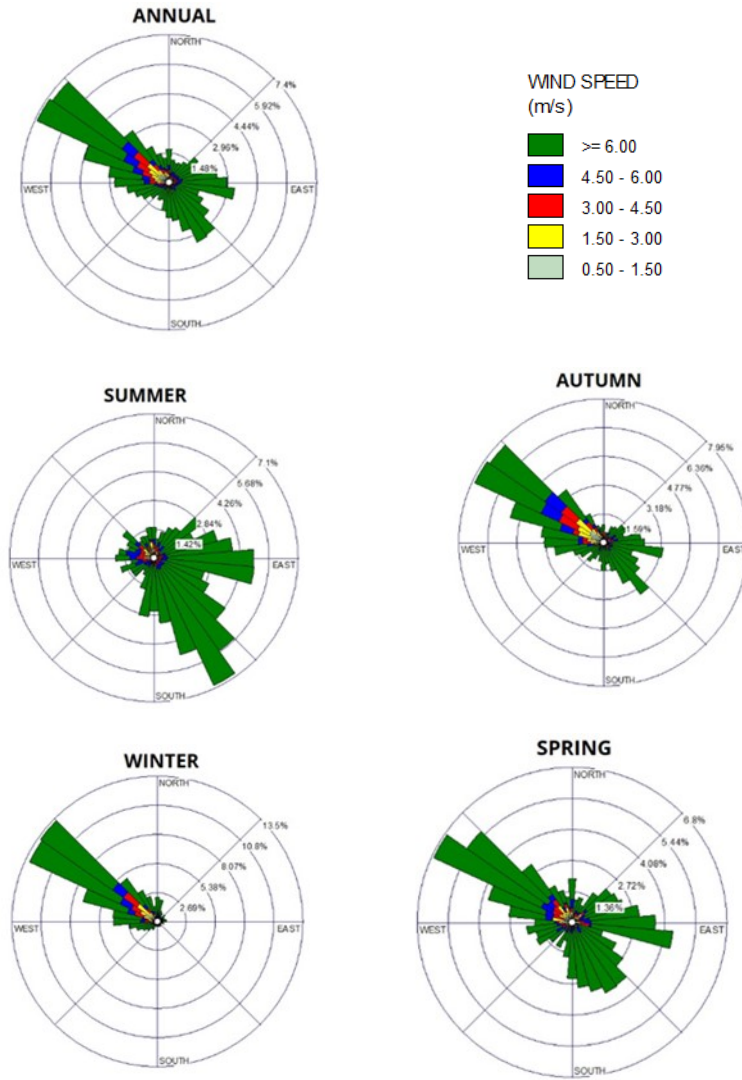


Figure 4-3: Sydney Olympic Park Station Wind Roses, 2021

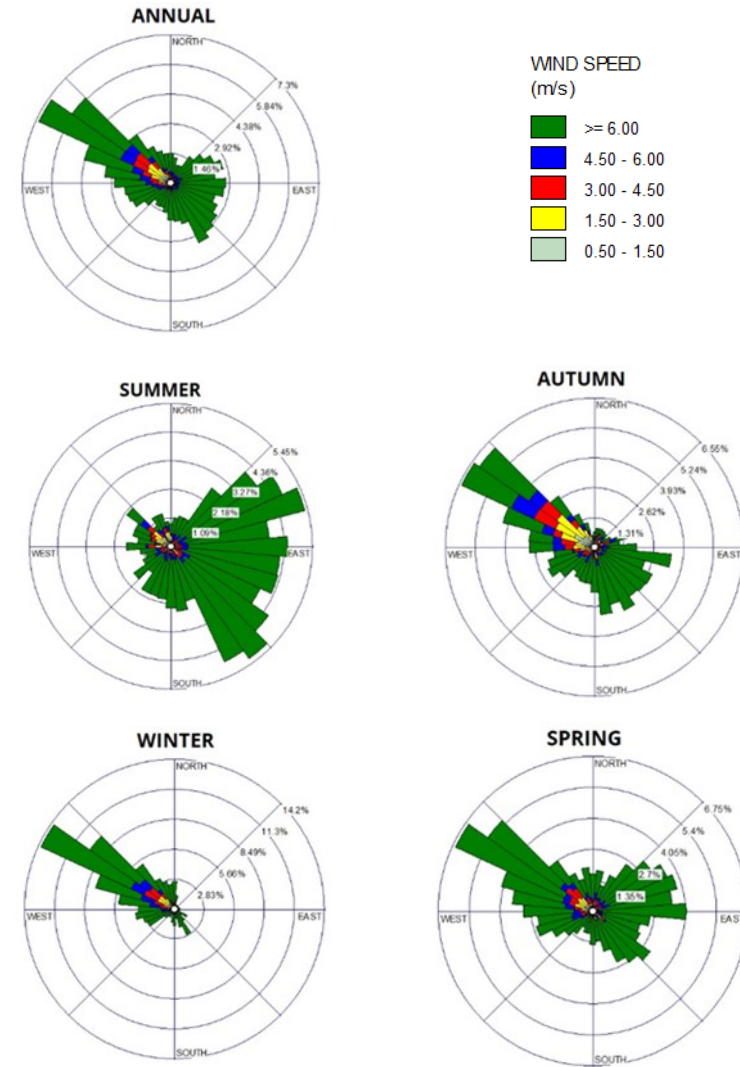


Figure 4-4: Sydney Olympic Park Station Wind Roses, 2022

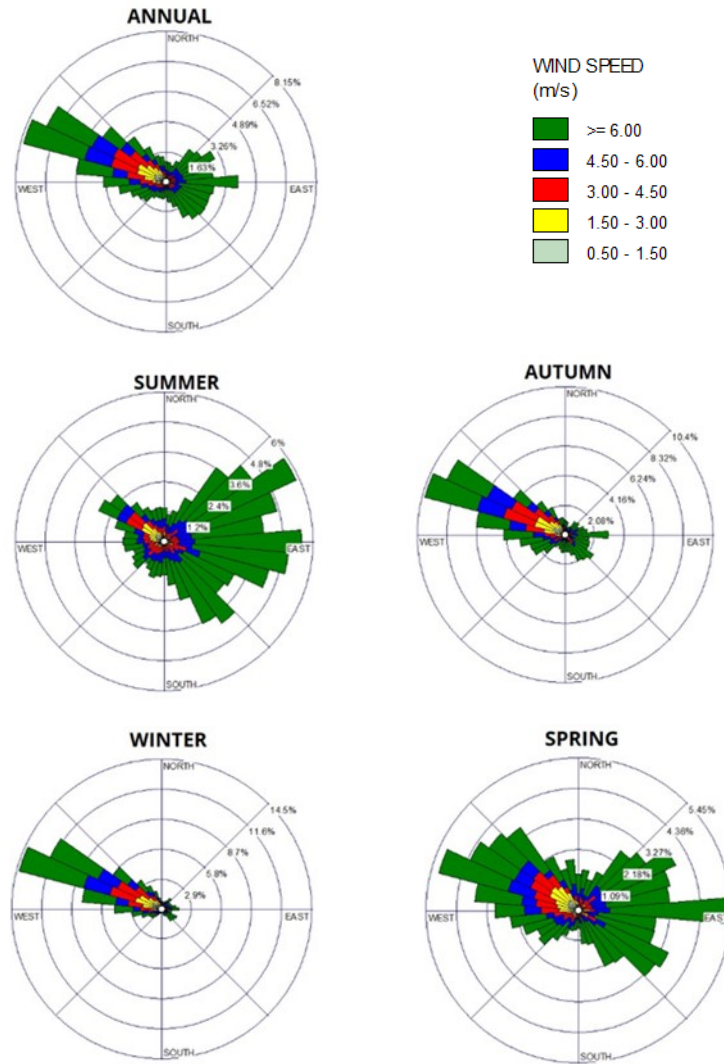


Figure 4-5: Sydney Olympic Park Station Wind Roses, 2023

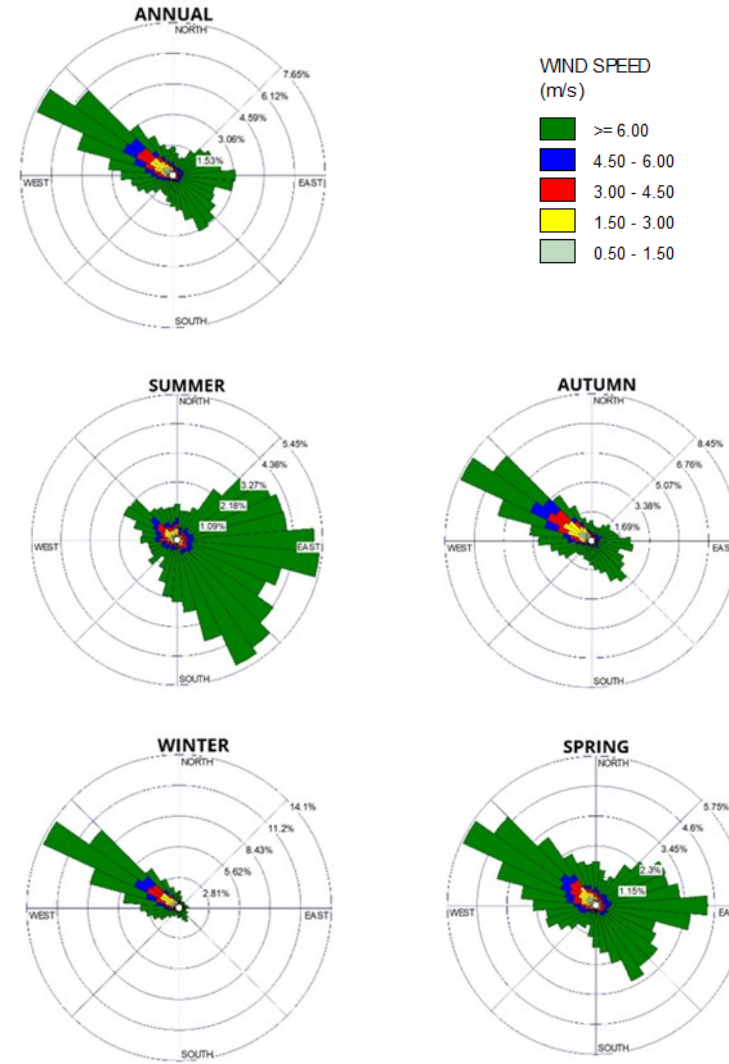


Figure 4-6: Sydney Olympic Park Station Wind Roses, 2019 - 2023

4.2 Local Ambient Air Quality

No site-specific data are available to determine the existing concentrations of air pollutants at sensitive receptors near the proposed development. Data on existing background pollution concentrations were obtained from the NSW Department of Planning and Environment (DPE) air quality monitoring network. The DPE operates a network of AQMS across NSW. The nearest AQMS measuring the selected pollutants is located approximately 6.8 km south of the proposed development, at Rozelle AQMS. The Rozelle AQMS station is one of the longest running air quality monitoring locations in NSW and is part of the Sydney East air quality monitoring region.

The following air pollutants are currently measured at Rozelle AQMS:

- Carbon monoxide (CO);
- Particulate matter less than 2.5 µm in aerodynamic diameter (PM_{2.5});
- Particulate matter less than 10 µm in aerodynamic diameter (PM₁₀);
- Oxides of nitrogen (NO₂);
- Ozone (O₃); and
- Sulphur dioxide (SO₂)

A summary of the ambient air quality monitoring data collected over the five-year period from 2020-2024 at Rozelle AQMS is presented in Table 4-2. It also presents the applicable air quality criteria for each pollutant of interest.

Table 4-2: Ambient Air Quality Monitoring Concentrations in Proximity to the Project Development (Rozelle AQMS)

Pollutant	Averaging Period	Maximum Concentrations					Impact Criteria
		2020	2021	2022	2023	2024	
Particulate matter ≤2.5 µm (PM _{2.5})	24-hours ¹	87.3 µg/m ³	61.7 µg/m ³	12.7 µg/m ³	35.4 µg/m ³	18.5 µg/m ³	25 µg/m ³
