SUBURBAN RAIL LOOP

Air Quality Monthly Report

Early Works

Tunnels South

Tunnels North

19 October – 15 November 2025

SUBURBAN RAIL LOOP AUTHORITY

VICTORIA'S BIG BUILD

VICTORIA State Government

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), Suburban Connect is delivering the Tunnels South works as Principal Contractor (PC) and Terra Verde is delivering the Tunnels North works as PC. The three delivery partners have individually prepared reports to comply with the Environmental Performance Requirement (EPR) for Air Quality.

SRL East Early Works include road modifications, relocation of 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.

SRL East Tunnels North is a fully tunnelled metro corridor between Glen Waverley and Box Hill. The delivery scope encompasses an Emergency Support Facility Structure, station boxes, and twin segmentally lined bored tunnels with cross passages.

Appendices

Appendix 1 – Early Works

Appendix 2 – Tunnels South

Appendix 3 – Tunnels North



Suburban Rail Loop East
Early Works
Air Quality Monthly Report

19 October 2025 – 15 November 2025

Document Information

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Glossary

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

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

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

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

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

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

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

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

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

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

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

TARP Triggered During the Reporting Month – This refers to the number of days TARP trigger criteria or the Air Quality Objective was exceeded during the reporting month.

TARP Actions Implemented During the Reporting Month – This refers to the number of additional TARP mitigation measures or actions required to be implemented as a response to project related exceedances. These actions are in addition to existing controls implemented on site.

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Executive Summary

Key Outcomes

Key outcomes arising from the monthly air quality monitoring program:

- In Box Hill all Early Works are complete, and all monitors have been decommissioned.
- In Burwood, the TARP was not implemented during the reporting period. This was because regular water cart and hose use was implemented on exposed soil. Site inspections were undertaken during this period to ensure these measures were regularly implemented.
- In Glen Waverley, the TARP was not implemented during the reporting period. Regular water cart and street sweeper use was implemented to ensure exposed soil was watered down and hardstand surfaces were clear of tracked sediment. Stockpiles were maintained less than 1m in height and stored behind hoarding which acted as a wind barrier. Site inspections were maintained during this period to ensure these measures were effective and implemented.
- In Monash, all Early Works are complete, and all monitors have been decommissioned.
- In Clayton, all Early Works are complete, and all monitors have been decommissioned.
- In Heatherton, the TARP was not implemented during the reporting period. Water carts and hoses were used during excavation, and material and spoil haulage. Dust was reduced by application of soil binder on stockpiles, regular street sweeping, and covering truck loads prior to leaving the site. Regular site inspections were undertaken to confirm these control measures were in place.
- In Cheltenham, all Early Works are complete, and all monitors have been decommissioned.

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 2025 and 15 November 2025 in accordance with SRL East EMF and EPRs AQ1 and AQ2. Laing O'Rourke is delivering the Early Works as Managing Contractor (MC). Early Works for SRL East commenced at Burwood in May 2023, Box Hill in June 2023, Monash and Heatherton in October 2023, Clayton in December 2023, and Glen Waverley and Cheltenham in March 2024.

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

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

Scope of Reporting

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

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

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Results

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

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

Location	Parameter	Averaging Period	Max Concentration (µg/m^3)	Median Concentration (µg/m^3)	Days TARP Triggered in the Month	Days TARP Implemented in the Month
Representative Background[1]						
Alphington	PM_{10}	24-hour	26.1	16.1	-	-
Dandenong	PM_{10}	24-hour	27.6	15.0	-	-
Burwood						
Site 1 – South	PM_{10}	24-hour	29.9	22.8	0	0
Glen Waverley						
Site 1 North	PM_{10}	24-hour	27.1	11.1	0	0
Heatherton						
SSY - South	PM_{10}	24-hour	29.8	12.9	0	0
Site Office	PM_{10}	24-hour	20.2	10.0		
SS17	PM_{10}	24-hour	27.5	12.9		

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 8,000 direct local jobs, with trains 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.

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

https://www.epa.vic.gov.au/for-community/airwatch

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

1.2. Environmental Management Framework

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

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

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

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

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2. Air Quality Monitoring

2.1. Context

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

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

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

2.2. Purpose

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

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

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

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

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

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

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2.3. Monitoring Locations

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

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

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

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
Burwood – Site 1 South	08 May 2024	Latitude: -37.8549° Longitude: 145.10995°	PM_{10}	Alphington EPA monitoring station
Glen Waverley – Site 1 North	19 August 2024	Latitude: -37.880739° Longitude: 145.160738°	PM_{10}	Alphington EPA monitoring station
Heatherton – SSY – South	29 May 2023	Latitude: -37.955917° Longitude: 145.10239°	PM_{10}	Dandenong EPA monitoring station
Heatherton – SSY – Site Office	22 January 2024	Latitude: -37.95401° Longitude: 145.10062°	PM_{10}	Dandenong EPA monitoring station
Heatherton – SSY – SS17	26 March 2025	Latitude: -37.9544° Longitude: 145.0975 °	PM_{10}	Dandenong EPA monitoring station

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2.4 Data Limitations and Verification

The following limitations apply to this data:

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

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

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3. Results

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

3.1. Box Hill

No Early Works took place at Box Hill during the reporting period; therefore no monitoring was required.

