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# AIR QUALITY SUITABILITY STUDY MOORE POINT PRECINCT

Moore Point Landowners Group

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# Air Quality Suitability Study

## Moore Point Precinct

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## 1 INTRODUCTION

This desktop air quality study has been prepared by Todoroski Air Sciences on behalf of Leamac and Coronation to qualitatively assess any likely constraints on air quality in relation to a Planning Proposal at Moore Point, Liverpool (the Site).

The Site is located east of Liverpool CBD on the opposite side of the Georges River and north of Newbridge Road. It provides a site area of 38.5 hectares (approx.) and is currently developed with industrial uses. Nothing contained in the body of this report would preclude the Planning Proposal from rezoning and gazettal for residential/mixed use purposes.

## 2 PROJECT SETTING AND DESCRIPTION

The Site proposes to develop the land at Moore Point to allow for uses including commercial, retail, mixed use (including residential), heritage, transport interchange, a school and open space. A number of air emissions sources, including various industrial operations, a sewage treatment plant and emissions from road traffic exist in the general area, and have been considered in this study.

**Figure 2-1** presents the location of the Site. The Site is currently used for industrial purposes. Areas to the north and south of the Site are similarly zoned for industrial use.

**Figure 2-2** presents the Moore Point Precinct concept masterplan and indicates the locations of the various proposed land uses.

The Site is situated within Liverpool Collaboration Area's Georges River North precinct and is subject to the priorities and actions of the Liverpool Place Strategy (Strategy), which was released by the Greater Sydney Commission (GSC) in December 2018.

The Strategy states that by 2036 Liverpool will be a rejuvenated river city, offering diverse and growing residential and employment opportunities. Major health, education and retail precincts, and a mixture of open spaces and parklands alongside the Georges River, will create a rich mix of jobs and workplaces, public spaces, shops and entertainment.

Under the Strategy the site is identified as 'mixed use', which comprises:

'a mixture of commercial, retail, residential and community uses that provide sustainable employment, that is complementary to, and not in competition with, the commercial core'

The 2019 Annual report summary for Liverpool Collaboration Area highlighted key steps commenced and completed to address the imperatives acknowledged in the Strategy to accelerate the delivery of the Collaboration Area. These included:

- ✦ Engagement with TfNSW to prepare the Liverpool Place-based Integrated Transport Strategy and accelerated investment; and
- ✦ Flood studies and floodplain risk management plan completed by Liverpool City Council.

The land uses reflected in the Strategy are reinforced in Liverpool City Council's Local Strategic Planning Statement (LSPS), which identifies the site for investigation as residential/mixed use to support the CBD and Innovation Precinct in tandem with linking open space and green corridors.

The LSPS provides the following short to medium term action (12-24 months) specific to the Georges River North precinct:

Action 11.2 – Investigate amendments to LEP to rezone Georges River precinct north of Newbridge Road (Moore Point) as a mixed-use zone to support the Liverpool CBD and Innovation Precinct, with an extensive open space system and cross-river linkages (short to medium term)

The Planning Proposal involves the creation of a mixed use precinct, providing new homes, jobs and open space adjoining the Georges River and connecting to Liverpool CBD. Key features of the proposal include:

- ✦ Adaptive re-use of existing heritage;

- ✦ Foreshore embellishments and new open spaces;
- ✦ Educational and cultural facilities;
- ✦ Connections to Liverpool CBD and Train Station; and
- ✦ Transport, intersection and collector road improvements.

The Planning Proposal aligns with the priorities of Government and the implementation phase of the Place Strategy (refer to **Figure 2-3**) by facilitating the transformation of the Collaboration Area with new jobs, infrastructure, green spaces and housing. The Planning Proposal responds to The Pulse of Greater Sydney's performance indicators, which sit under the following key themes:

#### Infrastructure and Collaboration

The Planning Proposal will facilitate additional jobs, education and housing in close proximity to Liverpool CBD and Train Station. The proposal will support additional medium and long-term housing supply in Liverpool CBD through diverse and new housing products. The proposal supports the continual expansion and growth of Liverpool Innovation precinct and nearby health infrastructure, with potential to provide complementary uses near Liverpool Hospital and educational and cultural facilities on the site.

