WASTE MANAGEMENT FACILITY

8 Noonan Road, Ingleburn NSW
Air Quality Amenity Assessment

Prepared for:

Shine Motor Corporation c/ Smart Planning and Design
20 - 40 Meagher Street
Chippendale
NSW 2008

SLR Ref: 620.30955.00100-R01
Version No: -v1.0
June 2022

PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street
North Sydney NSW 2060 Australia

T: +61 2 9427 8100
E: sydney@slrconsulting.com www.slrconsulting.com

BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Shine Motor Corporation c/ Smart Planning and Design (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
620.30955.00100-R01-v1.0	28 June 2022	J A Cox, R Abrantes	J Shepherd	J A Cox

CONTENTS

CONTENTS

DOCUMENT REFERENCES

TABLES

FIGURES

APPENDICES

1 Introduction

SLR Consulting has been engaged by Smart Planning and Design on behalf of Shine Motor Corporation (the Proponent) to undertake an air quality assessment to support the Development Application (DA) for 8 Noonan Road, Ingleburn, New South Wales (NSW) (Lot 25 DP809258) (the Project Site). The proposed operations are a change of use from a motor vehicle repair station with truck wash bay to a resource recovery facility for the purpose of dismantling vehicles and exporting scrap metal and parts for processing and recycling (the Project). It is noted that these activities are already taking place at the Project Site.

The Department of Planning, Industry and Environment (DPIE) issued the Planning Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the Project Site on 2 July 2021, as outlined below.

- ***air quality and odour:***
  - *a description of all potential sources of air and odour emissions during construction and operation*
  - *an air quality impact assessment in accordance with relevant Environment Protection Authority guidelines*
  - *a description and appraisal of air quality impact mitigation and monitoring measures.*

It is noted that the SEARs included communication from NSW Environmental Protection Authority (NSW EPA) which stated the following (see **Appendix A**):

- *"The EPA has reviewed the proposal for the Request for Secretary's Environmental Assessment Requirements and the Discussion Paper and Compliance Table dated 2 July 2021 for the Shine Motors Waste Management Facility and advises that the designated development will not need an Environment Protection Licence if consent is granted. Accordingly, the EPA will not be providing SEARs for this project."*

The Project is not expected to be a source of significant emissions to air such that a quantitative modelling study is not considered to be appropriate or warranted as part of the Air Quality Impact Assessment (AQIA). Instead, the potential for off-site air quality and odour impacts have been assessed using a risk-based qualitative assessment approach, factoring in any mitigation measures that would be implemented to minimise the potential for adverse off-site impacts.

This assessment has been prepared with consideration of the following policies and guidelines:

- *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (NSW EPA, 2017)
- *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (NSW DEC, 2005)
- *Protection of the Environment Operations Act 1997* (NSW Parliament, 1997)
- *Protection of the Environment Operations (Clean Air) Regulation 2010* (NSW Parliament, 2010)
- *Technical Framework: Assessment and management of odour from stationary sources in NSW* (NSW DEC, 2006a)
- *Technical Notes* (the Odour Policy) (NSW DEC, 2006b)

2 Site Location and Land Use

The Project Site is located approximately 35 kilometres (km) southwest of Sydney in the suburb of Ingleburn in the Campbelltown Local Government Area (LGA) and is located in the Industry and Innovation section of the Ingleburn Precinct[1] as shown in **Figure 1.**

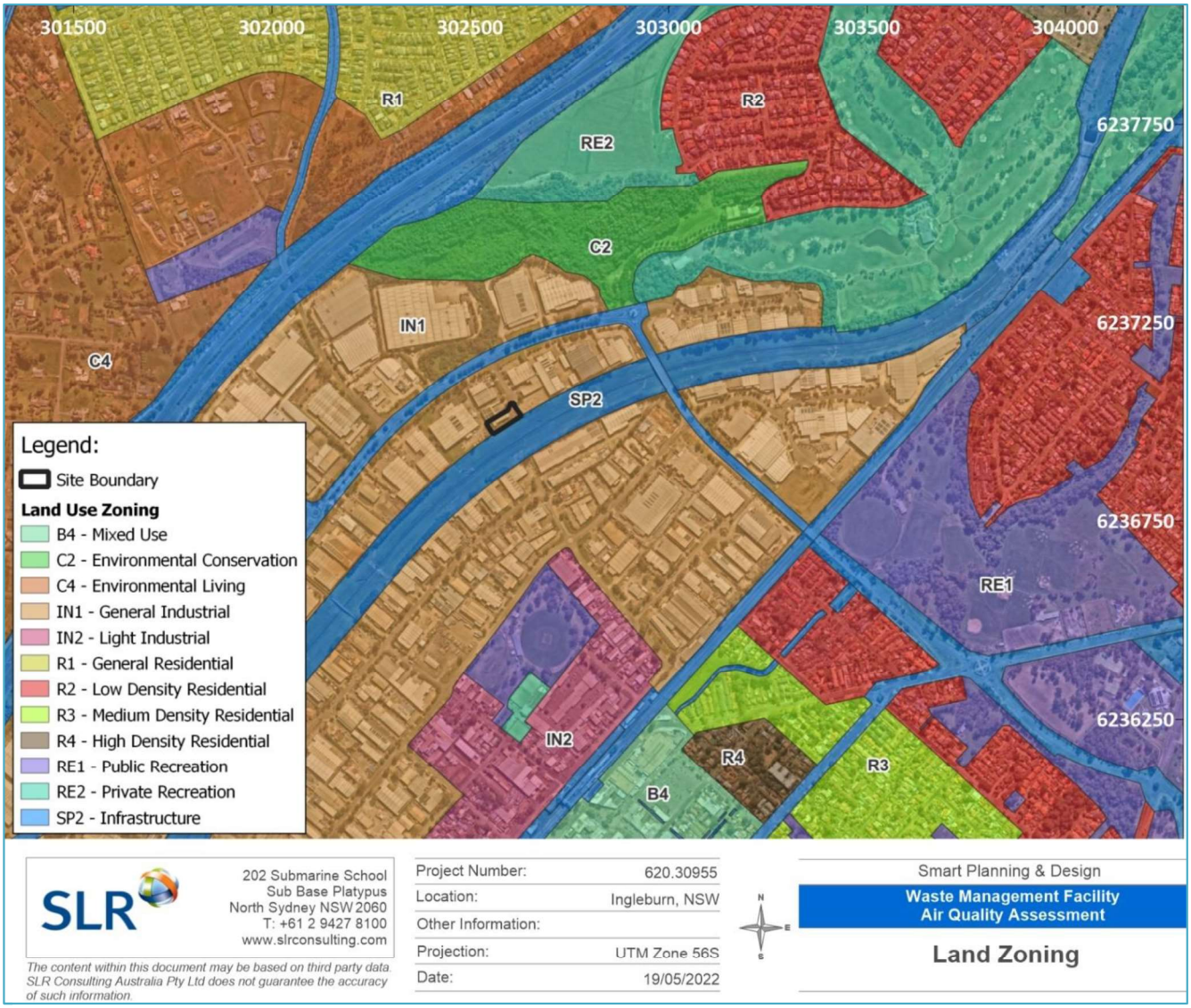
As shown in **Figure 2,** the Project Site is zoned General Industrial (IN1). The nearest identified sensitive receptors[2] are residential areas situated approximately 800 metres (m) to the north, and 1 km to the southeast of the Project Site boundary, zoned as Low Density Residential (R2) and Medium Density Residential (R3).

Figure 1 Site Location

[1] https://www.planning.nsw.gov.au/-/media/Files/DPE/Plans-and-policies/Ingleburn-Precinct-Plan-2017-November-pdf.pdf?la=en

[2] A sensitive receptor is defined in the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (NSW EPA, 2017) as follows and this definition has been applied in this assessment:
"A location where people are likely to work or reside; this may include a dwelling, school, hospital, office or public recreational area. An air quality impact assessment should also consider the location of known or likely future sensitive receptors."

Figure 2 Land Zoning of Surrounding Land



3 Proposed Operations

The Project includes the following key elements:

- Outdoor storage of sorted scrap, with the rest of the scrap compressed and bailed for export
- Dismantling of vehicles for recycling, including but not limited to batteries, oil, diesel fuel and petrol
- Waste generated that is not sold is recycled and is limited to timber and PVC
- Batteries collected will be sold to Enirgi Pty Ltd (recycling company)
- Oily water, petrol and diesel waste will be collected by Cleanaway.

The proposed hours of operation are 7:00 am to 5:00 pm Monday to Friday and 7:00 am to 2:00 pm on Saturday.

4 Regulatory Requirements

4.1 Relevant Legislation, Policy and Guidance

The following air quality policy and guidance documents have been referenced within this assessment and have been used to identify the relevant air quality criteria (see **Section 7.2**).

4.1.1 Protection of the Environment Operations Act 1997 & Amendment Act 2011

The Protection of the Environment Operations (POEO) Act 1997 and Amendment Act 2011 are a key piece of environment protection legislation administered by the NSW Environment Protection Authority (EPA) which enables the Government to establish instruments for setting environmental standards, goals, protocols and guidelines.

The following sections of the POEO Act are of general relevance to the Project:

- Section 117 of the POEO Act states that the wilful or negligent release of ozone depleting substances such as chlorofluorocarbons (CFCs) to the atmosphere carries the highest of all penalties under NSW environmental law.
- Section 124 and 125 of the POEO Act state that any plant located at a premise should be maintained in an efficient condition and operated in a proper and efficient manner to reduce the potential for air pollution.
- Section 126 of the POEO Act requires that materials are managed in a proper and efficient manner to prevent air pollution.
- Section 128 of the POEO Act states:
  - The occupier of a premises must not carry on any activity or operate any plant in or on the premises in such a manner to cause or permit the emission at any point specified in or determined in accordance with the regulation of air impurities in excess of [the standard of concentration and/or the rate] prescribed by the regulations in respect of any such activity or any such plant.
  - Where neither such a standard nor rate has been so prescribed, the occupier of any premises must carry on activity, or operate any plant, in or on the premises by such practicable means as may be necessary to prevent or minimise air pollution.

