

Suburban Rail Loop East
Early Works
Air Quality Monthly Report

19 July 2024 – 18 August 2024

Document Information

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Contents

Document Information **2**
Revision Control **2**
Glossary **4**
Executive Summary **5**
1. Introduction **7**
1.1. Suburban Rail Loop East 7
1.2. Environmental Management Framework 7
2. Air Quality Monitoring **8**
2.1. Context 8
2.2. Purpose 8
2.3. Monitoring Locations 9
2.4 Data Limitations and Verification 10
3. Results **11**
3.1. Box Hill 11
3.1.1. Analysis 12
3.2. Burwood 13
3.2.1. Analysis 14
3.3. Glen Waverley 15
3.3.1. Analysis 16
3.4. Monash 17
3.4.1. Analysis 18
3.5. Clayton 19
3.5.1. Analysis 20
3.6. Heatherton 21
3.6.1. Analysis 22
3.7. Cheltenham 23
4. Meteorological Conditions **23**
5. Quality Assurance **24**
5.1. Data Capture 24
5.2. Data Validation 25

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Glossary

µg/m^3 – micrograms per cubic metre is a unit of measurement used to measure the mass of air pollutants (micrograms) per volume of air (cubic metre) as a concentration.

Environment Effects Statement (EES) – In Victoria, environment assessment of the potential environmental impacts or effects of a proposed development under the *Environment Effects Act 1978*.

Environmental Air Quality and Dust Management Plan (EAQDMP) – The EAQDMP is environmental management documentation prepared by the MC to manage and monitor air quality impacts during construction of SRL East. It includes the RMMP and TARP and is verified by the IEA.

Environmental Management Framework (EMF) – The purpose of the EMF is to provide a transparent and integrated framework to manage environmental effects of the SRL East Project during construction and operation to achieve acceptable environmental outcomes.

Environmental Performance Requirements (EPRs) – The EPRs define the environmental outcomes that must be achieved during the design, construction and operation of SRL East and are included within the EMF.

Environment Protection Authority (EPA) - Victorian regulator established under the *Environment Protection Act 2017* and which has the statutory objective to protect human health and the environment from the harmful effects of pollution and waste.

Environmental Reference Standard (ERS) – The ERS is a tool made under the *Environment Protection Act 2017* to identify and assess environmental values, including air quality, in Victoria.

Independent Environmental Auditor (IEA) – The IEA is appointed by the Victorian Government to undertake independent environmental reviews and audits of project activities including assessing compliance with the EMF and EPRs.

PM_{10} – Particulate matter with an aerodynamic diameter of 10 micrometres (µm) or less. PM_{10} particles are small enough to have a potential impact on human health.

Risk Management and Monitoring Program (RMMP) – this plan outlines the approach to air quality monitoring and includes instrumental, visual monitoring, TARP and public reporting processes. The RMMP forms part of the EAQDMP.

Trigger Action Response Protocol (TARP) – The TARP defines a series of adaptive management measures that are implemented to avoid or mitigate impacts from dust emissions for nearby sensitive receptors in response to the results from monitoring. The TARP forms part of the EAQDMP.

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Executive Summary

Key Outcomes

Key outcomes arising from the monthly air quality monitoring program:

- In Box Hill, water carts and hoses were used proactively during spoil haulage, and dust was reduced by street sweeping and requiring trucks to cover loads prior to leaving the site.
- In Burwood, the TARP was implemented on one day during the reporting period. Water carts and hoses were used during material and spoil haulage, and dust was reduced by street sweeping and requiring trucks to cover loads prior to leaving the site.
- In Glen Waverley, the TARP was implemented on one day during the reporting period. Water carts and hoses were used during spoil haulage and handling of materials, and dust was reduced by street sweeping, covering temporary stockpiles and requiring trucks to cover loads prior to leaving the site.
- In Monash, elevated dust levels during the reporting period were not associated with works on site.
- In Clayton, the TARP was implemented on four days during the reporting period. A water cart and hose were used on exposed soils to suppress dust during excavation works.
- In Heatherton, the TARP was implemented on two days during the reporting period. A relative humidity of 99% was observed when the TARP was implemented. The water cart was used proactively and reactively used to suppress dust as required.

No monitoring took place at Cheltenham during the reporting period. Following completion of site establishment no further works are scheduled to take place at Cheltenham until late 2024. Monitoring will resume before works recommence.

Further explanation is provided in Section 3 regarding these observations.

Purpose of the Report

This report presents the results of the monthly review of the air quality monitoring data for each Suburban Rail Loop (SRL) East Early Works construction site for the period between 19 July 2024 and 18 August 2024 in accordance with SRL East EMF and EPRs AQ1 and AQ2. Laing O'Rourke is delivering the Early Works as Managing Contractor (MC). Early Works for SRL East commenced at Burwood in May 2023, Box Hill in June 2023, Monash and Heatherton in October 2023, Clayton in December 2023, and Glen Waverley and Cheltenham in March 2024.

The MC implements an air quality monitoring program on each site that includes both visual observation and instrumental air quality monitoring. The purpose of the air quality monitors is to measure the concentration of small dust particles in the air near the construction site. These particles, known as PM_{10}, have the potential to impact human health. PM_{10} refers to particles with an aerodynamic diameter of 10 µm or less.

Measured PM_{10} concentrations may be compared to air quality objectives that are defined in the ERS which is a tool under the *Environment Protection Act 2017*. The ERS sets out the air quality objectives for PM_{10} which are measured over a 24-hour averaging period. The objectives are risk-based concentrations that are not intended to be compliance levels, but they assist the MC to understand the risk to human health. When the instrumental monitor and/or visual observations identify a change in site conditions this prompts the MC to implement mitigations on site to reduce dust impacts, and review measures applied.

Scope of Reporting

This report does not include works delivered as SRL Initial Works. The SRL Initial Works, which include investigative works, protective works, moving underground services, ground improvement works (such as at the Stabling Facility at Heatherton) and minor road modifications were subject to a separate approval process under Clause 52.30 of the Victoria Planning Provisions (VPP) and were approved by the Minister for Planning on 19 December 2021. These works are required to comply with Clause 52.30 of the VPP and are not subject to the EMF and EPRs.

This report does not include monitoring related to asbestos containing material removal, which is monitored and reported separately.

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Results

The key findings are summarised in Table 1. An analysis of these findings is provided in Section 3.

Table 1: Summary of air quality monitoring results for reporting period.

Location	Parameter	Averaging Period	Max Concentration (µg/m^3)	Median Concentration (µg/m^3)	Days TARP Implemented in the Month
Representative Background[1]					
Alphington	PM_{10}	24-hour	34.3	14.1	-
Dandenong	PM_{10}	24-hour	24.3	12.4	-
Box Hill					
Site Office	PM_{10}	24-hour	4.2	0.7	0
East of Market Street	PM_{10}	24-hour	11.4	11.4	
Uniting AgeWell (UAW)	PM_{10}	24-hour	14.5	4.6	
Irving Avenue	PM_{10}	24-hour	0.3	0.1	
Burwood					
Corner of McComas Grove and Sinnott Street	PM_{10}	24-hour	64.6	10.2	1
16 McComas Grove	PM_{10}	24-hour	3.0	0.4	
Site 4 – East	PM_{10}	24-hour	14.3	8.9	
Site 4 – West	PM_{10}	24-hour	2.4	0.3	
Site 1 South	PM_{10}	24-hour	66.6	16.2	
Bennettswood Reserve	PM_{10}	24-hour	5.6	0.8	
Glen Waverley					
Coleman Parade	PM_{10}	24-hour	61.7	10.1	1
Site 1 North	PM_{10}	24-hour	15.0	6.8	
Monash					
Site Office	PM_{10}	24-hour	62.8	9.4	0
Clayton					
C&S Delta Location	PM_{10}	24-hour	59.3	14.5	4
VicTrack Location	PM_{10}	24-hour	55.6	13.9	
Remembrance Gardens	PM_{10}	24-hour	60.1	15.6	
Cycon	PM_{10}	24-hour	98.0	17.0	
Heatherton					
SSY - South	PM_{10}	24-hour	133.6	18.2	2
Site Office	PM_{10}	24-hour	7.8	0.6	
Kingston Road U-turn	PM_{10}	24-hour	33.9	14.6	

[1] The EPA monitoring station at Dandenong is used as the representative control site for Cheltenham and Heatherton. The EPA monitoring station at Alphington is used as the representative control site for Clayton, Monash, Glen Waverley, Burwood and Box Hill.