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3.2. Burwood



Figure 1: Burwood air quality monitoring stations.

Table 4: Burwood PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Days TARP Triggered in the Month	Days TARP Implemented in the Month
-	Representative Background - Alphington	26.1	16.1	-	-
5	Site 1 – South	29.9	22.8	0	0

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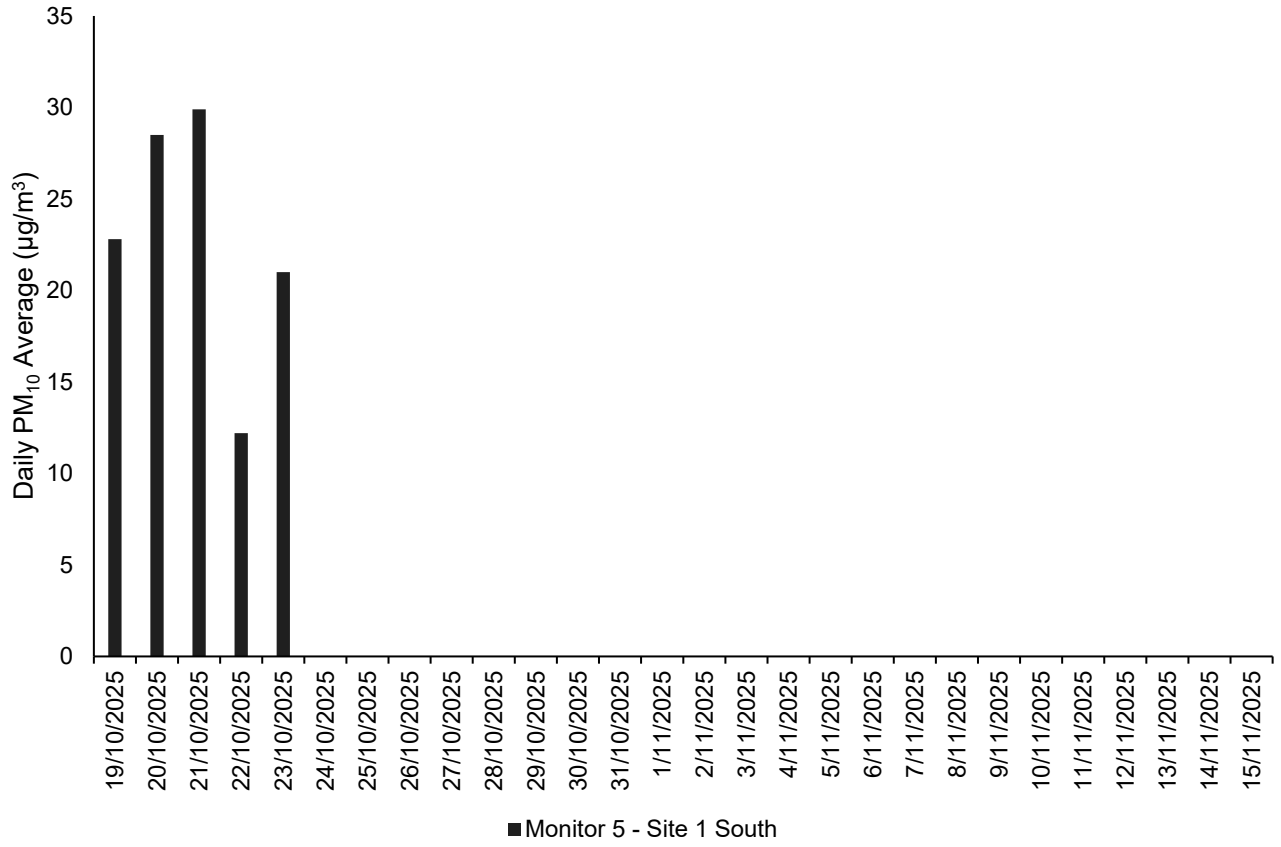


Figure 2: Burwood PM_{10} daily averages.

