



**SUBURBAN
RAIL LOOP**

Air Quality Monthly Report

Early Works

Tunnels South

19 October – 18 November 2024

Introduction

This summary report presents the results of the monthly air quality monitoring data for the construction of SRL East. Laing O’Rourke (LOR) is delivering the Early Works (EW) as Managing Contractor (MC) and Suburban Connect is delivering the Tunnels South works as Principal Contractor (PC). The two delivery partners have individually prepared reports to comply with the Environmental Performance Requirement (EPR) for Air Quality.

SRL East Early Works include road modifications, moving underground services, ground improvement works, tram terminus works, and site preparations for tunnel boring machines.

SRL East Tunnels South is a fully tunnelled metro corridor between Cheltenham and Glen Waverley. The delivery scope encompasses station boxes and twin segmentally lined bored tunnels with cross passages.

Appendices

Appendix 1 – Suburban Rail Loop East Early Works Air Quality Monthly Report

Appendix 2 – Suburban Rail Loop East Tunnels South Air Quality Monthly Report



Suburban Rail Loop East Early Works Air Quality Monthly Report

19 October 2024 – 18 November 2024



Document Information

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Revision Control

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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.

PM₁₀ – Particulate matter with an aerodynamic diameter of 10 micrometres (μm) or less. PM₁₀ 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 six days during the reporting period. Dust was proactively controlled by application of a soil binder and use of mulch to minimise exposed soil. Water carts and hoses were used to suppress dust during concrete cutting, excavation and spoil transport. Impacts offsite were also reduced by street sweeping and trucks covering loads prior to leaving the site.
- In Burwood, the TARP was not implemented 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, the TARP was not implemented during the reporting period. Hoses were used proactively and reactively to suppress dust.
- In Clayton, the TARP was implemented on ten days during the reporting period. Water carts and hoses were used during excavation, and material and spoil haulage. Dust was reduced by street sweeping and requiring trucks to cover loads prior to leaving the site.
- In Heatherton, the TARP was implemented on one day during the reporting period. Water carts and hoses were used during excavation, and material and spoil haulage. Dust was reduced by street sweeping and requiring trucks to cover loads prior to leaving the site.

No works took place at Cheltenham during the reporting period, therefore no monitoring was required. Monitoring will resume before works recommence in early 2025.

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 October 2024 and 18 November 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 PM₁₀, have the potential to impact human health. PM₁₀ refers to particles with an aerodynamic diameter of 10 µm or less.

Measured PM₁₀ 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 PM₁₀ 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 ¹					
Alphington	PM ₁₀	24-hour	38.4	20.6	-
Dandenong	PM ₁₀	24-hour	33.7	21.2	-
Box Hill					
Site Office	PM ₁₀	24-hour	41.9	22.6	
East of Market Street	PM ₁₀	24-hour	53.9	20.6	6
Uniting AgeWell (UAW)	PM ₁₀	24-hour	28.9	13.5	
Irving Avenue	PM ₁₀	24-hour	59.3	0.7	
Burwood					
Corner of McComas Grove and Sinnott Street	PM ₁₀	24-hour	37.4	16.1	
16 McComas Grove	PM ₁₀	24-hour	33.2	14.3	
Site 4 – East	PM ₁₀	24-hour	20.3	10.3	0
Site 4 – West	PM ₁₀	24-hour	40.6	19.6	
Site 1 – South	PM ₁₀	24-hour	41.8	24.0	
Glen Waverley					
Coleman Parade	PM ₁₀	24-hour	36.5	19.8	1
Railway Parade	PM ₁₀	24-hour	20.7	12.6	
Monash					
Daycare	PM ₁₀	24-hour	42.0	20.1	0
Clayton					
Site Compound	PM ₁₀	24-hour	46.4	25.2	
C&S Delta Hospital	PM ₁₀	24-hour	45.6	28.1	
Remembrance Gardens	PM ₁₀	24-hour	57.7	31.4	10
Clayton Community Space – Site 1	PM ₁₀	24-hour	46	23.4	
Heatherton					
SSY - South	PM ₁₀	24-hour	62.9	28.3	
Site Office	PM ₁₀	24-hour	4.8	0.2	1
DD35 West	PM ₁₀	24-hour	36.2	16.4	

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.

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, and connect people travelling on the Gippsland corridor. Construction of SRL East is creating up to 8000 direct local jobs, with trains to be running in 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 PM₁₀ 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 PM₁₀ 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 PM₁₀ have the potential to impact human health. PM₁₀ 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 PM₁₀ which are measured over a 24-hour averaging period, as reproduced below in Table 2.

Table 2: Ambient air quality objectives for PM₁₀.

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.

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
Glen Waverley – Railway Parade	09 August 2024	Latitude: -37.878888° Longitude: 145.161078°	PM ₁₀	Alphington EPA monitoring station
Glen Waverley – Coleman Parade	19 August 2024	Latitude: -37.880739° Longitude: 145.160738°	PM ₁₀	Alphington EPA monitoring station
Monash – Site Office	16 October 2023	Latitude: -37.9024° Longitude: 145.13815°	PM ₁₀	Alphington EPA monitoring station
Monash – Daycare	17 October 2024	Latitude: -37.90497° Longitude: 145.139°	PM ₁₀	Alphington EPA monitoring station
Clayton – C&S Delta Hospital	26 August 2024	Latitude: -37.92124° Longitude: 145.1203°	PM ₁₀	Alphington EPA monitoring station
Clayton – Remembrance Gardens	03 May 2024	Latitude: -37.92301° Longitude: 145.12056°	PM ₁₀	Alphington EPA monitoring station
Clayton – Site Compound	11 November 2024	Latitude: -37.92137° Longitude: 145.12022°	PM ₁₀	Alphington EPA monitoring station
Clayton – Clayton Community Space Site 1	28 August 2024	Latitude: -37.92484° Longitude: 145.1207°	PM ₁₀	Alphington EPA monitoring station
Heatherston – SSY – South	29 May 2023	Latitude: -37.955917° Longitude: 145.10239°	PM ₁₀	Dandenong EPA monitoring station
Heatherston – SSY – Site Office	22 January 2024	Latitude: -37.95401° Longitude: 145.10062°	PM ₁₀	Dandenong EPA monitoring station
Heatherston – SSY – DD35 West	29 October 2024	Latitude: -37.95427° Longitude: 145.0883°	PM ₁₀	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 PM₁₀ over the monthly period. The data included in this report have been verified by the MC and relevant subject matter experts.

3. Results

Data is provided in graphical form below to visually present 24-hour averages of PM₁₀ 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 PM₁₀ 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	38.4	20.6	-
1	Site Office	41.9	22.6	6
2	East of Market Street	53.9	20.6	
3	Uniting AgeWell	28.9	13.5	
4	Irving Avenue	59.3	0.7	

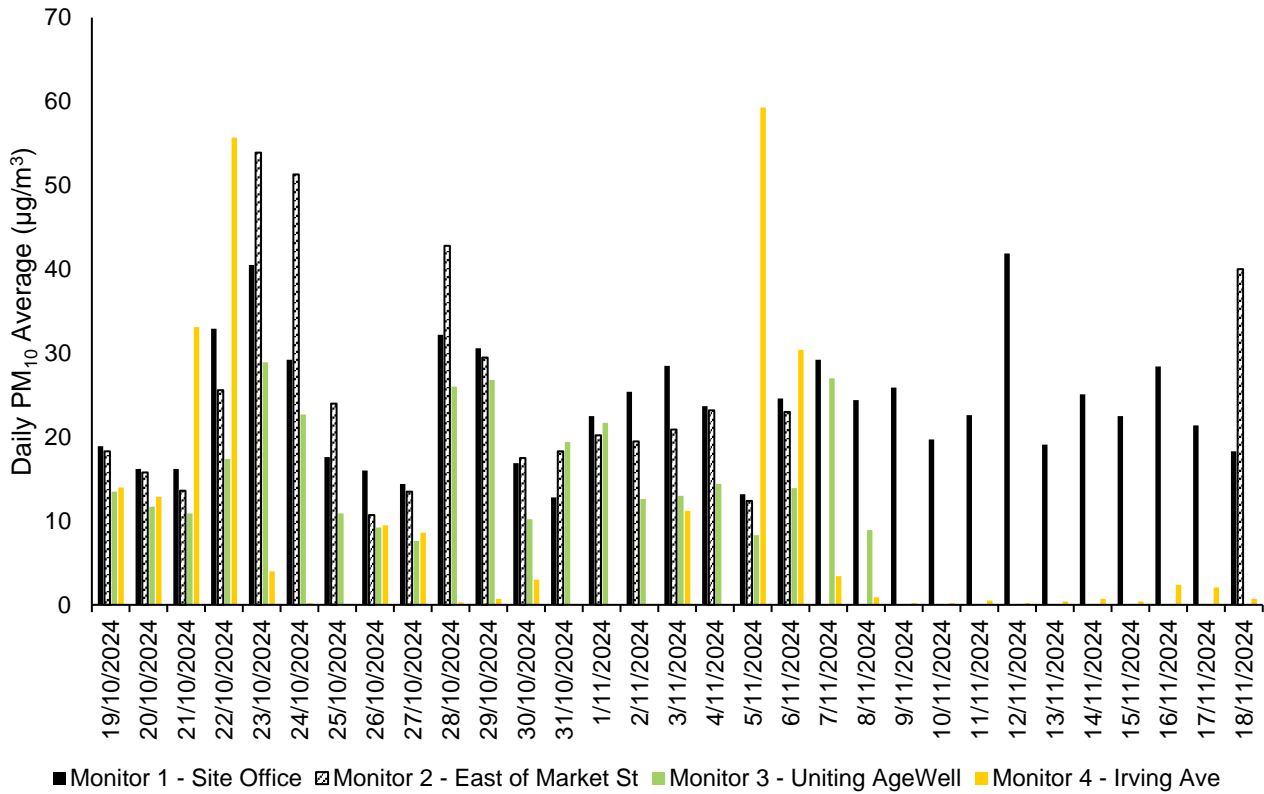


Figure 2: Box Hill PM₁₀ daily averages.

3.1.1. Analysis

The maximum daily average PM₁₀ concentrations were 41.9 µg/m³ (n = 31)², 53.9 µg/m³ (n = 20), 28.9 µg/m³ (n = 21), and 59.3 µg/m³ (n = 31) 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 TARP was implemented on six days during the reporting period. Dust generated from concrete cutting, excavation and spoil transport activities were actively suppressed using water carts and hoses throughout the reporting period. Additional control measures were also implemented to reduce impacts offsite including scheduling street sweepers to clean public roads and ensuring trucks cover their loads prior to leaving the site.

Prior to the long weekend, a dust suppression binder was applied to exposed surfaces to bind soil and minimise risk of dust while there were no works on site. Mulch was also used at the Box Hill site to reduce the amount of exposed soil and minimise potential for dust to blow offsite.