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1. Introduction

1.1. Suburban Rail Loop East

SRL will deliver a 90km rail line linking every major suburban line from the Frankston Line to the Werribee Line via Melbourne Airport, better connecting Victorians to jobs, retail, education, health services and each other. Construction of SRL East from Cheltenham to Box Hill is underway and will connect major employment, health, education and retail destinations in Melbourne's east and south-east. The new underground train line will reduce travel times, connect people travelling on the Gippsland corridor. Construction of SRL East is creating up to 8000 direct local jobs, with trains to be running by 2035.

Early Works for SRL East commenced at Burwood in May 2023, Box Hill in June 2023, Monash and Heatherton in October 2023, Clayton in December 2023, Glen Waverley and Cheltenham in March 2024. Laing O'Rourke is delivering the Early Works as MC. Early Works include:

- Road modifications
- Moving underground services
- Ground improvement works
- Tram terminus works, and
- Site preparations for tunnel boring machines.

This report does not include works delivered as SRL Initial Works. The SRL Initial Works, which includes investigative works, protective works, utility relocations and installations, ground improvement works (such as at the Stabling Facility at Heatherton) and minor road modifications, were subject to a separate approval process under Clause 52.30 of the VPP and were approved by the Minister for Planning on 19 December 2021. These works are required to comply with Clause 52.30 of the VPP and are not subject to the EMF and EPRs.

1.2. Environmental Management Framework

The EMF for SRL East (the Project) provides a transparent and integrated framework to manage environmental effects of the Project and includes EPRs that define environmental outcomes that must be achieved during the design, construction, and operation phases the SRL East website at https://bigbuild.vic.gov.au/library/suburban-rail-loop/planning/srl-east-environmental-management-framework.

The development of the EMF has been informed by relevant legislation, policy and guidelines, and the specialist impact assessment studies completed for the SRL East EES and the Minister's Assessment, dated 5 August 2022.

The EMF requires the MC to develop and implement an EAQDMP. As part of implementing this plan, the MC is required to conduct monitoring of PM_{10} concentrations and measure wind speed and direction at each Early Works construction site and at a representative control site. The EAQDMP also includes a TARP which defines a set of triggers that prompt actions on site to reduce dust impacts, and review mitigation measures applied. The EMF, and therefore this report, is not applicable to SRL Initial Works activities.

The MC regularly reviews the monitoring data at each site, for the purpose of assessing the effectiveness of EAQDMP implementation. The verified results of the PM_{10} monitoring for the applicable monthly period are contained in this report, which will be available to the public, in accordance with the requirements of the EMF.

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2. Air Quality Monitoring

2.1. Context

Maintaining air quality is important for public health, the liveability of our cities and our environment. Overall air quality conditions in Melbourne are good, however like all major cities, there are days where the background concentrations of air pollutants are very high on a regional basis. Sometimes these elevated concentrations are due to regional influences such as windblown continental dust, bushfires or hazard reduction burns. Emissions from traffic, home heating, and industrial emissions across Melbourne can also cause high background concentrations, especially when the weather is calm. EPA monitoring stations measure these background levels of pollution that already exist in the air within the surrounding area. The EPA monitoring station at Dandenong is used as the representative control site for Heatherton and Cheltenham, and the EPA monitoring station at Alphington is used as the representative control site for all other SRL work sites.

Without effective management, construction of the Project has the potential to contribute to these background concentrations which may impact public health. Comparison of SRL East monitoring results with publicly available EPA monitoring data is used by the MC to identify when construction-related activities are impacting local air quality, and conversely when the local air quality results may be influenced by background conditions outside of the influence of the construction site.

Meteorological conditions such as wind direction and speed can impact on the dispersion of particulates in the air and by monitoring these, the MC can respond when conditions on site change. Having records of wind conditions is also helpful for retrospectively identifying the activity that is causing any elevated dust concentrations.

2.2. Purpose

The purpose of the air quality monitors is to measure the concentration of small dust particles in the air near the construction site. These particles, known as PM_{10} have the potential to impact human health. PM_{10} refers to particles with an aerodynamic diameter of 10 µm or less.

The measured concentrations are compared to air quality objectives that are defined in the ERS which is a tool under the *Environment Protection Act 2017*. The air quality objectives defined in the ERS informed the objectives for air quality for the Project, noting that the ambient air ERS is not a compliance standard that one can pollute up to. The ERS does not provide an indicator or objective for nuisance dust.

The objectives are risk-based concentrations that are not intended to be compliance levels, but they assist the MC to understand the risk to human health. The ERS sets out the air quality objectives for PM_{10} which are measured over a 24-hour averaging period, as reproduced below in Table 2.

Table 2: Ambient air quality objectives for PM_{10}.

Indicator	Air Quality Objective (µg/m^3)	Averaging Period
Particles as PM_{10} (maximum concentration)	50	24-hour

The measured concentrations (which include both existing background concentrations and the Project's incremental contribution over a 24-hour period) are presented in Section 3. Monitoring is continuous, even when there are no construction-related activities occurring on the site. Periods of time where there are no site activities are classified as 'Out of Hours'. The potential for dust generation from the work sites is much lower when there are no site activities occurring, however dust can still be generated at the work site during "Out of Hours" periods due to wind erosion.

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2.3. Monitoring Locations

Air quality monitors are located on or adjacent to the Early Works construction sites, to represent local air quality conditions, in positions that enable the MC to adequately measure potential impact of works on local sensitive receivers including residents. This does not include monitoring undertaken as part of the SRL Initial Works as outlined in Section 1.1.

The air quality monitors were installed on the following dates at each of the following locations. The location of these monitors is shown on maps in Section 3 of this Report.

Table 3: Air quality monitoring locations active during reporting period.

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
Box Hill – Site Office	07 Jul 2023	Latitude: -37.817863° Longitude: 145.12187°	PM_{10}	Alphington EPA monitoring station
Box Hill – East of Market Street	13 Jul 2023	Latitude -37.818073° Longitude: 145.1232°	PM_{10}	Alphington EPA monitoring station
Box Hill – UAW	01 August 2024	Latitude -37.81479° Longitude: 145.12424°	PM_{10}	Alphington EPA monitoring station
Box Hill – Irving Avenue	01 August 2024	Latitude -37.815964° Longitude: 145.12355°	PM_{10}	Alphington EPA monitoring station
Burwood – 16 McComas Grove	18 May 2023	Latitude: -37.851494° Longitude: 145.1116°	PM_{10}	Alphington EPA monitoring station
Burwood – Site 4 – West	16 February 2024	Latitude: -37.850521° Longitude: 145.11009°	PM_{10}	Alphington EPA monitoring station
Burwood – Site 4 – East	20 February 2024	Latitude: -37.850586° Longitude: 145.11188	PM_{10}	Alphington EPA monitoring station
Burwood – Corner of McComas Grove and Sinnott Street	18 May 2023	Latitude: - 37.852413° Longitude: 145.11252°	PM_{10}	Alphington EPA monitoring station
Burwood – Site 1 South	08 May 2024	Latitude: -37.8549° Longitude: 145.10995°	PM_{10}	Alphington EPA monitoring station
Burwood –Bennettswood Reserve	24 July 2024	Latitude: -37.84921° Longitude: 145.1117°	PM_{10}	Alphington EPA monitoring station
Glen Waverley – Railway Parade	09 August 2024	Latitude: -37.878888° Longitude: 145.161078°	PM_{10}	Alphington EPA monitoring station
Glen Waverley – Site 1	21 July 2024	Latitude: -37.879898° Longitude: 145.160984°	PM_{10}	Alphington EPA monitoring station
Monash – Site Office	16 October 2023	Latitude: -37.9024° Longitude: 145.13815°	PM_{10}	Alphington EPA monitoring station
Clayton – C&S Delta Location	02 December 2023	Latitude: -37.922485 Longitude: 145.11914	PM_{10}	Alphington EPA monitoring station
Clayton – VicTrack Location	12 April 2024	Latitude: -37.92334 Longitude: 145.11943	PM_{10}	Dandenong EPA monitoring station
Clayton – Remembrance Gardens	03 May 2024	Latitude: -37.92301 Longitude: 145.12056	PM_{10}	Dandenong EPA monitoring station
Clayton – Cycon	13 July 2024	Latitude: -37.92413 Longitude: 145.11960	PM_{10}	Dandenong EPA monitoring station
Heatherton – SSY – South	29 May 2023	Latitude: -37.955917° Longitude: 145.10239°	PM_{10}	Dandenong EPA monitoring station
Heatherton – SSY – Site Office	22 January 2024	Latitude: -37.95401° Longitude: 145.10062°	PM_{10}	Dandenong EPA monitoring station
Heatherton – SSY – Kingston Road U-turn	04 August 2024	Latitude: -37.9564° Longitude: 145.1044°	PM_{10}	Dandenong EPA monitoring station