3.2.1. Analysis

The maximum daily average PM_{10} concentrations reported at the Burwood monitoring station was 29.9 µg/m^3 (n = 5) at Site 1 South (Monitor 1).

The TARP was not implemented during the reporting period. Proactive measures were implemented during this period to manage dust on site, including regular water cart and hose use on exposed soil. Site inspections were undertaken during this period to ensure these measures were regularly implemented.

Early works were completed at Burwood during this reporting period and Monitor 5 was subsequently demobilised from Site on 24/10/2025.

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3.3. Glen Waverley

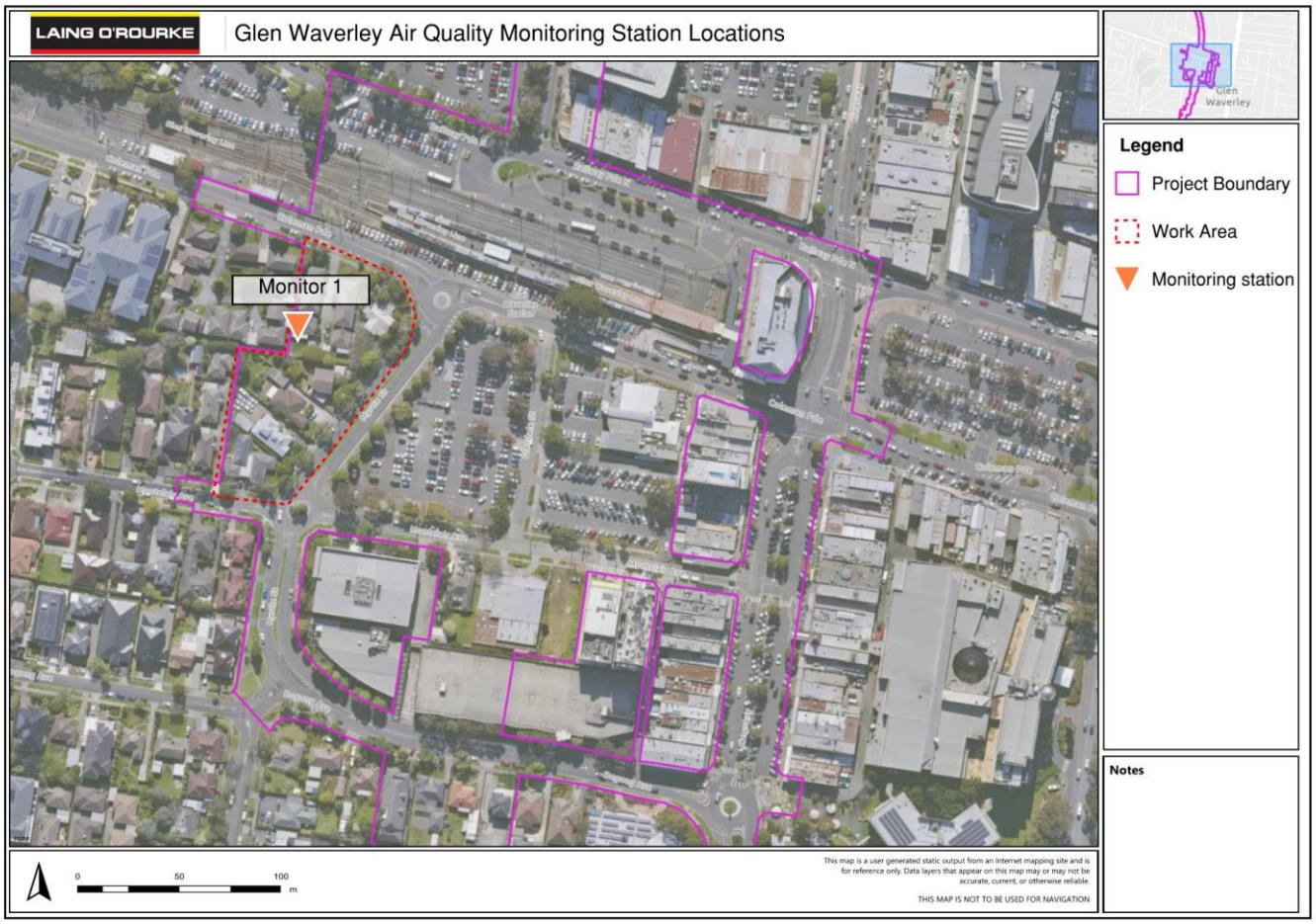


Figure 3: Glen Waverley air quality monitoring stations.