	Annual ²	7.6 µg/m ³	6.3 µg/m ³	4.6 µg/m ³	6.4 µg/m ³	6.6 µg/m ³	8 µg/m ³
Particulate matter ≤10 µm (PM ₁₀)	24-hours ¹	113.5 µg/m ³	52.6 µg/m ³	28.5 µg/m ³	40.9 µg/m ³	40.8 µg/m ³	50 µg/m ³
	Annual ²	18.1 µg/m ³	15.5 µg/m ³	12.8 µg/m ³	15.7 µg/m ³	16.6 µg/m ³	25 µg/m ³
Nitrogen Dioxide (NO ₂)	1-hour ³	4.3 pphm	3.5 pphm	3.1 pphm	4.2 pphm	3.7 pphm	8 pphm
	Annual ²	0.8 pphm	0.7 pphm	0.6 pphm	0.8 pphm	0.7 pphm	1.5 pphm
Carbon Monoxide (CO)	1-hour ³	3.3 ppm	1.5 ppm	1.5 ppm	1.1 ppm	1.1 ppm	25 ppm
Sulphur Dioxide (SO ₂)	1-hour ³	1.6 pphm	2 pphm	2.9 pphm	2.4 pphm	2.3 pphm	7.5 pphm
	24-hours ¹	0.3 pphm	0.4 pphm	0.4 pphm	0.3 pphm	0.5 pphm	2 pphm

Note
1. Maximum of 24-hour data over the year
2. Average of 24-hour data over the year
3. Maximum of 1-hour data over the year

As seen in Table 4-2, existing background PM concentrations are high, and exceedances of the 24-hour average PM_{2.5} criterion were recorded in 2020, 2021, 2023 and 2024. Exceedances of the 24-hour average PM₁₀ criteria were recorded in 2020 and 2021. A review of the available compliance monitoring reports indicates that the exceedances were primarily due to exceptional events such as bushfire emergencies, dust storms and hazard reduction burns.

Background NO₂ concentrations are typically half of the Impact criteria values, SO₂ background concentrations about a third of the impact criteria and background CO concentrations about 5% of the impact criteria in recent years.

Figure 4-7 to Figure 4-11 graphically present the air pollutant data recorded at Rozelle AQMS for the calendar years 2020 – 2024. As can be seen from Figure 4-9 through to Figure 4-11, ambient concentrations of NO₂, CO and SO₂ were well below their respective criteria for that period.

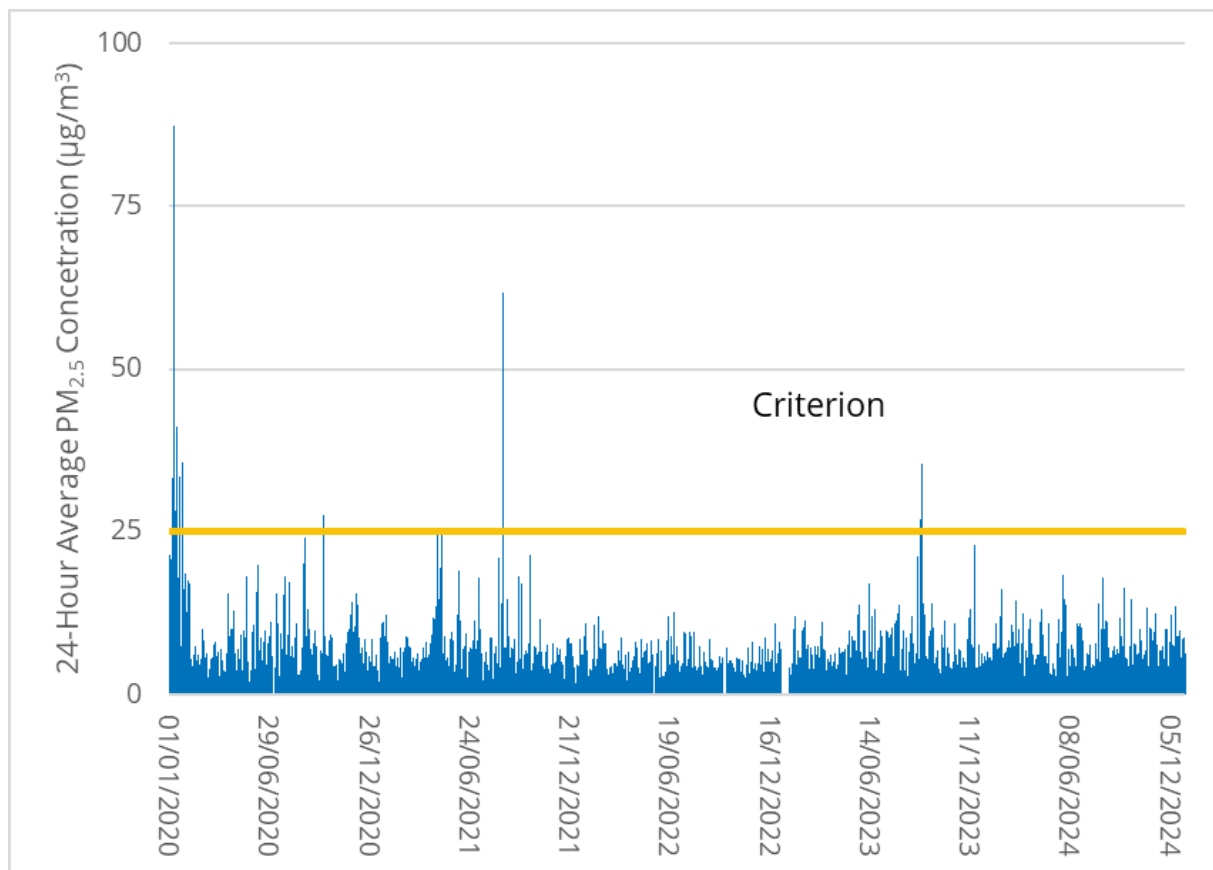


Figure 4-7: 24-Hour Average PM_{2.5} Concentrations at Rozelle AQMS (2020-2024)