- Section 129 of the POEO Act states that odours generated by operational activities should not be detectable beyond the site boundary.
- Section 133 of the POEO Act states that the EPA may prohibit the burning of fires in the open or burning of waste in an incinerator. These activities are illegal in most local Council areas.

Changes under the POEO Amendment Act 2011 include that the owner of a premises, the employer or any person carrying on the activity which causes a pollution incident is to *immediately* notify the relevant authorities when material harm to the environment is caused or threatened.

4.1.2 Protection of the Environment Operations (Clean Air) Regulation 2021

The POEO (Clean Air) Regulation 2021 (the Regulation) is the core regulatory instrument for air quality issues in NSW. In relation to industry, the Regulation:

- sets maximum limits on emissions from activities and plant for a number of substances
- deals with the transport and storage of volatile organic liquids
- restricts the use of high sulphur liquid fuel
- imposes operational requirements for certain afterburners, flares, vapour recovery units and other treatment plant.

Part 5 of the POEO (Clean Air) Regulation 2021 (the Regulation) also deals with emissions of air impurities from activities and plant, and Schedule 6 sets maximum limits on emissions for non-scheduled premises as listed in **Table 1**. The standards of concentrations prescribed by Part 5, Division 3 do not apply to plant during start up and shutdown periods, however, such emissions are still subject to the requirements of Section 128 (2) of the POEO Act in relation to the prevention and minimisation of air pollution.

Table 1 Schedule 6 Standards of Concentration for Non-scheduled Premises - Group C

Air impurity	Activity	Concentration[2]
Solid particles (Total)	Any activity or plant,	100 mg/m^3
Smoke	Any activity or plant in connection with which solid fuel is burnt	Ringelmann 3 or 60% opacity
	Any activity or plant in connection with which liquid or gaseous fuel is burnt	Ringlemann 1 or 20% opacity

4.2 NSW Environment Protection Authority Air Quality Policy and Guidance

NSW EPA is the NSW regulatory authority responsible for air quality regulation and associated activities.

The NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (hereafter 'the Approved Methods') (NSW EPA, 2017), lists the statutory methods for modelling and assessing air pollutants from stationary sources and specifies criteria which reflect the environmental outcomes adopted by the EPA. The Approved Methods are referred to in the POEO (Clean Air) Regulation 2021 for assessment of impacts of air pollutants.

The air quality criteria set out in the Approved Methods relevant to this assessment are reproduced and discussed in **Section 7.2**.

4.3 Campbelltown (Sustainable City) Development Control Plan 2015

The Campbelltown (Sustainable City) Development Control Plan 2015[3] (the Plan) has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* and *the Environmental Planning and Assessment Regulation 2000*. The purpose of the Plan is to provide more detailed provisions to supplement Campbelltown Environmental Planning Instruments.

The Plan is used to determine compliance and takes into consideration the relevant provisions of the Plan in determining development applications on land located within the Campbelltown LGA.

With respect to the Project, Volume 1 Part 7 of the DCP refers to the requirements for industrial development and Section 7.7.2 requires the following with respect to air quality

> *"7.7.2 Air Quality*
>
> *Design Requirements*
>
> *a) Any development that is likely to or capable of generating levels of air emissions exceeding the requirements of the* Protection of the Environment Operations Act 1997 *shall demonstrate appropriate measures to mitigate against air pollution."*

Whilst the Project is not considered likely of capable of generating levels of air emissions exceeding the POEO Act, some mitigation measures have been recommended, as presented in **Section 9**.

[3]https://www.campbelltown.nsw.gov.au/BuildAndDevelop/PlanningPoliciesandControls/DevelopmentControlPlans/CampbelltownSustainableCityDevelopmentControlPlan2015

5 Existing Environment

5.1 Existing Air Emission Sources in the Surrounding Area

A desktop review was undertaken to identify existing and future air emission sources in the vicinity of the Proposal Site with potential to give rise to cumulative impacts on air quality. This review included:

- a review of aerial imagery of the region surrounding the Project Site location
- a search of the National Pollutant Inventory (NPI) to identify facilities located within 2 km of the Project Site boundary
- a search of Environment Protection Licences (EPLs) to identify facilities located within 2 km of the Project Site boundary.

The NPI database provides details on industrial emissions of over 4,000 facilities across Australia. The requirement to return emissions estimates to the NPI 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).

EPLs are issued under the POEO Act and regulated by the NSW EPA. EPLs stipulate emission limits to water, land and/or air and provide operational protocols to ensure emissions/operations comply with relevant standards. General requirements of EPLs relating to air quality include:

- Plant and equipment are to be maintained and operated in a proper and efficient manner.
- Emissions of dust and odour from the premises are to be minimised/prevented.

A summary of identified air emission sources in the vicinity of the Project Site is provided in **Table 2**. The location of each source is shown in **Figure 3**.

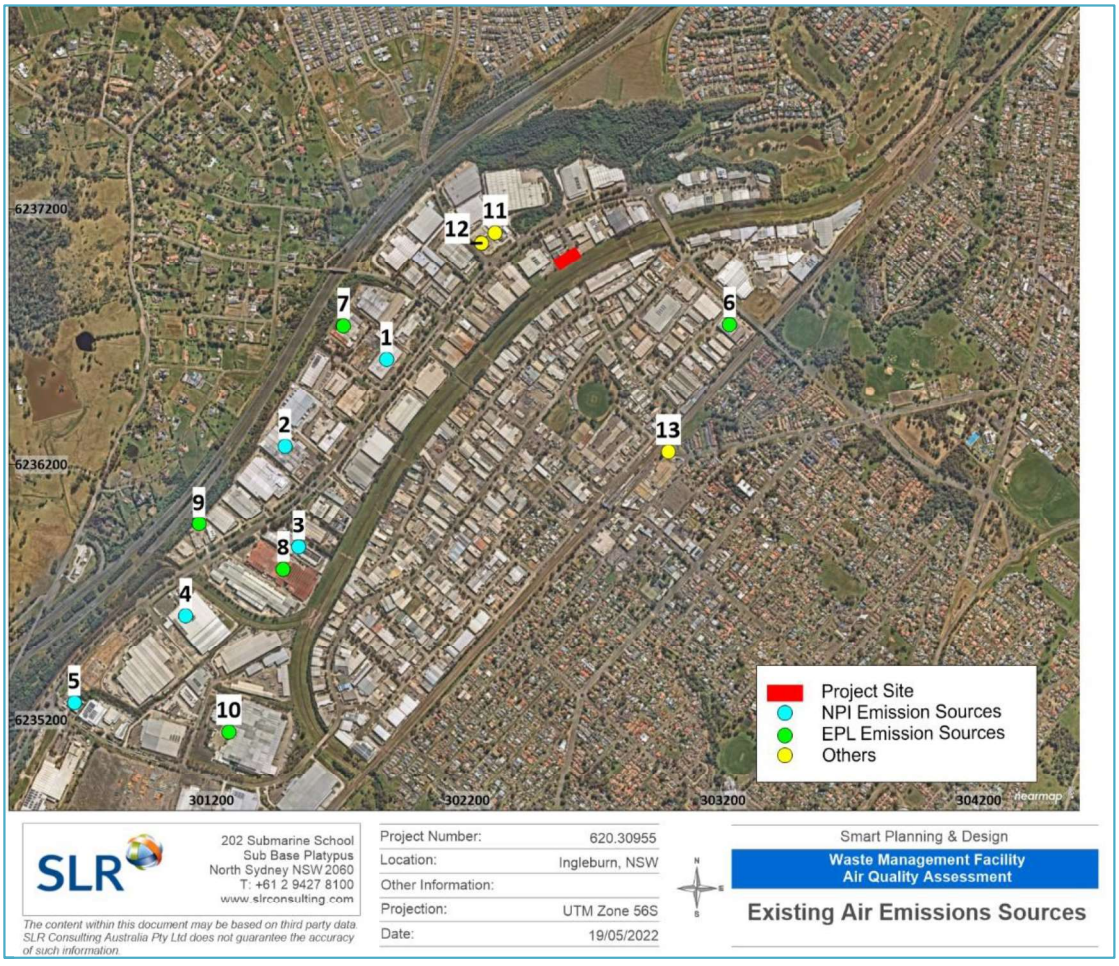
Based on the types of existing sources of air pollution identified above, the potential air pollutants have been identified as:

- products of fuel combustion (including particulates) from local road and air traffic, as well as several existing industrial sites within the industrial area of the Ingleburn Precinct
- nuisance dust from other construction projects within the industrial area.

Table 2 Existing Air Emission Sources

Map ID	Facility Name	Main Activities	Source
1	GE Betz Australia Pty Ltd	Chemical manufacturing	NPI
2	Pax Australia Pty Ltd	Contract manufacture of liquid and aerosol products	NPI
3	Australian Petro Chemical Storage Pty Ltd	Storage of chemicals	NPI
4	Viridian Glass Pty Ltd	Distribution of float glass	NPI
5	CSR Building Products Limited	Manufacture pf glass fibre insulation	NPI
6	Bulk Recovery Solutions Pty Ltd	Waste storage – other types of waste	EPL
7	Inghams Enterprises Pty Ltd	General animal products production	EPL
8	Australian Pet Brands Pty Ltd	General animal products production	EPL
9	Redirect Recycling Pty Ltd	Recovery of general waste	EPL
10	Linfox Australia Pty Ltd	General chemical storage	EPL
11	KFC Bardia	Fast food restaurant	-
12	Hungry Jack's Burger Ingleburn	Fast food restaurant	-
13	KFC Ingleburn	Fast food restaurant	-