#### Productivity

The Planning Proposal supports the growth of the thirty-minute city, ensuring Liverpool emerges as a premier CBD in the Western City. The proposal provides capacity for new transport infrastructure on the site, road and intersection upgrades and locating density near major transport infrastructure (Liverpool Train Station and Badgery's Creek Aerotropolis). The proposal encourages additional business activity and investment in Liverpool by providing new commercial uses that will complement Liverpool CBD.

#### Liveability

The Planning Proposal significantly improves upon the existing use of the site by creating walkable places for people to live work and play. This includes foreshore embellishments to the Georges River, improved connections across the Georges River and adaptive re-use of existing heritage items. These measures will contribute to Sydney's Green Grid, improve access to services in Liverpool CBD and establish a community that celebrates identity and place.

#### Sustainability

The Planning Proposal addresses the urban heat island effect by significantly increasing the quantum of green space on the site for active and passive recreational use. The proposal will provide new parks and green connections to surrounding open spaces including Haigh Park, which will contribute to the urban tree canopy of the area.

Overall, the Planning Proposal represents a clear and consistent strategic line of site with the priorities of government. It meets the performance indicators, priorities and objectives expressed in the District Plan, Place Strategy, LSPS and The Pulse of Greater Sydney.



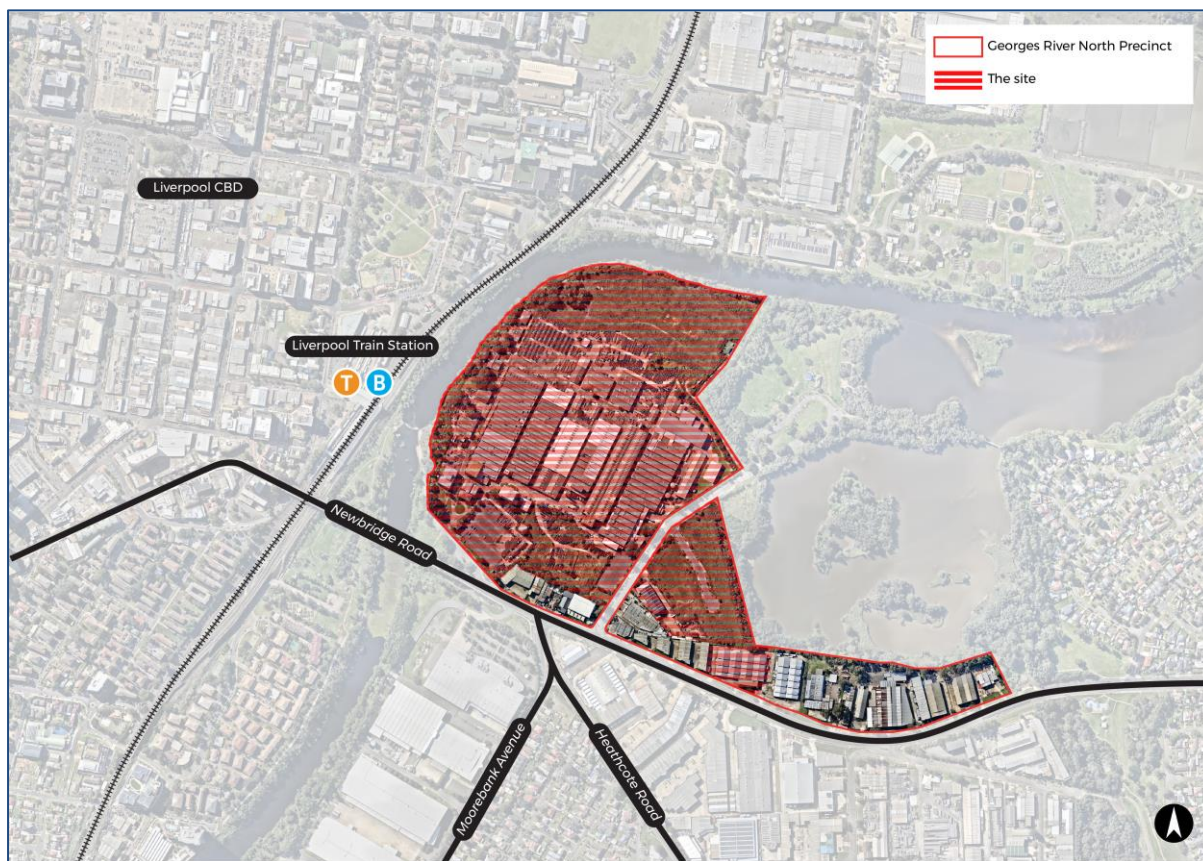


Figure 2-1: Site aerial (Source: Nearmap modified by Mecone)