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

3.2. Burwood

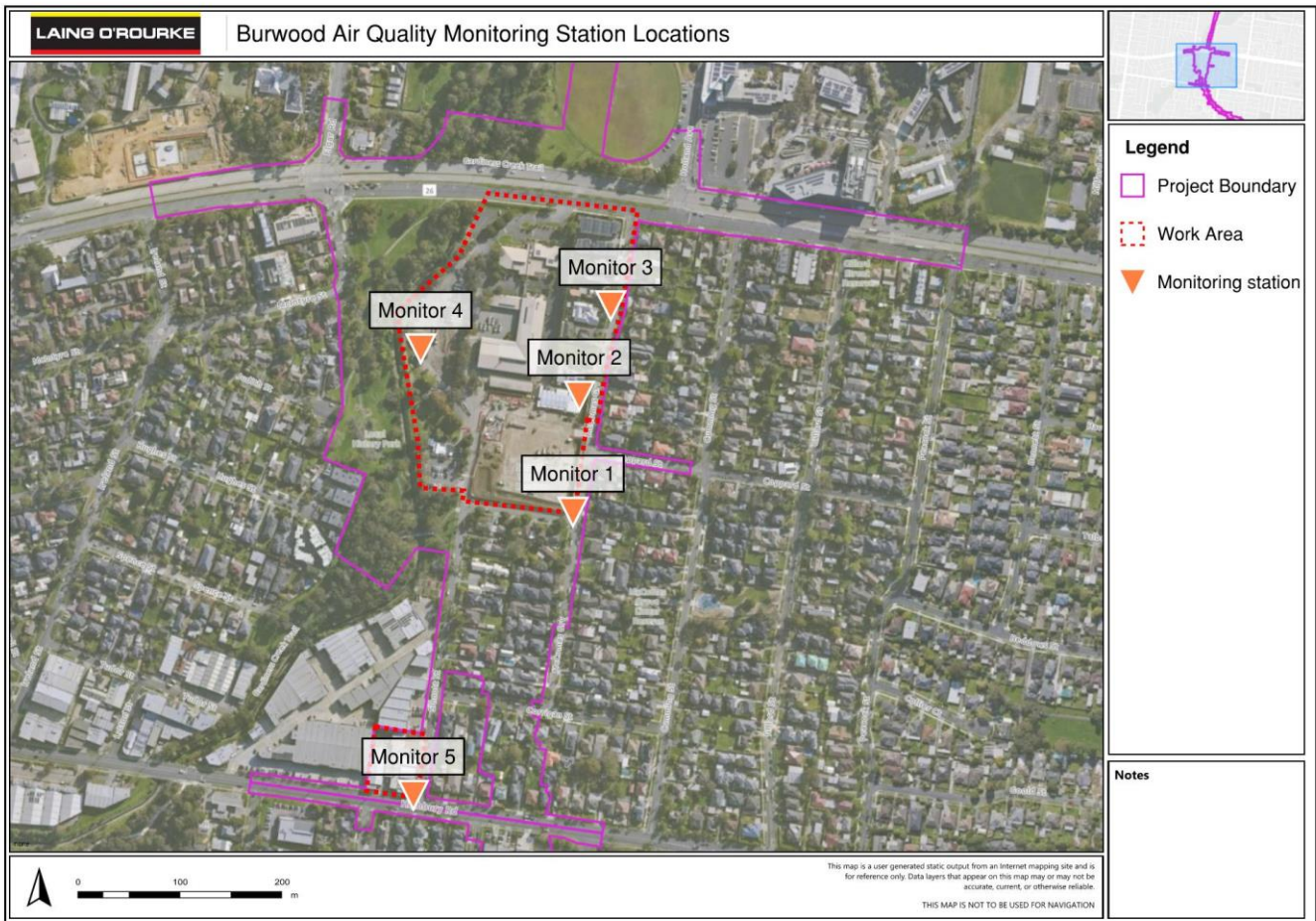


Figure 3: Burwood air quality monitoring stations.

Table 5: Burwood PM₁₀ 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	38.4	20.6	-
1	Corner of McComas Grove and Sinnott Street	37.4	16.1	
2	16 McComas Grove	33.2	14.3	
3	Site 4 - East	20.3	10.3	0
4	Site 4 – West	40.6	19.6	
5	Site 1 – South	41.8	24.0	

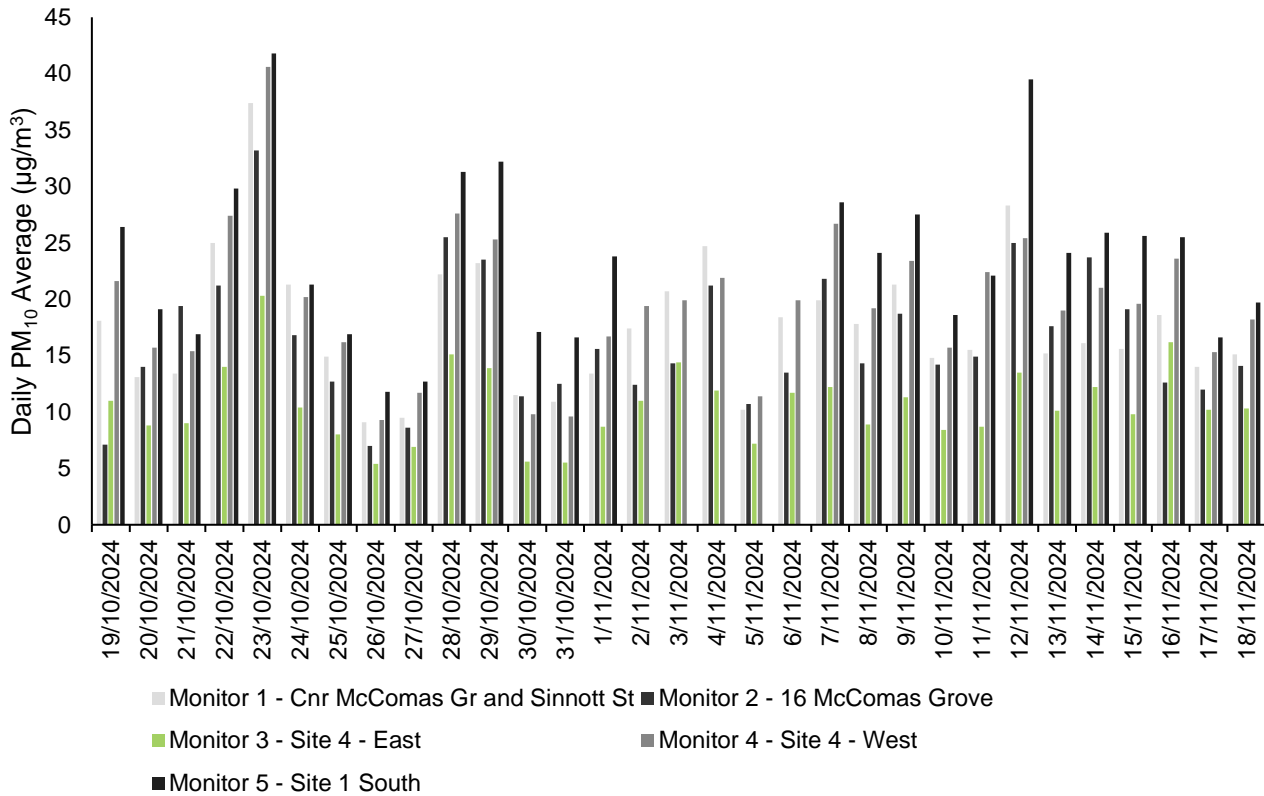


Figure 4: Burwood PM₁₀ daily averages

3.2.1. Analysis

The maximum daily average PM₁₀ concentrations reported at the Burwood monitoring stations were 37.4 µg/m³ (n = 31) at the corner of McComas Grove and Sinnott Street (Monitor 1), 33.2 µg/m³ (n = 31) at 16 McComas Grove (Monitor 2), 20.3 µg/m³ (n = 31) at Site 4 – East (Monitor 3), 40.6 µg/m³ (n = 31) at Site 4 – West (Monitor 4), and 41.8 µg/m³ (n = 26) at Site 1 South (Monitor 5).

The TARP was not implemented during this reporting period because regular dust suppression activities, including the use of water carts and hoses, were sufficient to maintain air quality levels. Dust generation from spoil haulage was reduced by requiring trucks to cover loads prior to leaving the site.

Stockpiles of soil and rock were maintained below the top of the hoarding to minimise the risk of dust leaving the site. Additionally, stockpiles were routinely dampened to prevent dust emissions. The monitor at the Bennettswood Reserve monitoring location was removed at the completion of works in the area prior to this reporting period.

3.3. Glen Waverley



Figure 5: Glen Waverley air quality monitoring stations.

Table 6: Glen Waverley PM₁₀ 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	38.4	20.6	-
1	Coleman Parade	36.5	19.8	1
2	Railway Parade	20.7	12.6	

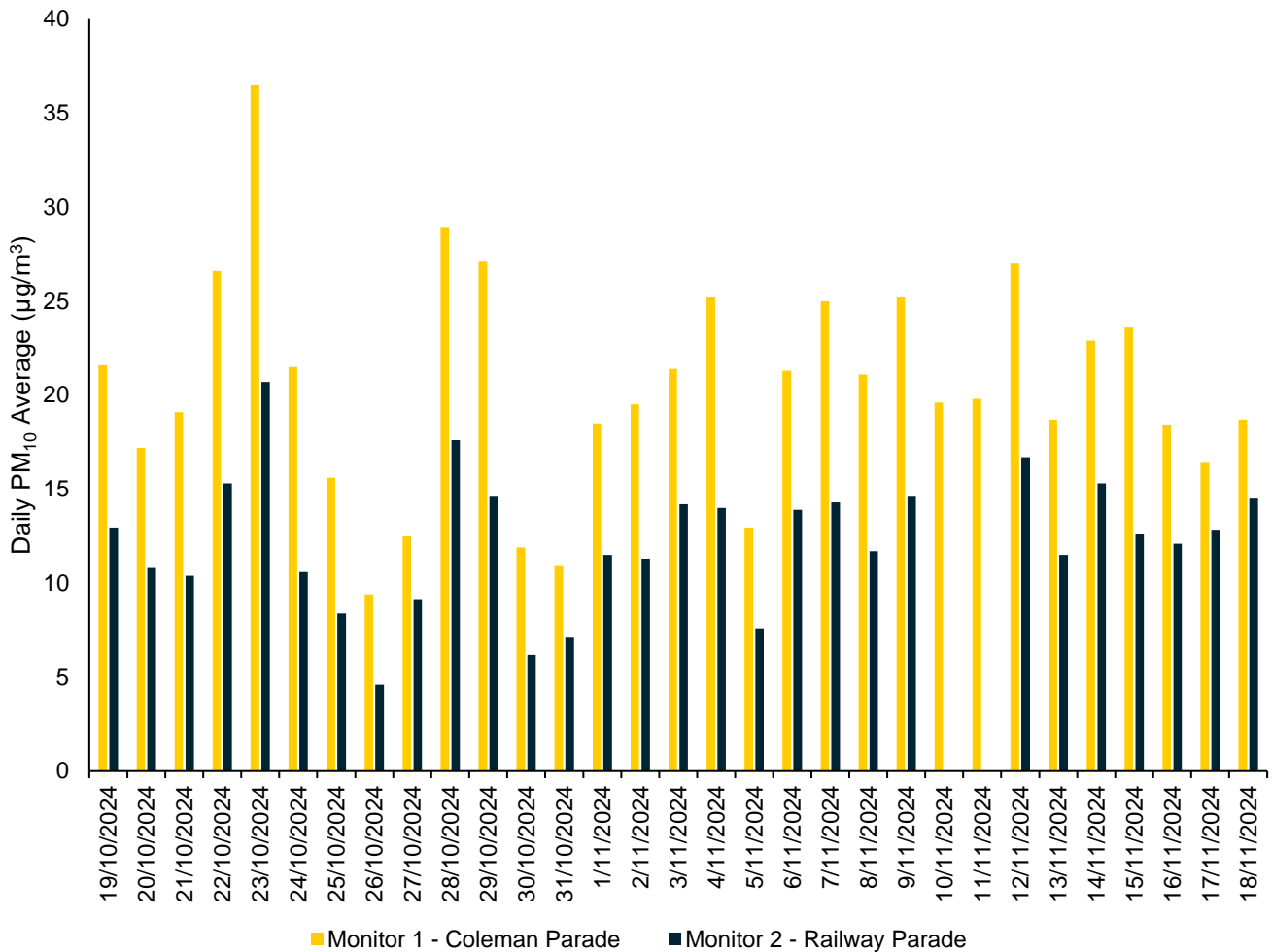


Figure 6: Glen Waverley PM₁₀ daily averages.