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2.4 Data Limitations and Verification

The following limitations apply to this data:

- Meteorological conditions on site can affect measurements made by monitoring devices. For instance, dust measurements can be impacted by rainfall, fog and/or humidity (with water droplets in the air being mistaken as dust particles). Displaying periods of inclement weather allows reviewers to identify measurements that may have been impacted.
- The monitors that measure dust concentrations and noise are located within the construction site close to the nearest homes. However, the measured levels at the nearest homes and beyond are usually less than what is measured by the monitor. This is due to the monitor being located closer to the source, due to the security requirements for the monitoring equipment.
- Monitors have been placed to record air quality and airborne noise at each site, however monitors may need to be moved as works progress. Air Quality monitoring devices are located in accordance with AS/NZS 3580.1.1-2016: Methods for sampling and analysis of ambient air (the Standard). This Standard specifies that locations must be representative of the location being monitored, which in this case is offsite receptors. Specifically, Section 7 of the Standard emphasises that locations should not be unduly influenced by immediate surroundings. Locating a monitoring device too close to the works results in increased readings as the space for air quality pollutants (i.e. dust) to dissipate is not representative of emissions at the offsite receptors. Therefore, depending on the location of the works on site and the monitoring device, the device may be moved to best represent impacts to offsite receptors, while also maintaining security and safe access.
- Breaks in data availability may occur due to sensor outages, instrument errors, technical issues, or removal of sensors during non-working periods to ensure the security of the equipment.

Data are provided in tabular and graphical form in Section 3 to visually present 24-hour averages of PM_{10} over the monthly period. The data included in this report have been verified by the MC and relevant subject matter experts.

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3. Results

Data are provided in graphical form below to visually present 24-hour averages of PM_{10} dust concentration over the monthly period for each active construction site. Where the TARP has been implemented due to works occurring on the construction sites, an analysis is presented for discussion.

3.1. Box Hill



Figure 1: Box Hill air quality monitoring stations.

Table 4: Box Hill PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.3	14.1	-
1	Site Office	4.2	0.7	0
2	East of Market Street	11.4	11.4	
3	Uniting AgeWell	14.5	4.6	
4	Irving Avenue	0.3	0.1	

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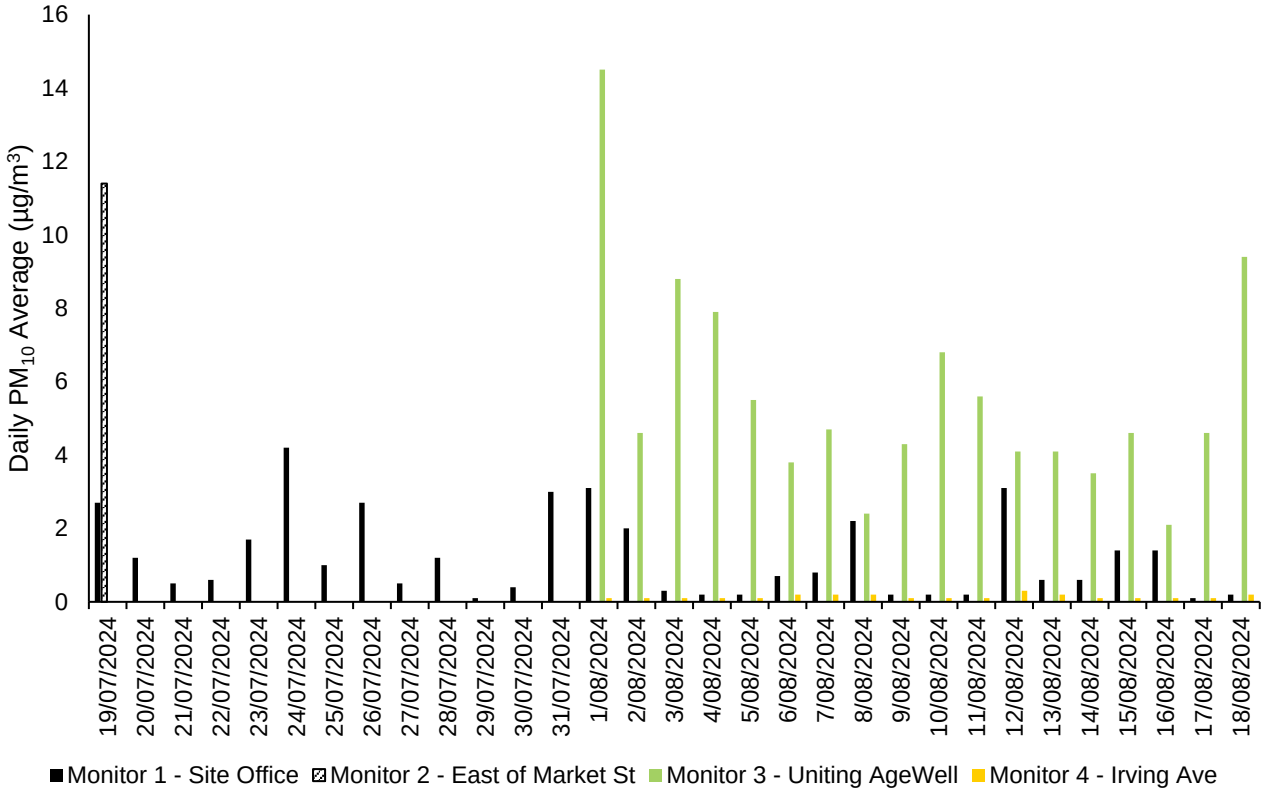


Figure 2: Box Hill PM_{10} daily averages

3.1.1. Analysis

The maximum daily average PM_{10} concentrations were 4.2 µg/m^3 (n = 31)[2], 11.4 µg/m^3 (n = 1), 14.5 µg/m^3 (n = 18), and 0.3 µg/m^3 (n = 18) at the monitoring stations located at the Site Office (Monitor 1), East of Market Street (Monitor 2), Uniting AgeWell (Monitor 3) and Irving Avenue (Monitor 4) respectively. The daily average PM_{10} concentration readings reflect that the air quality is generally good as represented in Figure 2. Elevated maximum daily average PM_{10} concentrations were reported on 1 August 2024 during foggy weather conditions. Monitors 3 and 4 were commissioned on 1 August 2024 before works commenced in the area.

The TARP was not implemented during the reporting period as the adopted trigger levels were not met. Dust generated from excavation and spoil haulage activities was suppressed using water carts and hoses. Additional control measures included street sweepers regularly visiting the site and ensuring trucks covered their loads prior to leaving the site.

Regular site inspections support this data, where dust was not observed to be leaving the site boundary.

[2] n = the number of days of monitoring data captured in the monitoring period.