Figure 3 Identified Local Air Emission Sources



5.2 Local Topography

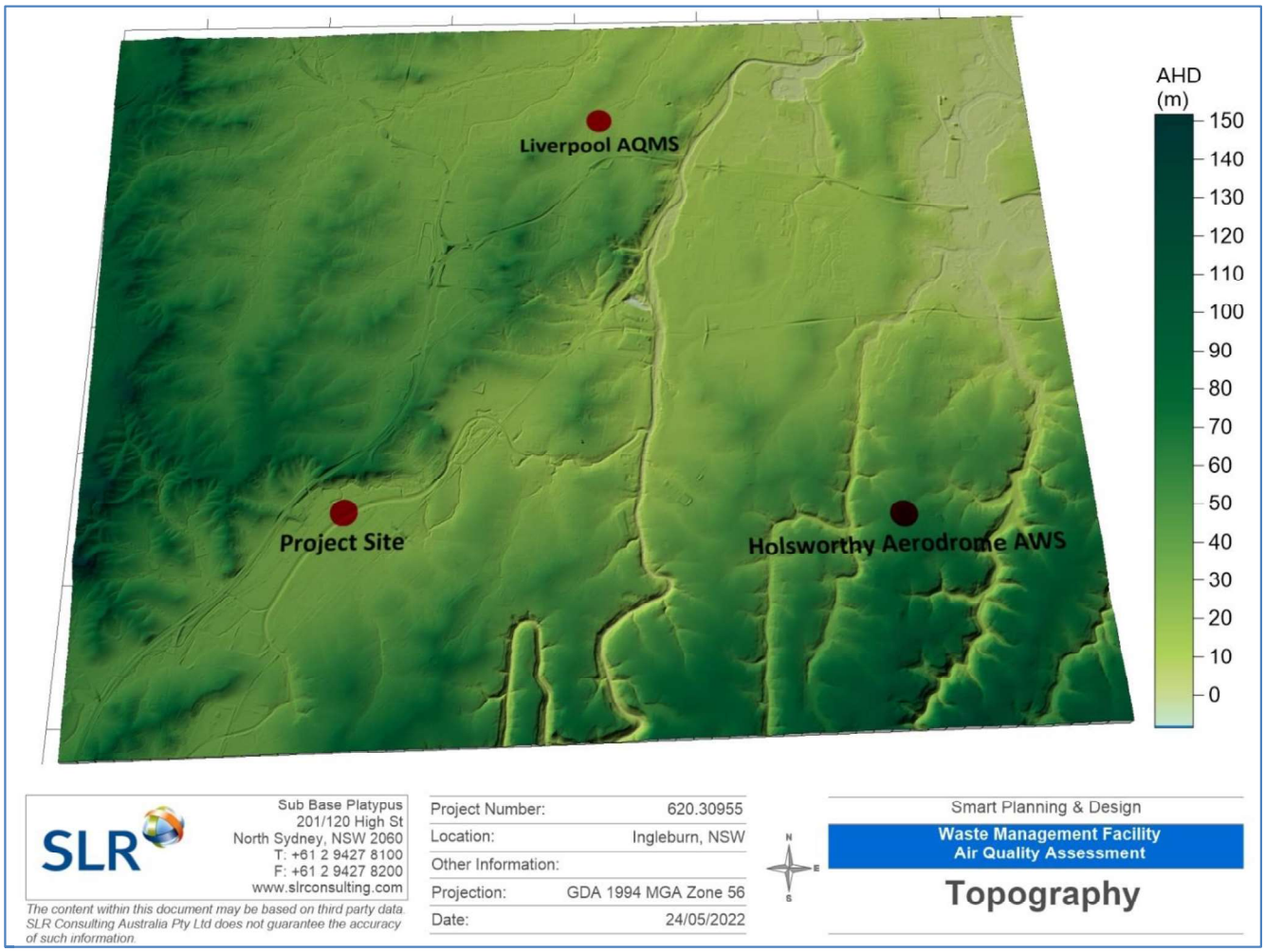
Topography is important in air quality studies as local atmospheric dispersion can be influenced by night-time katabatic (downhill) drainage flows from elevated terrain or channelling effects in valleys or gullies.

A three-dimensional representation of the area surrounding the Project Site is displayed in **Figure 4**, together with the locations of the two closest locations that record meteorological data (discussed further in **Section 5.3**). The topography of the local area ranges from an approximate elevation of 0 m to 150 m Australian Height Datum (AHD).

The topography of the immediate area surrounding the Project Site is relatively flat, with an uphill gradient towards the residential areas to the west of the Project Site (height difference 25-70 m). Heathcote National Park (270 m height) is located approximately 10 km to the southeast.

The area around the Project Site is developed with several other industries and buildings, along with a major highway between the Project Site and sensitive receptors. The local area is predominately cleared of natural vegetation, with some isolated clusters of trees to the north and west.

Figure 4 Topography of Area Surrounding the Project Site



5.3 Climate and Meteorology

The Bureau of Meteorology (BoM) records and maintains long term historical data across Australia. The closest meteorological monitoring station to the Project Site with long term statistics is the Holsworthy Aerodrome AWS, approximately 8 km to the east. The Holsworthy Aerodrome AWS (Station ID 66161) was commissioned in 1998 and collects meteorological data for the following parameters:

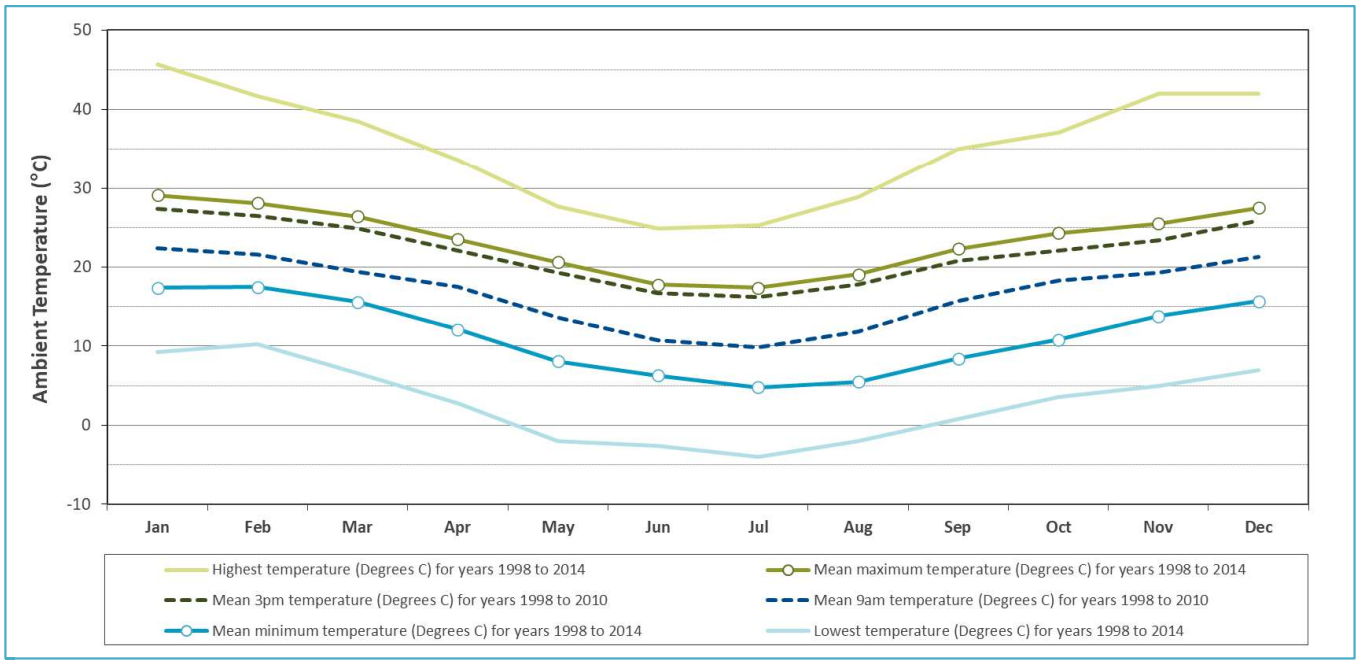
- Temperature (°C)
- Rainfall (mm)
- Solar radiation (MJ/m2)
- Relative humidity (%)
- Wind speed (m/s) and wind direction (degrees).

A review of the long-term data collected at Holsworthy Aerodrome AWS is provided for context in the following sections as these may affect air quality impacts from the Project.

5.3.1 Temperature

Long-term temperature statistics are summarised in **Figure 5**. Mean maximum temperatures range from 17.4°C in winter to 29°C in summer, and mean minimum temperatures range from 4.8°C in winter to 17.5°C in summer. Maximum temperatures above 40°C and minimum temperatures less than -2°C have been recorded.

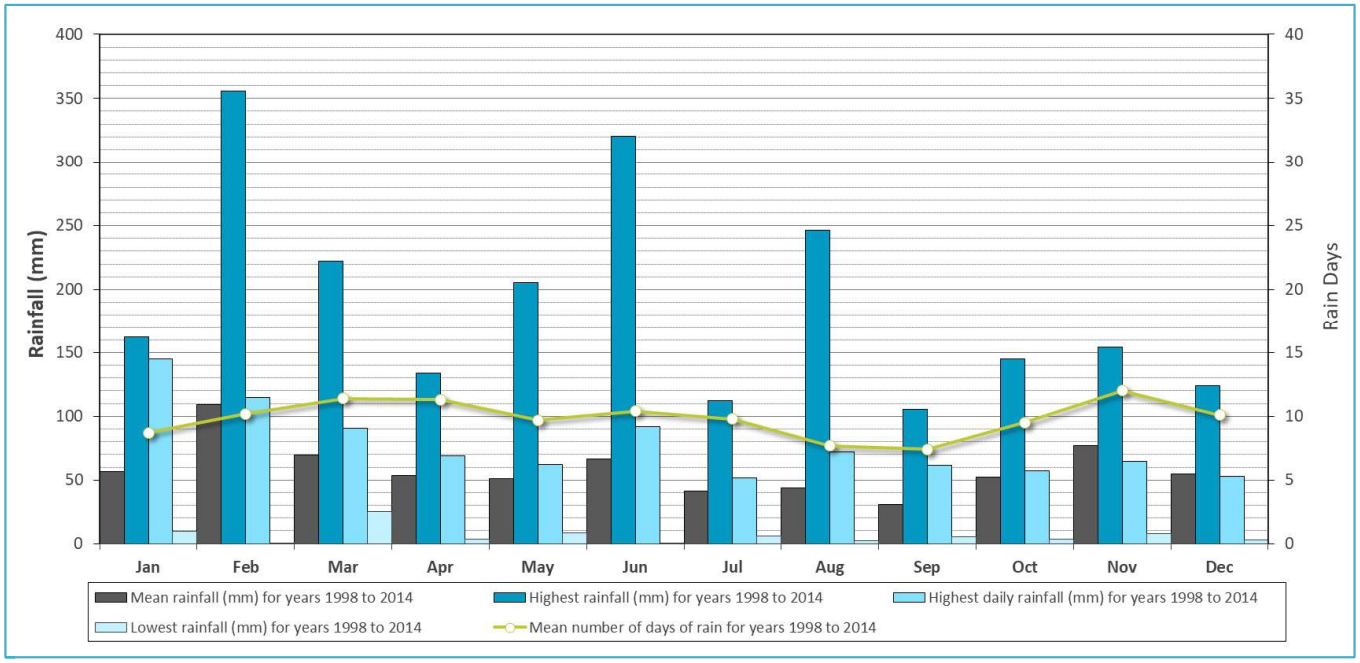
Figure 5 Long Term Temperature Data – Holsworthy Aerodrome AWS