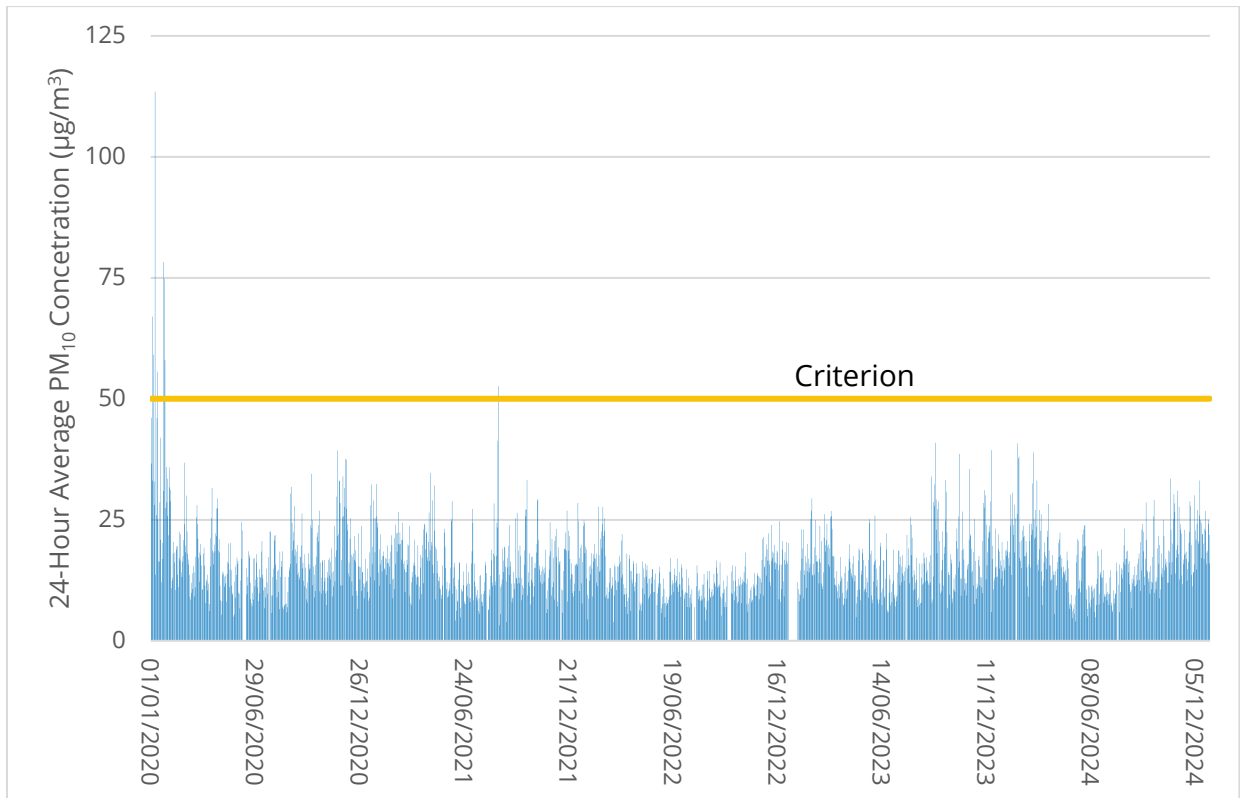


Figure 4-8: 24-Hour Average PM₁₀ Concentrations at Rozelle AQMS (2020-2024)

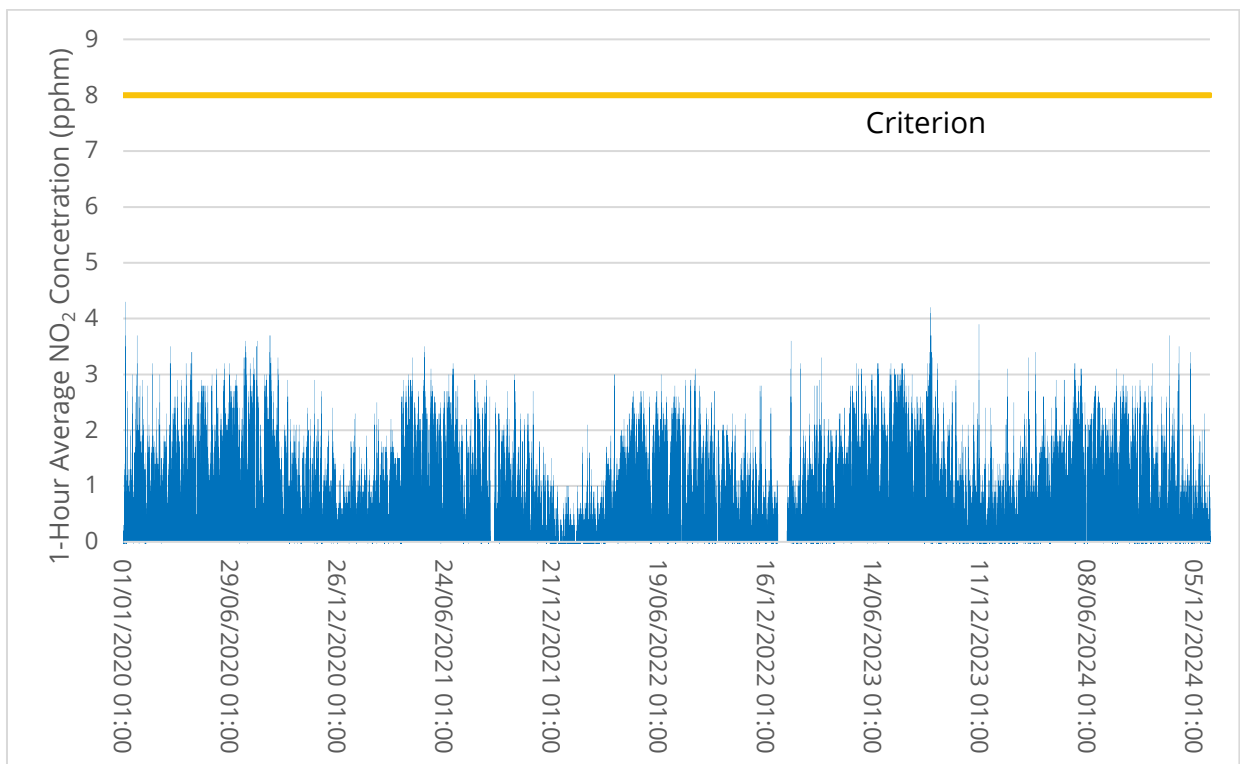


Figure 4-9: 1-Hour Average NO₂ Concentrations at Rozelle AQMS (2020-2024)

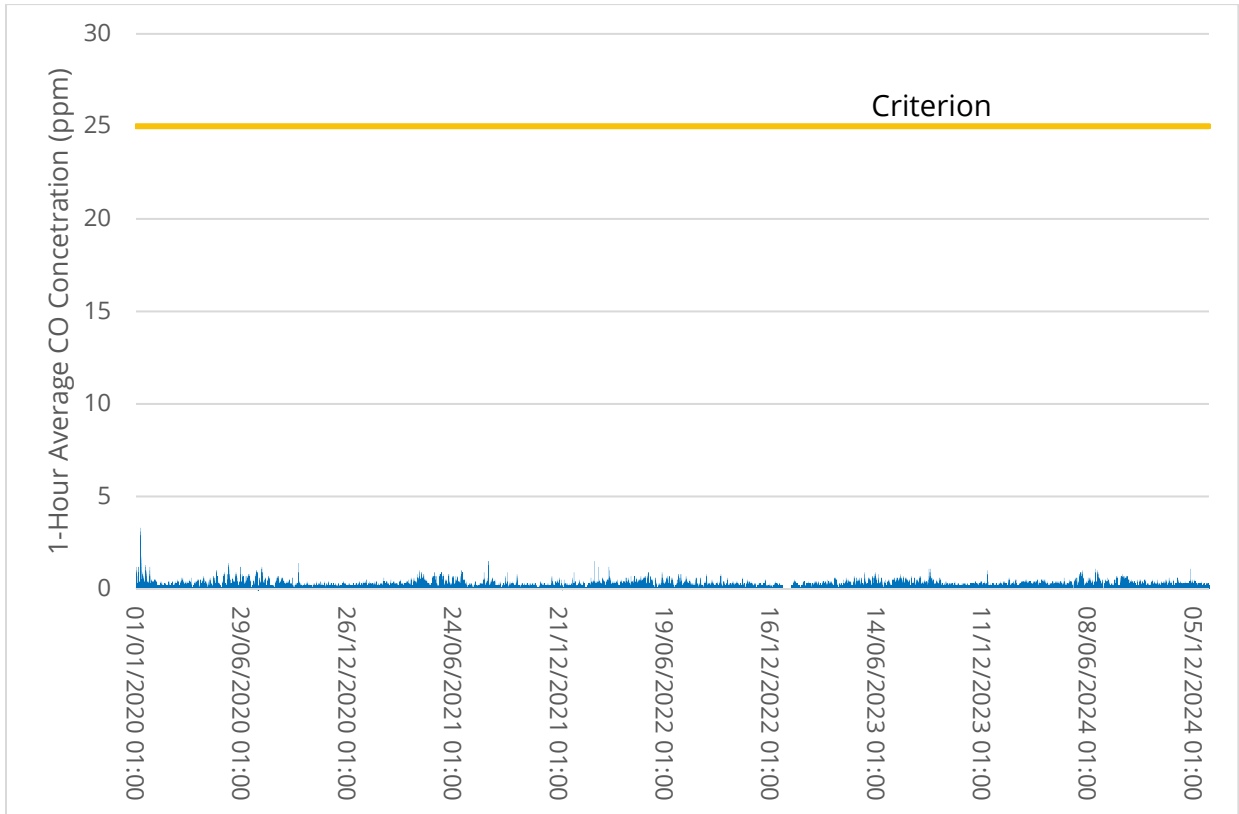


Figure 4-10: 1-Hour Average CO Concentrations at Rozelle AQMS (2020 - 2024)