3.3.1. Analysis

The maximum daily average PM₁₀ concentrations were 36.5 µg/m³ (n = 31), and 20.7 µg/m³ (n = 29) at the monitoring locations at Coleman Parade (Monitor 1) and Railway Parade (Monitor 2), respectively.

The TARP was implemented on one day during the reporting period. 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 generated from earthworks was suppressed by using hoses. Exposed materials such as crushed rock and soil stockpiles were covered on windy days. During the reporting period, the water cart was used both proactively and reactively to reduce dust.

Regular site inspections support this data as no dust was observed to be leaving the site boundaries. The monitor at the Myrtle/Montclair monitoring location was removed at the completion of works in the area in the previous reporting period.

3.4. Monash

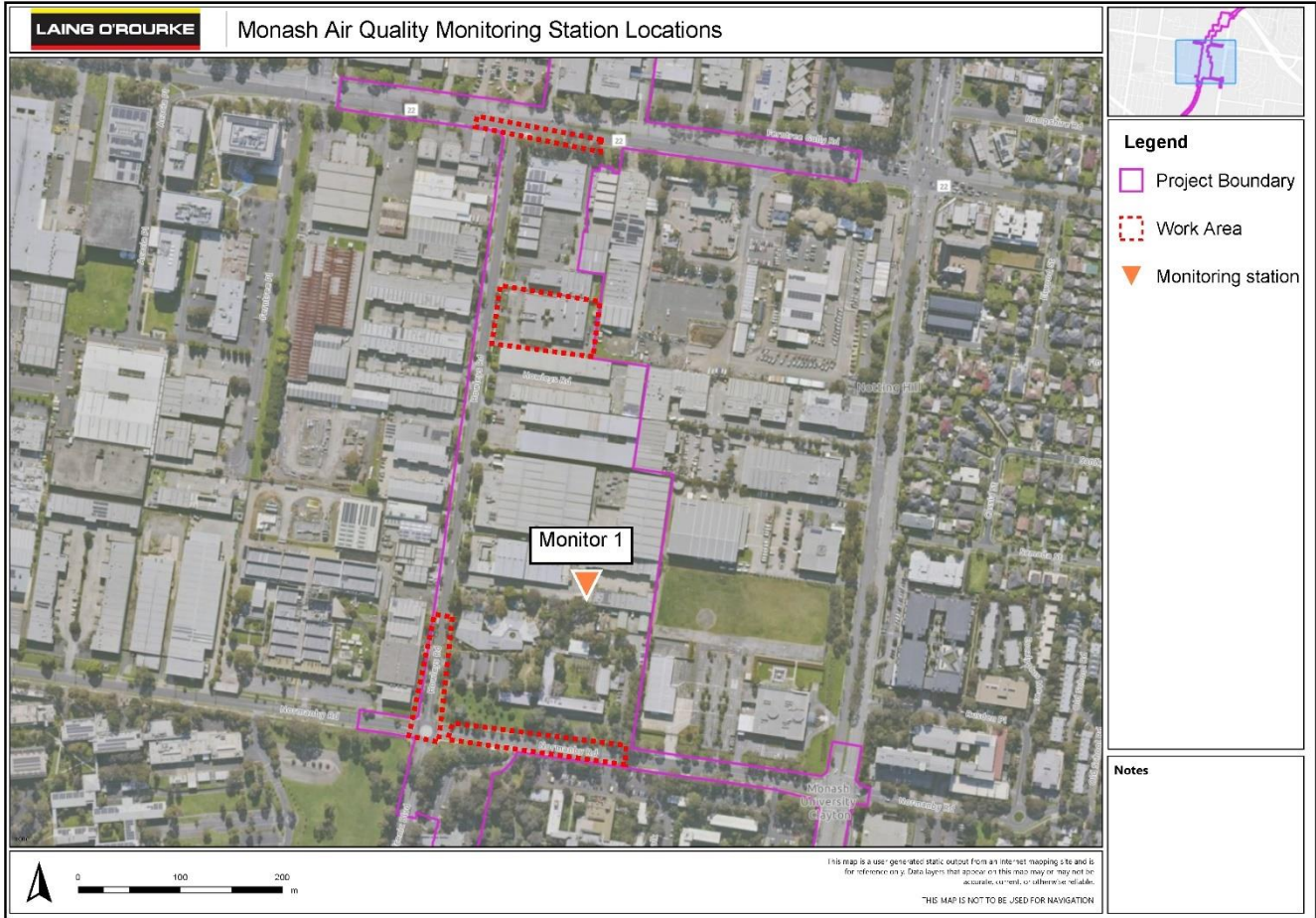


Figure 7: Monash air quality monitoring stations.

Table 7: Monash PM₁₀ 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	38.4	20.6	-
1	Daycare	42.0	20.1	0

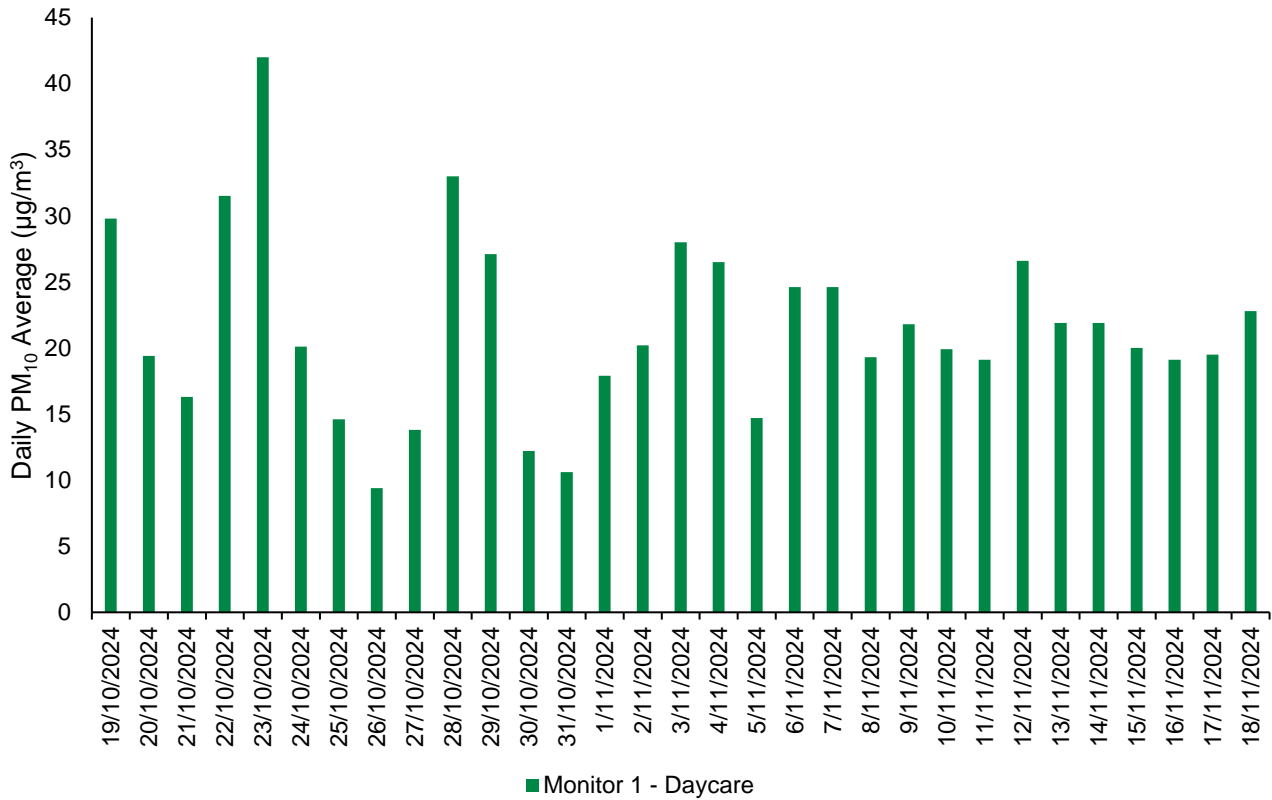


Figure 8: Monash PM₁₀ daily averages.

3.4.1. Analysis

The maximum daily average PM₁₀ concentrations was 42.0 µg/m³ (n = 31) at the Daycare (Monitor 1) monitoring location. The TARP was not implemented during the reporting period as regular dust suppression activities were adequate. A hose was used proactively and reactively to suppress dust as required during spoil movement.

3.5. Clayton

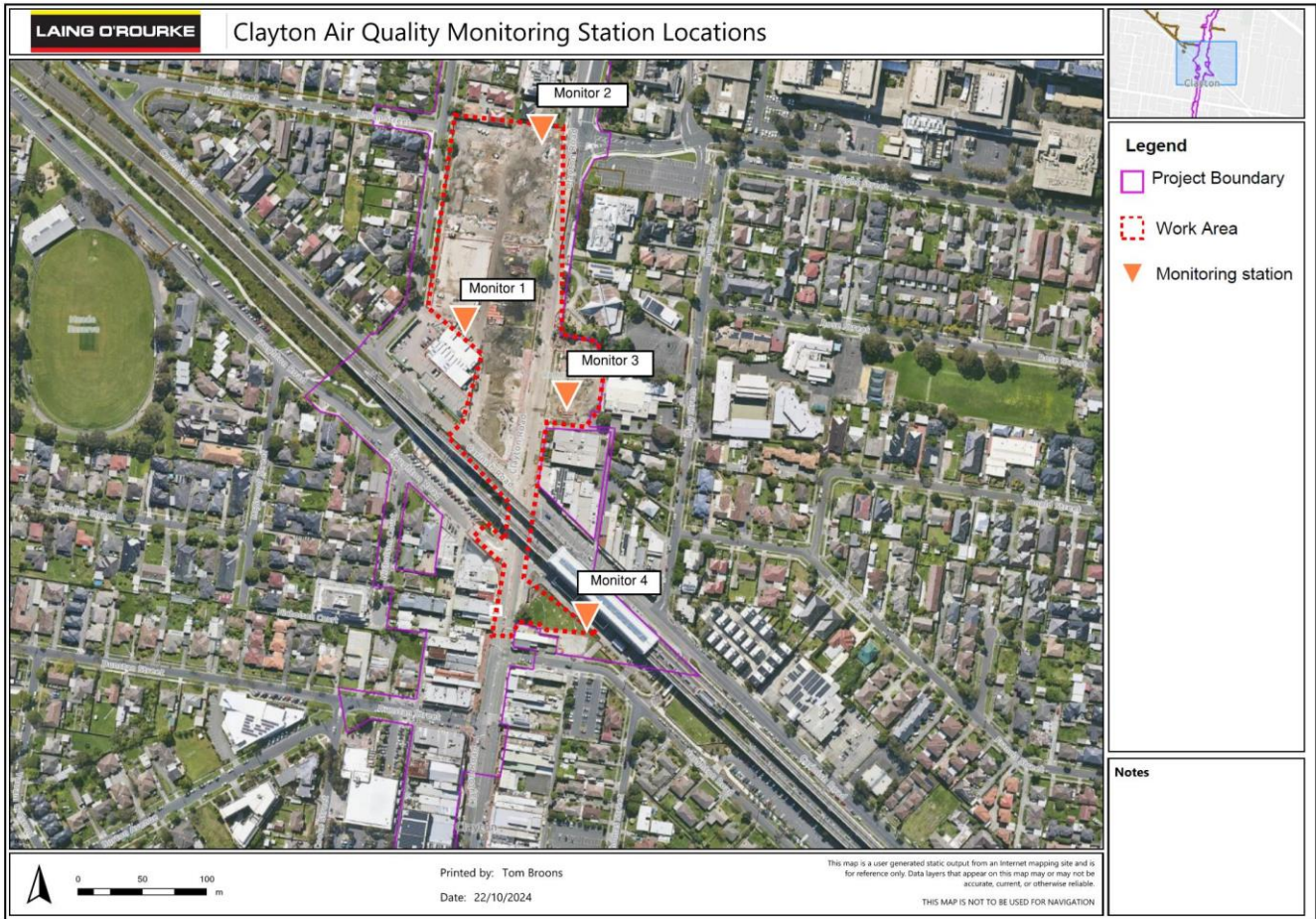


Figure 9: Clayton air quality monitoring stations.