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3.2. Burwood

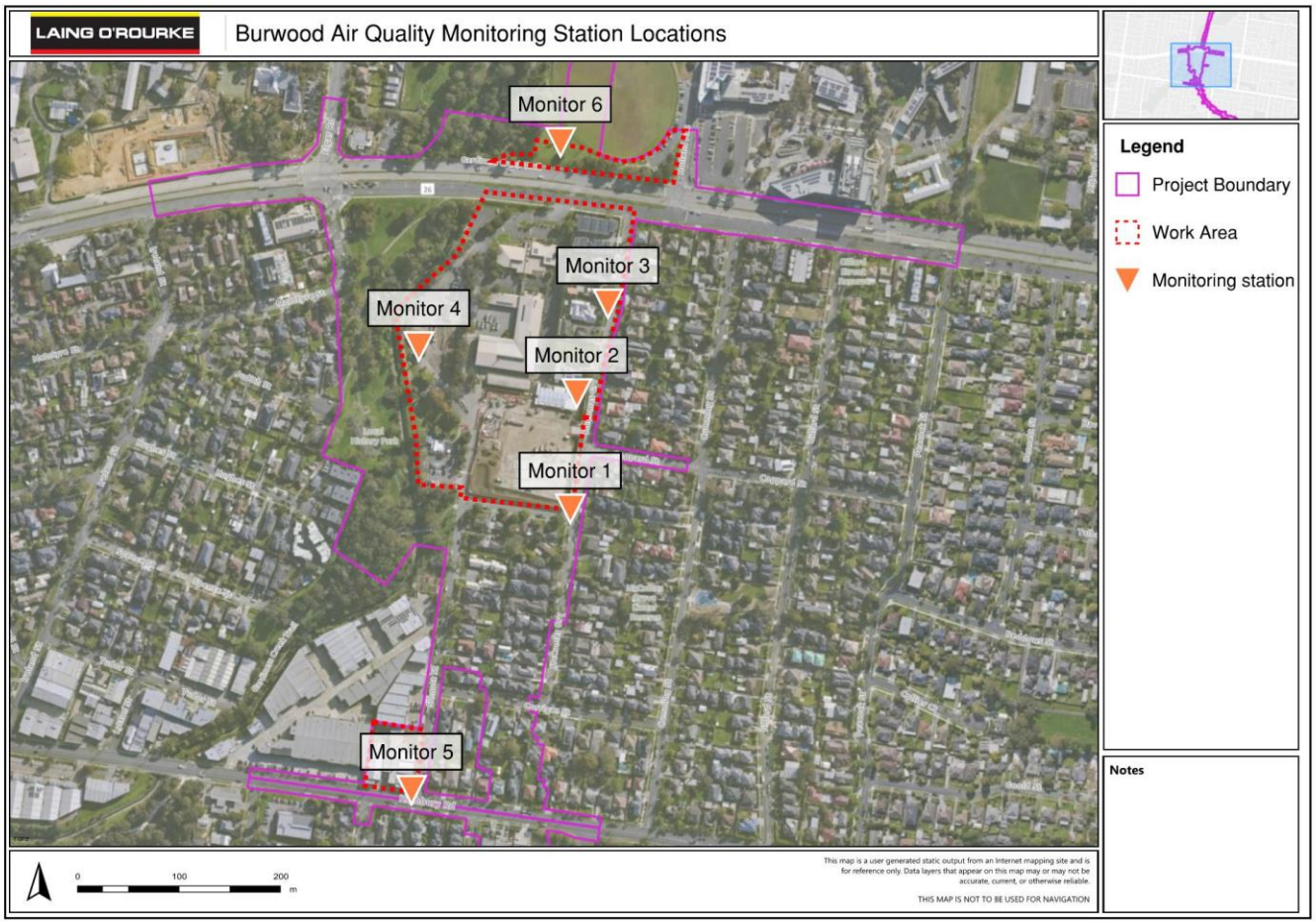


Figure 3: Burwood air quality monitoring stations.

Table 5: Burwood PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.3	14.1	-
1	Corner of McComas Grove and Sinnott Street	64.6	10.2	1
2	16 McComas Grove	3.0	0.4	
3	Site 4 - East	14.3	8.9	
4	Site 4 – West	2.4	0.3	
5	Site 1 – South	66.6	16.2	
6	Bennettswood Reserve	5.6	0.8	

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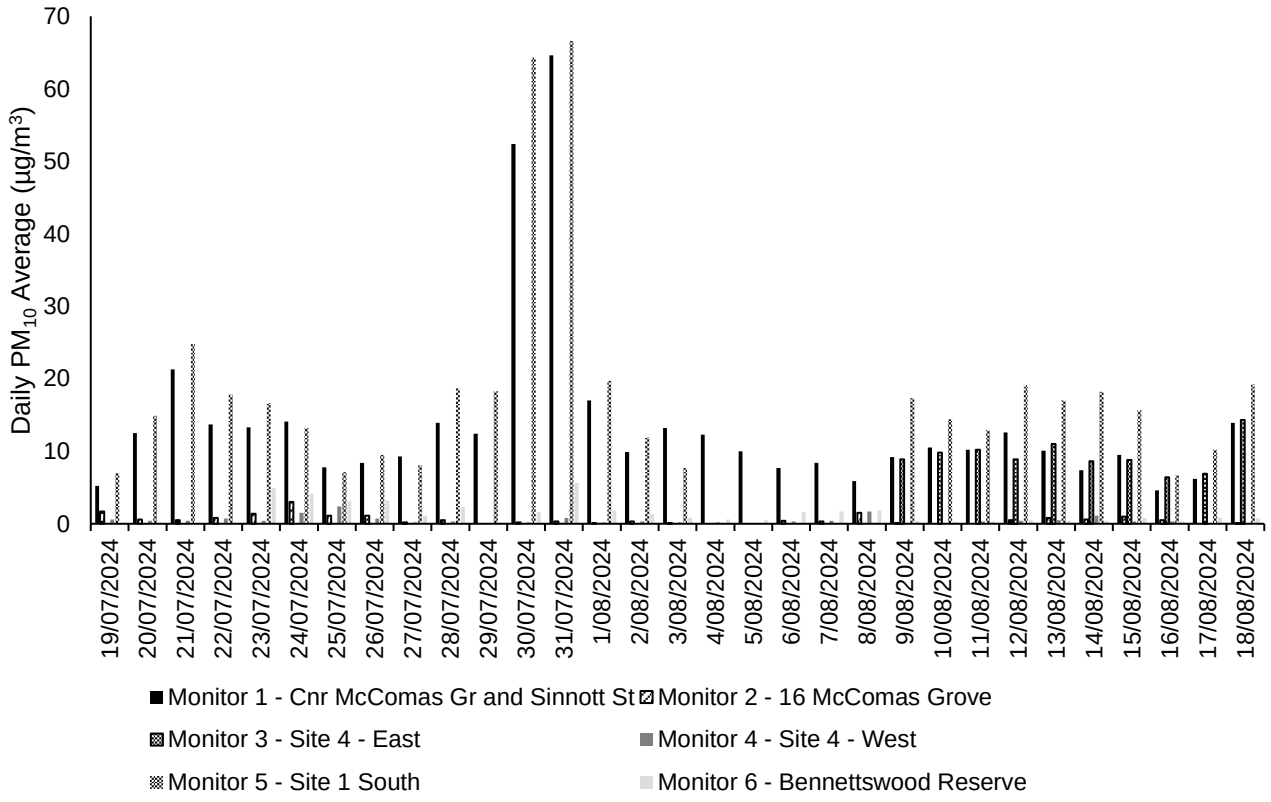


Figure 4: Burwood PM_{10} daily averages

3.2.1. Analysis

The maximum daily average PM_{10} concentrations reported at the Burwood monitoring stations were 64.6 µg/m^3 (n = 31) at the corner of McComas Grove and Sinnott Street (Monitor 1), 3.0 µg/m^3 (n = 31) at 16 McComas Grove (Monitor 2), 14.3 µg/m^3 (n = 10) at Site 4 – East (Monitor 3), 2.4 µg/m^3 (n = 31) at Site 4 – West (Monitor 4), and 66.6 µg/m^3 (n = 26) at Site 1 South (Monitor 5), 5.6 µg/m^3 (n=27) at Bennettswood Reserve (Monitor 6) respectively. Monitor 6 was recommissioned before works continued in the area.

A heavy fog persisted across Burwood from 30 to 31 July 2024. The air quality results from these days are not representative of dust impacts from construction.

The TARP was implemented on one day during this reporting period at Site 1. Dust suppression activities included the use of water carts and hoses. Dust generation from spoil haulage was reduced by requiring trucks to cover loads prior to leaving the site. Where dust was generated by site establishment works, appropriate dust suppression controls were employed.

During the reporting period, the water cart was used both proactively and reactively to reduce dust. Stockpiles of soil or rock were maintained at heights to minimise the risk of dust. Additionally, any soil stockpiled for prolonged periods were treated with non-hazardous tackifier to minimise the risk of dust.

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3.3. Glen Waverley



Figure 5: Glen Waverley air quality monitoring stations.