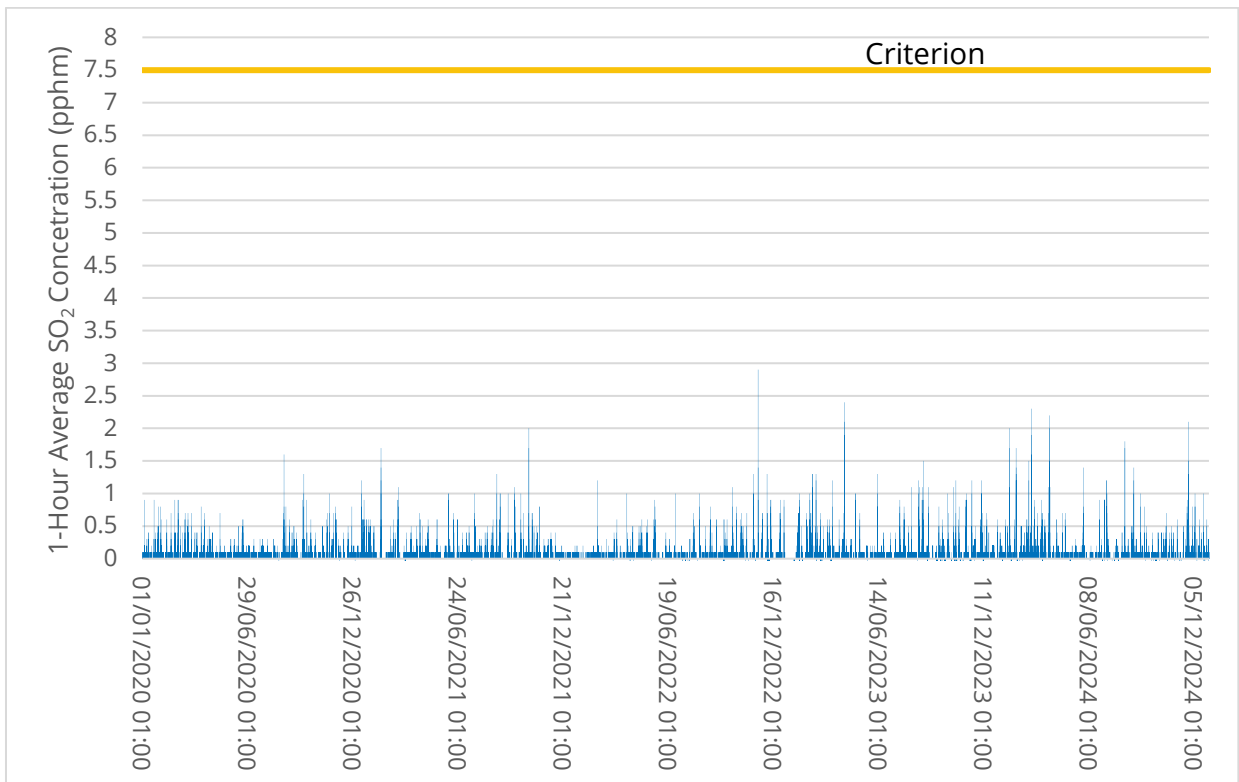


Figure 4-11: 1-Hour Average SO₂ Concentrations at Rozelle AQMS (2020 - 2024)

4.3 National Pollutant Inventory Sources

National Pollutant Inventory (NPI) sources in and surrounding the Proposed Development with the potential to be significant emitters of air pollutants were identified through the review of facilities required to report to the NPI.

The NPI database provides details on industrial emissions of over 4,000 facilities across Australia. The requirement to return annual reports to the NPI quantifying a facility's emissions is determined by the activities/processes being undertaken at the facility, and also whether those processes exceed process-specific thresholds in terms of activity rates (i.e. throughput and/or consumption). Therefore, this NPI database is used as a tool to identify significant emission sources near the proposed development which are further investigated to assess their potential impact on local air quality.

A search of the NPI database within a 2-km radius of the proposed development identified several industries which could potentially impact the proposed development. The location of the NPI sources relative to the proposed development are illustrated in Figure 4-12.

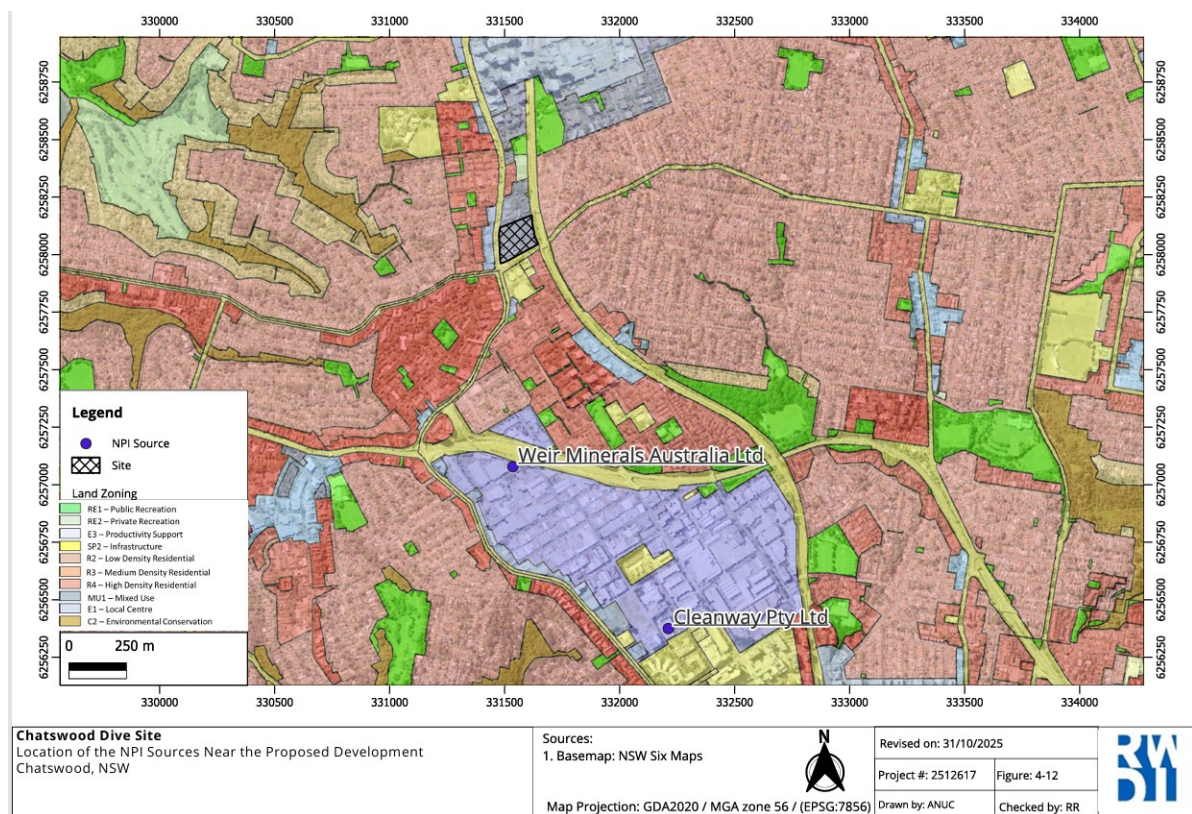


Figure 4-12: Location of NPI Sources Near the Proposed Development

The details of the NPI facilities along with the likelihood of the impact on the proposed development are presented in Table 4-3.

Table 4-3: Identified NPI Sources Near the Proposed Development and Its Impact

NPI Facility ID	Facility Name	Type of Activity	Approximate Distance from the Proposed Development	Potential Air Pollutants Emitted	Likelihood of Significant Impact
490698	Weir Minerals Artarmon	Iron and Steel Casting.	0.98 km	Total Volatile Organic Compounds, Polycyclic aromatic hydrocarbons and Sulfur dioxide	Negligible Impact as the change in concentration relative to Air Quality Assessment level (AQAL) is less than 1%
493066	Artarmon Waste and Recycling Centre	Waste Treatment and Disposal Services	1.8 km	Lead, mercury, chromium	Negligible Impact as the change in concentration relative to Air Quality Assessment level (AQAL) is less than 1%

5 ASSESSMENT OF AIR QUALITY DURING CONSTRUCTION WORKS

5.1 Assessment Methodology

The EPA does not provide guidance specific to dust from construction sites in terms of a risk assessment and management approach. It has developed a guideline, the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (NSW EPA, 2022). However, this guideline considers detailed modelling approaches and is not specifically relevant to construction dust impacts. A detailed modelling approach is not necessary for short-term construction impacts that can be managed.