5.3.2 Rainfall

Long-term rainfall statistics reported for Holsworthy Aerodrome AWS are summarised in **Figure 6.** Rainfall is relatively high throughout certain months in the year, the lowest average of rainfall recorded was 31 mm recorded during September. The minimum number of rain days recorded by the AWS was approximately seven days for the month of September. Peak rainfall events occur during summer, with the highest rainfall in February. The highest monthly rainfall recorded over the time period examined was 355.6 mm recorded in February 2008.

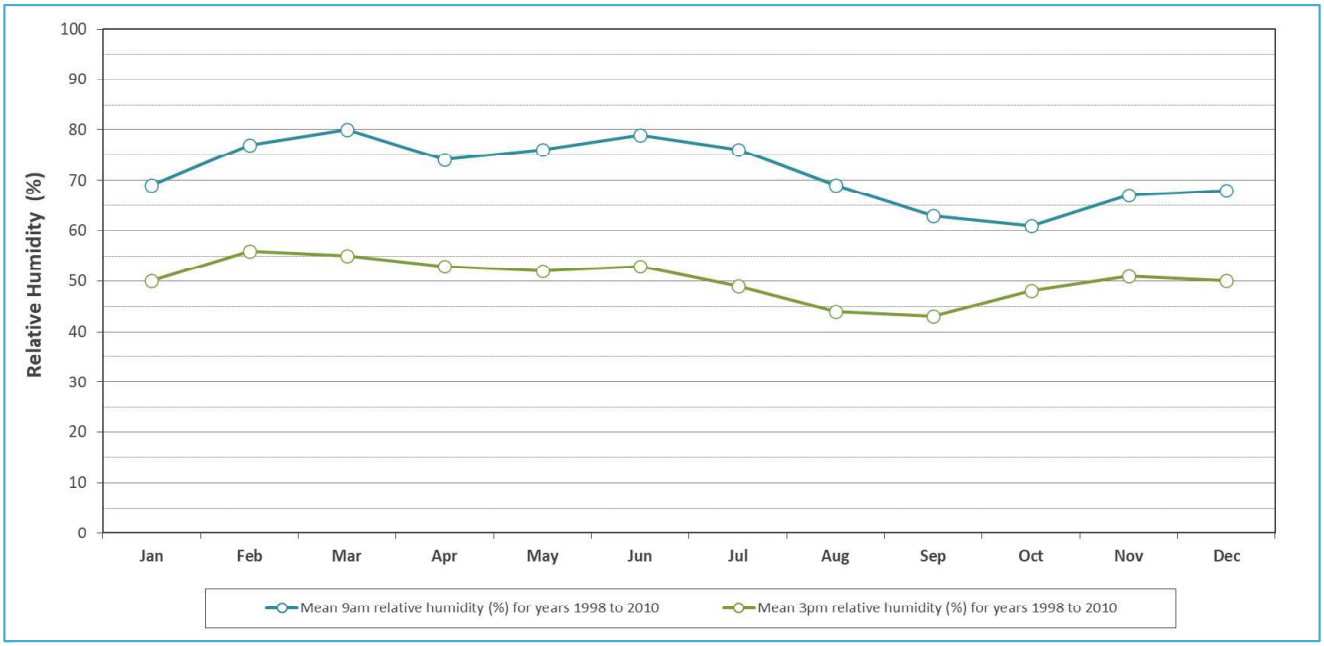
Figure 6 Long Term Rainfall Data – Holsworthy Aerodrome AWS



5.3.3 Relative Humidity

Long-term humidity statistics (9:00 am and 3:00 pm monthly averages) are summarised in **Figure 7**. Morning humidity levels range from an average of around 61% in mid-spring to around 80% in early autumn. Afternoon humidity levels are lower, at around 43% in early spring and 49% in mid-winter.

Figure 7 Relative Humidity Data – Holsworthy Aerodrome AWS



5.3.4 Wind Speed and Direction

Local wind speed and direction influence the dispersion of air pollutants. Wind speed determines both the distance of downwind transport and the rate of dilution as a result of 'plume' stretching. Wind direction, and the variability in wind direction, determines the general path pollutants will follow and the extent of crosswind spreading. Surface roughness (characterised by features such as the topography of the land and the presence of buildings, structures and trees) will also influence dispersion.

Wind roses show the frequency of occurrence of winds by direction and strength. The bars correspond to the 16 compass points (degrees from north). The bar at the top of each wind rose diagram represents winds blowing from the north (i.e., northerly winds), and so on. The length of the bar represents the frequency of occurrence of winds from that direction, and the widths of the bar sections correspond to wind speed categories, the narrowest representing the lightest winds. Thus, it is possible to visualise how often winds of a certain direction and strength occur over a long period, either for all hours of the day, or for particular periods during the day.

The last five years (2017-2021) of data from the Liverpool AQMS (located approximately 7.5 km to the northeast of the Project Site) are presented as a seasonal wind rose in **Figure 8.** Liverpool AQMS was selected over Holsworthy AWS due to its location being closer to the Project Site and having more similar land use to the Project.

The annual wind rose indicates the predominant wind directions in the area are from the west-southwest. Calm wind conditions (wind speed less than 0.5 m/s) were recorded 16.9% of the time throughout the five-year period.

The following description of wind speeds at the Development Site references the Beaufort Wind Scale, as outlined in **Table 3**. Use of the Beaufort Wind Scale is consistent with terminology used by the BoM.

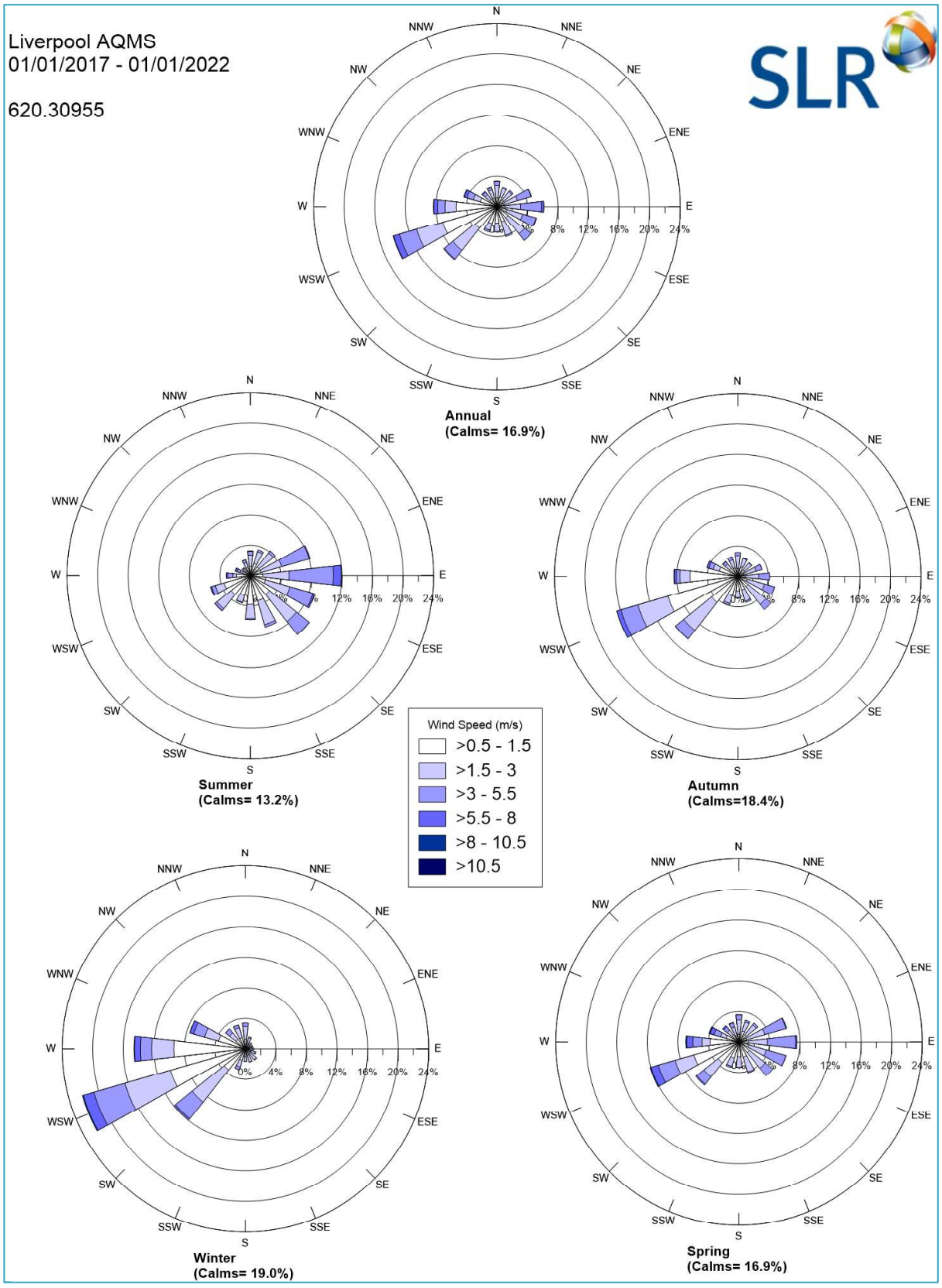
Table 3 Beaufort Wind Scale

Beaufort Scale #	Description	m/s	Description on land
0	Calm	0-0.5	Smoke rises vertically
1	Light air	0.5-1.5	Smoke drift indicates wind direction
2-3	Light/gentle breeze	1.5-5.3	Wind felt on face, leaves rustle, light flags extended, ordinary vanes moved by wind
4	Moderate winds	5.3-8.0	Raises dust and loose paper, small branches are moved
5	Fresh winds	8.0-10.8	Small trees in leaf begin to sway, crested wavelets form on inland waters
6	Strong winds	>10.8	Large branches in motion, whistling heard in telephone wires; umbrellas used with difficulty