Table 6: Glen Waverley PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m³)	Median Daily PM_{10} Concentration (µg/m³)	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.3	14.1	-
1	Site 1	61.7	10.1	1
2	Railway Parade	15.0	6.8	

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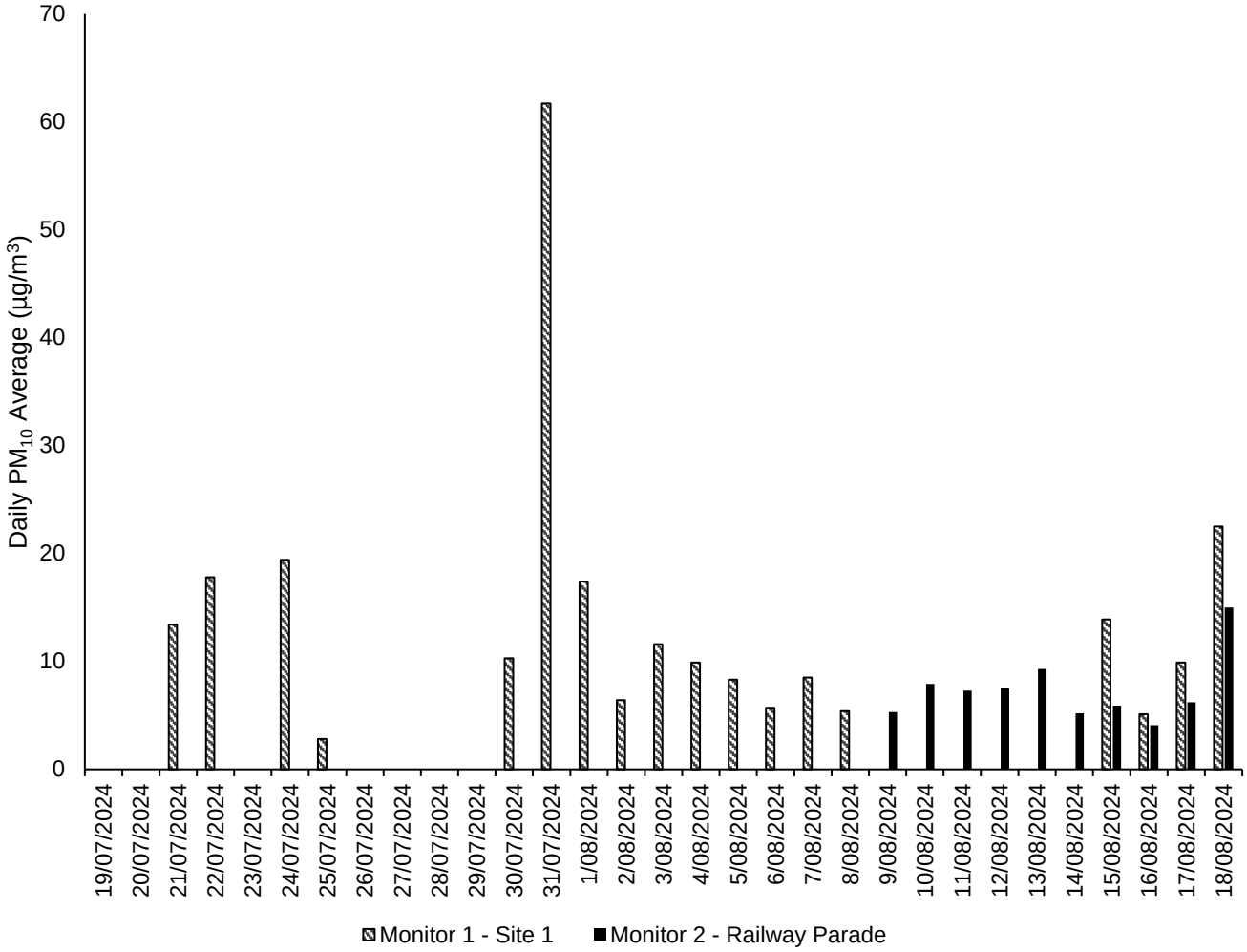


Figure 6: Glen Waverley PM_{10} daily averages

3.3.1. Analysis

The maximum daily average PM_{10} concentrations were 61.7 µg/m^3 (n = 18), and 15.0 µg/m^3 (n = 10) at the monitoring locations at Site 1 (Monitor 1) and Railway Parade (Monitor 2), respectively.

The TARP was implemented on one day during the reporting period. A spike in maximum daily average PM_{10} concentration can be seen at Monitor 1, during foggy weather conditions on 31 July 2024, resulting in elevated readings. Dust generated from spoil haulage was reduced by street sweepers visiting the site regularly and requiring trucks to cover loads prior to leaving the site. Dust was suppressed using hoses. Exposed materials such as crushed rock and soil stockpiles were covered on windy days. Stockpiles located within Site 1 not used for more than 10 days have been sprayed with a dust suppressant over the exposed surfaces.

Regular site inspections support this data as no dust was observed to be leaving the site boundaries.

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3.4. Monash



Figure 7: Monash air quality monitoring stations.

Table 7: Monash PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.3	14.1	-
1	Site Office	62.8	9.4	0

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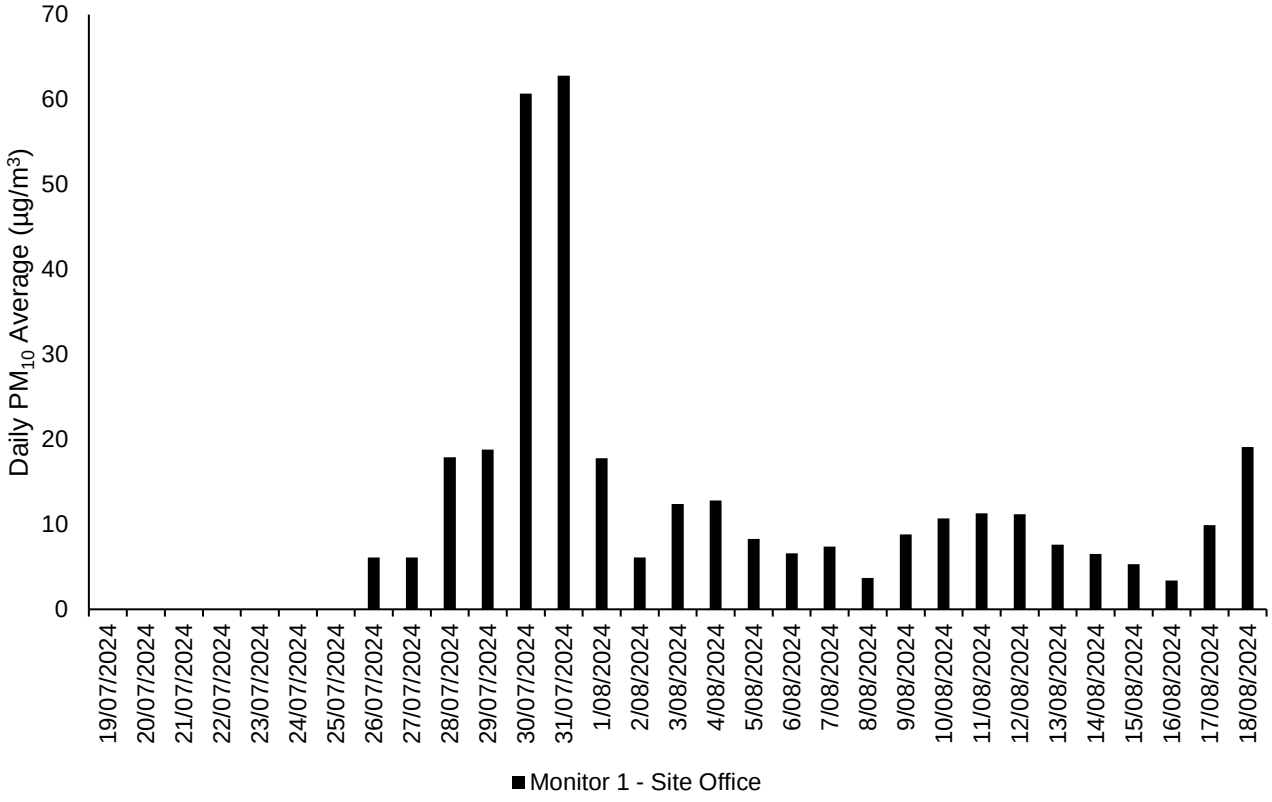


Figure 8: Monash PM_{10} daily averages

3.4.1. Analysis

The maximum daily average PM_{10} concentration was 25.3 µg/m^3 (n = 24) at the monitoring location at the Site Office (Monitor 1). PM_{10} readings in the reporting period are reflective of external causes and local weather conditions at the Monash site. The air quality monitoring device was reinstated on 26 July 2024 prior to the commencement of utility works. The TARP was not implemented during the reporting period. A spike in maximum daily average PM_{10} concentration can be seen at Monitor 1 from 30 to 31 July 2024 due to foggy weather conditions, which resulted in elevated readings.