A risk-based approach has, however, been developed in the UK by the IAQM as per the guideline EPUK & IAQM (2024). This approach has been widely used for performing qualitative assessments of dust emissions from construction sites and has been used in NSW by RWDI and other consultants. Furthermore, it has been accepted as a suitable approach in the absence of any guidance by Australian regulatory authorities. This section presents a qualitative assessment of potential air quality impacts associated with the proposed works and has been conducted in general accordance with the methodology described in the IAQM Guideline.

This approach presents the risk of dust soiling and human health impacts associated with four types of activities that occur on construction sites (demolition, earthworks, construction and trackout) and involves the following steps:

- Step 1: Screen the need for a detailed assessment.
- Step 2: Assess the risk of dust impacts arising, based on:
 - the potential magnitude of dust emissions from the works; and
 - the sensitivity of the surrounding area.
- Step 3: Identify site-specific mitigation.
- Step 4: Consider the significance of residual impacts, after the implementation of mitigation measures.

For this assessment, the process outlined above will be applied to the worst-case on-site and off-site activities that are likely to result in the highest generation of dust. This approach will result in a conservative assessment of the potential risks for human health and dust soiling impacts.

The construction and excavation phase (and associated trackout) of the Project is considered to have the greatest potential to generate short-term high levels of dust. This report focuses on the assessment of this worst-case scenario.

5.2 Risk Assessment of Dust Impacts from Proposed Construction Works

The following qualitative risk assessment of potential dust impacts has been conducted for the proposed construction works.

5.2.1 Step 1 – Screen the Need for a Detailed Assessment

The IAQM guidance recommends that a risk assessment of potential dust impacts from construction activities be undertaken when human receptors are located within:

- 250 m of the boundary of the site; or,
- 50 m of the route(s) used by construction vehicles on public roads up to 250 m from the site entrance(s).

The addresses for the sensitive receptors near the site are included below in Table 5-1.

Table 5-1: Representative Sensitive Receptors

Receptor	Address	Receiver Type	Distance to Site (m)	UTM Coordinates (Zone 56 H)	
				X (m E)	Y (m S)
I1	366 Mowbray Road Artarmon	Industrial	120	331,543	6,257,912
C2	582 Pacific Highway Chatswood	Commercial	75	331,441	6,258,184
C3	572 Pacific Highway Chatswood	Commercial	70	331,437	6,258,105
C4	524-542 Pacific Highway Chatswood	Commercial	140	331,439	6,257,982
P5	518 Pacific Highway Lane Cove North	Place of Worship	185	331,436	6,257,898
R6	1/2-8 Gordon Avenue Chatswood	Residential	90	331,589	6,258,198
C7	613 Pacific Highway Chatswood	Commercial	45	331,503	6,258,165
R8	2 Orchards Road Chatswood	Residential	120	331,694	6,258,100
R9	344 Mowbray Road Artarmon	Residential	125	331,640	6,257,995
I10	348 Mowbray Road Artarmon	Industrial	120	331,595	6,257,958
R11	2 Berkeley Court Chatswood	Residential	120	331,666	6,258,180
R12	340 Mowbray Road Artarmon	Residential	140	331,708	6,258,045
R13	378 Mowbray Road West Lane Cove North	Recreational	225	331,364	6,257,888
R14	5 Berkeley Court Chatswood	Residential	150	331,654	6,258,226

As can be seen in Figure 5-1, the nearest residential receivers are located within 250 m of the proposed site and therefore, an assessment of dust impacts is considered necessary under the guideline.

Dust emission magnitudes from earthworks may be defined as:

- Large: Total site area > 110,000 m², potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height;
- Medium: Total site area 18,000 -110,000 m², moderately dusty soil type (e.g., silt), 5 -10 heavy earth moving vehicles active at any one time, formation of bunds 3-6 m in height; and
- Small: Total site area <18,000 m², soil type with large grain (e.g., sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.

The area affected by the proposed earthworks is less than 18,000 m², and at any one time, less than 5 heavy earth moving vehicles would be active. It is therefore conservatively assumed that the potential magnitude of earthworks is **Small**.

5.2.2.3 Construction

The key issues when determining the potential dust emission magnitude during the construction phase include the size of the building(s)/infrastructure, method of construction, construction materials and duration of build. The dust emission magnitude from construction activities can be defined as:

- Large: Total building volume >75,000 m³, on site concrete batching, sandblasting;
- Medium: Total building volume 12,000 m³ – 75,000 m³, potentially dusty construction material (e.g., concrete), on site concrete batching; and
- Small: Total building volume <12,000 m³, construction material with low potential for dust release (e.g., metal cladding or timber).

The constructed building volume is more than 12,000 m³ but less than 75,000 m³; therefore, the potential magnitude of construction is assessed as **Medium**.

5.2.2.4 Track out

Dust emission magnitudes from track out associated with haulage activities may be defined as:

- Large: >50 heavy vehicle (>3.5 t) outward movements per day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m;
- Medium: 20-50 heavy vehicle (>3.5 t) outward movements per day, moderately dusty surface material (e.g. high clay content), unpaved road length 50-100 m; and
- Small: <20 heavy vehicle (>3.5 t) outward movements per day, surface material with low potential for dust release, unpaved road length <50 m.

Track out is expected to result in 20 to 50 heavy vehicle movements per day leaving the site (this would not occur for the entire duration), and all on-site haulage would include unpaved sections of road less than 50 m long. The potential magnitude of Track out is therefore assessed as **Medium**.

5.2.2.5 Summary of Dust Emission Magnitudes

The estimated dust emission magnitudes are summarized in Table 5-2:

Table 5-2: Summary of Dust Emission Magnitudes

Activity	Dust Emission Magnitude
Demolition	Not Applicable
Earthworks	Small
Construction	Medium
Trackout	Medium

5.2.3 Step 2B – Sensitivity of Surrounding Area

The sensitivity of the surrounding area to dust impacts considers several factors, including:

- specific receptor sensitivities;
- the number of receptors and their proximity to the works;
- existing background dust concentrations; and
- site-specific factors that may reduce impacts, such as trees that may reduce wind-blown dust.

5.2.3.1 Receptor sensitivities

The following subsections provide the descriptions for sensitivities of different types of receptors to dust soiling and human health effects.

Dust Soiling Effects

High sensitivity receptor:

- Users can reasonably expect an enjoyment of a high level of amenity; or
- the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land.
- Indicative examples include dwellings, museum, and other culturally important collections, medium- and long-term car parks and car showrooms.

Medium sensitivity receptor:

- Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or
- the appearance, aesthetics or value of their property could be diminished by soiling; or
- the people or property would not reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land.
- Indicative examples include parks and places of work.

Low sensitivity receptor:

- The enjoyment of amenity would not reasonably be expected; or
- property would not reasonably be expected to be diminished in appearance, aesthetics, or value by soiling; or
- There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.

Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks, and roads. Human Health Effects

For the sensitivity of people to the health effects of PM₁₀, the IAQM provides the following assessment criteria.

High sensitivity receptor:

- Locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).
- Indicative examples include residential properties. Hospitals, schools, and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.

Medium sensitivity receptor:

- Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).
- Indicative examples may include office and shop workers but will generally not include workers occupationally exposed to PM₁₀, as protection is covered by Health and Safety at Work legislation.

Low sensitivity receptor:

- Locations where human exposure is transient.
- Indicative examples include public footpaths, playing fields, parks and shopping streets.

Summary of receptor Sensitivities located in the Surrounding Area

In accordance with the IAQM guideline, the following receptor sensitivities have been determined:

Recreation and Industrial

- **Medium** sensitivity to dust soiling and Human Health, as the site is surrounded by Industrial establishments to the south, where there would be potential air quality impacts.

Residential and Commercial Receivers:

- **High** sensitivity to dust soiling and Human Health, as the site is surrounded by Residential and Commercial establishments to the west, east and north, where there would be potential air quality impacts.

