

AIR QUALITY SUITABILITY STUDY MOORE POINT PRECINCT

Moore Point Landowners Group

7 May 2024

Job Number 19070994B

Prepared by Todoroski Air Sciences Pty Ltd Suite 2B, 14 Glen Street Eastwood, NSW 2122 Phone: (02) 9874 2123 Email: info@airsciences.com.au



Air Quality Suitability Study

Moore Point Precinct

DOCUMENT CONTROL

Report Version	Prepared by	Reviewed by
FINAL - 001	РН	EA

This report has been prepared per the scope of works between Todoroski Air Sciences Pty Ltd (TAS) and the client. TAS relies on and presumes accurate the information (or lack thereof) made available to it to conduct the work. If this is not the case, the findings of the report may change. TAS has applied the usual care and diligence of the profession prevailing at the time of preparing this report and commensurate with the information available. No other warranty or guarantee is implied in regard to the content and findings of the report. Preparing this report involves the use of confidential intellectual property that belongs to TAS. The report is provided on the basis that any documents, including modelling files etc. that may contain this intellectual property will not be provided by TAS to any party under any circumstances (including where this intellectual property is part of any new work developed for this report). The report has been prepared exclusively for the use of the client, for the stated purpose and must be read in full. No responsibility is accepted for the use of the report or part thereof in any other context or by any third party.



TABLE OF CONTENTS

1	IN	ITRODUCTION	1
2	PR	ROJECT SETTING AND DESCRIPTION	2
	2.1	The Vision	2
	2.2	The Proposal	3
	2.3	Structure plan	4
3	ΕX	(ISTING ENVIRONMENT	5
	3.1	Local meteorological conditions	5
	3.2	Ambient air quality	7
4	PC	DTENTIAL SOURCES OF AIR POLLUTION	10
5	ΕX	(ISTING ELEVATED PARTICULATE LEVELS	11
6	SU	JMMARY AND CONCLUSIONS	12



LIST OF TABLES

Table 2-1: Summary of planning proposal elements	4
Table 3-1: Summary of particulate levels from Liverpool DCCEEW (µg/m ³)	7
Table 3-2: Summary of SO ₂ levels from Liverpool DCCEEW (µg/m ³)	8
Table 3-3: Summary of NO ₂ levels from Liverpool DCCEEW (µg/m ³)	9
Table 4-1: Industries with most scope for air quality effects at the site	10

LIST OF FIGURES

Figure 2-1: Staging plan for planning proposal	.2
Figure 2-2: Structure plan	.4
Figure 3-1: Annual and seasonal windroses for Liverpool DCCEEW (2015 to 2023)	.6

1 INTRODUCTION

Moore Point is the largest privately-led urban renewal project in Australia, led by a Joint Landowner Group (JLG) comprised of Coronation Property Co and Leamac Property Group.

The 31.4 hectare site, set within the Liverpool Collaboration Area (LCA), is a unique opportunity to deliver a model for urban renewal at a metropolitan scale consistent with the strategic priorities of Government, it will be a catalyst for Liverpool City Council (Council) to realise its objectives for the LCA and the Western Parkland City.

When delivered, Moore Point will consolidate Liverpool's role as Australia's a great river city, providing a high-quality living and working environment for future generations. It will deliver homes, jobs and open space up to 2060, in a highly accessible location with unparalleled recreational amenity along the Georges River and Lake Moore.

At a glance, Moore Point will deliver:

- + Approximately 11,000 dwellings set within distance of Liverpool CBD and LCA;
- + A significant contribution of employment generating floorspace and associated jobs to complement the expansion of Liverpool CBD; and,
- Over 10 hectares of publicly accessible open space supported by bridge crossings from Liverpool CBD to a fully accessible Georges River foreshore and Haigh Park.

The site plays a critical role in fulfilling the connectivity, liveability, productivity and sustainability priorities of the LCA and support the vision to make Liverpool Australia's next great river city. These include:

- New housing and jobs within a highly accessible location (five minutes' walk to Liverpool CBD and transport interchange) via new bridge crossings over the Georges River. This will support active and sustainable modes of travel within the LCA.
- Critical links from the CBD and LCA to the Georges River, Haigh Park and Lake Moore. This will support the creation of a new interconnected high-performance green and blue infrastructure network, which will support healthy urban growth.
- A genuine riverside precinct with high levels of activation, amenity and accessibility, facilitating Council's vision of celebrating the river and prioritising great places for people.
- A diverse range of new and enhanced social and civic infrastructure outcomes to benefit both current and future generations.

