



# Suburban Rail Loop East Early Works Air Quality Monthly Report

19 June 2024 – 18 July 2024



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## Glossary

**$\mu\text{g}/\text{m}^3$**  – 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<sub>10</sub>** – Particulate matter with an aerodynamic diameter of 10 micrometres ( $\mu\text{m}$ ) or less. PM<sub>10</sub> 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.

## Executive Summary

### Key Outcomes

Key outcomes arising from the monthly air quality monitoring program:

- In Box Hill, the TARP was implemented on one day during the reporting period. Water carts and hoses were used during material haulage, and dust was mitigated by street sweeping and requiring trucks to cover loads prior to leaving the site.
- In Burwood, the TARP was implemented on three days during the reporting period. Water carts and hoses were used during demolition works and material/spoil haulage, and dust was mitigated by street sweeping and requiring trucks to cover loads prior to leaving the site.
- In Glen Waverley, the TARP was implemented on five days during the reporting period. Water carts and hoses were used during spoil haulage and handling of materials, and dust was mitigated by street sweeping, covering temporary stockpiles and requiring trucks to cover loads prior to leaving the site.
- In Monash, no works took place. Any elevated dust levels during the reporting period were not associated with works on site.
- In Clayton, the TARP was implemented on five days during the reporting period. A water cart and hose were used during demolition works on the exposed soil to suppress dust and hose down stockpiles.
- In Heatherton, the TARP was implemented on three days during the reporting period. A water cart was used proactively and reactively to suppress dust during site establishment works, and soil binder was reapplied over exposed surfaces for extended shutdowns or on stockpiles not used for more than 10 days.
- In Cheltenham, no works took place throughout the reporting period. Elevated dust levels during the period were not associated with works on site.

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 June 2024 and 18 July 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<sub>10</sub>, have the potential to impact human health. PM<sub>10</sub> refers to particles with an aerodynamic diameter of 10 µm or less.

Measured PM<sub>10</sub> 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<sub>10</sub> 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.

## 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 ( $\mu\text{g}/\text{m}^3$ )	Median Concentration ( $\mu\text{g}/\text{m}^3$ )	Days TARP Implemented in the Month
Representative Background <sup>1</sup>					
Alphington	PM <sub>10</sub>	24-hour	34.7	12.5	-
Dandenong	PM <sub>10</sub>	24-hour	21.4	12.2	-
Box Hill					
Site Office	PM <sub>10</sub>	24-hour	41.2	16.8	1
East of Market Street	PM <sub>10</sub>	24-hour	46.6	14.9	
Burwood					
Corner of McComas Grove and Sinnott Street	PM <sub>10</sub>	24-hour	57.9	13.3	3
16 McComas Grove	PM <sub>10</sub>	24-hour	15.7	0.2	
Site 4 – East	PM <sub>10</sub>	24-hour	26.3	9.2	
Site 4 – West	PM <sub>10</sub>	24-hour	4.0	0.2	
Site 1 South	PM <sub>10</sub>	24-hour	69.9	14.0	
Glen Waverley					
Coleman Parade	PM <sub>10</sub>	24-hour	103.6	17.5	5
Site 1 North	PM <sub>10</sub>	24-hour	29.5	9.2	
Site 1 South	PM <sub>10</sub>	24-hour	27.0	9.9	
Monash					
Site Office	PM <sub>10</sub>	24-hour	25.3	7.8	0
Clayton					
C&S Delta Location	PM <sub>10</sub>	24-hour	57.0	13.7	5
VicTrack Location	PM <sub>10</sub>	24-hour	46.0	12.3	
CLA Utils Remembrance Gardens	PM <sub>10</sub>	24-hour	65.1	15.6	
Cycon	PM <sub>10</sub>	24-hour	53.9	22.6	
Heatherton					
SSY - South	PM <sub>10</sub>	24-hour	73.5	24.8	3
Site Office	PM <sub>10</sub>	24-hour	23.4	0.3	
Cheltenham					
CTM Compound	PM <sub>10</sub>	24-hour	59.2	7.7	0

<sup>1</sup> 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.



# 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<sub>10</sub> 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<sub>10</sub> 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.

## 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<sub>10</sub> have the potential to impact human health. PM<sub>10</sub> 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<sub>10</sub> which are measured over a 24-hour averaging period, as reproduced below in Table 2.

Table 2: Ambient air quality objectives for PM<sub>10</sub>.

Indicator	Air Quality Objective (µg/m <sup>3</sup> )	Averaging Period
Particles as PM <sub>10</sub> (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.



## 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 <sub>10</sub>	Alphington EPA monitoring station
Box Hill – East of Market Street	13 Jul 2023	Latitude: -37.818073° Longitude: 145.1232°	PM <sub>10</sub>	Alphington EPA monitoring station
Burwood – 16 McComas Grove	18 May 2023	Latitude: -37.851494° Longitude: 145.1116°	PM <sub>10</sub>	Alphington EPA monitoring station
Burwood – Site 4 – West	16 February 2024	Latitude: -37.850521° Longitude: 145.11009°	PM <sub>10</sub>	Alphington EPA monitoring station
Burwood – Site 4 – East	20 February 2024	Latitude: -37.850586° Longitude: 145.11188	PM <sub>10</sub>	Alphington EPA monitoring station
Burwood – Corner of McComas Grove and Sinnott Street	18 May 2023	Latitude: - 37.852413° Longitude: 145.11252°	PM <sub>10</sub>	Alphington EPA monitoring station
Burwood – Site 1 South	08 May 2024	Latitude: -37.8549° Longitude: 145.10995°	PM <sub>10</sub>	Alphington EPA monitoring station
Glen Waverley – Coleman Parade	04 April 2024	Latitude: -37.879734° Longitude: 145.16228°	PM <sub>10</sub>	Alphington EPA monitoring station
Glen Waverley – Site 1 North	11 March 2024	Latitude: -37.879942° Longitude: 145.161101°	PM <sub>10</sub>	Alphington EPA monitoring station
Glen Waverley – Site 1 South	11 April 2024	Latitude: - 37.880185° Longitude: 145.160569°	PM <sub>10</sub>	Alphington EPA monitoring station
Monash – Site Office	16 October 2023	Latitude: -37.9024° Longitude: 145.13815°	PM <sub>10</sub>	Alphington EPA monitoring station
Clayton – C&S Delta Location	2 December 2023	Latitude: -37.922485 Longitude: 145.11914	PM <sub>10</sub>	Alphington EPA monitoring station
Clayton – VicTrack Location	12 April 2024	Latitude: -37.92334 Longitude: 145.11943	PM <sub>10</sub>	Dandenong EPA monitoring station
Clayton – Utils Remembrance Gardens	3 May 2024	Latitude: -37.92301 Longitude: 145.12056	PM <sub>10</sub>	Dandenong EPA monitoring station
Clayton – Cycon	13 July 2024	Latitude: -37.92413 Longitude: 145.11960	PM <sub>10</sub>	Dandenong EPA monitoring station
Heatherton – SSY – South	29 May 2023	Latitude: -37.955917° Longitude: 145.10239°	PM <sub>10</sub>	Dandenong EPA monitoring station
Heatherton – SSY – Site Office	22 January 2024	Latitude: -37.95401° Longitude: 145.10062°	PM <sub>10</sub>	Dandenong EPA monitoring station
Cheltenham – CTM Compound	3 May 2024	Latitude: -37.95623° Longitude: 145.0503°	PM <sub>10</sub>	Dandenong EPA monitoring station