5.2.3.2 Overall Sensitivity of the Surrounding Area

Dust Soiling Effects

Considering the above receptor sensitivities, the number of sensitive receptors in the vicinity of the site their distance to the Site, and the IAQM decision matrix reproduced in Table 5-4, the overall sensitivity of the area with respect to dust soiling is found to be **Medium**. See summary in Table 5-3

Table 5-4: Area Sensitivity Decision Matrix – Dust Soiling

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

Commercial/ Residential/Place of Worship
Receivers

Recreational/ Industrial
Receivers

Human Health Effects

For human health impacts, besides receptor sensitivities, numbers and distances to the site, the mean background PM₁₀ concentration was also taken into account (16.6 µg/m³ as per Table 4-2.).The resulting IAQM decision matrix is shown in Table 5-5 and indicates a **Medium** sensitivity for human health effect

Table 5-5: Area Sensitivity Decision Matrix – Human Health

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration ¹	No. of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	> 20 µg/m ³	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	17.5 - 20 µg/m ³	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	15 – 17.5 µg/m ³	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	< 15 µg/m ³	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	> 20 µg/m ³	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	17.5 - 20 µg/m ³	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	15 – 17.5 µg/m ³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	< 15 µg/m ³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥ 1	Low	Low	Low	Low

Commercial/ Residential/Place of Worship Receivers	Recreational/ Industrial Receivers
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Note 1: The PM₁₀ values have been adjusted from the IAQM guidance according to the ratio between the Australian and UK annual mean standards (25 and 40 µg/m³ respectively). There is some inherent uncertainty in this adjustment. The upper PM₁₀ threshold in the IAQM guidance is based on an annual mean concentration at which an exceedance of the UK's 24-hour objective of 50 µg/m³ is likely, allowing for 35 exceedances per year. In other words, for the UK the annual average approximately corresponds to the 90th percentile of the 24-hour values. However, there are far fewer allowed exceedances in Australia and New Zealand and therefore, there is no direct comparison. Nevertheless, experience with the adjusted values has shown that they work reasonably well for Australian conditions. The values are also taken to be appropriate for New Zealand. Although New Zealand has a lower annual mean guideline than the Australian standard, the 24-hour standards are numerically equivalent.

Overall Sensitivities of the Surrounding Area

The sensitivity of the surrounding area (for all identified receivers) is summarized in Table 5-6 for the various activities.

Table 5-6: Summary of Surrounding Area Sensitivity

Potential Impact	Sensitivity of the Surrounding Area			
	Clearing	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	Medium
Human Health	Medium	Medium	Medium	Medium

5.2.4 Step 2C – Define the Risk of Impacts

To define the risk of impacts, the dust emission magnitude evaluated in Step 2A is combined with the sensitivity of the area, (Step 2B) using the IAQM risk matrices. The resulting impact matrices are summarised in, Table 5-7, Table 5-8 and Table 5-9 for earthworks, construction and trackout, respectively.

Table 5-7: Risk of Dust Impacts – Earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 5-8: Risk of Dust Impacts – Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 5-9: Risk of Dust Impacts – Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

In accordance with Table 5-7 through Table 5-9, construction and trackout activities are considered to have medium risk and earthworks is considered to have a low risk of dust soiling and human health impacts. It is important to note that the above risks assume that dust mitigation measures are not implemented.

5.2.5 Step 3 – Site-Specific Mitigation

The IAQM guidance document identifies a range of appropriate dust mitigation measures that should be implemented as a function of the risk of impacts. These measures are presented in Section 6.1.

5.2.6 Step 4 – Significance of Residual Impacts

In accordance with the IAQM guidance document, the final step in the assessment is to determine the significance of any residual impacts, following the implementation of mitigation measures. To this end, the guidance states:

For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be “not significant”.

Based on the proposed works, and the advice in the IAQM guidance document, it is considered unlikely that these works would result in unacceptable air quality impacts. However, the mitigation measures outlined in Section 6.1 should be considered to implement best management practices.

6 RECOMMENDED MITIGATION AND MANAGEMENT

6.1 Construction Dust Mitigation Measures

The assessment of potential dust impacts from the proposed construction activities indicate that the proposed project will have a **medium risk** of dust soiling or human health impacts from construction and trackout whereas there is a **low risk** from earthwork activity if dust mitigation measures are not implemented.

To ensure best practice management, the following mitigation measures are recommended so that construction dust impacts are minimised.

- **Communications:**
 - Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
 - Display the name and contact details of the Responsible Person accountable for air quality and dust issues on the site boundary.
 - Display the head or regional office contact information.
 - Recommended to develop and implement a Dust Management Plan (DMP) that considers, as a minimum, the measures identified herein. This can be included as a part of future Construction Management Plan.
- **Site Management:**
 - Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
 - Make the complaints log available to relevant authorities (Council, EPA, etc).
 - Record exceptional incidents that cause dust and/or air emissions, on or off site, and the actions taken to resolve the situation in the logbook.
 - Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised.
- **Monitoring:**
 - Undertake daily on-site and off-site inspections at nearby receptors to monitor dust. Record inspection results and make available to relevant authorities. This should include regular dust soiling checks of surfaces such as street furniture, cars, and windows. Continuous real-time dust monitoring is not necessary for this project.
 - Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- **Preparing & Maintaining the Site:**
 - Plan site layout so that dust generating activities are located as far away as possible from receptors.
 - Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
 - Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.

- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If being re-used, keep materials covered or contained in a way which prevents dust, for example dust suppression.
- Cover, seed, or fence stockpiles to prevent wind erosion.
- **Construction Vehicles and Sustainable Travel:**
 - Ensure all vehicles switch off engines when stationary – no idling vehicles.
 - Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
 - Impose and signpost a maximum-speed-limit of 25 km/h on surfaced and 15 km/h on unsurfaced haul roads and work areas (if long haul routes are required, these speeds may be increased with suitable additional control measures provided).
 - Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
 - Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
- **Measures Specific to Earthworks:**
 - Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
 - Only remove the cover in small areas during work and not all at once.
- **Measures Specific to Construction:**
 - Ensure an adequate water supply on the site for effective dust/PM suppression/mitigation, using non-potable water where possible and appropriate.
 - Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
 - Avoid scabbling (roughening of concrete surfaces) if possible.
 - Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
 - Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
 - For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
- **Measures Specific to Haulage:**
 - Use water-assisted dust sweeper(s) on the access and local roads, as necessary.
 - Avoid dry sweeping of large areas.
 - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
 - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
 - Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
 - Access gates to be located at least 10 m from receptors where possible.

7 VEHICLE TRAFFIC-MODELLING METHODOLOGY

The NSW EPA's "Approved Methods" (NSW EPA 2022) outlines the approach to Air Quality Impact Assessment, using two 'Levels':

- Level 1: a simple 'screening' assessment using worst-case modelling assumptions.
- Level 2: a detailed assessment using refined modelling techniques and site-specific input data.

If a Level 1 assessment demonstrates that adverse impacts will not occur, then there is no need to progress to Level 2. This assessment is based on a Level 1 screening assessment of the primary source of air emissions surrounding the development i.e. vehicle traffic along Pacific Highway and Mowbray Road to the west and south of the Site respectively. Modelling of emissions from vehicles travelling along Pacific Highway and Mowbray Road was conducted using the NSW Roadside Air Quality Screening Tool RAQST, which is the recommended model for use in roadside air quality studies in NSW (NSW, 2023).

7.1 Emission Sources and Pollutants

Traffic emissions from vehicles travelling along the Pacific Highway and Mowbray Road have the most potential to significantly impact air quality in the Study Area.

Atmospheric pollutants emitted from road traffic include NO_x, PM_{2.5}, PM₁₀, SO₂ and VOCs. Due to the introduction of lead-replacement fuels in 2002, emissions of lead from motor vehicles are no longer considered to be significant and therefore, not included in this assessment. Similarly, due to the introduction of low sulphur fuels in 2009, motor vehicles are no longer significant sources of SO₂. Also, the emissions of CO and VOCs are no longer a concern from current vehicles fleets, given the relatively low level of CO and VOC emissions from vehicles and the low background concentrations (see Section 4.2), it is thus considered appropriate to assume that CO, SO₂ and VOC emissions from road traffic are highly unlikely to result in any exceedances of the relevant criteria. Hence, CO, SO₂ and VOC traffic emissions have not been considered further in this assessment.

7.2 Screening-Level Assumptions

From an air quality perspective, air contaminant emissions from vehicles travelling on the Pacific Highway and Mowbray Road are the main concern for the proposed development.

At a screening level (called "level 1 assessment" in NSW EPA, 2022), air quality impacts are modelled as a function of distance from the road for worst cases of emissions, background concentrations and meteorological conditions. In other words, the impact of vehicles travelling on the Pacific Highway and Mowbray Road on receptors is solely a function of the distance that air contaminant emissions travel from the road to the receptors. The screening model does not consider more complex flow phenomena such as turbulence, wake effects, channelling or containment.

The RAQST uses a single dispersion function to represent all meteorological conditions. The function was derived using the CALINE 4 model, based on conservative assumptions. An empirical approach is used to calculate NO₂ concentrations.

The RAQST uses the number of lanes of traffic (either one, two, three or four lanes per direction), the road type, the average road gradient, the width of any median strip, and the width of each lane. For each lane, the RAQST calculates emissions based on the corresponding traffic data (volume, composition and speed).

7.3 Traffic Volume

Adjacent to the Site, Pacific Highway and Mowbray Road is a 3-lane highway with a speed limit of 60 and 50 km/hr respectively. The proposed minimum distance of the Project façade from Pacific Highway and Mowbray Road is more than 50 m.

Peak background traffic volumes were obtained from the Trans Traffic Survey dated 27 June 2025 and are expressed in terms of AM and PM peak traffic data for the year 2025¹. Observations of traffic activity in the vicinity of the development Site relatively slow-moving traffic in AM (7:30 AM – 8:30 AM) and PM (4:30 PM -5:30 PM) peak hours with minor stoppages due to traffic signal operation and turning/parking manoeuvres.