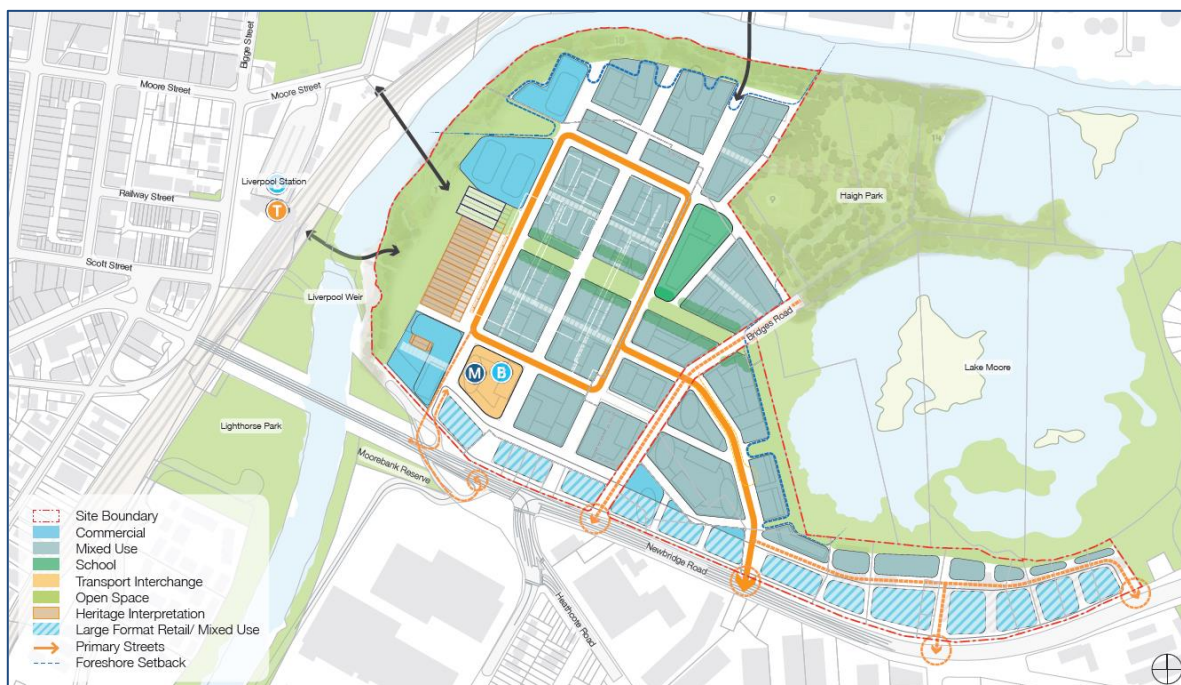


Figure 2-2: Moore Point Precinct concept masterplan





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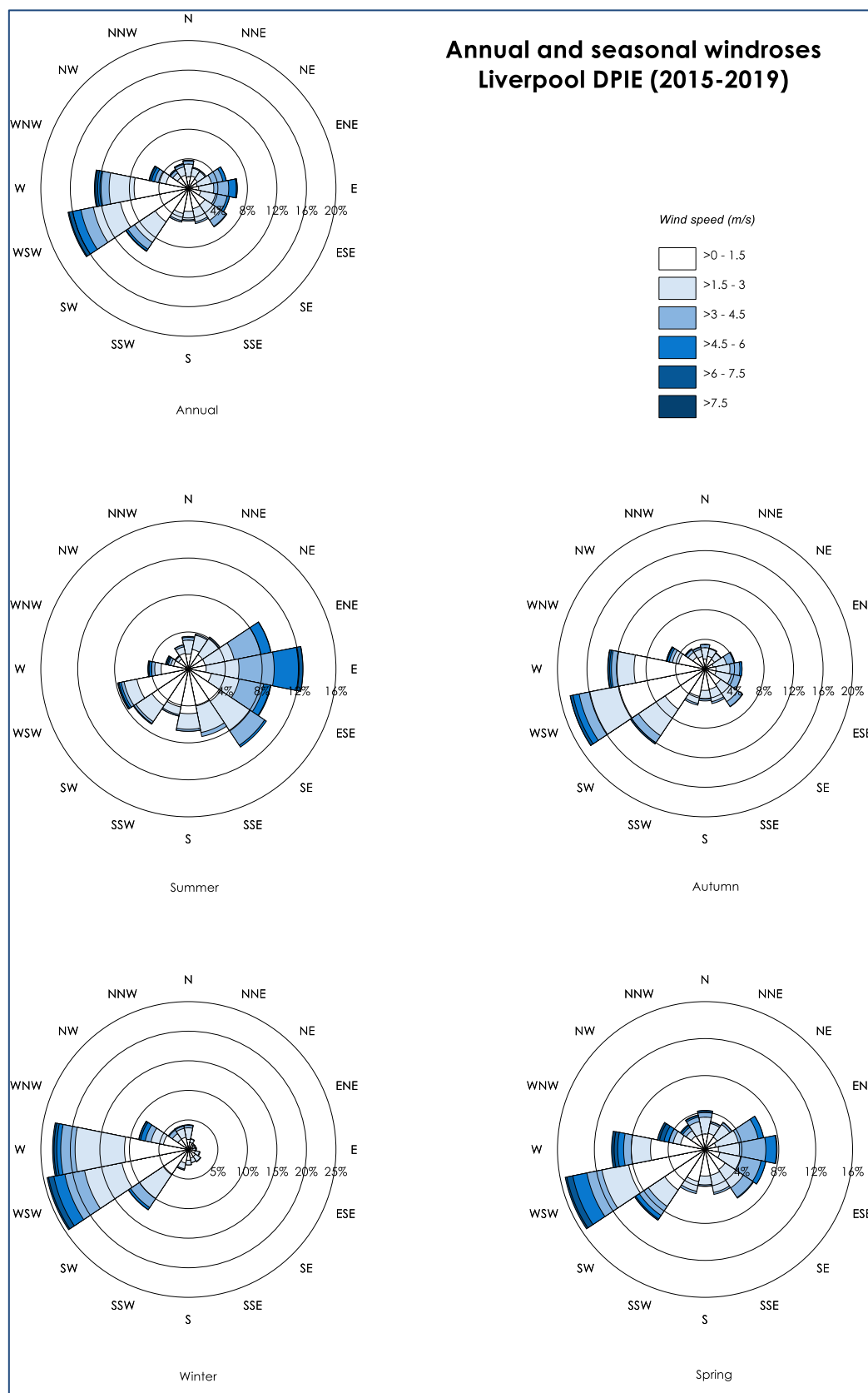
## 3 EXISTING ENVIRONMENT

### 3.1 Local meteorological conditions

The Department of Planning, Industry and Environment (DPIE) Liverpool monitoring station has been used to represent local meteorological conditions that would be experienced at the Site. The DPIE Liverpool station is located approximately 2km southwest of the Site. Annual and seasonal windroses prepared from data collected for the 2015 to 2019 year period are presented in **Figure 3-1**.

Analysis of the Liverpool DPIE windroses shows that on an annual basis, winds are predominately from the southwest to west. The autumn, winter and spring distributions are similar to the annual distribution with winds predominately from the southwest to west. During summer winds are predominately from the east.

The data show that there is relatively little air movement north and south, as might be expected given the general east–west alignment of the shallow drainage basin.



**Figure 3-1: Annual and seasonal windroses for Liverpool DPIE (2015 to 2019)**

### 3.2 Ambient air quality

The main sources of air pollutants in the area surrounding the Site include emissions from local anthropogenic activities (such as motor vehicle exhaust) and industrial activities.