## 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<sub>10</sub> over the monthly period. The data included in this report have been verified by the MC and relevant subject matter experts.

### 3. Results

Data are provided in graphical form below to visually present 24-hour averages of PM<sub>10</sub> 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<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.7	12.5	-
1	Site Office	41.2	16.8	1
2	East of Market Street	26.6	14.9	

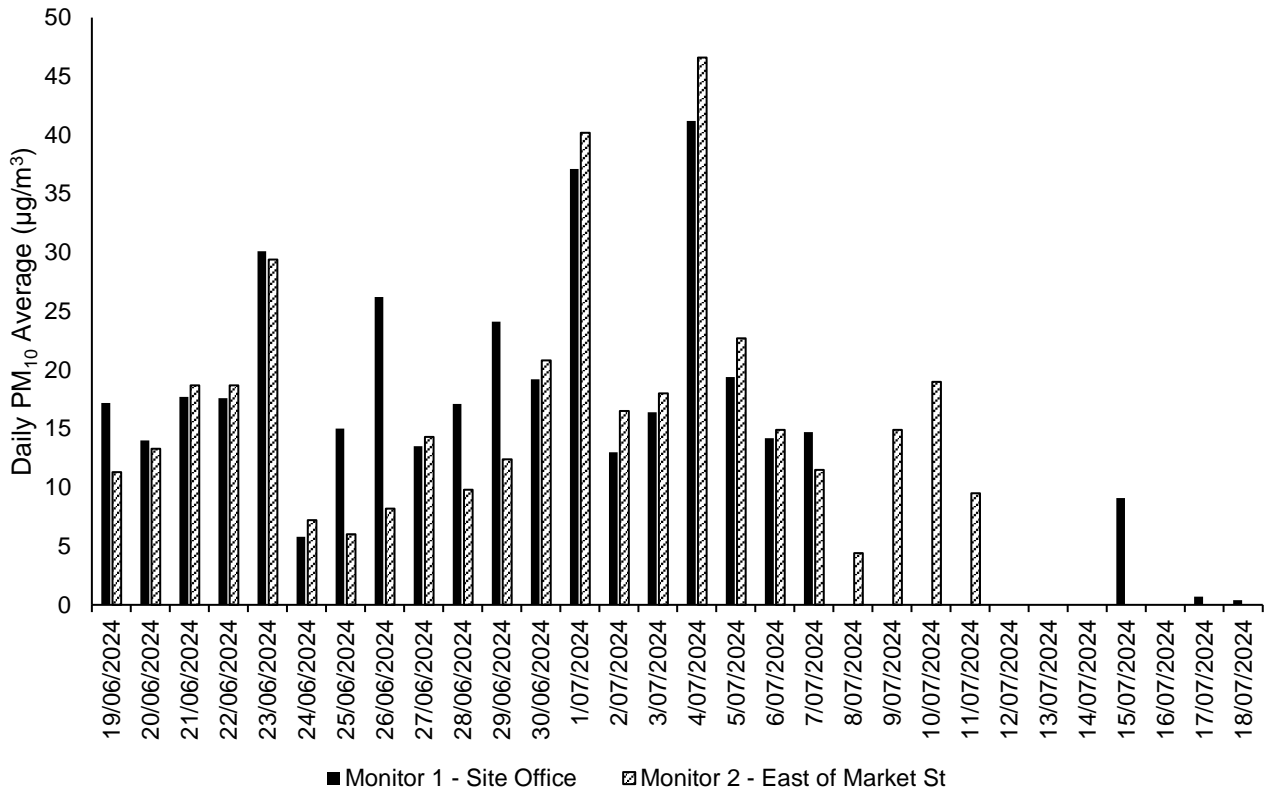


Figure 2: Box Hill PM<sub>10</sub> daily averages

### 3.1.1. Analysis

The maximum daily average PM<sub>10</sub> concentrations were 41.2 µg/m<sup>3</sup> (n = 22)<sup>2</sup> and 46.6 µg/m<sup>3</sup> (n = 23)<sup>3</sup> at the monitoring stations located at the Site Office (Monitor 1) and East of Market Street (Monitor 2), respectively. The daily average PM<sub>10</sub> concentration readings reflect that the air quality is generally good as represented in Figure 2. Elevated maximum daily average PM<sub>10</sub> concentrations were reported on 1 July 2024 and 4 July 2024 during foggy weather conditions.

The TARP was implemented on one day during the reporting period. Dust generated from crushed rock placement and ramp construction 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.

<sup>2</sup> n = the number of days of monitoring data captured in the monitoring period for Monitor 1

<sup>3</sup> n = the number of days of monitoring data captured in the monitoring period for Monitor 2



### 3.2. Burwood



Figure 3: Burwood air quality monitoring stations.