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3.5. Clayton



Figure 9: Clayton air quality monitoring stations.

Table 8: Clayton PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.3	14.1	-
1	C&S Delta Location	59.3	14.5	4
2	VicTrack	55.6	13.9	
3	Remembrance Gardens	60.1	15.6	
4	Cycon	98.0	17.0	

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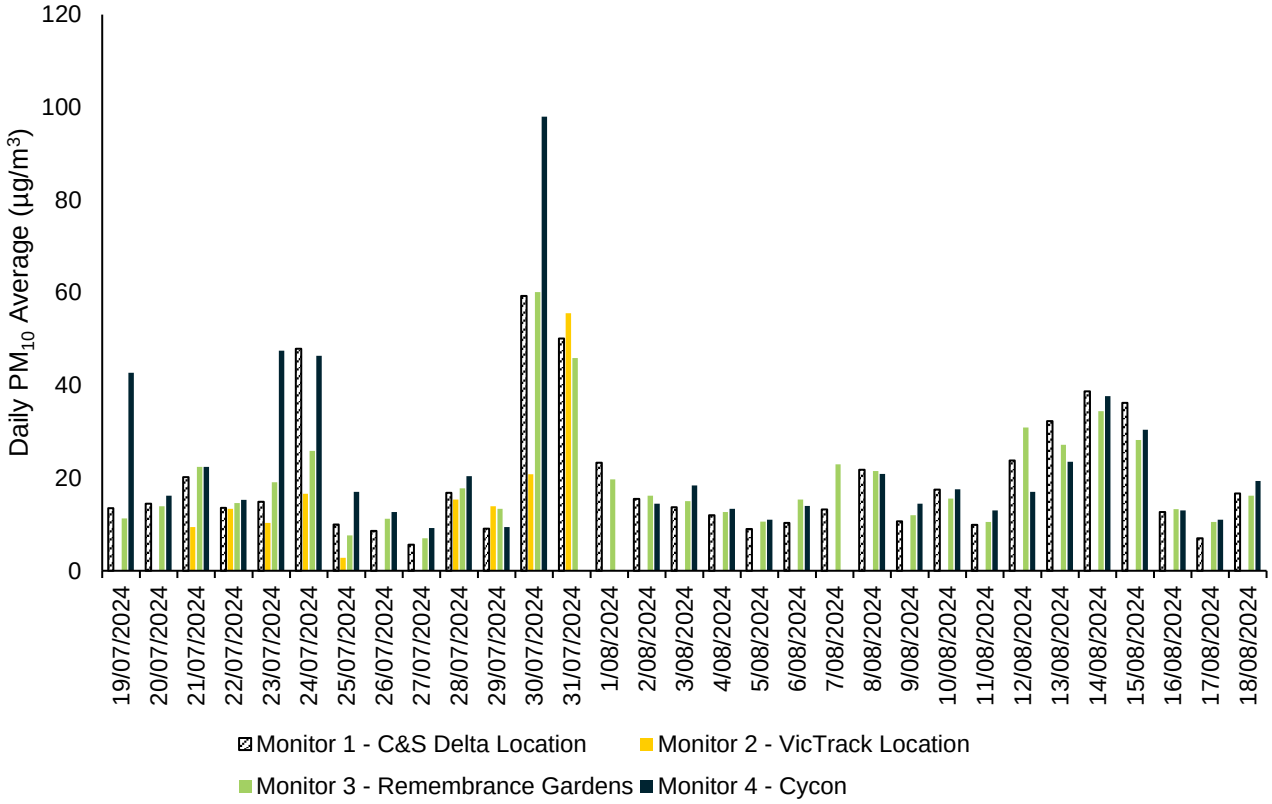


Figure 10: Clayton PM_{10} daily averages

3.5.1. Analysis

The maximum daily average PM_{10} concentration were 59.3.0 µg/m^3 (n = 31),55.66.0 µg/m^3 (n = 9), 60.1 µg/m^3 (n = 31), and 98.0 µg/m^3 (n = 28) at the C&S Delta Location (Monitor 1), at the VicTrack (Monitor 2), Remembrance Gardens (Monitor 3) and Cycon (Monitor 4) monitoring locations, respectively. The daily average PM_{10} concentration readings reflect that the air quality is generally good, as represented in Figure 10. The sharp spikes seen from 30 to 31 July 2024 are due to early morning fog, which resulted in elevated levels.

The TARP was implemented on four days during this reporting period with a hose used across all sites to suppress dust. The monitor within the C&S Delta location is near the main access gate, resulting in slightly higher levels than last month's data. Truck movement has increased this month with new work commencing, resulting in more work loads and deliveries. This device will be moved to better represent the site's levels. Cycon recorded the highest maximum average due to excavation. In response, a water cart was used to reduce dust. Proactive measures for dust mitigation, when weather permitted, included hosing down the work areas prior to works commencing for the day. The VicTrack works were completed, and the device was decommissioned on 31 July 2024.

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3.6. Heatherton

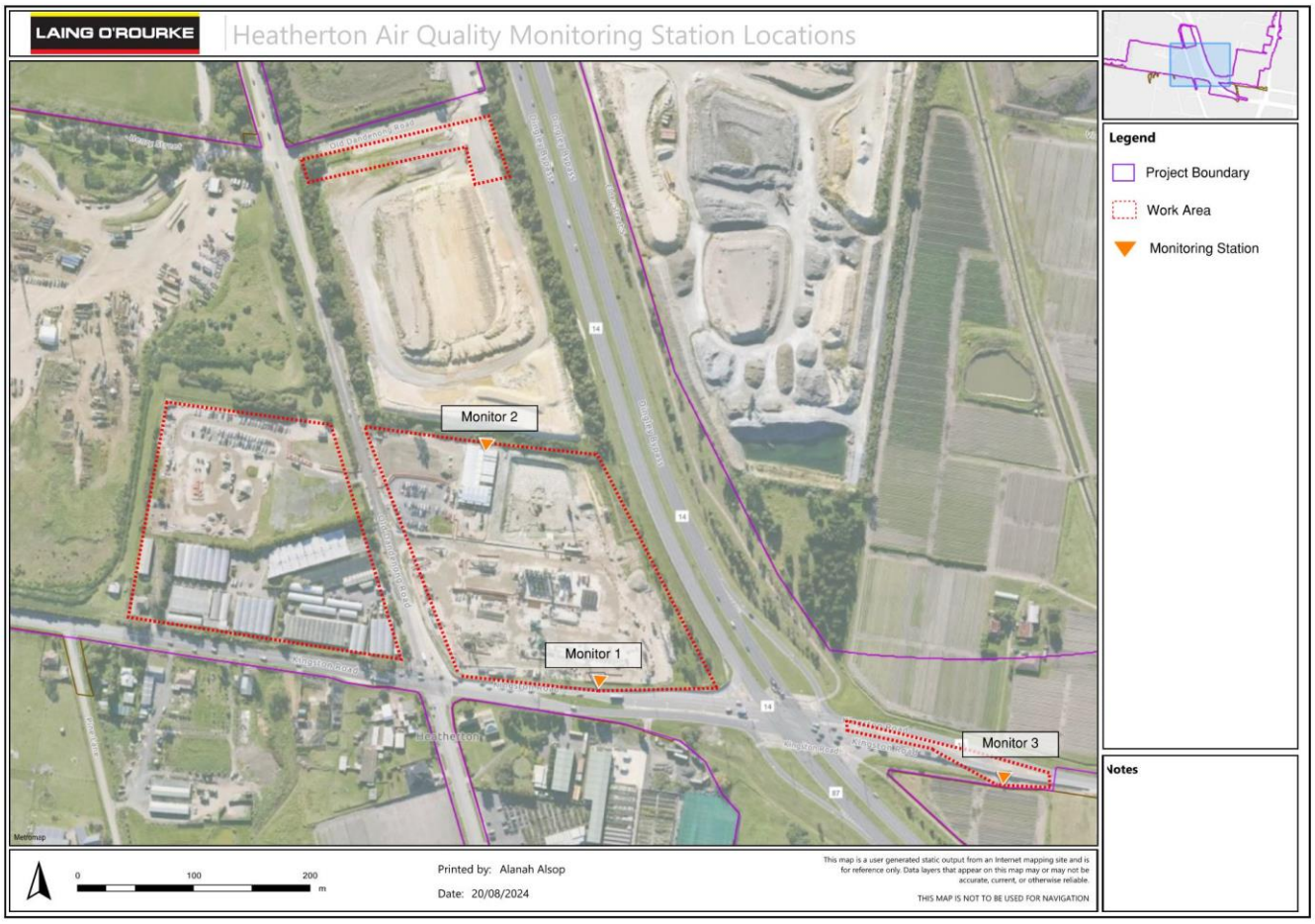


Figure 11: Heatherton air quality monitoring stations.