Table 8: Clayton PM₁₀ 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	38.4	20.6	-
1	Site Compound	46.4	25.2	
2	C&S Delta Hospital	45.6	28.1	
3	Remembrance Gardens	57.7	31.4	10
4	Clayton Community Space - Site 1	46	23.4	

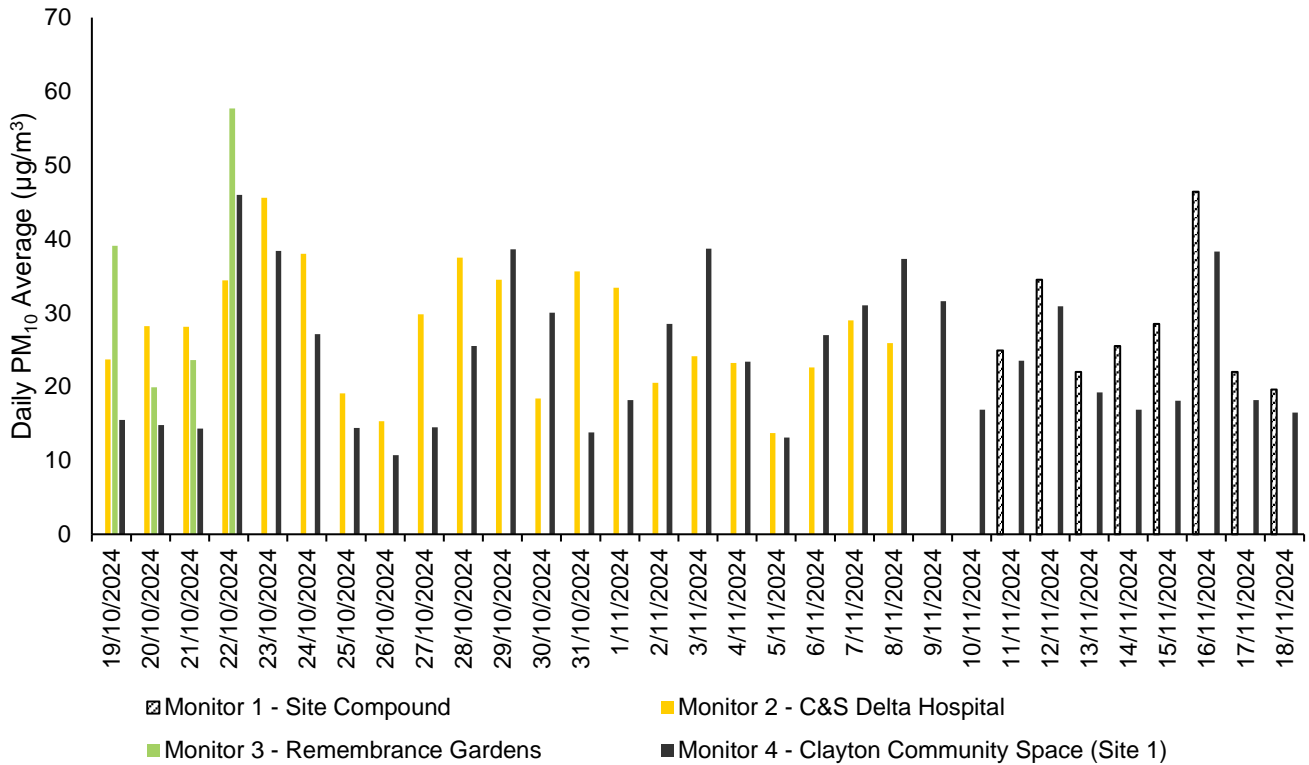


Figure 10: Clayton PM10 daily averages.

3.5.1. Analysis

The maximum daily average PM10 concentration were 46.4 µg/m³ (n = 8), 45.6 µg/m³ (n = 21), 57.7 µg/m³ (n = 4), and 46 µg/m³ (n = 31), at the Site Compound (Monitor 1), C&S Delta Hospital (Monitor 2), Remembrance Gardens (Monitor 3), and Clayton Community Space Site 1 (Monitor 4) monitoring locations respectively.

The TARP was implemented on ten days during the reporting period. Truck movements, excavation and spoil haulage activities contributed to dust on site. Monitor 3 reported the highest median concentrations due to strong winds. Proactive mitigation measures included using water carts and hoses, requiring trucks to cover loads prior to leaving the site, and street sweeping around the site. Across the C&S Delta Hospital Monitoring location, a soil binder was administered as a dust suppression method.

Monitor 1 was commissioned on the 11 November 2024 to cover this area after Monitor 2 was decommissioned on 8 November 2024. Monitor 3 was decommissioned on 22 October 2024 as works in the area were completed. Monitor 4 was moved further east as works progressed in this area.

3.6. Heatherton



Figure 11: Heatherton air quality monitoring stations.

Table 9: Heatherton PM₁₀ 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	33.7	21.2	-
1	SSY - South	62.9	28.3	
2	Site Office	4.8	0.2	1
3	DD35 West	36.2	16.4	

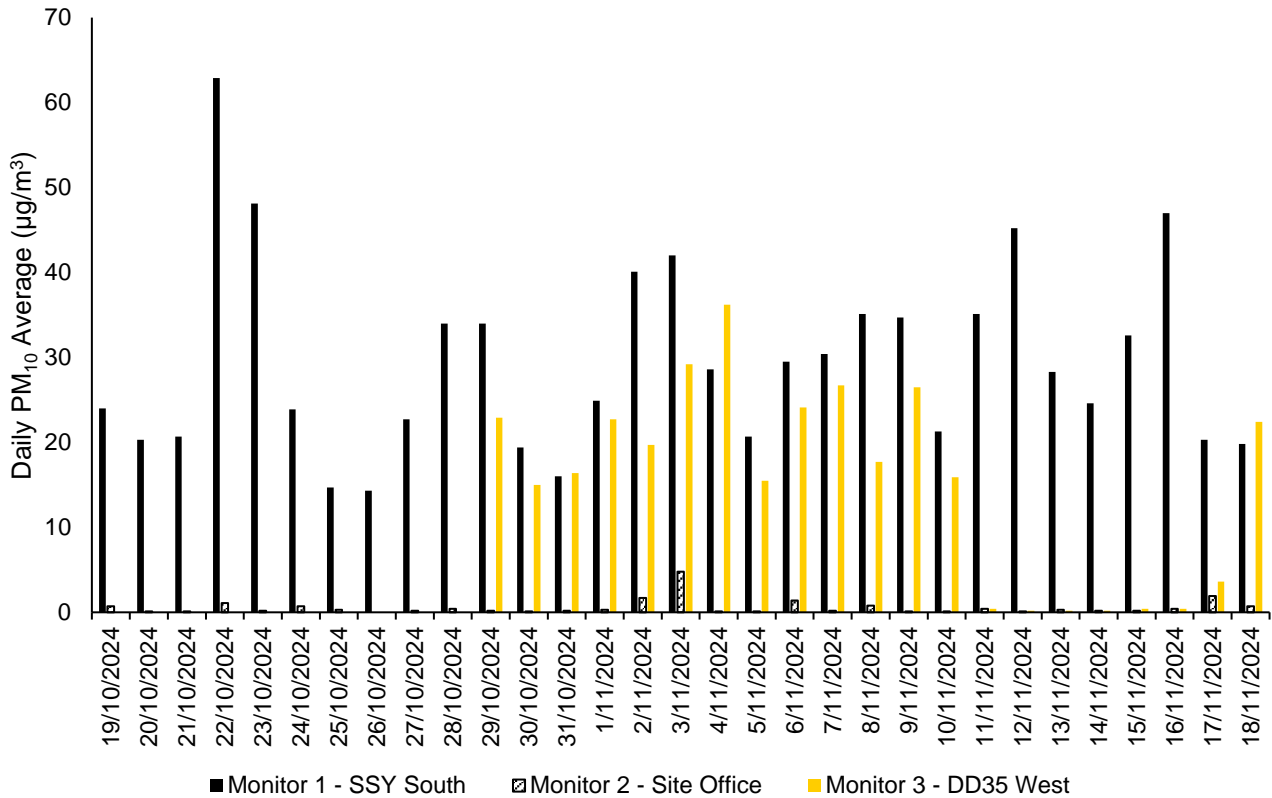


Figure 12: Heatherton PM₁₀ daily averages.

3.6.1. Analysis

Both Initial Works and Early Works are being undertaken at Heatherton. Given the proximity of each of these works to each other, 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 hazardous materials.

The maximum daily average PM₁₀ concentrations were 62.9 µg/m³ (n = 31), 4.8 µg/m³ (n = 31), and 36.2 µg/m³ (n = 21) at SSY South (Monitor 1), Site Office (Monitor 2), and DD35 West (Monitor 3) respectively. The TARP was implemented on one day during the reporting period.

The Heatherton site is in an industrial area with several neighbouring properties undertaking earthworks with large areas of exposed soil. On days where there are strong winds, airborne dust generated off-site has been observed to be blown onto the Heatherton site, contributing to elevated onsite monitoring results.

As part of regular site inspections, high winds were reported by workers on the day where the TARP was implemented on 22 October 2024.

Where dust was generated, appropriate dust suppression controls were employed, such as hoses and water carts.

3.7. Cheltenham

No works took place at Cheltenham during the reporting period, therefore no monitoring was required.

Air quality monitoring will recommence prior to works beginning in early 2025.