Table 5: Burwood PM<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.7	12.5	-
1	Corner of McComas Grove and Sinnott Street	57.9	13.3	
2	16 McComas Grove	15.7	0.2	
3	Site 4 - East	26.3	9.2	3
4	Site 4 – West	4.0	0.2	
5	Site 1 – South	69.9	14.0	

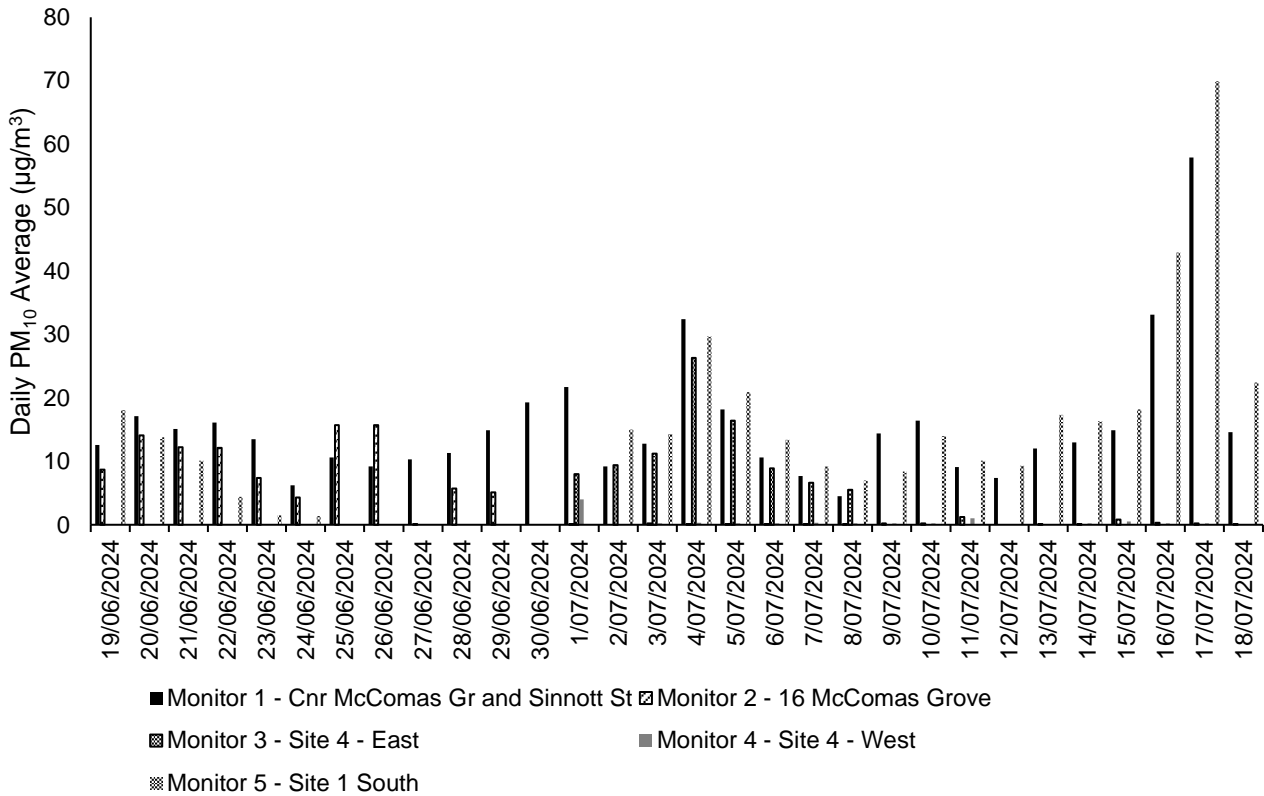


Figure 4: Burwood PM<sub>10</sub> daily averages

### 3.2.1. Analysis

The maximum daily average PM<sub>10</sub> concentrations reported at the Burwood monitoring stations were 57.9 µg/m<sup>3</sup> (n = 30) at the corner of McComas Grove and Sinnott Street (Monitor 1), 15.7 µg/m<sup>3</sup> (n = 30) at 16 McComas Grove (Monitor 2), 26.3 µg/m<sup>3</sup> (n = 8) at Site 4 – East (Monitor 3), 4.0 µg/m<sup>3</sup> (n = 18) at Site 4 – West (Monitor 4), and 69.9 µg/m<sup>3</sup> (n = 23) at Site 1 South (Monitor 5) respectively.

The TARP was implemented on three days during this reporting period. Dust suppression activities included the use of water carts and hoses. Dust generation from spoil haulage was mitigated 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.



### 3.3. Glen Waverley



Figure 5: Glen Waverley air quality monitoring stations.

Table 6: Glen Waverley PM<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.7	12.5	-
1	Coleman Parade	103.6	17.5	5
2	Site 1 North	29.5	9.2	
3	Site 1 South	27.0	9.9	