Representing a worst-case scenario of congested traffic conditions under the worst weather conditions, slow-moving vehicles moving at 10 km/h is considered but is not representative of daily or annual average conditions. Therefore, for the screening level assessment, this conservative speed has been adopted to provide the worst-case scenario of air quality impacts on the nearby receptors. Table 7-1 summarizes the traffic-related input parameters to the RAQST.

Table 7-1: RAQST Traffic and Related Input Parameters for Modelling Year 2025

Parameter	Value
Lanes per Direction	3
Road Type	Commercial Arterial
Road Gradient	0.1%
Median Strip Width	0 m
Lane Width	3m
Traffic Speed	Slow Moving Traffic 10 km/hr

¹ <https://maps.transport.nsw.gov.au/egeomaps/traffic-volumes/index.html#/?z=16&pco=1&pcl=1&sco=1&scl=1&nd=0&v=0&lat=-33.88972922496415&lon=151.1762671850091&id=19065&tb=0>

8 ASSESSMENT OF AIR QUALITY IMPACTS

Modelling of emissions from vehicles travelling along the Pacific Highway and Mowbray Road was conducted using the RAQST screening model for 50 m from the kerb of the road to the development site. The modelling results are attached in Appendix A of this report for AM and PM peak hour traffic respectively.

The air quality impact assessment using RAQST tool was performed for two different scenarios listed below:

- AM Peak Hour Traffic (7:30 AM to 8:30 AM) for slow-moving (10 kmph); and
- PM Peak Hour Traffic (4:30 PM to 5:30 PM) for slow-moving (10 kmph).

8.1 Peak Hour Traffic

Table 8-1 and Table 8-2 presents the predicted pollutant concentrations at proposed BTR development Site from the Pacific Highway during AM and PM peak hours at a distance of 50 m from the road for vehicles moving with a speed of 10km/hr (worst-case).

Table 8-1: Predicted Cumulative Ground-Level Pollutant Concentration for AM Hour Traffic at 50 m from Pacific Highway and vehicle speed of 10 km/hr

Pollutant	Averaging Period	Maximum Predicted Concentration	Ambient Concentration (Background)	Cumulative Concentration	EPA Criteria	Compliance?
Nitrogen Dioxide (NO₂)	1 Hour µg/m ³	Not Applicable		115.2	164	Yes
	Annual µg/m ³	10.7	6.4	17.1	31	Yes
Particulate matter ≤10 µm (PM₁₀)	24 Hour µg/m ³	40.8	2.2	43.0	50	Yes
	Annual µg/m ³	16.6	0.9	17.5	25	Yes
Particulate matter ≤2.5 µm (PM_{2.5})	24 Hour µg/m ³	18.5	1.5	20.0	25	Yes
	Annual µg/m ³	6.6	0.6	7.2	8	Yes

Table 8-2: Predicted Cumulative Ground-Level Pollutant Concentration for PM Hour Traffic at 50 m from Pacific Highway and vehicle speed of 10 km/hr

Pollutant	Averaging Period	Maximum Predicted Concentration	Ambient Concentration (Background)	Cumulative Concentration	EPA Criteria	Compliance?
Nitrogen Dioxide (NO₂)	1 Hour µg/m ³	Not Applicable		113.3	164	Yes
	Annual µg/m ³	10.7	6.1	16.7	31	Yes
Particulate matter ≤10 µm (PM₁₀)	24 Hour µg/m ³	40.8	2.1	42.9	50	Yes
	Annual µg/m ³	16.6	0.8	17.4	25	Yes
Particulate matter ≤2.5 µm (PM_{2.5})	24 Hour µg/m ³	18.5	1.5	20.0	25	Yes
	Annual µg/m ³	6.6	0.6	7.2	8	Yes

The review of Screening level (Level 1) model results in Table 8-1, Table 8-2 and Appendix A indicates the following:

- The cumulative 1-hour and annual NO₂ concentration does not exceed the criteria throughout the development site.
- The cumulative 24-hour and annual PM₁₀ and PM_{2.5} concentration also does not exceed the criteria throughout the development site.

Overall, the preliminary assessment show that there are no substantial air quality impacts on the proposed development site from the Pacific Highway and Mowbray Road.

9 CONCLUSION

RWDI was engaged by "Landcom" to conduct a preliminary air quality impact assessment is prepared to support a state significant development application (SSDA) (ref. SSD- SSD-100006957) for the proposed development known as 'Chatswood 'Dive Site' Built-to-Rent' SSD located at 339 Mowbray Road, Chatswood. (the Site)..

A risk-based approach in accordance with the IAQM guidance was adopted to assess dust emissions from the construction of the Site. The assessment concluded that there would be a low risk of dust impacts from earthwork activity and medium risks from construction and track-out activities if no dust mitigation is applied. Mitigation measures to minimise potential air quality impacts during the construction were recommended. Assuming the recommended mitigation measures are implemented, no significant air quality impacts are expected to occur during the construction of the Project.

From an air quality perspective, air contaminant emissions from vehicles travelling on the Pacific Highway and Mowbray Road along the proposed development are the main concern for future residents of the proposed development. A screening model tool developed by Transport of NSW, the Roadside Air Quality Screening Tool (RAQST), was used to assess air quality impacts from vehicle traffic emissions for AM and PM peak hour traffic. A slow-moving worst-case scenario with vehicle speed of 10 km/h.

There are no predicted air quality exceedances at a distance greater than 50 m from the Pacific Highway. Overall, the preliminary assessment show that there are no substantial air quality impacts on the proposed development site from the Pacific Highway and Mowbray Road.

This report completes the Level 1 air quality screening assessment in support of the BTR SSDA development.

10 REFERENCES

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State Environmental Planning Policy (Infrastructure), 2007 (SEPP, 2007): "Air Quality relevant policies and guidelines from SEEP". Accessible at: <https://legislation.nsw.gov.au/view/html/inforce/current/epi-2007-0641>

11 STATEMENT OF LIMITATIONS

This report entitled *CHATSWOOD 'DIVE SITE' – Preliminary Air Quality Impact Assessment*, dated 10 December 2025, was prepared by RWDI Australia Pty Ltd ("RWDI") for Landcom ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

The background features a large, light gray circular shape on the right side, partially overlapping a blue triangular shape on the left. A white curved line separates the two shapes.

APPENDIX A

EMISSION INVENTORY - RAQST Assessment Traffic Emissions

User input

1. General set-up

[†] Changing parameters in bold will reset traffic data.

Assessment year [†]	2025
Electric vehicle projections	YES

2. Road characteristics

Lanes per direction [†]	3
Road type [†]	Commercial arterial
Road gradient in direction A	0.1%
Median strip width (m)	0
Lane width (m)	3

3. Traffic data - general

Level for traffic composition [†]	Level 2
Fill with default composition [†]	NO
Traffic period [†]	Peak hour
Traffic speed (km/h)	10
Peak hour traffic as % of AADT [†]	10%

[†] Used to calculate peak-hour traffic if only AADT is known.

4. Traffic data - by lane

Direction	Lane	Road gradient	Traffic volume (peak hour - vph)	Traffic composition (%) - L2	
				LDV	HDV
A	Lane A1 ▶	0.1%	178	98.0	2.0
A	Lane A2 ▶	0.1%	1,904	97.0	3.0
A	Lane A3 ▶	0.1%	10	0.0	100.0
B	◀ Lane B3	-0.1%	254	92.8	7.2
B	◀ Lane B2	-0.1%	1,063	94.8	5.2
B	◀ Lane B1	-0.1%	90	86.0	14.0

5. Background concentrations

(a) Values from DPE monitoring stations (2021 only)

Background site for NO _x	Default
Background site for PM ₁₀	Default
Background site for PM _{2.5}	Default
1-hour metric for NO _x	Maximum
24-hour metric for PM ₁₀	Maximum
24-hour metric for PM _{2.5}	Maximum

(b) User-defined values (overrides DPE data)

Apply user-defined values	YES		
	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
1-hour	75.9	-	-
24-hour	-	40.8	18.5
Annual	14.4	16.6	6.6

6. Closest receptor

Distance from kerb of lane A1 (m)	50
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Results - concentrations at receptor

Pollutant	Averaging period	Air quality criterion ($\mu\text{g}/\text{m}^3$)	Predicted concentration ($\mu\text{g}/\text{m}^3$)			Predicted concentration as % of criterion			Compliance of total with criterion	Total <90% of criterion	Impact assessment result
			Background	Road	Total	Background	Road	Total			
NO _x	1-hour	-	75.9	84.2	160.1	Not applicable			Not applicable		
	Annual	-	14.4	16.8	31.2						
NO ₂	1-hour	164	Not applicable		115.2	Not applicable		70%	Yes	Yes	Not applicable
	Annual	31	10.7	6.4	17.1	34%	21%	55%	Yes	Yes	Slight
PM ₁₀	24-hour	50	40.8	2.2	43.0	82%	4%	86%	Yes	Yes	Not applicable
	Annual	25	16.6	0.9	17.5	66%	4%	70%	Yes	Yes	Negligible
PM _{2.5}	24-hour	25	18.5	1.5	20.0	74%	6%	80%	Yes	Yes	Not applicable
	Annual	8	6.6	0.6	7.2	83%	8%	90%	Yes	No	Moderate

Summary

Complies with air quality criteria, but marginal.