4. Meteorological Conditions

Table 10: Daily weather observations for Melbourne (Olympic Park), Victoria 19 October 2024 –18 November 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	11.8	21.8	-	36.8	62.3
Lowest	5.9	15.4	S	20.0	29.0
Highest	19.9	33.6	N	57.0	90.0

Table 11: Daily weather observations for Melbourne (Moorabbin), Victoria 19 October 2024 –18 November 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	10.8	21.7	-	43.3	62.9
Lowest	3.9	15.3	E	26.0	29.0
Highest	18.4	34.3	NNW	74.0	91.0

Table 12: Daily rain data for Melbourne (Olympic Park and Moorabbin), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

Statistic	Rain data Olympic Park (mm)	Rain data Moorabbin (mm)
Daily Low	0.0	0.0
Daily High	32.4	35.8
Total	45.6	49.8

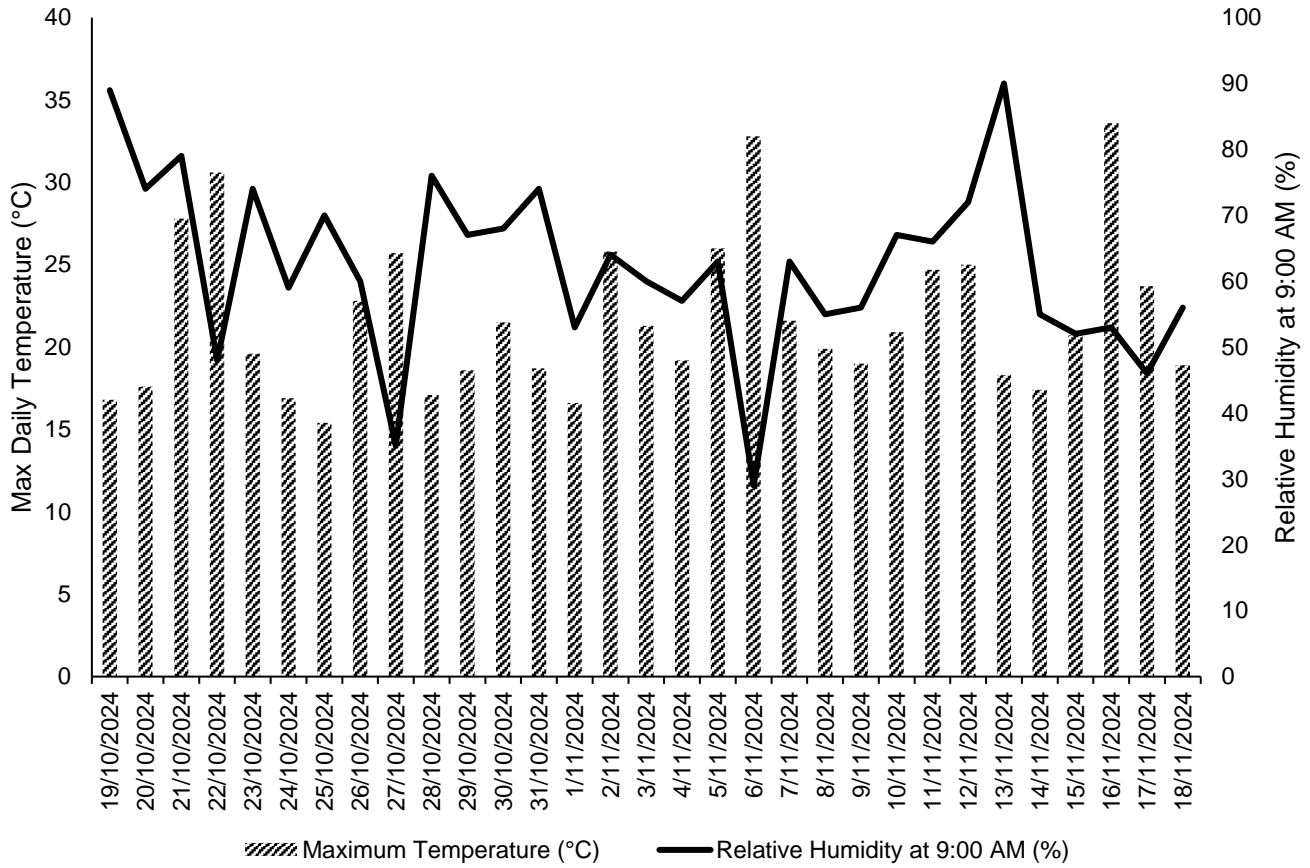


Figure 13: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

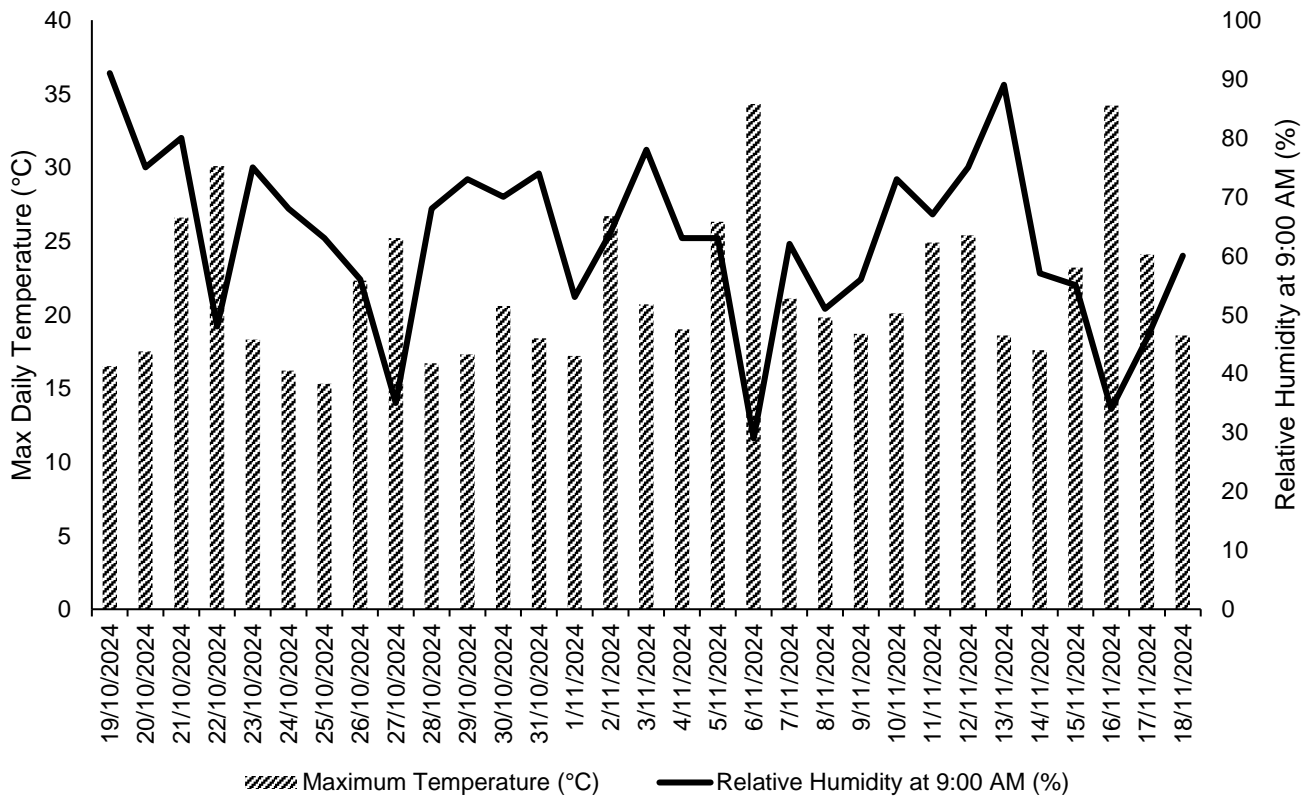


Figure 14: Daily relative humidity and temperature observations for Melbourne (Moorabbin), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

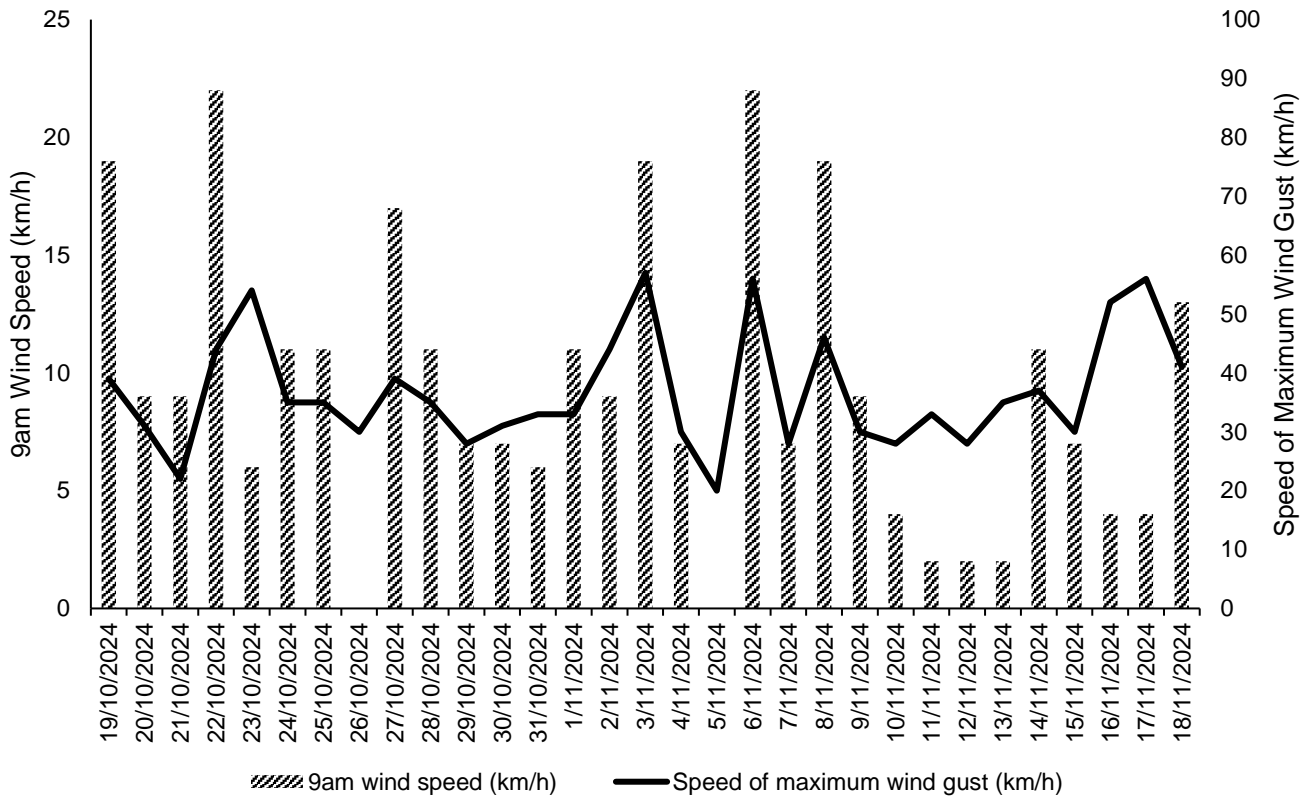


Figure 15: Daily wind speed observations for Melbourne (Olympic Park), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