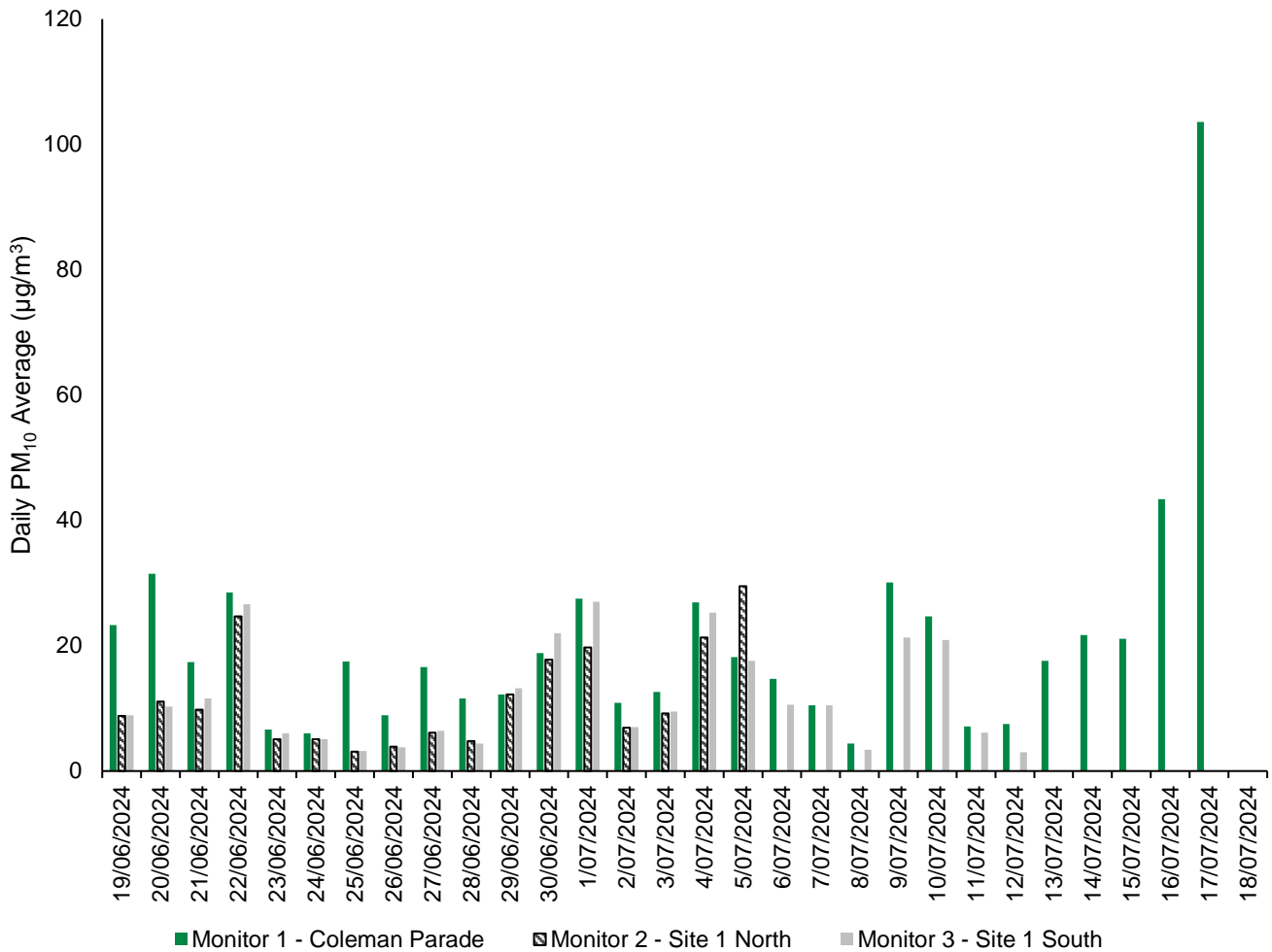


Figure 6: Glen Waverley PM<sub>10</sub> daily averages

### 3.3.1. Analysis

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

The maximum daily average PM<sub>10</sub> concentrations were 103.6 µg/m<sup>3</sup> (n = 29), 29.5 µg/m<sup>3</sup> (n = 17) and 27.0 µg/m<sup>3</sup> (n = 24) at the monitoring stations at Coleman Parade (Monitor 1), at Site 1 North (Monitor 2), and Site 1 South (Monitor 3), respectively.

The TARP was implemented on five days during the reporting period. A spike in maximum daily average PM<sub>10</sub> concentration can be seen at Monitor 1, reported during foggy weather conditions which resulted in elevated readings. Dust generated from spoil haulage was mitigated 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 temporarily covered on windy days.

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

### 3.4. Monash



Figure 7: Monash air quality monitoring stations.

Table 7: Monash PM<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.7	12.5	-
1	Site Office	25.3	7.8	0

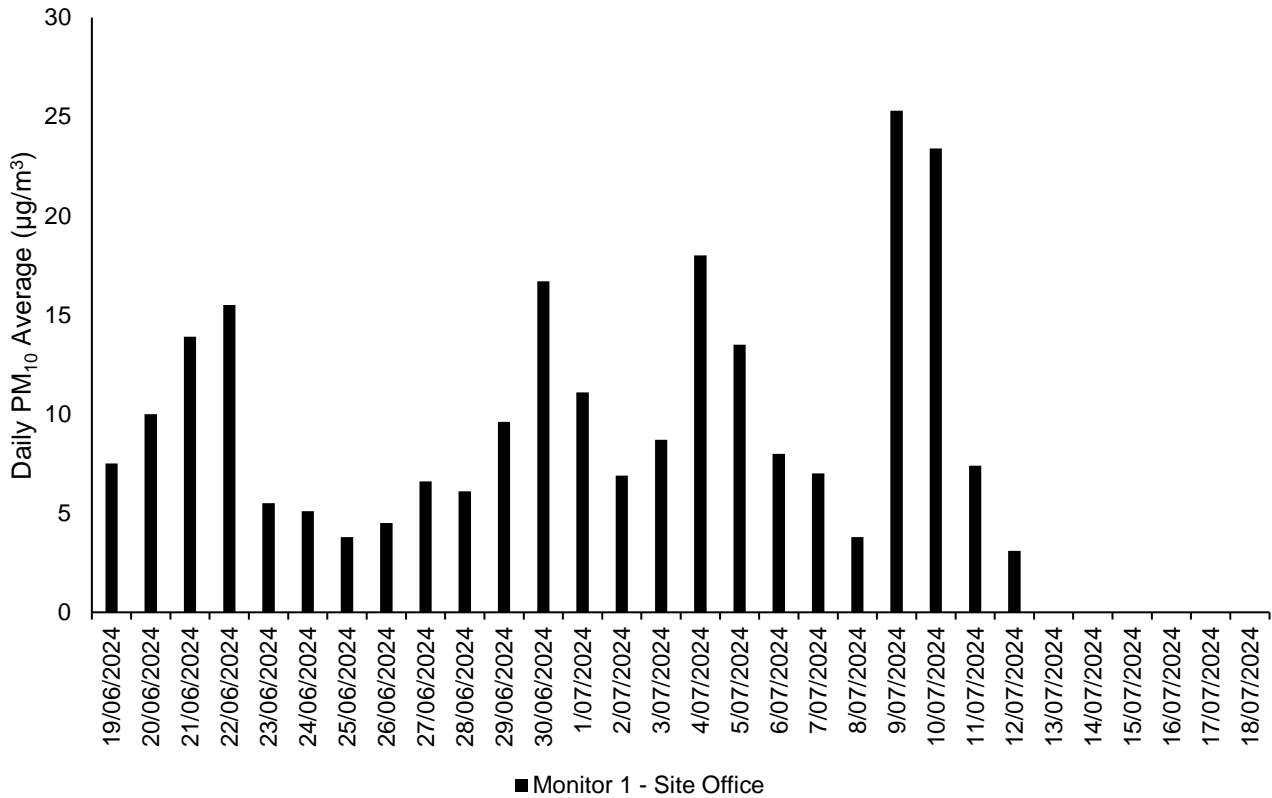


Figure 8: Monash PM<sub>10</sub> daily averages

### 3.4.1. Analysis

There were no works at Monash during the reporting period.

The maximum daily average PM<sub>10</sub> concentration was 25.3 µg/m<sup>3</sup> (n = 24) at the monitoring station at Site Office (Monitor 1). PM<sub>10</sub> readings in the reporting period are reflective of external causes and local weather conditions at the Monash site. The air quality monitoring device was decommissioned on 13 July 2024.