Potential impact is moderate.

Recommendation

Seek advice on whether a detailed assessment should be conducted.

User input

1. General set-up

† Changing parameters in bold will reset traffic data.

Assessment year†	2025
Electric vehicle projections	YES

2. Road characteristics

Lanes per direction†	3
Road type†	Commercial arterial
Road gradient in direction A	0.1%
Median strip width (m)	0
Lane width (m)	3

3. Traffic data - general

Level for traffic composition†	Level 2
Fill with default composition†	NO
Traffic period†	Peak hour
Traffic speed (km/h)	10
Peak hour traffic as % of AADT†	10%

† Used to calculate peak-hour traffic if only AADT is known.

4. Traffic data - by lane

Direction	Lane	Road gradient	Traffic volume (peak hour - vph)	Traffic composition (%) - L2	
				LDV	HDV
A	Lane A1 ▶	0.1%	118	98.3	1.7
A	Lane A2 ▶	0.1%	1,392	96.0	4.0
A	Lane A3 ▶	0.1%	7	0.0	100.0
B	◀ Lane B3	-0.1%	275	98.2	1.8
B	◀ Lane B2	-0.1%	1,611	98.3	1.7
B	◀ Lane B1	-0.1%	204	99.5	0.5

5. Background concentrations

(a) Values from DPE monitoring stations (2021 only)

Background site for NO _x	Default
Background site for PM ₁₀	Default
Background site for PM _{2.5}	Default
1-hour metric for NO _x	Maximum
24-hour metric for PM ₁₀	Maximum
24-hour metric for PM _{2.5}	Maximum

(b) User-defined values (overrides DPE data)

Apply user-defined values	YES		
	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
1-hour	75.9	-	-
24-hour	-	40.8	18.5
Annual	14.4	16.6	6.6

6. Closest receptor

Distance from kerb of lane A1 (m)	50
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Results - concentrations at receptor

Pollutant	Averaging period	Air quality criterion ($\mu\text{g}/\text{m}^3$)	Predicted concentration ($\mu\text{g}/\text{m}^3$)			Predicted concentration as % of criterion			Compliance of total with criterion	Total <90% of criterion	Impact assessment result
			Background	Road	Total	Background	Road	Total			
NO _x	1-hour	-	75.9	78.7	154.6	Not applicable			Not applicable		
	Annual	-	14.4	15.7	30.1						
NO ₂	1-hour	164	Not applicable		113.3	Not applicable		69%	Yes	Yes	Not applicable
	Annual	31	10.7	6.1	16.7	34%	20%	54%	Yes	Yes	Slight
PM ₁₀	24-hour	50	40.8	2.1	42.9	82%	4%	86%	Yes	Yes	Not applicable
	Annual	25	16.6	0.8	17.4	66%	3%	70%	Yes	Yes	Negligible
PM _{2.5}	24-hour	25	18.5	1.5	20.0	74%	6%	80%	Yes	Yes	Not applicable
	Annual	8	6.6	0.6	7.2	83%	7%	90%	Yes	Yes	Moderate

Summary

Complies with all air quality criteria.

Potential impact is moderate.

Recommendation

Seek advice on whether a detailed assessment should be conducted.

User input

1. General set-up

† Changing parameters in bold will reset traffic data.

Assessment year†	2025
Electric vehicle projections	YES

2. Road characteristics

Lanes per direction†	3
Road type†	Commercial arterial
Road gradient in direction A	0.1%
Median strip width (m)	0
Lane width (m)	3

3. Traffic data - general

Level for traffic composition†	Level 2
Fill with default composition†	NO
Traffic period†	Peak hour
Traffic speed (km/h)	10
Peak hour traffic as % of AADT†	10%

† Used to calculate peak-hour traffic if only AADT is known.

4. Traffic data - by lane

Direction	Lane	Road gradient	Traffic volume (peak hour - vph)	Traffic composition (%) - L2	
				LDV	HDV
A	Lane A1 ▶	0.1%	148	94.4	5.6
A	Lane A2 ▶	0.1%	788	97.8	2.2
A	Lane A3 ▶	0.1%	4	0.0	100.0
B	◀ Lane B3	-0.1%	113	97.2	2.8
B	◀ Lane B2	-0.1%	466	97.8	2.2
B	◀ Lane B1	-0.1%	330	96.3	3.7

5. Background concentrations

(a) Values from DPE monitoring stations (2021 only)

Background site for NO _x	Default
Background site for PM ₁₀	Default
Background site for PM _{2.5}	Default
1-hour metric for NO _x	Maximum
24-hour metric for PM ₁₀	Maximum
24-hour metric for PM _{2.5}	Maximum

(b) User-defined values (overrides DPE data)

Apply user-defined values	YES		
	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
1-hour	75.9	-	-
24-hour	-	40.8	18.5
Annual	14.4	16.6	6.6

6. Closest receptor

Distance from kerb of lane A1 (m)	50
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Results - concentrations at receptor

Pollutant	Averaging period	Air quality criterion (µg/m ³)	Predicted concentration (µg/m ³)			Predicted concentration as % of criterion			Compliance of total with criterion	Total <90% of criterion	Impact assessment result
			Background	Road	Total	Background	Road	Total			
NO _x	1-hour	-	75.9	41.1	117.0	Not applicable			Not applicable		
	Annual	-	14.4	8.2	22.6						
NO ₂	1-hour	164	Not applicable			Not applicable			Yes	Yes	Not applicable
	Annual	31	10.7	3.4	14.0	34%	11%	45%	Yes	Yes	Negligible
PM ₁₀	24-hour	50	40.8	1.1	41.9	82%	2%	84%	Yes	Yes	Not applicable
	Annual	25	16.6	0.4	17.0	66%	2%	68%	Yes	Yes	Negligible
PM _{2.5}	24-hour	25	18.5	0.8	19.3	74%	3%	77%	Yes	Yes	Not applicable
	Annual	8	6.6	0.3	6.9	83%	4%	86%	Yes	Yes	Slight

Summary

Complies with all air quality criteria.
Potential impact is negligible or slight.

Recommendation

No further assessment recommended.

User input

1. General set-up

† Changing parameters in bold will reset traffic data.

Assessment year†	2025
Electric vehicle projections	YES

2. Road characteristics

Lanes per direction†	3
Road type†	Commercial arterial
Road gradient in direction A	0.1%
Median strip width (m)	0
Lane width (m)	3

3. Traffic data - general

Level for traffic composition†	Level 2
Fill with default composition†	NO
Traffic period†	Peak hour
Traffic speed (km/h)	10
Peak hour traffic as % of AADT†	10%

† Used to calculate peak-hour traffic if only AADT is known.

4. Traffic data - by lane

Direction	Lane	Road gradient	Traffic volume (peak hour - vph)	Traffic composition (%) - L2	
				LDV	HDV
A	Lane A1 ►	0.1%	187	95.7	4.3
A	Lane A2 ►	0.1%	558	99.1	0.9
A	Lane A3 ►	0.1%	3	0.0	100.0
B	◄ Lane B3	-0.1%	113	99.1	0.9
B	◄ Lane B2	-0.1%	746	98.9	1.1
B	◄ Lane B1	-0.1%	248	99.2	0.8

5. Background concentrations

(a) Values from DPE monitoring stations (2021 only)

Background site for NO _x	Default
Background site for PM ₁₀	Default
Background site for PM _{2.5}	Default
1-hour metric for NO _x	Maximum
24-hour metric for PM ₁₀	Maximum
24-hour metric for PM _{2.5}	Maximum

(b) User-defined values (overrides DPE data)

Apply user-defined values	YES		
	NO _x (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)
1-hour	75.9	-	-
24-hour	-	40.8	18.5
Annual	14.4	16.6	6.6

6. Closest receptor

Distance from kerb of lane A1 (m)	50
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Results - concentrations at receptor

Pollutant	Averaging period	Air quality criterion (µg/m ³)	Predicted concentration (µg/m ³)			Predicted concentration as % of criterion			Compliance of total with criterion	Total <90% of criterion	Impact assessment result
			Background	Road	Total	Background	Road	Total			
NO _x	1-hour	-	75.9	37.9	113.8	Not applicable			Not applicable		
	Annual	-	14.4	7.6	22.0						
NO ₂	1-hour	164	Not applicable		95.3	Not applicable		58%	Yes	Yes	Not applicable
	Annual	31	10.7	3.1	13.8	34%	10%	45%	Yes	Yes	Negligible
PM ₁₀	24-hour	50	40.8	1.0	41.8	82%	2%	84%	Yes	Yes	Not applicable
	Annual	25	16.6	0.4	17.0	66%	2%	68%	Yes	Yes	Negligible
PM _{2.5}	24-hour	25	18.5	0.7	19.2	74%	3%	77%	Yes	Yes	Not applicable
	Annual	8	6.6	0.3	6.9	83%	4%	86%	Yes	Yes	Slight

Summary

Complies with all air quality criteria.
Potential impact is negligible or slight.

Recommendation

No further assessment recommended.