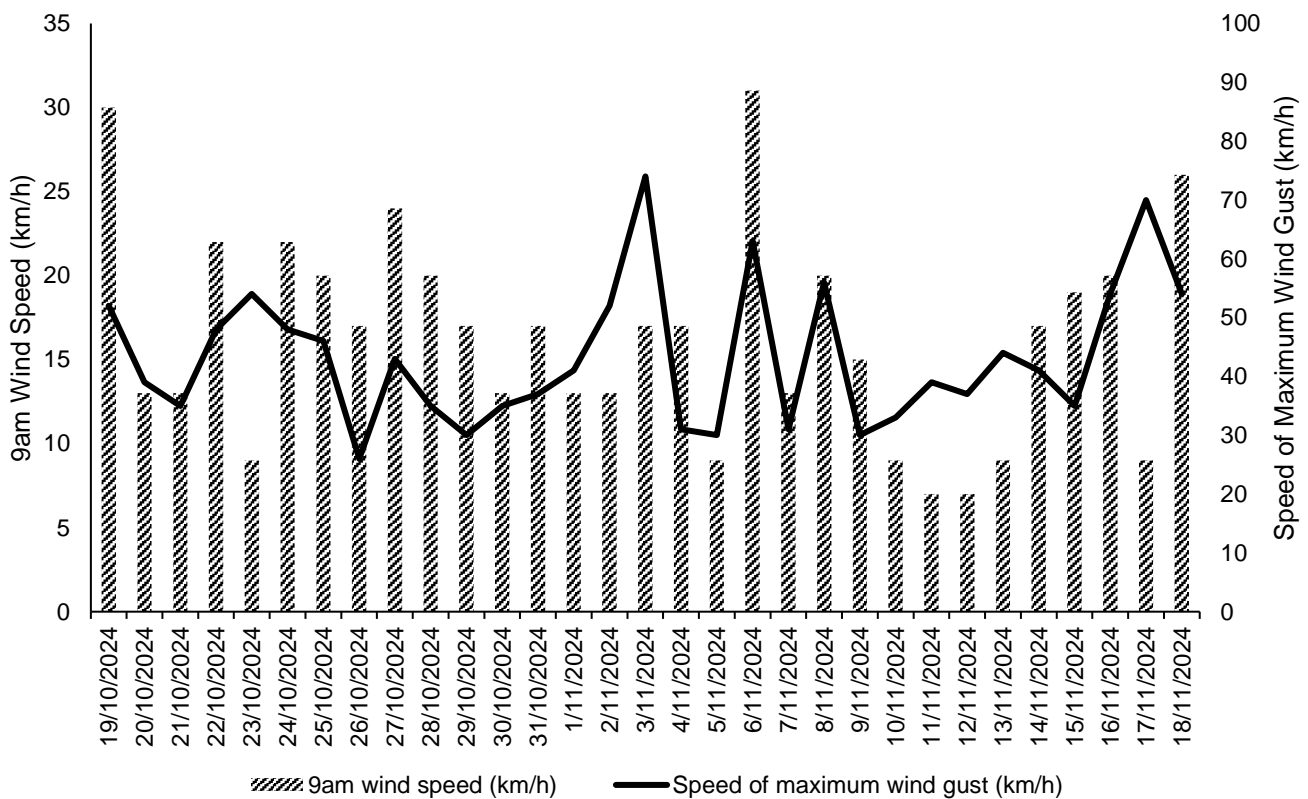


Figure 16: Daily wind speed observations for Melbourne (Moorabbin), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

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 October 2024 to 18 November 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 in reporting data for Monitors 2 and 3 were caused by hardware issues where devices were not correctly recording data. At all times, there was at least one device operating at the active construction locations in the Box Hill Gardens and Whitehorse Road. The issue was investigated, and monitoring devices are now working correctly.
- At Burwood, the gap in reporting data at Monitor 5 was due to the monitor being taken to a secure location over the long weekend. The monitor at the Bennettswood Reserve monitoring location was removed at the completion of works in the area prior to this reporting period.
- At Glen Waverley, the gaps in reporting data at Monitor 2 was due to battery charge being depleted during the reporting period. The battery was swapped out with a charged unit to resume monitoring. The monitor at the Myrtle/Montclair monitoring location was removed at the completion of works in the area prior to this reporting period.
- At Heatherton, the previous Monitor 3 (Henry St) has been offline since 4 October 2024. This monitor will not be replaced as it is not required per the verified WEMP. The current Monitor 3 (DD35 West) was only active for 21 days due to works in the area commencing on 29 October 2024. It is noted that reported PM₁₀ concentrations at Monitor 2 are lower than expected when compared to the data at the nearest EPA monitoring station (Dandenong). These results may represent monitor interference or technical issues with the monitoring device.
- At Cheltenham, no monitoring was completed during the reporting period. No works occurred at the site.
- 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 13: 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	20	31	65%
Box Hill – Uniting AgeWell	PM ₁₀	24-hours	21	31	68%
Box Hill – Irving Avenue	PM ₁₀	24-hours	31	31	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	31	31	100%
Burwood – Site 1 - South	PM ₁₀	24-hours	26	31	84%
Glen Waverley – Coleman Parade	PM ₁₀	24-hours	31	31	100%
Glen Waverley – Railway Parade	PM ₁₀	24-hours	29	31	94%
Monash – Daycare	PM ₁₀	24-hours	31	31	100%
Clayton – Site Compound	PM ₁₀	24-hours	8	8	100%
Clayton - C&S Delta Hospital	PM ₁₀	24-hours	21	21	100%
Clayton – Remembrance Gardens	PM ₁₀	24-hours	4	4	100%

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Clayton – Clayton Community Space Site 1	PM ₁₀	24-hours	31	31	100%
Heatherton – SSY – South	PM ₁₀	24-hours	31	31	100%
Heatherton – SSY – Site Office	PM ₁₀	24-hours	31	31	100%
Heatherton – SSY – DD35 West	PM ₁₀	24-hours	21	21	100%

5.2. 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
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-000162	22 July 2024	22 July 2026
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-000525	4 Mar 2024	4 Mar 2026
Glen Waverley – Coleman Parade	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
Monash – Daycare	HEX-000540	24 Apr 2024	24 Apr 2026
Clayton – C&S Delta Hospital	HEX-000462	29 Nov 2023	29 Nov 2025
Clayton – Remembrance Gardens	HEX-000632	14 Aug 2024	14 Aug 2026
Clayton – Site Compound	HEX-000329	11 June 2024	11 June 2026
Clayton – Clayton Community Space Site 1	HEX-000031	5 March 2024	5 March 2026
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 – DD35 West	HEX-000684	03 October 2024	03 October 2026

Suburban Rail Loop East Tunnels South Air Quality Monthly Report 19 October 2024 - 18 November 2024

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Acknowledgement of Country

Suburban Connect acknowledges the People of the Kulin Nation, the Traditional Owners of the land on which we live and work today. We recognise their continuing connections to the land, sea and waterways.

We also give thanks to the ancestors who walked here before us, and created the beautiful land in which we live and breathe today.



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 Suburban Connect to manage and monitor air quality impacts during construction of SRL East – Tunnels South. 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 – Tunnels South 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 – Tunnels South 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.

PM₁₀ – Particulate matter with an aerodynamic diameter of 10 micrometres (μm) or less. PM₁₀ 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:

- At the Clarinda CCO1 construction site there was no requirement to implement the TARP.
- Construction activities have not commenced at any of the other sites.

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 – Tunnel South construction site for the period between 19 October 2024 and 18 November 2024 in accordance with SRL East Environmental Management Framework (EMF) and Environmental Performance Requirement (EPRs) AQ1 and AQ2.

Suburban Connect is delivering the following scope of works as part of Suburban Rail Loop (SRL) East – Tunnels South:

- Initial launch of four Tunnel Boring Machines (TBM) from the Clarinda Tunnel Access Structure site
- Construction of approximately 16km of twin tube tunnels between Cheltenham and Glen Waverley
- Construction of 55 cross passages between the tunnels (surface-based ground improvement at eight locations with the remainder to be frozen from within the main tunnels)
- Construction of the western and eastern decline structures at the train stabling facility
- Protection of the South East Trunk Sewer (SETS)
- Box excavations at Clayton and Monash station locations
- Interface works with the Melbourne Metropolitan Rail Network (MMRN).

Suburban Connect implements an air quality monitoring program on each construction 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 PM₁₀, have the potential to impact human health. PM₁₀ refers to particles with an aerodynamic diameter of 10 µm or less.

Measured PM₁₀ 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 PM₁₀ 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 Suburban Connect with understanding the potential risk to human health. When the instrumental monitor and/or visual observations identify a change in site conditions this prompts Suburban Connect to implement mitigations on site to reduce dust impacts, and review measures applied.

Scope of the report

Construction works requiring air quality monitoring occurred at the following site/s during this reporting period:

- Clarinda - CCO1

There were no construction works requiring air quality monitoring at the following site/s during this reporting period:

- Cheltenham
- Train stabling facility West
- Clarinda Tunnel Access Structure site
- Clayton
- Monash
- Glen Waverly.

This report does not include works delivered as SRL Initial Works. The SRL Initial Works, which include investigative works are not subject to the EMF and EPRs.

This report does not include monitoring related to asbestos containing material removal works, 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 the 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					
Dandenong	PM ₁₀	24-hour	33.7	20.9	-
Clarinda CCO1					
Nearest residential property	PM ₁₀	24-hour	17.2	3.3	0

1. Introduction

1.1 Suburban Rail Loop East – Tunnels South

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 – Tunnels South from Cheltenham to Glen Waverly has commenced 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 and building it will create up to 8000 direct local jobs. Trains will be running by 2035.

Suburban Connect commenced SRL East – Tunnels South construction works at Clarinda CCO1 on 28th October 2024.

The SRL East – Tunnels South scope of works include:

- Initial launch of four Tunnel Boring Machines (TBM) from the Clarinda Tunnel Access Structure site
- Construction of approximately 16km of twin tube tunnels between Cheltenham and Glen Waverley
- Construction of 55 cross passages between the tunnels (surface-based ground improvement at eight locations with the remainder to be frozen from within the main tunnels)
- Construction of the western and eastern decline structures at the train stabling facility
- Protection of the South East Trunk Sewer (SETS)
- Box excavations at Clayton and Monash station locations

- Interface works with the Melbourne Metropolitan Rail Network (MMRN).

This report does not include works delivered as SRL Initial Works. The SRL Initial Works, which includes investigative works, 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 – Tunnels South (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 Suburban Connect to develop and implement an EAQDMP. As part of implementing this plan, Suburban Connect is required to conduct monitoring of PM₁₀ concentrations and measure wind speed and direction at each Suburban Connect 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.

Suburban Connect regularly reviews the monitoring data at each construction site, for the purpose of assessing the effectiveness of EAQDMP implementation. The verified results of the PM₁₀ 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 Suburban Connect 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 Suburban Connect 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, Suburban Connect 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 PM₁₀ have the potential to impact human health. PM₁₀ 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 Suburban Connect to understand the risk to human health. The ERS sets out the air quality objectives for PM₁₀ which are measured over a 24-hour averaging period, as reproduced below in Table 2.

Table 2 Air Quality Objectives for PM10

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.

2.3 Monitoring locations

Air quality monitors are located on or adjacent to Suburban Connect construction sites, to represent local air quality conditions, in positions that enable Suburban Connect to adequately measure potential impact of works on local sensitive receivers including residents.

The air quality monitors were installed on the following date at the location in Table 3. 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
Clarinda CCO1 – nearest residential property	03 October 2024	Latitude: -37.9558° Longitude: 145.1062°	PM ₁₀	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.

- 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 has been provided in tabular and graphical form in Section 3 to visually present 24-hour averages of PM₁₀ over the monthly period. The data included in this report has been verified by the Suburban Connect and relevant subject matter experts.