### 3.5. Clayton

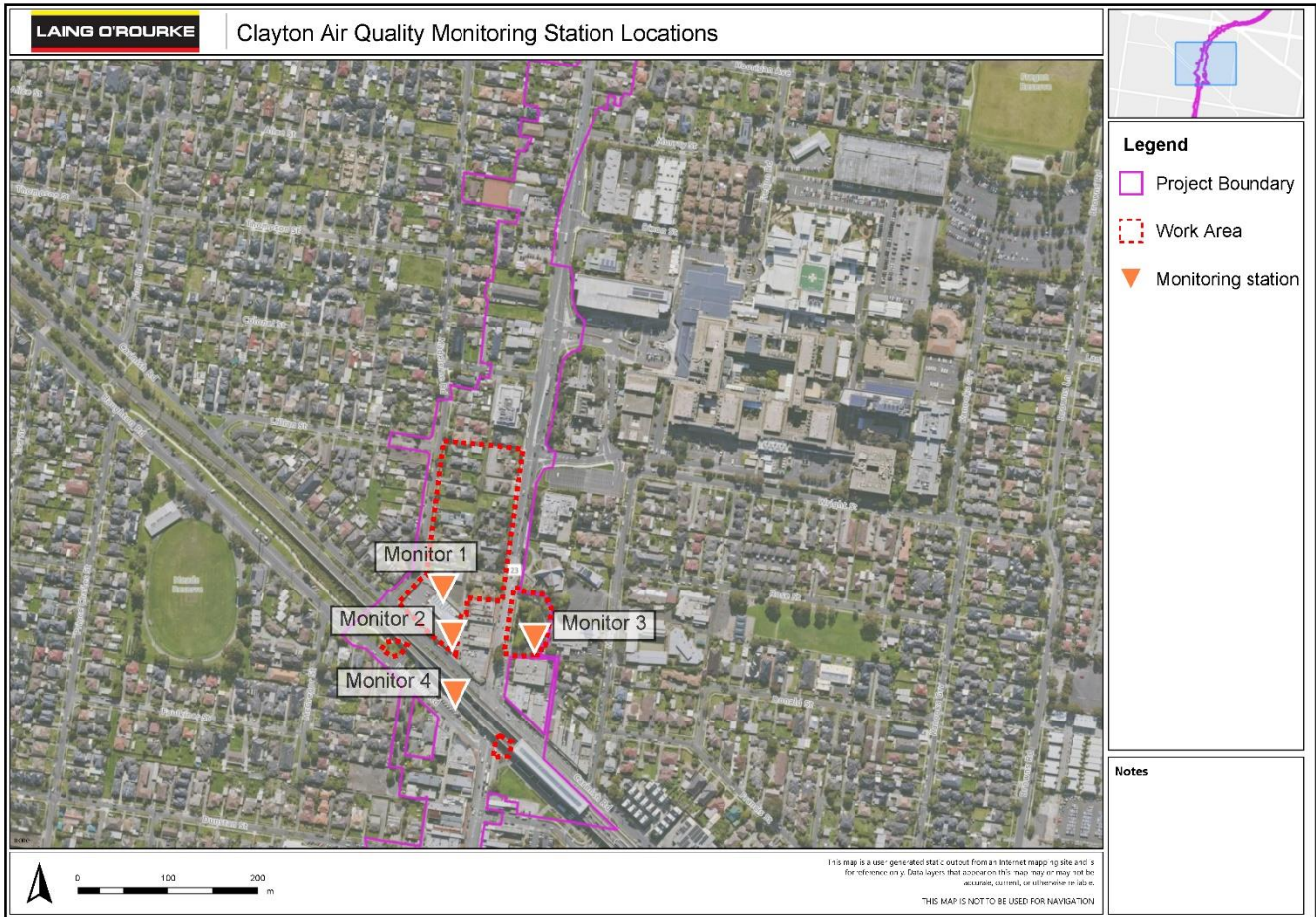


Figure 9: Clayton air quality monitoring stations.

Table 8: Clayton PM<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Alphington	34.7	12.5	-
1	C&S Delta Location	57.0	13.7	
2	VicTrack	46.0	12.3	
3	Utilities Remembrance Gardens	65.1	15.6	5
4	Cycon	53.9	22.6	