The available PM<sub>10</sub> and PM<sub>2.5</sub> monitoring data from the Liverpool DPIE monitoring station have been reviewed and are summarised in **Table 1**.

A review of **Table 1** indicates that the annual average PM<sub>10</sub> concentrations were below the relevant criterion of 25µg/m<sup>3</sup>, except in 2019, which would be due to extensive dust storms and bushfires which affected all NSW monitoring stations. Annual average PM<sub>2.5</sub> levels were above the 8µg/m<sup>3</sup> criterion for all years in the review period.

The maximum recorded 24-hour average PM<sub>10</sub> and PM<sub>2.5</sub> concentrations exceed the relevant criterion of 50µg/m<sup>3</sup> and 25µg/m<sup>3</sup> respectively at times during the review period. This is relatively common for most monitoring stations in NSW. The sharp increase in frequency of exceedances during 2019 is associated with dust and smoke from the 2019/2020 dust storms and bushfires.

**Table 1: Summary of particulate levels from Liverpool DPIE (µg/m<sup>3</sup>)**

Year	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Annual average</b>		
2015	18.4	8.5
2016	19.5	8.7
2017	20.6	8.9
2018	24.2	10.1
2019	27.7	12.8
<b>Maximum 24-hour average</b>		
2015	68.6	32.2
2016	68.7	50.8
2017	74.0	56.4
2018	101.5	45.4
2019	178.9	156.0
<b>Number of days above criterion - 24-hour average</b>		
2015	1	2
2016	3	4
2017	2	3
2018	13	8
2019	28	32

**Table 2** presents a summary of the available SO<sub>2</sub> monitoring data from the Liverpool DPIE monitoring station. The data indicate that the annual, 24-hour and 1-hour average SO<sub>2</sub> concentrations at Liverpool were below the relevant criteria of 60µg/m<sup>3</sup>, 228µg/m<sup>3</sup> and 570µg/m<sup>3</sup> respectively for the review period.

**Table 2: Summary of SO<sub>2</sub> levels from Liverpool DPIE (µg/m<sup>3</sup>)**

Year	SO <sub>2</sub>
<b>Annual</b>	
2015	-
2016	-
2017	2.6
2018	2.6
2019	2.6
<b>Maximum 24-hour average</b>	
2015	-
2016	5.2
2017	7.9
2018	10.5
2019	10.5
<b>Maximum 1-hour average</b>	
2015	-
2016	18.3
2017	28.8
2018	52.4
2019	41.9

**Table 3** presents a summary of the available NO<sub>2</sub> monitoring data from the Liverpool DPIE monitoring station. The data indicate that the annual average NO<sub>2</sub> concentrations at Liverpool were below the relevant criterion of 62µg/m<sup>3</sup> and 1-hour average concentrations were below the relevant criterion of 246µg/m<sup>3</sup> for the review period.

**Table 3: Summary of NO<sub>2</sub> levels from Liverpool DPIE (µg/m<sup>3</sup>)**

Year	NO <sub>2</sub>
<b>Annual</b>	
2015	18.8
2016	22.6
2017	22.6
2018	22.6
2019	22.6
<b>Maximum 1-hour average</b>	
2015	112.8
2016	88.4
2017	120.3
2018	116.6
2019	94.0

## 4 POTENTIAL SOURCES OF AIR POLLUTION

A site visit was conducted on 9 March 2020 to identify potential sources of air pollution in the vicinity of the Site. **Table 4** summarises the activities in the general area with any tangible potential for air emissions, and outlines the likely risk of impact arising at the Site.