The average seasonal wind roses for the years 2017-2021 indicate that:

- In summer, wind speeds are mostly gentle to moderate (range between 1.5 m/s to 5.5 m/s) and predominantly blow from the east, with very few winds from the west and northwest directions. Calm wind conditions are predicated to occur for approximately 13% of the time during the summer months.
- In autumn, winds are mostly gentle to moderate and blow predominantly from the west-southwest direction, with very few winds from the north and east. Calm wind conditions are predicated to be approximately 18% of the time during the autumn months.
- In winter, winds are mostly gentle to moderate and blow from the west-southwest and west directions, with very few winds from the eastern quadrant. Calms occurred approximately 19% of the time during the winter months.
- In spring, winds are mostly gentle to moderate and are emanating from all directions, with a little more wind from the west-southwest. Calms occurred approximately 17% of the time during the summer months.

Figure 8 Liverpool AQMS Wind Roses (2017 – 2021)



5.4 Ambient Air Quality Monitoring Data

The DPE Environment, Energy and Science (EES) Group maintains a network of AQMSs across NSW. The nearest such station is located at Liverpool, approximately 7.6 km to the northeast of the Project Site.

The Liverpool AQMS (was commissioned in 1991 and is located within a residential zone at an elevation of 21 m, approximately 7.5 km to the northeast of the Project Site.

Air pollutant data recorded by the Liverpool AQMS were obtained for the calendar years 2017 – 2021 (inclusive).

Recorded particulate concentrations (PM_{10} and $PM_{2.5}$) are summarised in **Table 4** (red font indicates an exceedance of the relevant criterion) and presented graphically in **Figure 9** and **Figure 10.**

A review of the data shows that exceedances of the 24-hour average PM_{10} criterion were recorded by the Liverpool AQMS for all five years recorded, exceedances of the 24-hour average $PM_{2.5}$ criterion were recorded in all five years, and exceedances of the annual average $PM_{2.5}$ criterion were recorded for all years excluding 2021. There was one exceedance of the annual average PM_{10} criterion in 2019.

Exceedances of the 24-hour average PM_{10} criterion were recorded by the Liverpool AQMS for all years. A review of the exceedances recorded during 2018, 2019 and 2020 indicates that they were associated with natural events such as bushfires or dust storms, or hazard reduction burns.

Ambient concentrations of NO_2 were all below the relevant criteria for all years investigated, as shown in **Figure 11**. Ambient concentrations of SO_2 were all below the relevant criteria for all years investigated, as shown in **Figure 12**.

Based on their review of ambient monitoring data from their 43-station air quality monitoring network, NSW EPA (in their publication *NSW* Annual Air Quality Statement 2021 (NSW OEH, 2021) concluded that the air quality index was in the 'very good', 'good' or 'fair' category for at least 94 % of the time in any Sydney region.

However, even though the air quality is generally good in Sydney region, there is potential for fugitive dust emissions from the future construction projects in the vicinity of the Proposal Site to elevate local ambient particulate concentrations and contribute to additional exceedances of the 24-hour average criteria.

Table 4 Summary of Liverpool AQMS Monitoring Data (2017 – 2021)

Pollutant	SO_2			NO_2		PM_{10}		$PM_{2.5}$	
Averaging Period	Maximum 1-hour	Maximum 24-hours	Annual	Maximum 1-hour	Annual	Maximum 24-hours	Annual	Maximum 24-hours	Annual
Units	pphm	pphm	pphm	pphm	pphm	µg/m³	µg/m³	µg/m³	µg/m³
2017	1.1	0.3	0.07	6.4	1.2	73.6	20.6	59.2	8.9
2018	2.0	0.4	0.07	6.2	1.2	101.5	24.2	45.4	10.1
2019	1.6	0.4	0.07	5	1.2	178.9	27.7	156.0	12.8
2020	1.5	0.3	0.05	4.8	1.1	195.1	20.8	73.6	9.1
2021	1.7	0.3	0.05	4.2	1.0	82.8	18.1	52.2	7.9
Criterion	**20**	**8**	**2**	**12**	**3**	**50**	**25**	**25**	**8**

Notes:

1 For 2017 - 2 exceedances of the 24-hour average $PM_{2.5}$ were recorded and 3 exceedances of the 24-hour average $PM_{2.5}$ were recorded.

2 For 2018 -13 exceedances of the 24-hour average PM_{10} and 8 exceedances of the 24-hour average $PM_{2.5}$ were recorded.

3 For 2019 - 28 exceedances of the 24-hour average PM_{10} and 32 exceedances of the 24-hour average $PM_{2.5}$ were recorded.

4 For 2020 - 7 exceedances of the 24-hour average PM_{10} and 7 exceedances of the 24-hour average $PM_{2.5}$ were recorded.

5 For 2021 - 4 exceedances of the 24-hour average PM_{10} and 6 exceedances of the 24-hour average $PM_{2.5}$ were recorded.

Figure 9 Measured 24-Hour Average PM_{10} Concentrations - Liverpool AQMS (2017 – 2021)

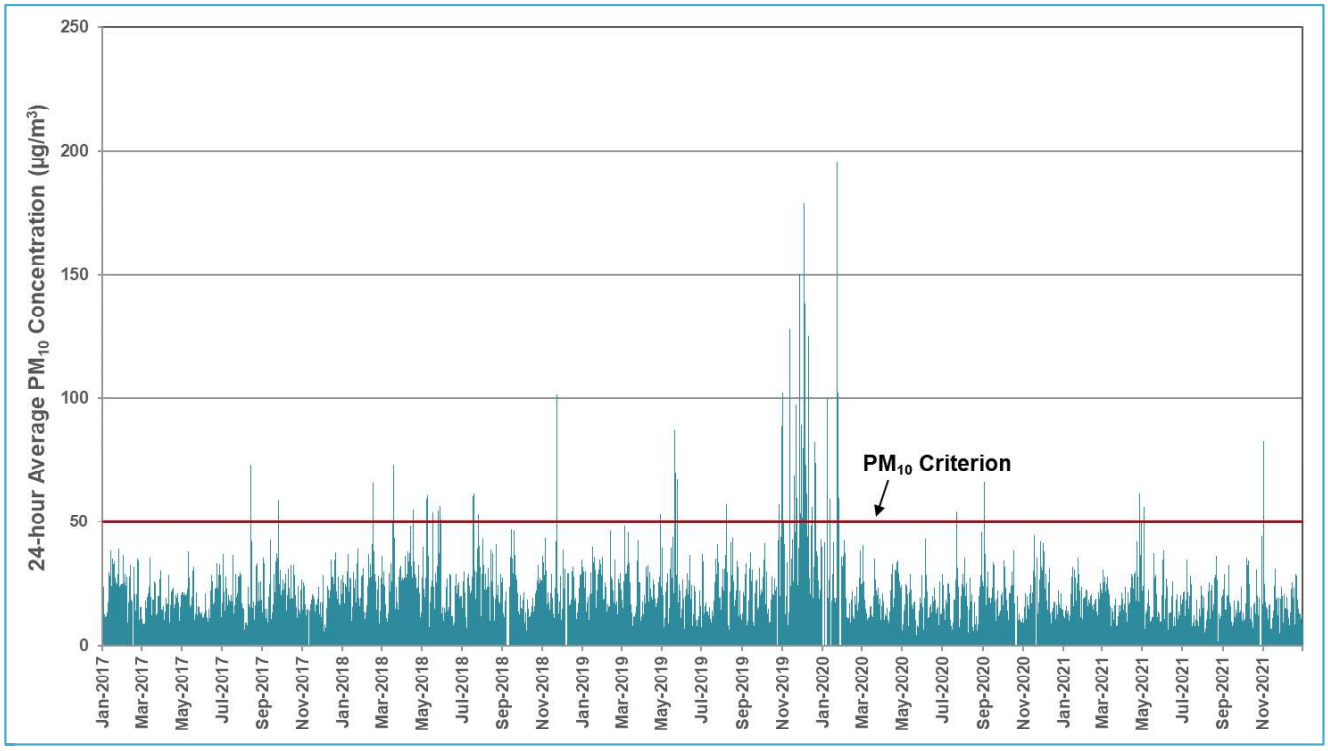


Figure 10 Measured 24-Hour Average $PM_{2.5}$ Concentrations - Liverpool AQMS (2017 – 2021)