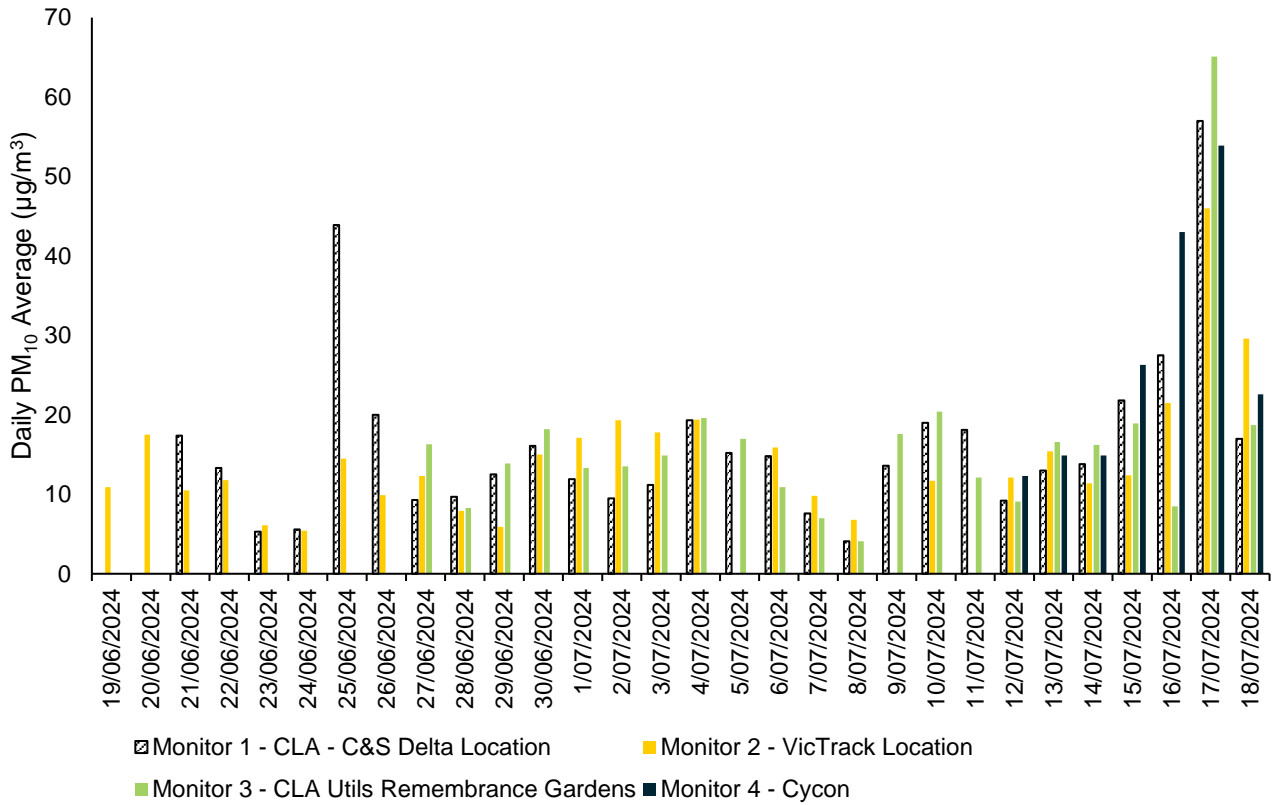


Figure 10: Clayton PM10 daily averages

### 3.5.1. Analysis

The maximum daily average PM10 concentration were 57.0 µg/m³ (n = 28), 46.0 µg/m³ (n = 27), 65.1 µg/m³ (n = 22), and 53.9 µg/m³ (n = 7) at the monitoring stations located at the C&S Delta location (Monitor 1), at the VicTrack location (Monitor 2), at the Remembrance Gardens (Monitor 3) and the Cycon location (Monitor 4), respectively. These daily average PM10 concentration readings reflect that the air quality is generally good, as represented in Figure 10.

The TARP was implemented on five days during this reporting period with a hose used on site to suppress dust. This was due to weather and exposed soil from demolition works and frequent truck and vehicle movement along Clayton and Madeleine roads. Proactive measures for dust mitigation, when weather permitted, included hosing down the work areas prior to works commencing for the day.



### 3.6. Heatherton



Figure 11: Heatherton air quality monitoring stations.

Table 9: Heatherton PM<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Dandenong	21.4	12.2	-
1	SSY - South	73.5	24.8	3
2	Site Office	23.4	0.3	

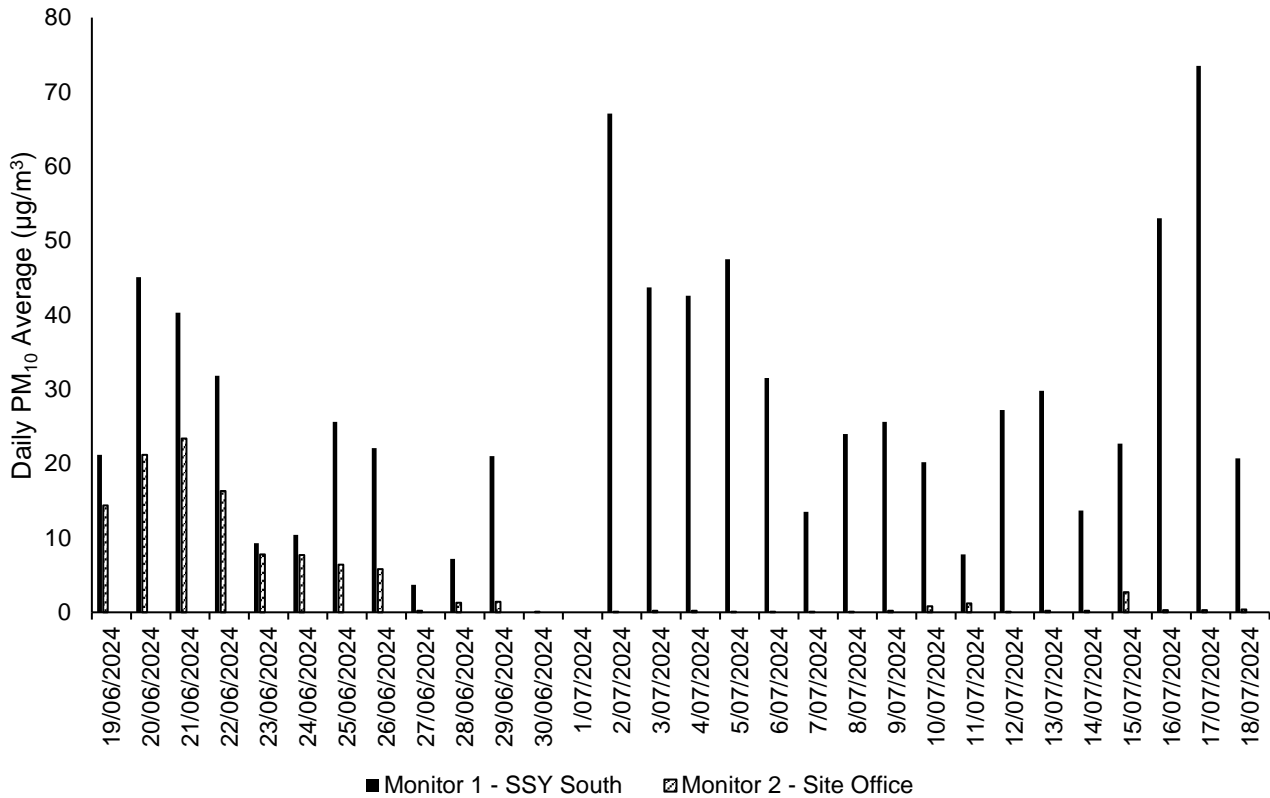


Figure 12: Heatherton PM<sub>10</sub> daily averages

### 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<sub>10</sub> concentrations were 73.5 µg/m<sup>3</sup> (n = 28) and 23.4 µg/m<sup>3</sup> (n = 30) at the monitoring stations at SSY South (Monitor 1), Site Office (Monitor 2), respectively. The TARP was implemented on three days during this reporting period.

It is further noted that 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. This suggests project works were not the sole source of airborne dust generation in the localised area over the reporting period.

Where dust was generated by site establishment works, appropriate dust suppression controls were employed. Over the reporting period, the water cart was used proactively and reactively to reduce dust. A soil binding agent was resprayed over exposed surfaces and over stockpiles not used for more than 10 days.

### 3.7. Cheltenham



Figure 13: Cheltenham air quality monitoring stations.