3. Results

Data has been presented in graphical form below to visually present 24-hour averages of PM₁₀ 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 Clarinda CCO1

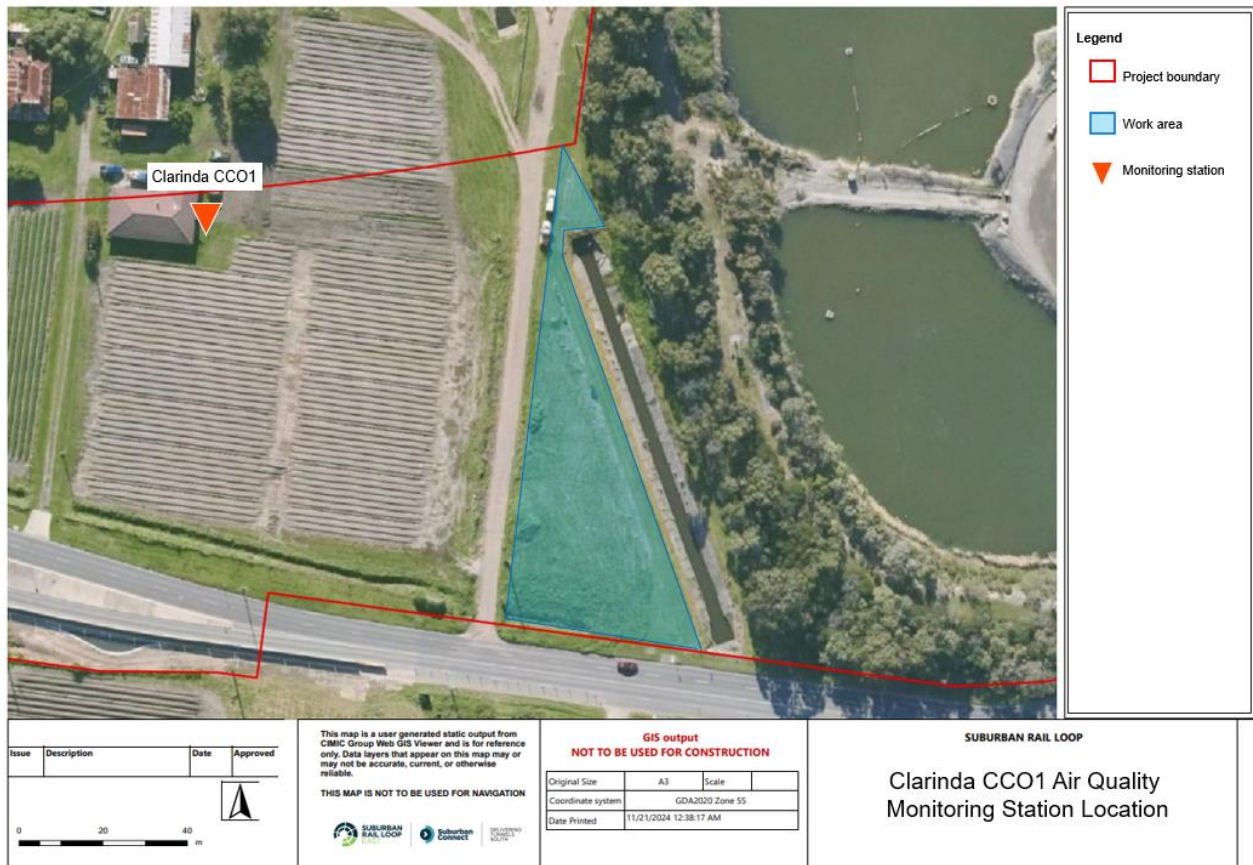
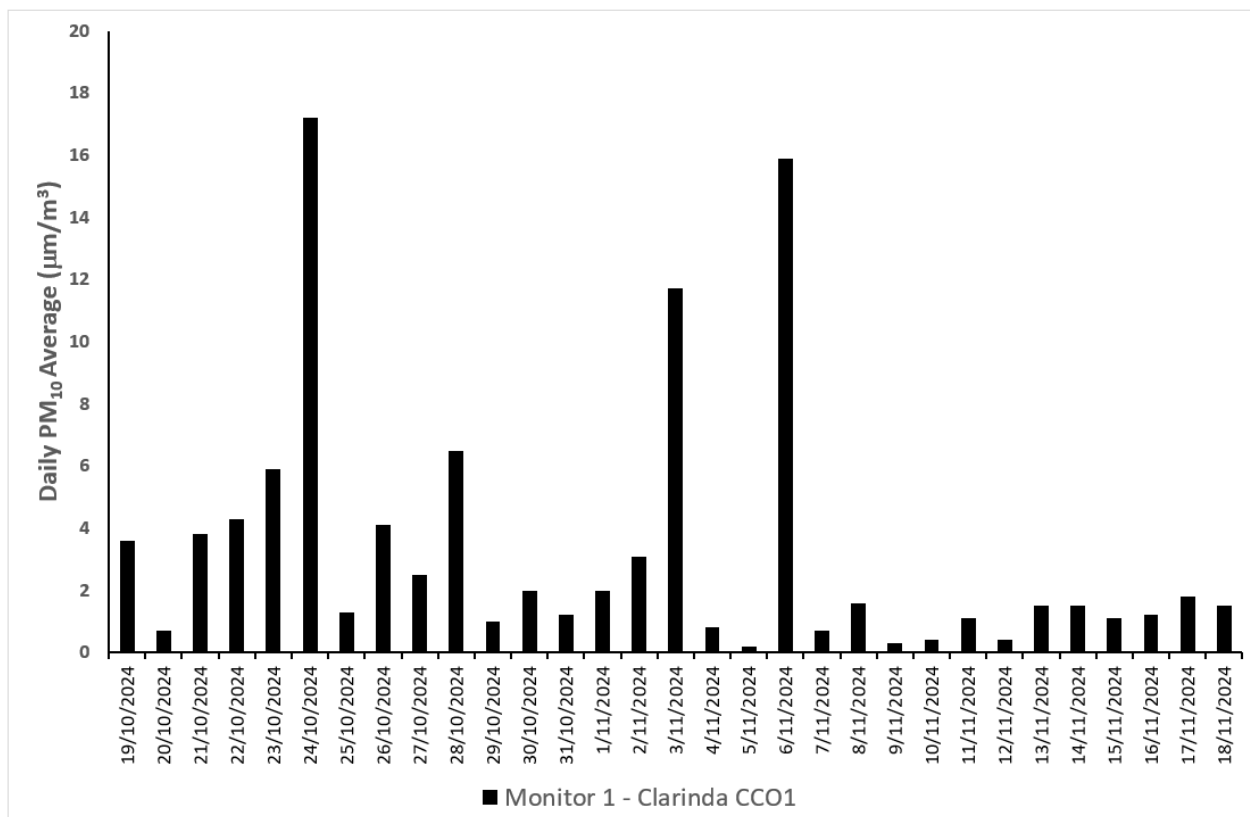


Figure 1: Clarinda CCO1 air quality monitoring station.

Table 4: Clarinda CCO1 PM10 results - 19 October 2024 to 18 November 2024

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	33.7	20.9	-
1	Clarinda CCO1 – nearest residential property	17.2	3.3	0


Figure 2: Daily Average PM10 Results at Clarinda – 19 October 2024 to 18 November 2024

3.1.1 Analysis

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

The maximum daily average PM₁₀ concentration for the Clarinda CCO1 monitoring station was 17.2 µg/m³ (n = 126). The average PM₁₀ concentration reading indicates air quality is consistently good as represented in Figure 2.

There was no requirement to implement the TARP during the reporting period. Dust at the site was suppressed using water carts. Dust generation during site leveling works was mitigated by a combination of water carts and street sweepers. Trucks removing spoil from site had loads covered prior to leaving the site.

Visual air inspections corroborate this data as no dust was observed to be leaving the site boundaries. This reporting period demonstrates Suburban Connect is proactive in responding to dust control and maintaining air quality in the Clarinda CCO1 area.

3.2 Meteorological conditions

Table 5: Daily weather observations for Melbourne (Olympic Park), Victoria 19 October 2024 – 18 November 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	11.8	21.8	N/A	36.8	62.3
Lowest	5.9	15.4	S	20.0	29.0
Highest	19.9	33.6	N	57.0	90.0

Table 6: Daily rain data for Melbourne (Olympic Park), Victoria 19 October 2024 – 18 November 2024, Data Source BOM.