**Table 4: Industries with most scope for air quality effects at the site**

Activity	Approximate distance from nearest receptors at the Site	Potential air emissions	Likelihood of impacts at the Site
Water recycling plant	400m	Odour	<b>Low</b> - The Site would not be downwind of the plant for the majority of the time at the times of likely peak impacts/ poor dispersion (i.e. winter and shoulder spring and autumn seasons), when inversions can prevent good dispersion. Existing residences are located closer to the odour sources (than the Site receptors) and are generally downwind at times of poor air dispersion.
Paper recycling	250m	Odour	<b>Very low</b> - the site is located too far from the Site, and has too low emissions to cause any tangible impact.
Food suppliers	60m	Odour	<b>Low</b> , activities appear to occur within enclosed buildings and are unlikely to cause any impacts.
Pet food	360m	Odour	<b>Nil</b> - the site is enclosed and is located too far from the Site to have any tangible impact.
Foam packaging and injection moulding	275m	VOC	<b>Low</b> - a stack was identified and appears to be suitably located for the dispersion of emissions to minimise impact on the surrounding environment. Existing multistorey residences are much closer to the source than the Site. The Site would experience far less winds from the direction of this source than existing, closer residences.
Plastics fabrication	90m	VOC	<b>Low</b> - activities appear to occur within an enclosed building and are unlikely to impact beyond the boundary.
Steel fabrication	150m	Welding fumes	<b>Low</b> - activities appear to occur within an enclosed building and are unlikely to impact beyond very much past the fabricator's boundary.
Auto/smash repair	130m	Dust and paint odours	<b>Low</b> - the site is located too far from the Site to have any tangible impact at that distance, also the site is not on the predominant downwind axis from this source.
Spray painting	100m	Dust and paint odours	<b>Low</b> - the site is located too far from the Site to have any tangible impact at that distance, also the site is not on the predominant downwind axis from this source.
Masonry products	130m	Dust	<b>Low</b> - the site is located too far from the Site to have any tangible impact at that distance, also the site is not on the predominant downwind axis from this source.
Concrete products	140m	Dust.	<b>Low</b> - the site is located too far from the Site to have any tangible impact at that distance, also the site is not on the predominant downwind axis from this source.

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## 5 EXISTING ELEVATED PARTICULATE LEVELS

While 24-hour exceedances of particulate criteria are common, the annual  $PM_{2.5}$  levels in the vicinity of the Site are generally higher than many areas and generally exceed the relevant criteria. However, there are numerous existing air quality sensitive land uses in the locality, including residences, schools and health facilities in the area.

In our view, the proposal proposes to remove industrial activities and to replace them with commercial and residential activities which are likely to have lower particulate emissions. Generally our expectation is that it is likely that the redevelopment of the existing industrial land for the Moore Point precinct would lead to a net reduction in particulate levels in the vicinity of the Site as industrial activities are removed from the area.

The proposed residential dwellings nearest the major roads would be located on top of commercial facilities, which adds to the setback. These appear to have adequate setback in terms of plan and height from existing major roads.



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## 6 SUMMARY AND CONCLUSIONS

This desktop study has evaluated the general site suitability of the Moore Point Precinct development in terms of air quality by identifying potential sources of air pollution in the vicinity of the Site and making a qualitative assessment of the potential for these sources to impact sensitive land use within the Site.

The key potential source of air quality impact at the proposed site would be the existing water treatment facility, however the closest potential sources of odour are located a significant 400m from the nearest proposed new receptors and are generally downwind of the proposal. There are many existing receptors that are closer to and also generally downwind of the water treatment facility, thus significantly lower odour levels than at any existing receptors can be expected at the proposed site.

There is only low potential for impacts from other existing facilities, given that the existing industries are generally a good distance away and are not on the prevailing wind axes to the site.

In terms of existing elevated levels of particulates, the site would replace existing industry with commercial and residential activities, and it is reasonable to expect some reduction in existing pollutant levels. The residential dwellings also appear to have a good setback from existing major roads in terms of plan and height.

Overall, a more detailed assessment of air emissions in the vicinity of the Site would be required at the DA stage as part of the normal approval process. Such a study would be able to quantify the most significant potential impacts (odour from the water treatment facility, and PM<sub>2.5</sub> effects from traffic on the main roads), however based on our investigation there is no reasonable indication of any likely air quality impacts that may prevent development of the Site. Nothing contained in the body of this assessment would preclude the Planning Proposal from rezoning and gazettal for residential/mixed use purposes.

Please feel free to contact us in relation to any aspect of this report.

Yours faithfully,  
Todoroski Air Sciences



Katie Trahair



Alek Todoroski