Table 10: Cheltenham PM<sub>10</sub> results.

Monitor Number	Monitoring Location	Max Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Median Daily PM <sub>10</sub> Concentration (µg/m <sup>3</sup> )	Days TARP Implemented in the Month
-	Representative Background - Dandenong	21.4	12.2	-
1	CTM Compound	59.2	7.7	0

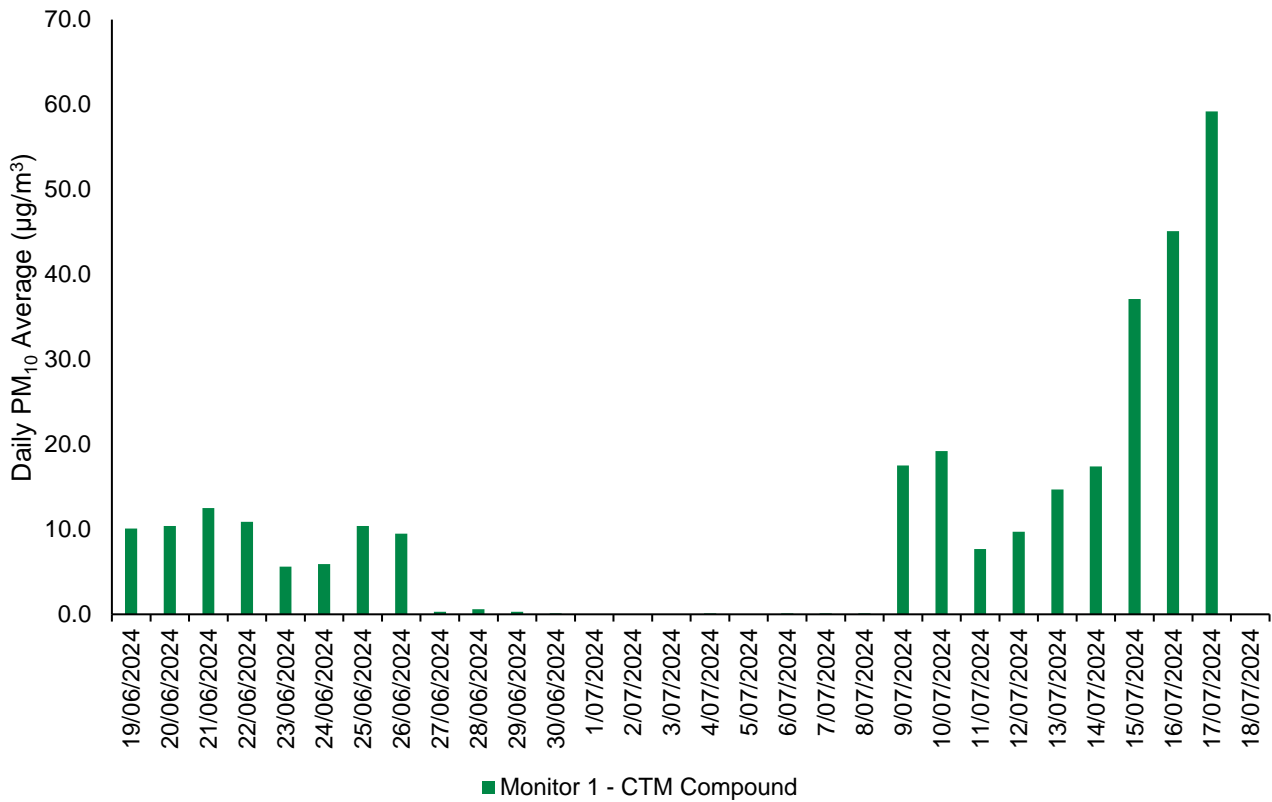


Figure 14: Cheltenham PM<sub>10</sub> daily averages

### 3.7.1. Analysis

The maximum daily average PM<sub>10</sub> concentrations were 59.2 µg/m<sup>3</sup> (n = 28) at the monitoring at the CTM Compound (Monitor 1) monitoring location. No works took place at Cheltenham during the reporting period and any elevated dust levels were not associated with works on site.



### 3.8. Meteorological Conditions

Table 11: Daily weather observations for Melbourne (Olympic Park), Victoria 19 June 2024 –18 July 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	6.1	13.6	-	-	85.8
Lowest	1.0	10.5	ESE	13.0	51.0
Highest	12.0	16.9	N	52	100.0

Table 12: Daily rain data for Melbourne (Olympic Park), Victoria 19 May 2024 –18 June 2024. Data Source BOM.