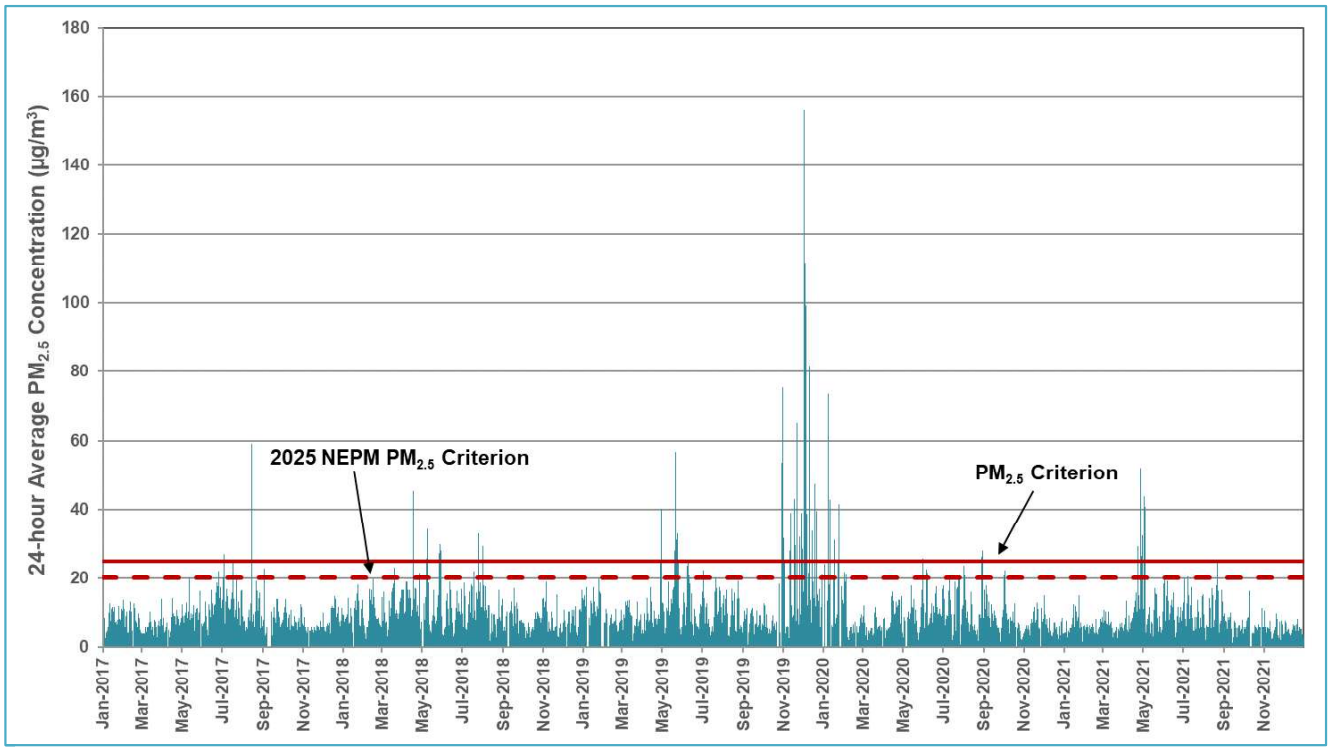


Figure 11 Measured 24-Hour Average NO_2Concentrations - Liverpool AQMS (2017 – 2021)

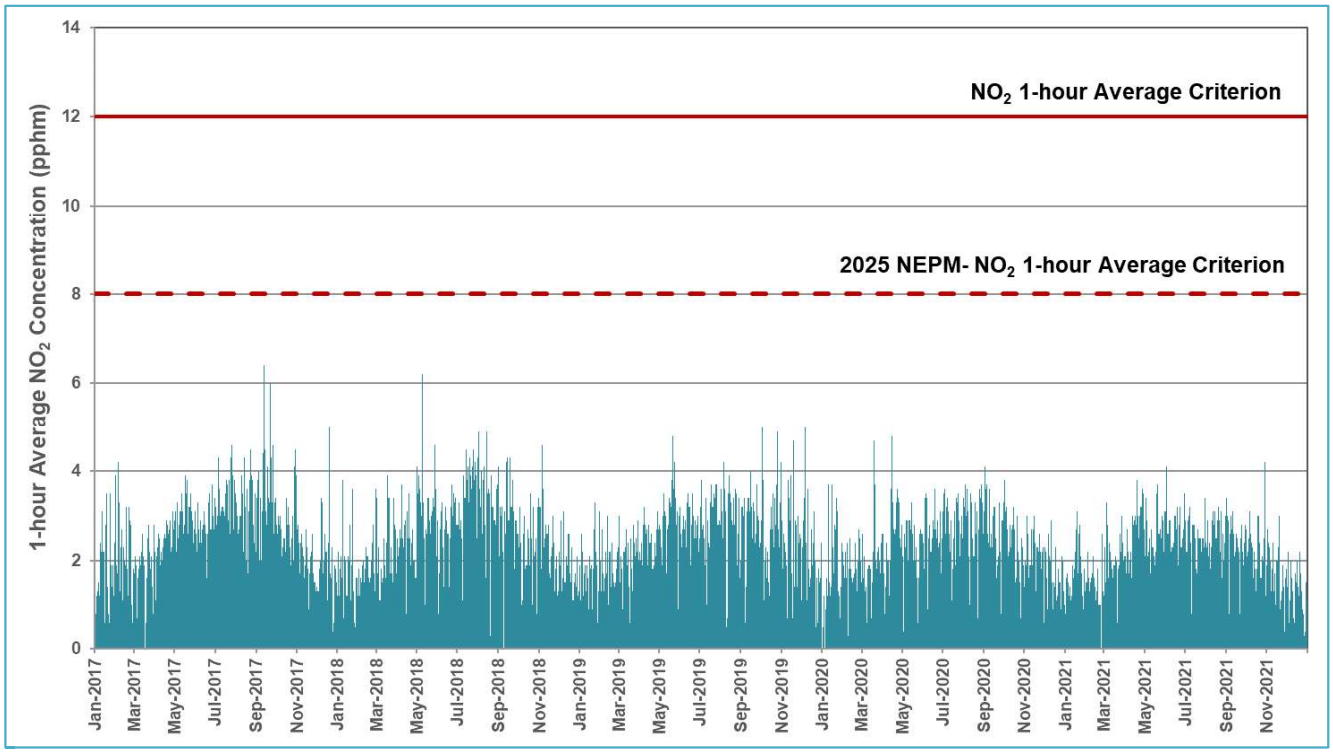
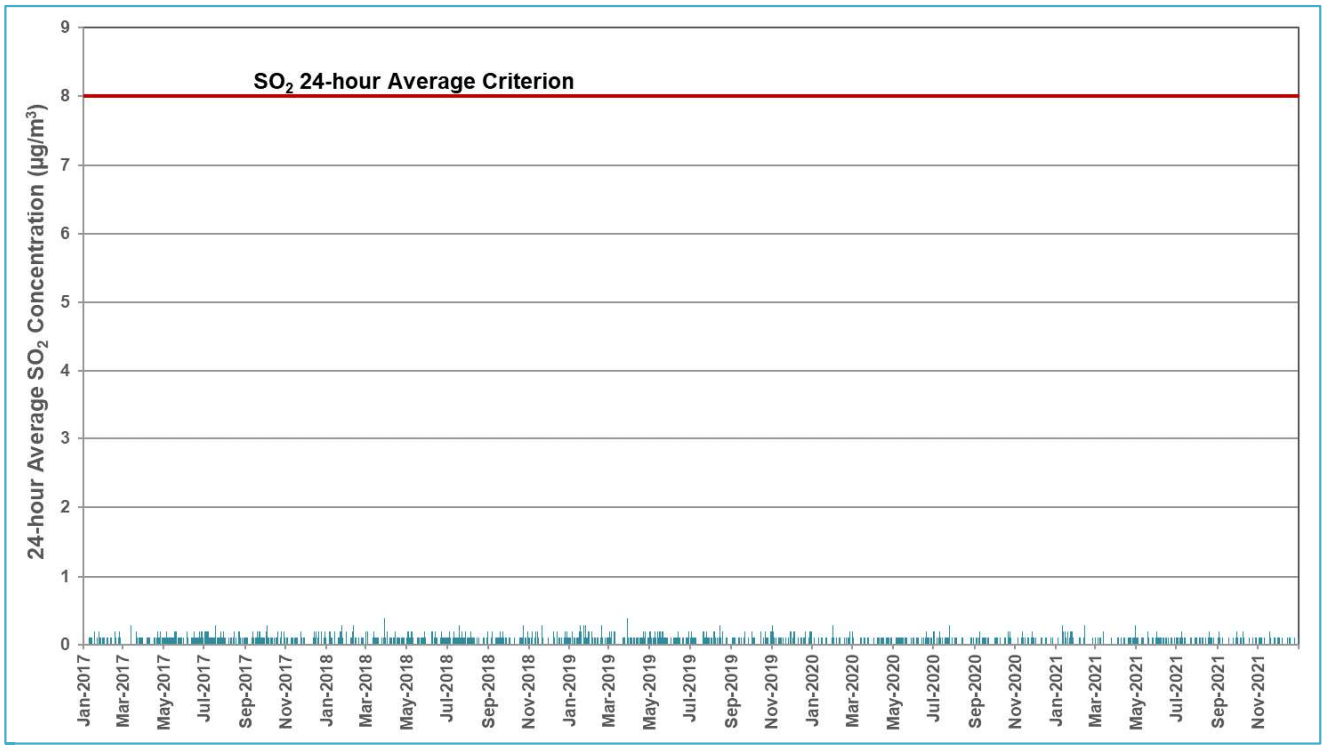


Figure 12 Measured 24-Hour Average SO_2Concentrations - Liverpool AQMS (2017 – 2021)



6 Potential Sources of Emissions to Air

6.1 Potential Sources of Emissions During Operations

Based on the operations described in **Section 3,** potential sources of air emissions associated with the activities at the Site have been identified as follows:

- Products of fuel combustion and particulates from onsite vehicle movements on sealed roads.

6.1.1 Products of Combustion and Particulates from Onsite Vehicle Movements

Where diesel-powered mobile machinery and vehicles will be used, localised elevations in ambient concentrations of combustion-related pollutants may also occur. However, considering the size of the nature of the operations, any potential for the relevant impact assessment criteria for these pollutants to be exceeded at surrounding sensitive areas will be minimal.

In addition to combustion gases, vehicular movements within the Project Site will be a potential source of wheel-generated particulate matter emissions. These particulate emissions occur whenever vehicles travel over an unpaved or paved surface such as hardstand areas or carparks. They are due to both direct emissions from the vehicles in the form of brake and tire wear emissions, and resuspension of loose material on the surface.

Dust emissions from surfaces vary with the average weight of vehicles, speed of vehicles and the average silt loading present on the surface.