This desktop air quality study has been prepared by Todoroski Air Sciences to qualitatively assess any likely constraints on air quality in relation to a planning proposal for Moore Point (the Site).

2 PROJECT SETTING AND DESCRIPTION

The Site is located east of Liverpool CBD across the Georges River in the suburb of Moorebank. It is located within the LCA and comprises 31.4 hectares of the 38 hectare Georges River North Precinct.

The site is defined by the Georges River along the western and northern edge and Lake Moore along the eastern edge. Part of the site contains heritage items including the Former MM Cables Factory and Cable Makers Australia Factory Pty Ltd Group, including inter-war administration building, factory and interiors.

The land subject of the planning proposal relates to the land owned and under the control of the JLG, as defined in **Figure 2-1**.



Figure 2-1: Staging plan for planning proposal

2.1 The Vision

In preparing the planning proposal, the JLG have developed the following vision for Moore Point:

Liverpool has the ambition to be the next Great River City of the world. A city where the Georges River is its beating heart unifying both sides of the river into a pulsating riverfront experience.

The Moore Point vision will shape the city's eastern bank into an internationally renowned destination loved by locals and visitors alike. Reimagined riverfront parklands, river pools, creative

heritage quarter and marketplace inspire our people and residents to be the most productive, most happy, and most healthy people on the planet.

The proposal will create the first truly integrated riverfront development at scale. At the heart of this attraction will be a revitalised riverbank which will undergo an ecological transformation and create a natural, healthy and vibrant river ecosystem.

The river will also offer a diverse range of recreational opportunities, providing activities that meet the needs of a diverse community, and which encourages an active outdoor lifestyle.

2.2 The Proposal

The planning proposal seeks to amend the *Liverpool Local Environmental Plan 2008* (the LEP) to transform the zoning from industrial to mixed-use and public recreation, including changes to floor space ratio, height of buildings and site-specific provisions.

In response to the Gateway conditions, the planning proposal and supporting structure plan has been updated. The planning proposal has enhanced and improved many of the key elements of the originally endorsed Structure Plan and planning proposal by Council on 25 November 2020 meeting including:

- Celebrating Heritage Enhanced heritage response, including the retention of the heritage grid,
 Factory 1 and the Administration Building with retention of the western wall of Factory 2 and adaptive reuse of additional outbuildings along the Georges River foreshore.
- Foreshore Park Embellishment of a new 7 hectare linear foreshore park and completing the missing link between Lighthorse Park and Haigh Park.
- Bridges and Community Anchors Creation of new pedestrian bridges to Liverpool CBD and LCA, facilitating access from the wider area to a 1,000 capacity primary school, community facilities and retail amenity.
- Street Hierarchy and Boulevards A new movement and access network to facilitate active transport from Georges River to Lake Moore and a ring road to support vehicular movement.
- Pedestrian Lanes and Pocket Parks Creation of a diverse range of pocket parks, passive open space areas and pedestrian laneways between blocks to enhance access to open space, views and access to the waterfront.

The JLG engaged Yerrabingin in 2021 to prepare an Indigenous Narrative Report. The report establishes Connecting with Country themes for the revised masterplan and public domain. This includes bringing river ecology up and over into the foreshore, including restoration of endemic/native species through naturalised revetment treatment that will support habitat.

The revised planning proposal has been informed by a suite of interdisciplinary technical consultants through an iterative process to ensure the creation of a successful place that comprehensively addresses the Gateway conditions.

A summary of the current elements for the planning proposal is provided in Table 2-1.

19070994B_Moore_Point_Precinct_Suitability_240507.docx

Element	Planning Proposal
Land Lisa	MU1 Mixed Use
Land Use	RE1 Public Recreation
Floor Space Ratio	4:1
Height	Various to a maximum RL 136
Public Open Space	34.5 %
Gross Floor Area	Non-residential – 346,463m ²
	Residential – 912,985m ²
	Total – 1,259,448m ²
Dwellings	10,742
Population	21,484

Table 2-1: Summary of planning proposal elements

2.3 Structure plan

The planning proposal is supported by a structure plan, shown in **Figure 2-2**, that includes the open space network, primary school, foreshore, roads and streets, heritage items to be re-used and development blocks.

The Structure Plan informs the basis for masterplan development and the preparation of a future sitespecific Development Control Plan (DCP) and will also allow Moore Point to respond flexibly to changing market demands and policy contexts.



Figure 2-2: Structure plan

19070994B_Moore_Point_Precinct_Suitability_240507.docx

3 EXISTING ENVIRONMENT

3.1 Local meteorological conditions

The Department of Climate Change, Energy, the Environment and Water (DCCEEW) Liverpool monitoring station has been used to represent local meteorological conditions that would be experienced at the Site. The DCCEEW Liverpool station is located approximately 2 kilometres (km) southwest of the Site. Annual and seasonal windroses prepared from data collected for the 2015 to 2023 year period are presented in **Figure 3-1**.