Statistic	Rain (mm)
Daily Low	0.0
Daily High	19.6
Total	62.0

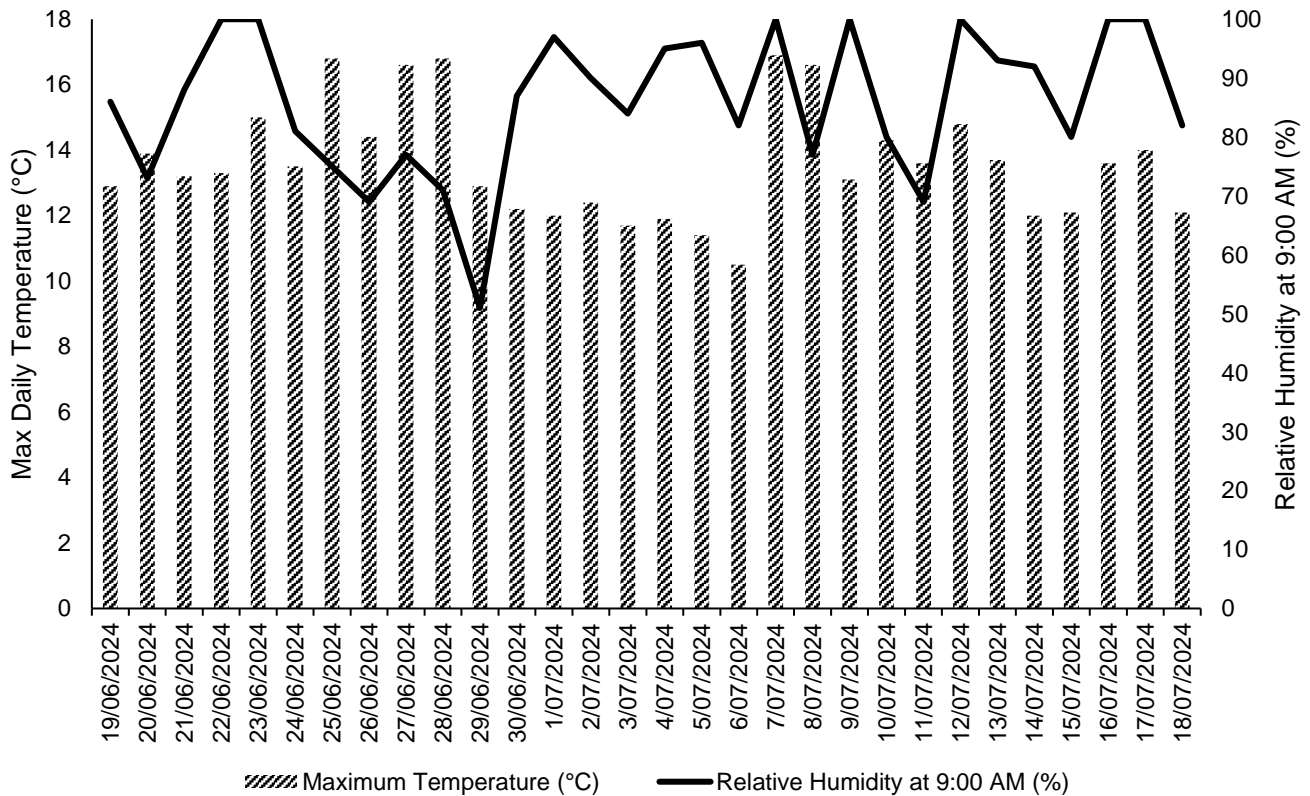


Figure 15: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19 June 2024 –18 July 2024. Data Source BOM.

## 4. Quality Assurance

### 4.1. 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 June 2024 to 18 July 2024 are shown in Table 13.

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 monitoring systems batteries which meant the device did not charge correctly. Monitor 1 was offline from 8 July 2024 to 14 July 2024, and on 16 July 2024. Monitor 2 was offline from 12 July 2024 to 18 July 2024.
- At Burwood, the gaps in reporting data were caused by issues with device charging. Site 4 – East, Site 4 – West, and Site 1 – South 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. The Bennettswood Reserve monitor has been decommissioned since last month's air quality report, as works are no longer occurring in the area.
- At Glen Waverley, the gaps within the reporting period were caused by issues with the SiteHive devices not charging. Coleman Parade, Site 1 - South and Site 1 - North monitoring points have experienced issues with charging of the lithium battery with the equipment provided by SiteHive resulting in data gaps for the respective monitoring points during the reporting period.
- At Clayton, the gaps within the reporting period were due to technical difficulties with the SiteHive monitoring systems batteries that meant the devices did not charge and, in turn, Monitor 1 was offline from 19 June 2024 to 20 June 2024. Monitor 3 experienced the same technical difficulties and was offline from 19 June 2024 to 26 June 2024. Monitor 4 in the Cycon works location was commissioned on 12 July 2024.
- At Cheltenham, a gap in reporting was noted to have occurred between 27 June 2024 to 9 July 2024 due to a fault in the SiteHive monitoring unit. However, no works took place at Cheltenham during this period while a replacement to the unit was arranged and provided to the site.
- At Heatherton, the Henry St monitor has been decommissioned since last month's air quality report as works are no longer occurring in the area.
- The construction program has been reviewed to ensure monitoring devices are installed prior to works. The MC will continue to closely monitor the operation of the SiteHive units.

Table 13: Air quality monitoring, data capture summary

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Box Hill – Site Office	PM <sub>10</sub>	24-hours	22	30	73%
Box Hill – East of Market Street	PM <sub>10</sub>	24-hours	23	30	77%
Burwood – Corner of McComas Grove and Sinnott Street	PM <sub>10</sub>	24-hours	30	30	100%
Burwood – 16 McComas Grove	PM <sub>10</sub>	24-hours	30	30	100%
Burwood – Site 4 - West	PM <sub>10</sub>	24-hours	18	30	60%
Burwood – Site 4 - East	PM <sub>10</sub>	24-hours	8	30	27%
Burwood – Site 1 - South	PM <sub>10</sub>	24-hours	23	30	77%
Glen Waverley – Coleman Parade	PM <sub>10</sub>	24-hours	29	30	97%
Glen Waverley – Site 1 North	PM <sub>10</sub>	24-hours	17	30	57%
Glen Waverley – Site 1 South	PM <sub>10</sub>	24-hours	24	30	80%
Monash – Site Office	PM <sub>10</sub>	24-hours	24	24	100%
Clayton – C&S Delta Location	PM <sub>10</sub>	24-hours	28	30	93%
Clayton – VicTrack Location	PM <sub>10</sub>	24-hours	27	30	90%



Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Clayton - Utilities Remembrance Gardens	PM <sub>10</sub>	24-hours	22	30	73%
Clayton – Cycon	PM <sub>10</sub>	24-hours	7	30	73%
Heatherton – SSY – South	PM <sub>10</sub>	24-hours	28	30	93%
Heatherton – SSY – Site Office	PM <sub>10</sub>	24-hours	30	30	100%
Cheltenham – CTM Compound	PM <sub>10</sub>	24-hours	24	30	78%

## 4.2. Data Validation

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

Table 14: 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
Burwood – 16 McComas Grove	HEX-000385	29 Aug 2023	29 Aug 2025
Burwood – Corner of McComas Grove and Sinnott Street	HEX-000308	03 Apr 2023	03 Apr 2025
Burwood – Site 4 - West	HEX-000489	06 Dec 2023	06 Dec 2025
Burwood – Site 4 – East	HEX-000541	24 April 2024	24 April 2026
Burwood – Site 1 South	HEX-000532	13 May 2024	24 May 2026
Glen Waverley – Coleman Parade	HEX-000477	12 Dec 2023	12 Dec 2025
Glen Waverley – Site 1 North	HEX-000319	04 Mar 2024	04 Mar 2026
Glen Waverley – Site 1 South	HEX-000490	12 Dec 2023	12 Dec 2025
Monash – Site Office	HEX-000418	29 Aug 2023	29 Aug 2025
Clayton – C&S Delta	HEX-000462	29 Nov 2023	29 Nov 2025
Clayton – VicTrack	HEX-000031	5 March 2024	5 March 2026
Clayton – Utils Remembrance Gardens	HEX-000542	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
Cheltenham – CTM Compound	HEX-000540	24 Apr 2024	24 Apr 2026