Other substances are also emitted in trace amounts as products of incomplete combustion, such as metallic additives, which contribute to the particulate content of the exhaust (DEWHA , 2008).

The rate and composition of air pollutant emissions from road vehicles is a function of a number of factors, including the type, size and age of the vehicles, the type of fuel combusted, number and speed of the vehicles and the surface gradient.

7 Pollutants of Concern and Air Quality Criteria

Potential air emission sources associated with the operation of the Project Site have been identified as follows:

- Products of fuel combustion and particulates from onsite vehicle movements on sealed roads.

7.1 Products of Combustion

The main existing sources of products of combustion identified in the local air shed are exhaust emissions from local traffic in the area. Given the similar level of urban development between the Project Site and Liverpool AQMS, any air impacts due to local traffic can be assumed to be captured within the background levels monitored by the Liverpool AQMS (refer to **Section 5.4**). On this basis, ambient concentrations of gaseous air pollutants can be expected to be well within the relevant ambient air quality criteria, while concentrations of PM_{10} and $PM_{2.5}$ may be elevated at times due to regional events.

7.2 Relevant Air Quality Criteria

Ambient air quality criteria for the identified pollutants of concern are prescribed by Section 7.1 of the Approved Methods. The criteria specified in the Approved Methods are the defining ambient air quality criteria for NSW and are considered to be appropriate for the setting. Those relevant to the identified emission sources at the Site are discussed below.

It is noted that the criteria outlined in the sections below present the current ambient air quality criteria adopted by the NSW Government, which are based on the standards set out in the National Environment Protection (Ambient Air Quality) Measure (the AAQ NEPM). On 15 April 2021, The National Environmental Protection Council agreed to vary the AAQ NEPM and on 18 May 2021 the ambient air standards for NO_2 and SO_2 were amended. These changes to the standards for NO_2 and SO_2 include:

- NO_2:
  - The 1-hour standard for NO_2 has been reduced to 80 ppb (previously 120 ppb).
  - The annual standard for NO_2 has been reduced to 15 ppb (previously 30 ppb).
- The form of both the 1-hour and annual NO_2 standards are as maximum values with no allowable exceedances.
- SO_2:
  - The 1-hour standard for SO_2 has been reduced to 100 ppb (previously 200 ppb).
- A future 1-hour SO_2 standard of 75 ppb will be implemented from 2025.
  - The 24-hour standard for SO_2 has been reduced to 20 ppb (previously 80 ppb).
- No future target for 24-hour average SO_2 concentrations is proposed at this stage.
- The current annual mean standard for SO_2 has been removed.
- The form of both the revised 1-hour and 24-hour SO_2 standards are as maximum values with no allowable exceedances.

It is not yet known if or when the Approved Methods will be amended to reflect the recent changes to the AAQ NEPM and therefore this AQIA considers the NO_2 and SO_2 ambient air quality criteria as published in the Approved Methods and those in the current AAQ NEPM. The AQIA air quality criteria for the pollutants of concern during the operational phase of the Project as outline din the Approved Methods are provided below**.** Predictive modelling output is generally in the form of mass concentrations (mass of pollutant per volume of air) and therefore in this context it is preferable to present these criteria as mass concentrations for consistency.

7.2.1 Deposited Particulate

The criteria presented above are concerned in large part with the health impacts of airborne particulate matter. Nuisance impacts from fugitive dust emissions during the construction phase also need to be considered, mainly in relation to deposited dust.

In NSW, accepted practice regarding the nuisance impact of dust is that dust-related nuisance can be expected to impact on residential areas when annual average dust deposition levels exceed 4 grams per square metre per month (g/m^2/month).

Table 5 presents the impact assessment criteria set out in the Approved Methods for dust deposition, showing the allowable increase in dust deposition level over the ambient (background) level to avoid dust nuisance.

Table 5 EPA Impact Assessment Criteria for Allowable Dust Deposition

Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level
Annual	2 g/m^2/month	4 g/m^2/month

Source: Approved Methods, EPA 2017

7.2.2 Suspended Particulate Matter

Airborne contaminants that can be inhaled directly into the lungs can be classified on the basis of their physical properties as gases, vapours or particulate matter. In common usage, the terms “dust” and “particulates” are often used interchangeably. 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).

The annual impact assessment criteria for TSP recommended by the NSW EPA is 90 $\mu g/m^3$. The TSP impact assessment criteria was developed before the more recent results of epidemiological studies which suggested a relationship between health impacts and exposure to concentrations of finer particulate matter.

PM_{10} and $PM_{2.5}$ are considered important pollutants due to their ability to penetrate into the respiratory system. In the case of the $PM_{2.5}$ 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 $PM_{2.5}$ include increased mortality from cardiovascular and respiratory diseases, chronic obstructive pulmonary disease and heart disease, and reduced lung capacity in asthmatic children.

The impact assessment criteria specified within the Approved Methods for suspended particulate matter are provided in **Table 6**.

Table 6 Impact Assessment Criteria for Suspended Particulate Matter

Pollutant	Averaging Period	Criterion
TSP	Annual	90 µg/m^3
PM_{10}	24-hour	50 µg/m^3
	Annual	25 µg/m^3
$PM_{2.5}$	24-hour	25 µg/m^3
	Annual	8 µg/m^3

7.2.3 Oxides of Nitrogen

NO_X is a general term used to describe any mixture of nitrogen oxides formed during combustion. In atmospheric chemistry NO_X generally refers to the total concentration of nitric oxide (NO) and nitrogen dioxide (NO_2).

NO is a colourless and odourless gas that does not significantly affect human health. However, in the presence of oxygen, NO can be oxidised to form $_{NO2}$ which can have significant health effects including damage to the respiratory tract and increased susceptibility to respiratory infections and asthma. Long term exposure to NO_2 can lead to lung disease.

NO will be converted to NO_2 in the atmosphere after being emitted. The impact assessment criteria specified within the Approved Methods for $_{NO2}$ are provided in **Table 7**.

Table 7 Impact Assessment Criteria for Nitrogen Dioxide ($_{NO2}$)

Pollutant	Averaging Period	Criterion
NO_2	1-hour	12 pphm (246 µg/m^3)
	Annual	3 pphm (62 µg/m^3)

Note: pphm = parts per hundred million

7.2.4 Sulphur Dioxide

SO_2 is a colourless, pungent gas with an irritating smell. When present in sufficiently high concentrations, exposure to SO_2 can lead to impacts on the upper airways in humans (i.e., the noise and throat irritation). SO_2 can also mix with water vapour to form sulphuric acid (acid rain) which can damage vegetation, soil quality and corrode materials.

Main sources of SO_2 in the air are industries that process materials containing sulphur (e.g., 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.

The impact assessment criteria specified within the Approved Methods for SO_2 are provided in **Table 8**.

Table 8 Impact Assessment Criteria for Sulphur Dioxide (SO_2)

Pollutant	Averaging Period	Criteria
SO_2	10-minutes	25 pphm (712 µg/m^3)
	1-hour	20 pphm (570 µg/m^3)
	24-hour	8 pphm (228 µg/m^3)
	Annual	2 pphm (60 µg/m^3)

Note: pphm = parts per hundred million

8 Assessment of Potential Impacts

8.1 Risk Assessment

As discussed in **Section 2**, the only potentially significant air emissions that would have the potential to affect the amenity of the sensitive receptors in the vicinity of the Project Site will be particulate matter.

A *qualitative* risk-based impact assessment was undertaken of the potential air quality impacts of these emissions. The risk-based assessment takes account of a range of impact descriptors, including the following:

- **Nature of Impact**: does the impact result in an adverse, neutral or beneficial environment?
- **Receptor Sensitivity**: how sensitive is the receiving environment to the anticipated impacts?
- **Magnitude**: what is the anticipated scale of the impact?

Based on the assessment of existing particulate concentrations presented in **Section 5.4**, the assessment of the risk associated with air emissions from the Project Site have been assessed as follows:

Nature of Impact

Predicted impacts may be described in terms of the overall effect upon the environment:

- **Beneficial**: the predicted impact will cause a beneficial effect on the receiving environment.
- **Neutral**: the predicted impact will cause neither a beneficial nor adverse effect.
- **Adverse**: the predicted impact will cause an adverse effect on the receiving environment.

Given the potential air pollutants associated with the operations of the Project Site (dust) the nature of impact is concluded to be *adverse*. Note, that this determination does not include consideration of the magnitude of emissions – this is assessed independently below.

Receptor Sensitivity

Sensitivity may vary with the anticipated impact or effect. A receptor may be determined to have varying sensitivity to different environmental changes, for example, a high sensitivity to changes in air quality, but low sensitivity to noise impacts. Sensitivity may also be derived from statutory designation which is designed to protect the receptor from such impacts.

Sensitivity terminology may vary depending upon the environmental effect, but generally this may be described in accordance with the following broad categories - Very high, High, Medium, and Low.

Table 9 outlines the methodology used in this study to define the sensitivity of receptors to air quality impacts.

Table 9 Methodology for Assessing Sensitivity of a Receptor

Sensitivity	Criteria
Very High	Receptors of very high sensitivity to air pollution (e.g., dust or odour) such as: hospitals and clinics, and retirement homes.
High	Receptors of high sensitivity to air pollution, such as: schools, residential areas, food retailers, glasshouses, and nurseries.
Medium	Receptors of medium sensitivity to air pollution, such as: farms / horticultural land, offices/recreational areas, painting and furnishing, hi-tech industries and food processing, and outdoor storage (i.e., new cars).
Low	All other air quality sensitive receptors not identified above, such as light and heavy industry.

For the residential receptors located 1 km to the southeast, the sensitivity to emissions from the Project Site is considered to be *high*. For the surrounding industrial and commercial sites, which are already likely to be impacted by existing industrial activities in the immediate surrounds, the sensitivity to emissions from the Project Site is considered to be *low.*

Magnitude

Magnitude describes the anticipated scale of the anticipated environmental change in terms of how that impact may cause a change to baseline conditions. Magnitude may be described quantitatively or qualitatively. Where an impact is defined by qualitative assessment, suitable justification is provided in the text.