Table 9: Heatherton PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Implemented in the Month
-	Representative Background - Dandenong	24.3	12.4	-
1	SSY - South	133.6	18.2	2
2	Site Office	7.8	0.6	
3	Kingston Road U-turn	33.9	14.6	

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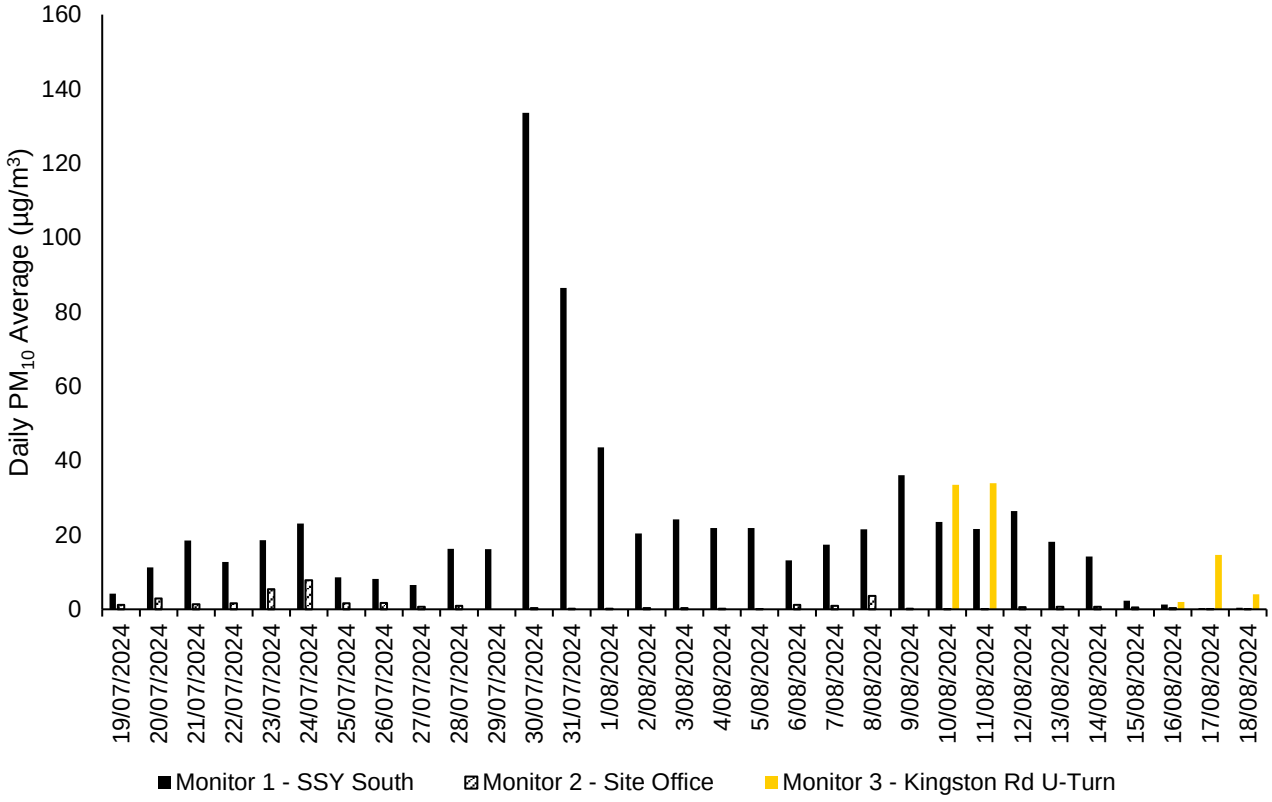


Figure 12: Heatherton PM_{10} daily averages

3.6.1. Analysis

Both Initial Works and Early Works are being undertaken at Heatherton. The proximity of these works means there is a strong possibility Initial Works are contributing to air quality conditions at the site. Initial Works are not subject to the EMF.

This report does not include monitoring related to asbestos removal, which is monitored and reported separately. Monitoring for asbestos particles in the air has consistently found levels are within a safe and allowable range.

Throughout this reporting period there were a range of works being undertaken at the site, some of which are not subject to the reporting requirements of this document. These included earthworks associated with site establishment and the safe removal of materials.

The maximum daily average PM_{10} concentrations were 133.6 µg/m^3 (n = 31), 7.8 µg/m^3 (n = 31), and 33.9 µg/m^3 (n = 5) at SSY South (Monitor 1), Site Office (Monitor 2), and Kingston Rd U-turn (Monitor 3) respectively. The TARP was implemented on two days during the reporting period.

Further, the Heatherton site is in an industrialised area with several neighbouring properties undertaking earthworks with large areas of exposed soil. On days where there are strong winds, visible airborne dust generated off-site has been observed to be blown onto the Heatherton site, contributing to elevated onsite monitoring results. Additionally, a relative humidity of 99% was observed when the TARP was implemented from 30 to 31 July 2024, which may have affected measurements (see Section 2.4).

Where dust was generated, appropriate dust suppression controls were employed. During the reporting period, the water cart was used proactively and reactively to reduce dust.

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3.7. Cheltenham

No monitoring took place at Cheltenham during the reporting period. Following completion of site establishment, no further works are scheduled to take place at Cheltenham until late-2024.

Air quality monitoring is scheduled to recommence prior to works beginning in late-2024.

4.Meteorological Conditions

Table 10: Daily weather observations for Melbourne (Olympic Park), Victoria 19 July 2024 –18 August 2024. Data Source BOM.

Statistic	Min Temperature (°C)	Max Temperature (°C)	Maximum Wind Gust Direction	Maximum Wind Gust Speed (km/h)	Relative Humidity @ 9:00 AM (%)
Mean	8.1	15.9	-	-	77.3
Lowest	1.1	10.2	NE	13.0	56.0
Highest	12.8	21.9	N	57.0	100.0

Table 11: Daily rain data for Melbourne (Olympic Park), Victoria 19 July 2024 –18 August 2024. Data Source BOM.