Analysis of the Liverpool DCCEEW 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.





19070994B_Moore_Point_Precinct_Suitability_240507.docx

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 PM₁₀ and PM_{2.5} monitoring data from the Liverpool DCCEEW monitoring station have been reviewed and are summarised in **Table 3-1**.

A review of **Table 3-1** indicates that the annual average PM_{10} concentrations were below the relevant criterion of $25\mu g/m^3$, except in 2019, which would be due to extensive dust storms and bushfires which affected all NSW monitoring stations. Annual average $PM_{2.5}$ levels were above the $8\mu g/m^3$ criterion for all years in the review period except for 2021, 2022 and 2023.

The maximum recorded 24-hour average PM_{10} and $PM_{2.5}$ concentrations exceed the relevant criterion of $50\mu g/m^3$ and $25\mu g/m^3$ 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.

Year	PM ₁₀	PM _{2.5}	
	Annual average		
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	
2020	20.8	9.1	
2021	18.1	7.9	
2022	14.6	5.5	
2023	19.3	7.7	
	Maximum 24-hour average		
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	
2020	195.1	73.6	
2021 82.8		52.2	
2022	36.1	21.9	
2023	76.4	66.2	
Number of days above criterion - 24-hour average			
2015	1	2	
2016	3	4	
2017	2	3	
2018	13	8	
2019	28	32	
2020	7	7	
2021	4	6	
2022	0	0	
2023	2	4	

Table 3-1: Summary of particulate levels from Liverpool DCCEEW (µg/m³)

Table 3-2 presents a summary of the available SO_2 monitoring data from the Liverpool DCCEEW monitoring station. The data indicate that the 24-hour and 1-hour average SO_2 concentrations at Liverpool were below the relevant criteria of $57\mu g/m^3$ and $286\mu g/m^3$ respectively for the review period.

Year	SO ₂	
Maximum 24-	-hour average	
2015	-	
2016	5.2	
2017	7.9	
2018	10.5	
2019	10.5	
2020	7.9	
2021	7.9	
2022	5.2	
2023	10.5	
Maximum 1-	hour average	
2015	-	
2016	18.3	
2017	28.8	
2018	52.4	
2019	41.9	
2020	39.3	
2021	44.5	
2022	34.1	
2023	62.9	

Table 3-2: Summary of SO₂ levels from Liverpool DCCEEW (µg/m³)

19070994B_Moore_Point_Precinct_Suitability_240507.docx

Table 3-3 presents a summary of the available NO₂ monitoring data from the Liverpool DCCEEW monitoring station. The data indicate that the annual average NO₂ concentrations at Liverpool were below the relevant criterion of $31\mu g/m^3$ and 1-hour average concentrations were below the relevant criterion of $164\mu g/m^3$ for the review period.

Table 3-3: Summary of NO ₂ levels from Liverpool DCCEEW (µg/m ³)		
Year	NO ₂	
Anr	nual	
2015	18.8	
2016	22.6	
2017	22.6	
2018	22.6	
2019	22.6	
2020	20.7	
2021	18.8	
2022	15.0	
2023	16.9	
Maximum 1-hour average		
2015	112.8	
2016	88.4	
2017	120.3	
2018	116.6	
2019	94.0	
2020	90.2	
2021	79.0	
2022	67.7	
2023	118.4	

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 4-1** 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.

Activity	Approximate distance from nearest receptors at the Site	Potential air emissions	Likelihood of impacts at the Site
Water recycling plant	400m	Odour	 Low - 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	Very low - the site is located too far from the Site, and has too low emissions to cause any tangible impact.
Food suppliers	60m	Odour	Low, activities appear to occur within enclosed buildings and are unlikely to cause any impacts.
Pet food	360m	Odour	Nil - the site is enclosed and is located too far from the Site to have any tangible impact.
Foam packaging and injection moulding	275m	VOC	Low - 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	Low - activities appear to occur within an enclosed building and are unlikely to impact beyond the boundary.
Steel fabrication	150m	Welding fumes	Low - 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	Low - 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	Low - 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	Low - 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.	Low - 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.

Table 4-1: Industries with most scope for air quality effects at the site

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.

19070994B_Moore_Point_Precinct_Suitability_240507.docx

6 SUMMARY AND CONCLUSIONS

This desktop study has evaluated the general site suitability of the Moore Point Precinct 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 PM2.5 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.