Statistic	Rain (mm)
Daily Low	0.0
Daily High	32.4
Total	45.6

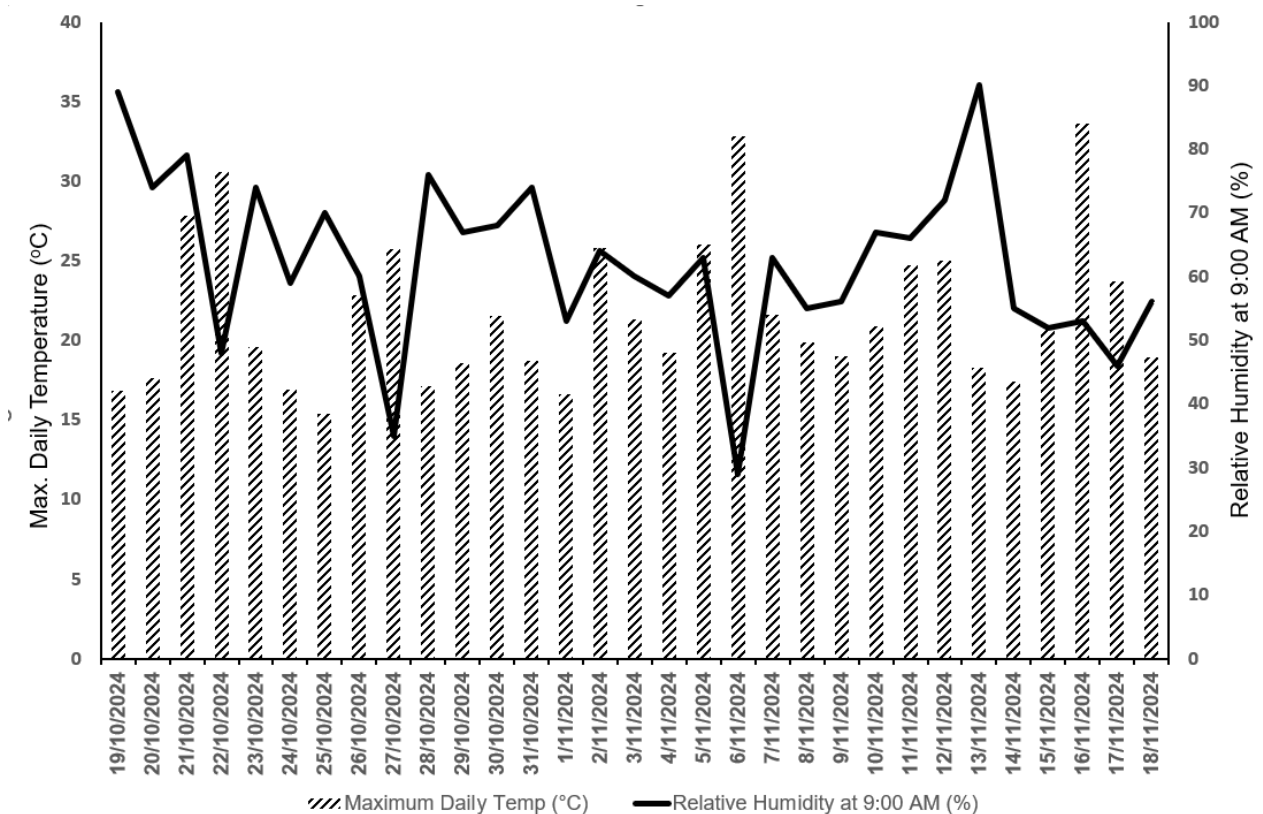


Figure 3: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

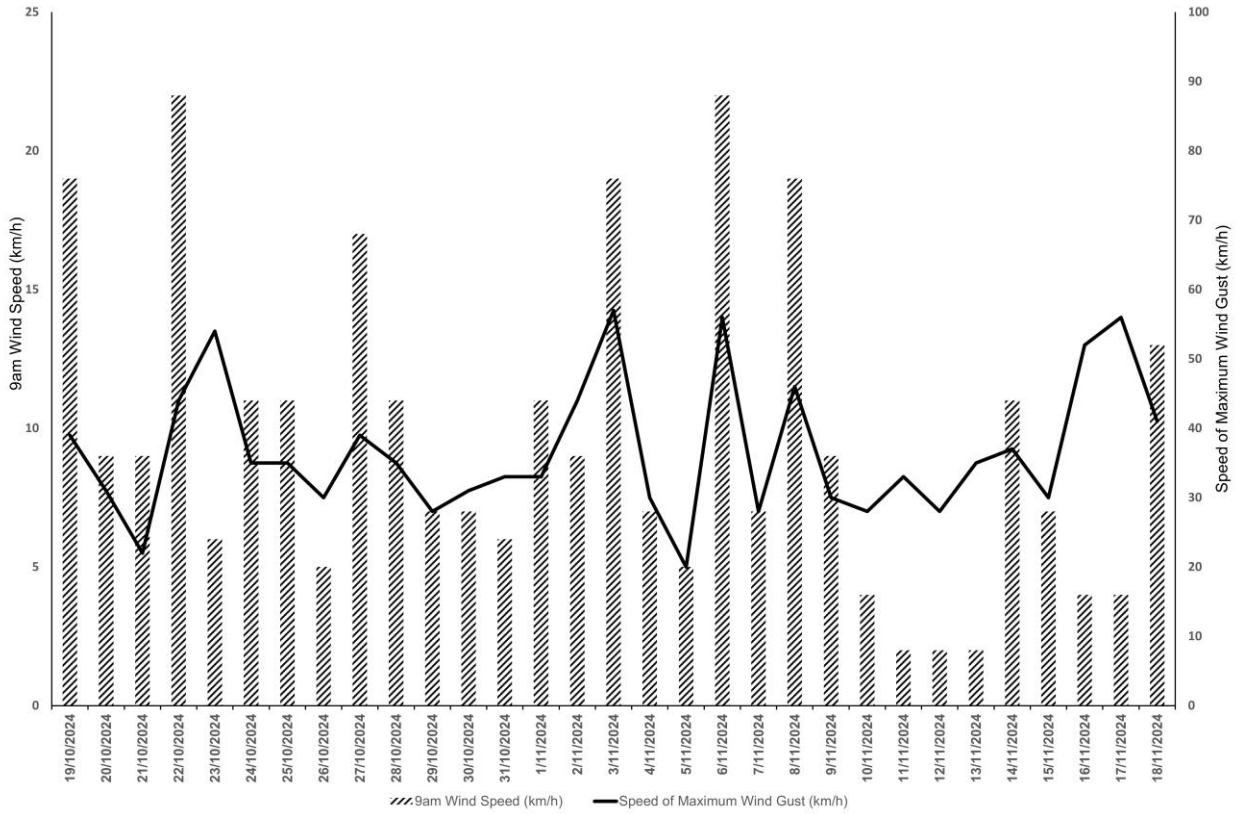


Figure 4: Daily wind speed observations for Melbourne (Olympic Park), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

Table 7: Daily weather observations for Moorabbin, Victoria 19 October 2024 – 18 November 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	10.8	21.7	N/A	43.3	62.9
Lowest	3.9	15.3	E	26.0	29.0
Highest	18.4	34.3	NNW	74.0	91.0

Table 8: Daily rain data for Moorabbin, Victoria 19 October 2024 – 18 November 2024, Data Source BOM.

Statistic	Rain (mm)
Daily Low	0.0
Daily High	35.8
Total	49.8

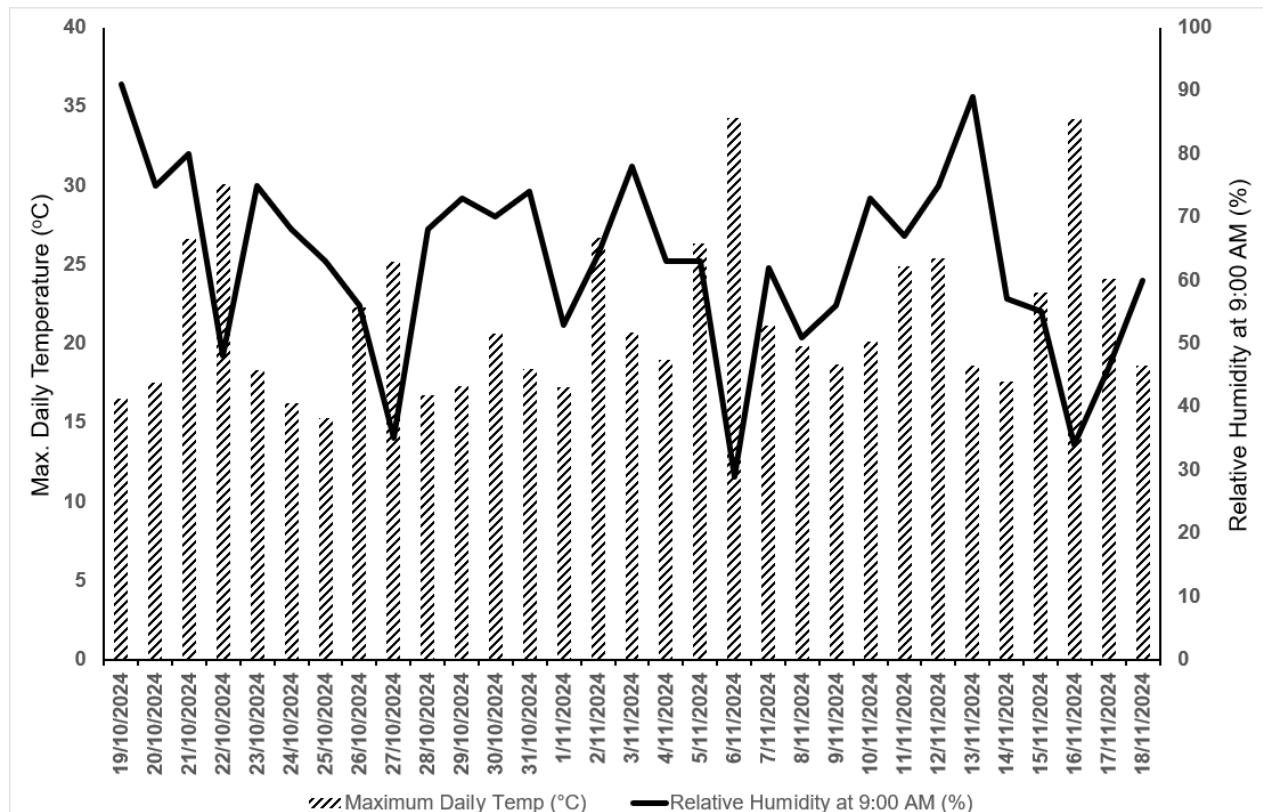


Figure 5: Daily relative humidity and temperature observations for Moorabbin, Victoria 19 October 2024 – 18 November 2024. Data Source BOM.

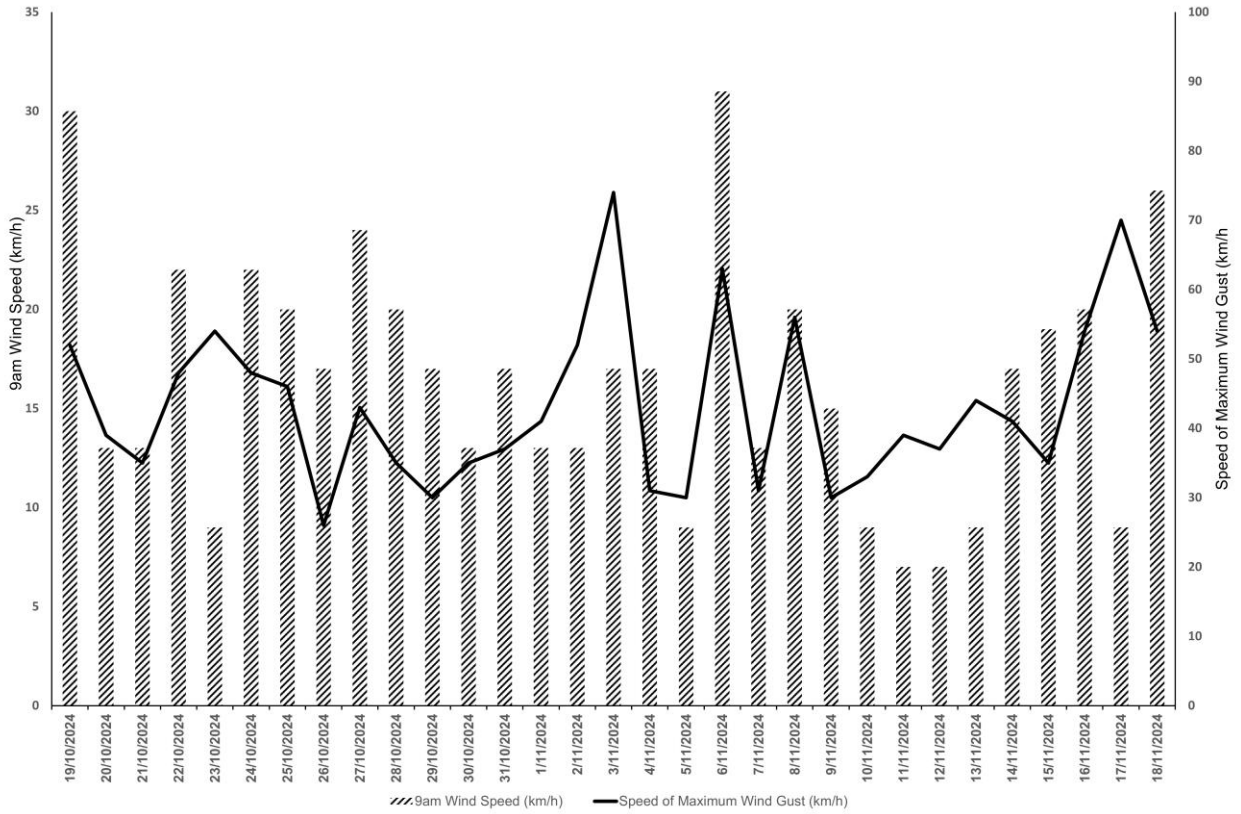


Figure 6: Daily wind speed observations for Melbourne (Moorabbin), Victoria 19 October 2024 –18 November 2024. Data Source BOM.

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 were 100% for all parameters at Clarinda CCO1 for the reporting period.

Data capture statistics for the reporting period 19 October 2024 to 18 November 2024 are shown in Table 9

Table 9: Air quality monitoring, data capture summary – 19 October 2024 to 18 November 2024

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Clarinda – CCO1	PM ₁₀	24-hours	31	31	100%

4.2 Data validation

Data contained in this report has been validated against performance and calibration requirements for each instrument. Data during commissioning, maintenance and calibration periods has been removed from the validated data sets.

Table 10: Monitoring device calibration information

Location	Device Serial Number	Calibration Date	Calibration Due
Clarinda – CCO1	HEX-000403	20 Sep 2024	20 Sep 2026