Table 10 Magnitude of Impacts

Magnitude	Description
Substantial	Impact is predicted to cause significant consequences on the receiving environment (may be adverse or beneficial)
Moderate	Impact is predicted to possibly cause statutory objectives/standards to be exceeded (may be adverse)
Slight	Predicted impact may be tolerated.
Negligible	Impact is predicted to cause no significant consequences.

Given that the particulate concentrations recorded at Liverpool AQMS (see **Section 5.4)**, and knowledge of impacts related to other operations within the industrial site the magnitude of the impact is considered to be *negligible* at the both the residences and at the surrounding industrial sites.

Significance

The risk-based matrix provided below illustrates how the definition of the sensitivity and magnitude interact to produce impact significance.

Given the above the potential impact of air emissions from the Project Site on the residences and at the surrounding industrial sites is concluded to be ***neutral*** (refer **Table 11** and **Table 12**).

Table 11 Air Quality Impact Significance – Residences

Magnitude / Sensitivity	Substantial Magnitude	Moderate Magnitude	Slight Magnitude	Negligible Magnitude
Very High Sensitivity	Major Significance	Major/ Intermediate Significance	Intermediate Significance	Neutral Significance
High Sensitivity	Major/ Intermediate Significance	Intermediate Significance	Intermediate/Minor Significance	Neutral Significance
Medium Sensitivity	Intermediate Significance	Intermediate/Minor Significance	Minor Significance	Neutral Significance
Low Sensitivity	Intermediate/Minor Significance	Minor Significance	Minor/Neutral Significance	Neutral Significance

Table 12 Air Quality Impact Significance – Industrial Sites

Magnitude / Sensitivity	Substantial Magnitude	Moderate Magnitude	Slight Magnitude	Negligible Magnitude
Very High Sensitivity	Major Significance	Major/ Intermediate Significance	Intermediate Significance	Neutral Significance
High Sensitivity	Major/ Intermediate Significance	Intermediate Significance	Intermediate/Minor Significance	Neutral Significance
Medium Sensitivity	Intermediate Significance	Intermediate/Minor Significance	Minor Significance	Neutral Significance
Low Sensitivity	Intermediate/Minor Significance	Minor Significance	Minor/Neutral Significance	Neutral Significance

9 Mitigation and Monitoring

The potential for air emissions during the proposed operation of the Project to adversely impact on surrounding residential areas is anticipated to be neutral given the type and level of activities proposed. Based on a review of recent air quality data recorded in the region, which indicates compliance with air quality criteria for combustion gases and exceedances of the particulate matter criteria only during exceptional events such as bushfires and dust storms, it is considered that the airshed has capacity to assimilate a minor increase in additional emissions.

The following additional mitigation measures are recommended in order to control any residual impacts from on-site activities.

- Minimise the time waste materials are stored on site.
- Check loads prior to unloading to ensure they are suitable for processing at the site, and rejecting any extremely odorous or unsuitable loads prior to unloading.
- Maintain good housekeeping on all areas of the Project Site, including regular cleaning of all internal and external areas of the Project Site.
- Limit truck engine operating times to a minimum. It is recommended that vehicles engines be turned off if the vehicle is going to be stopped for more than 60 seconds.
- Lightly hose/sweep hardstand areas be performed to supress dust in dry and windy conditions.
- Undertake routine maintenance of all forklifts and trucks owned by the Proponent.
- Minimise storage of volatile chemicals on-site.
- Ensure leachate storage containers are not overfilled and that the containers are sealed after filling.
- Clean up spills immediately, and disposing of waste in accordance with relevant state and federal requirements.
- Investigate any complaint as soon as possible so that effective appraisal of the complaint can be carried out by subjective assessment.
- Conduct staff awareness training to increase staff awareness of potential air quality impacts which may be caused by the site activities during normal and abnormal circumstances.

9.1 Monitoring

Given the low-risk impact upon human health or amenity values, monitoring of air emissions or ambient air quality is not considered to be required.

10 Conclusions

The potential for off-site air quality impacts due to the Project were assessed using a qualitative risk-based approach.

The assessment comprised of:

- review of local wind data in the vicinity of the Project to determine the potential for exposure
- review of ambient air quality data in the vicinity of the Project to determine existing air quality
- desktop review of premises in the vicinity of the proposed development to identify operations or activities that have potential (generically) for producing dust emissions
- qualitative risk assessment of potential air quality impacts due to the Project.

SLR concludes that it is unlikely that any measurable impact to air quality, or exceedance of the relevant air quality criteria at the nearest sensitive receptor locations would occur as a result of the Project.

Based on the above, it is concluded that air quality issues do not pose a constraint for the Project.

11 References

DEWHA . (2008). *National Pollutant Inventory Emission Estimation Technique Manual for Combustion Engines.* Department of Environment, Water, Heritage and Arts.

Jiang, & Sands. (1998). *Report on Odour Emissions from Poultry Farms in Western Australia - Principal Technical Report.* Sydney: Centre for Water and Waste Technology, University of NSW.

NSW DEC. (2005). *Approved Methods for the Sampling and Analsysis of Air Pollutants in NSW.* Sydney: NSW Department of Environment and Conservation.

NSW DEC. (2006a). *Technical Framework - Assessment and management of odour from stationary sources in NSW.* Sydney: NSW Department of Environment and Conservation.

NSW DEC. (2006b). *Technical Notes - Assessment and management of odour from stationary sources in NSW.* Sydney: NSW Department of Environment and Conservation.

NSW EPA. (2017, January). *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.* New South Wales Environment Protection Authority.

NSW EPA. (2017, January). *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.* Prepared by NSW Environment Protection Authority, which is part of the NSW Office of Environment and Heritage (OEH). Retrieved from http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf

NSW OEH. (2021). *NSW Annual Air Quality Statement 2021.*

NSW Parliament. (1997). *Protection of the Environment Operations Act 1997.*

NSW Parliament. (2010). *Protection of the Environment Operations (Clean Air) Regulation 2010.*

Appendix A:

EPA Correspondence

DOC21/932221-2

Ms Kathryn Moreira
Planning Officer
Department of Planning, Industry and Environment
12 Darcy Street
Parramattta NSW 2150

Email: kathryn.moreira@dpie.nsw.gov.au

Dear Ms Moreira

RE: Local SEARs - Request for Input - Waste Management Facility (Scrap Metal)
8 Noonan Road, Ingleburn (Lot 25 DP 809258) - SEAR 1616

I refer to your request seeking the NSW Environment Protection Authority's (EPA) input for Secretary's Environmental Assessment Requirements (SEARs) for the Shine Motors Waste Management Facility (Scrap Metal Recycling).

The EPA has reviewed the proposal for the Request for Secretary's Environmental Assessment Requirements and the Discussion Paper and Compliance Table dated 2 July 2021 for the Shine Motors Waste Management Facility and advises that the designated development will not need an Environment Protection Licence if consent is granted. Accordingly, the EPA will not be providing SEARs for this project.

Please contact Sam Bannon on (02) 9585 6092 or by email at samuel.bannon@epa.nsw.gov.au if you have any questions regarding this matter.

Yours sincerely

MA 26 November 2021

MATTHEW HART
Unit Head Regulatory Operations Metro
NSW Environment Protection Authority

Phone 131 555
Phone +61 2 9995 5555
(from outside NSW)

TTY 133 677
ABN 43 692 285 758

Locked Bag 5022
Parramatta
NSW 2124 Australia

4 Parramatta Square
12 Darcy St, Parramatta
NSW 2150 Australia

info@epa.nsw.gov.au
www.epa.nsw.gov.au

ASIA PACIFIC OFFICES

ADELAIDE
60 Halifax Street
Adelaide SA 5000
Australia
T: +61 431 516 449

BRISBANE
Level 16, 175 Eagle Street
Brisbane QLD 4000
Australia
T: +61 7 3858 4800
F: +61 7 3858 4801

CAIRNS
Level 1 Suite 1.06
Boland's Centre
14 Spence Street
Cairns QLD 4870
Australia
T: +61 7 4722 8090

CANBERRA
GPO 410
Canberra ACT 2600
Australia
T: +61 2 6287 0800
F: +61 2 9427 8200

DARWIN
Unit 5, 21 Parap Road
Parap NT 0820
Australia
T: +61 8 8998 0100
F: +61 8 9370 0101

GOLD COAST
Level 2, 194 Varsity Parade
Varsity Lakes QLD 4227
Australia
M: +61 438 763 516

MACKAY
21 River Street
Mackay QLD 4740
Australia
T: +61 7 3181 3300

MELBOURNE
Level 11, 176 Wellington Parade
East Melbourne VIC 3002
Australia
T: +61 3 9249 9400
F: +61 3 9249 9499

NEWCASTLE CBD
Suite 2B, 125 Bull Street
Newcastle West NSW 2302
Australia
T: +61 2 4940 0442

NEWCASTLE
10 Kings Road
New Lambton NSW 2305
Australia
T: +61 2 4037 3200
F: +61 2 4037 3201

PERTH
Grd Floor, 503 Murray Street
Perth WA 6000
Australia
T: +61 8 9422 5900
F: +61 8 9422 5901

SYDNEY
Tenancy 202 Submarine School
Sub Base Platypus
120 High Street
North Sydney NSW 2060
Australia
T: +61 2 9427 8100
F: +61 2 9427 8200

TOWNSVILLE
12 Cannan Street
South Townsville QLD 4810
Australia
T: +61 7 4722 8000
F: +61 7 4722 8001

WOLLONGONG
Level 1, The Central Building
UoW Innovation Campus
North Wollongong NSW 2500
Australia
T: +61 2 4249 1000

AUCKLAND
Level 4, 12 O'Connell Street
Auckland 1010
New Zealand
T: 0800 757 695

NELSON
6/A Cambridge Street
Richmond, Nelson 7020
New Zealand
T: +64 274 898 628

WELLINGTON
12A Waterloo Quay
Wellington 6011
New Zealand
T: +64 2181 7186

SINGAPORE
39b Craig Road
Singapore 089677
T: +65 6822 2203