Statistic	Rain (mm)
Daily Low	0.0
Daily High	6.2
Total	20.4

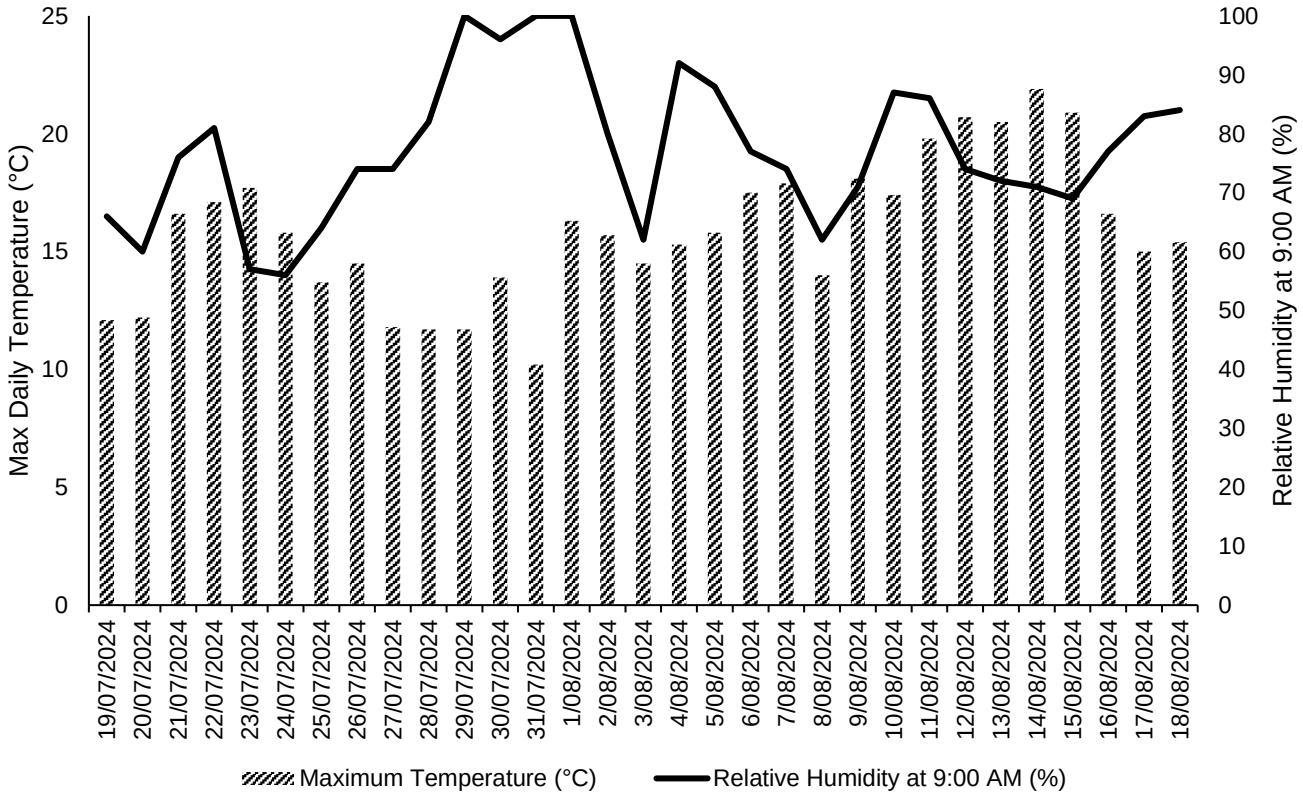


Figure 13: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19 July 2024 –18 August 2024. Data Source BOM.

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5. Quality Assurance

5.1. Data Capture

Data capture is defined as the number of valid data periods collected divided by the number of available data periods. Valid data excludes period where the instrument is unavailable due to calibration and maintenance and excludes periods where the data has been rejected due to quality assurance/data validation procedures.

Data capture statistics for the reporting period 19 July 2024 to 18 August 2024 are shown in Table 12.

Data capture statistics were 100% for all parameters at all stations for the reporting period, except for the following:

- At Box Hill, the gaps within the reporting period were due to technical difficulties with the SiteHive system which resulted in the dust monitoring component of Monitor 2 malfunctioning. Monitor 2 was offline from 20 July 2024 to 18 August 2024, but has since been repaired. Monitors 3 and 4 were commissioned on 1 August 2024, before works commenced in the area.
- At Burwood, the gaps in reporting data were caused by issues with device charging. Monitor 3 was offline from 19 July 2024 to 7 August 2024, and Monitor 5 was offline from 4 August 2024 to 8 August 2024, both monitoring points have experienced issues with charging of the lithium batteries with the equipment provided by SiteHive, resulting in data gaps for the respective monitoring points during the reporting period. Monitor 6 was recommissioned on 23 July 2024, as works are continuing in the area.
- At Glen Waverley, the gaps within the reporting period were due to issues with device charging. Monitor 1 experienced issues with the lithium battery provided by SiteHive resulting in data gaps during the reporting period. Additionally, Monitor 1 was located within an asbestos exclusion zone. As a result, a qualified asbestos removalist was arranged to safely retrieve the monitoring device. The two monitoring points previously set up within Site 1 at the Northern and Southern extents have been consolidated to one monitoring point in a central location since demolition works concluded. Monitor 2 was commissioned on 9 August 2024 prior to works commencing. The previously established Coleman Parade monitoring point has been decommissioned.
- At Clayton, the gaps within the reporting period were due to technical difficulties with the SiteHive solar panels and, in turn, the device did not charge and powered down. This included Monitor 4 which was offline from 31 July 2024 to 2 August 2024. Monitor 2 was decommissioned on 31 July 2024.
- At Cheltenham, no monitoring was completed during the reporting period. No works were noted to have occurred at the site. Monitor 1 was removed from the site on 17 July 2024 before being moved to Monash.
- At Heatherton, the gaps within the reporting period were due to Monitor 3 being commissioned for use during out of hours works only. As such, monitoring data is not available between 19 July 2024 to 9 August 2024 and 12 August 2024 to 15 August 2024, where out of hours works were not being conducted.
- The construction program has been reviewed to ensure monitoring devices are installed prior to works. The MC is continuing to closely monitor the operation of the SiteHive units.

Table 12: Air quality monitoring, data capture summary

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Box Hill – Site Office	PM_{10}	24-hours	31	31	100%
Box Hill – East of Market Street	PM_{10}	24-hours	1	31	3%
Box Hill – Uniting AgeWell	PM_{10}	24-hours	18	18	100%
Box Hill – Irving Avenue	PM_{10}	24-hours	18	18	100%
Burwood – Corner of McComas Grove and Sinnott Street	PM_{10}	24-hours	31	31	100%
Burwood – 16 McComas Grove	PM_{10}	24-hours	31	31	100%
Burwood – Site 4 - West	PM_{10}	24-hours	31	31	100%
Burwood – Site 4 - East	PM_{10}	24-hours	10	31	32%
Burwood – Site 1 - South	PM_{10}	24-hours	26	31	84%
Burwood – Bennettswood Reserve	PM_{10}	24-hours	27	31	87%
Glen Waverley – Site 1	PM_{10}	24-hours	18	31	58%

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Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Glen Waverley – Railway Parade	PM_{10}	24-hours	10	10	100%
Monash – Site Office	PM_{10}	24-hours	24	24	100%
Clayton – C&S Delta Location	PM_{10}	24-hours	31	31	100%
Clayton – VicTrack Location	PM_{10}	24-hours	9	9	100%
Clayton - Utilities Remembrance Gardens	PM_{10}	24-hours	31	31	100%
Clayton – Cycon	PM_{10}	24-hours	28	31	90%
Heatherton – SSY – South	PM_{10}	24-hours	31	31	100%
Heatherton – SSY – Site Office	PM_{10}	24-hours	31	31	100%
Heatherton – SSY – Kingston Road U-turn	PM_{10}	24-hours	5	5	100%

5.2. Data Validation

Data contained in this report has been validated against performance and calibration requirements for each instrument.

Table 13: Monitoring device calibration information.

Location	Device Serial Number	Calibration Date	Calibration Due
Box Hill – Site Office	HEX-000407	29 Aug 2023	29 Aug 2025
Box Hill – East of Market Street	HEX-000339	19 Apr 2023	19 Apr 2025
Box Hill – Uniting AgeWell	HEX-000011	8 Apr 2024	8 Apr 2026
Box Hill – Irving Avenue	HEX-000222	13 June 2024	13 June 2026
Burwood – 16 McComas Grove	HEX-000385	29 Aug 2023	29 Aug 2025
Burwood – Corner of McComas Grove and Sinnott Street	HEX-000308	3 Apr 2023	3 Apr 2025
Burwood – Site 4 - West	HEX-000489	6 Dec 2023	06 Dec 2025
Burwood – Site 4 – East	HEX-000541	24 Apr 2024	24 Apr 2026
Burwood – Site 1 South	HEX-000532	13 May 2024	24 May 2026
Burwood – Bennettswood Reserve	HEX-000525	4 Mar 2024	4 Mar 2026
Glen Waverley – Site 1	HEX-000477	12 Dec 2023	12 Dec 2025
Glen Waverley – Railway Parade	HEX-000528	4 Mar 2024	4 Mar 2026
Monash – Site Office	HEX-000540	24 Apr 2024	24 Apr 2026
Clayton – C&S Delta	HEX-000462	29 Nov 2023	29 Nov 2025
Clayton – VicTrack	HEX-000031	5 Mar 2024	5 Mar 2026
Clayton – Utils Remembrance Gardens	HEX-000329	24 Apr 2024	24 Apr 2026
Clayton - Cycon	HEX-000426	11 June 2024	11 June 2025
Heatherton – SSY – South	HEX-000050	21 Apr 2023	21 Apr 2025
Heatherton – SSY – Site Office	HEX-000317	13 Dec 2023	13 Dec 2025
Heatherton – SSY – Kingston Rd U-turn	HEX-000536	13 May 2024	13 May 2026

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