Table 5: Glen Waverley PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Days TARP Triggered in the Month	Days TARP Implemented in the Month
-	Representative Background - Alphington	26.1	16.1	-	-
1	Monitor 1 - Site 1 North	27.1	11.1	0	0

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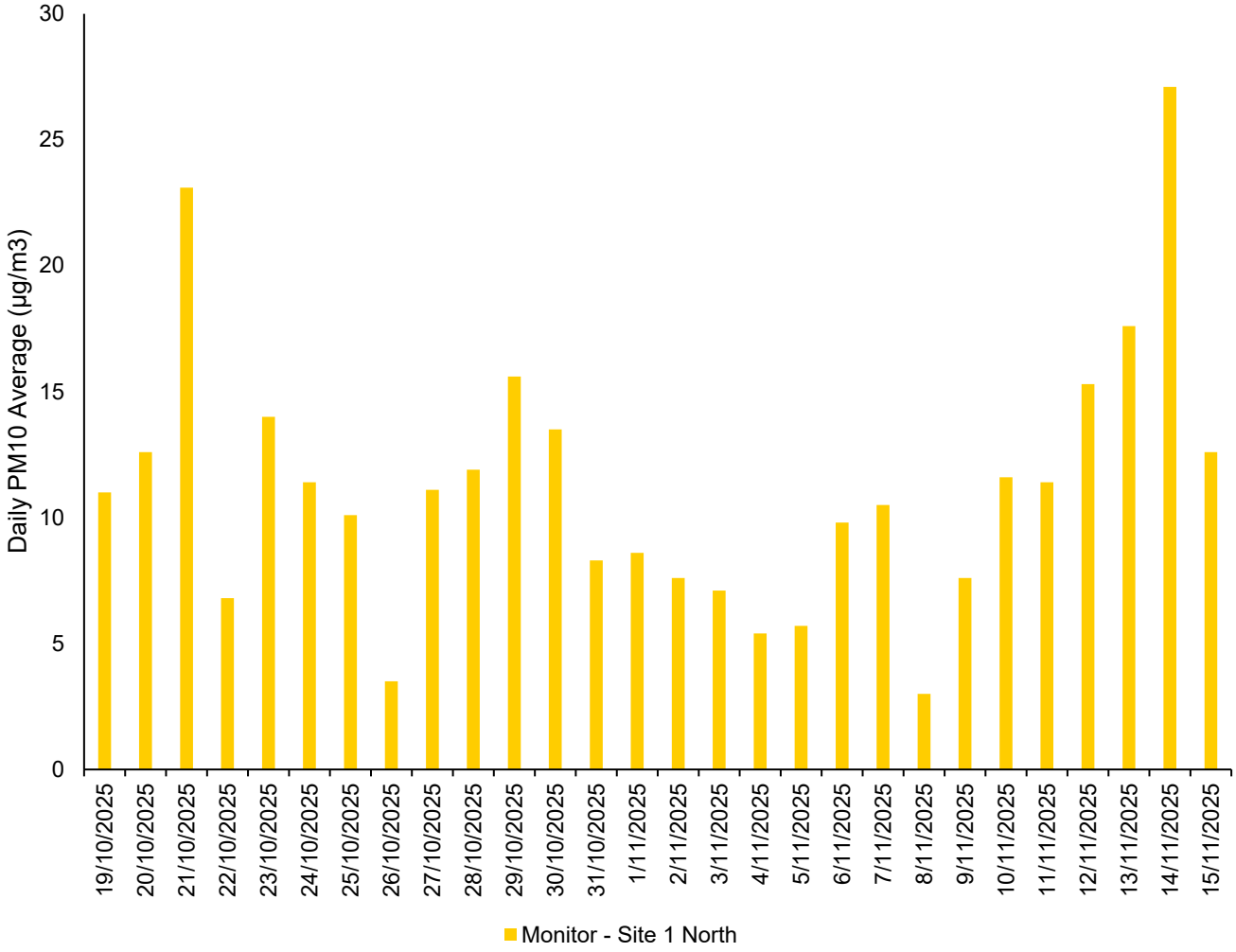


Figure 4: Glen Waverley PM_{10} daily averages.

3.3.1. Analysis

The maximum daily average PM_{10} concentration was 27.1 µg/m^3 (n = 28) at Site 1 North Location.

The TARP was not implemented during the reporting period. Regular water cart and street sweeper use was implemented to ensure exposed soil was watered down and hardstand surfaces were clear of tracked sediment. Stockpiles were maintained less than 1m in height and stored behind hoarding which acted as a wind barrier. Regular site inspections were maintained during this period to ensure these measures were effective and implemented.

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3.4. Monash

No Early Works took place at Monash during the reporting period, therefore no monitoring was required.

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3.5. Clayton

No Early Works took place at Clayton during the reporting period, therefore no monitoring was required.

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3.6. Heatherton

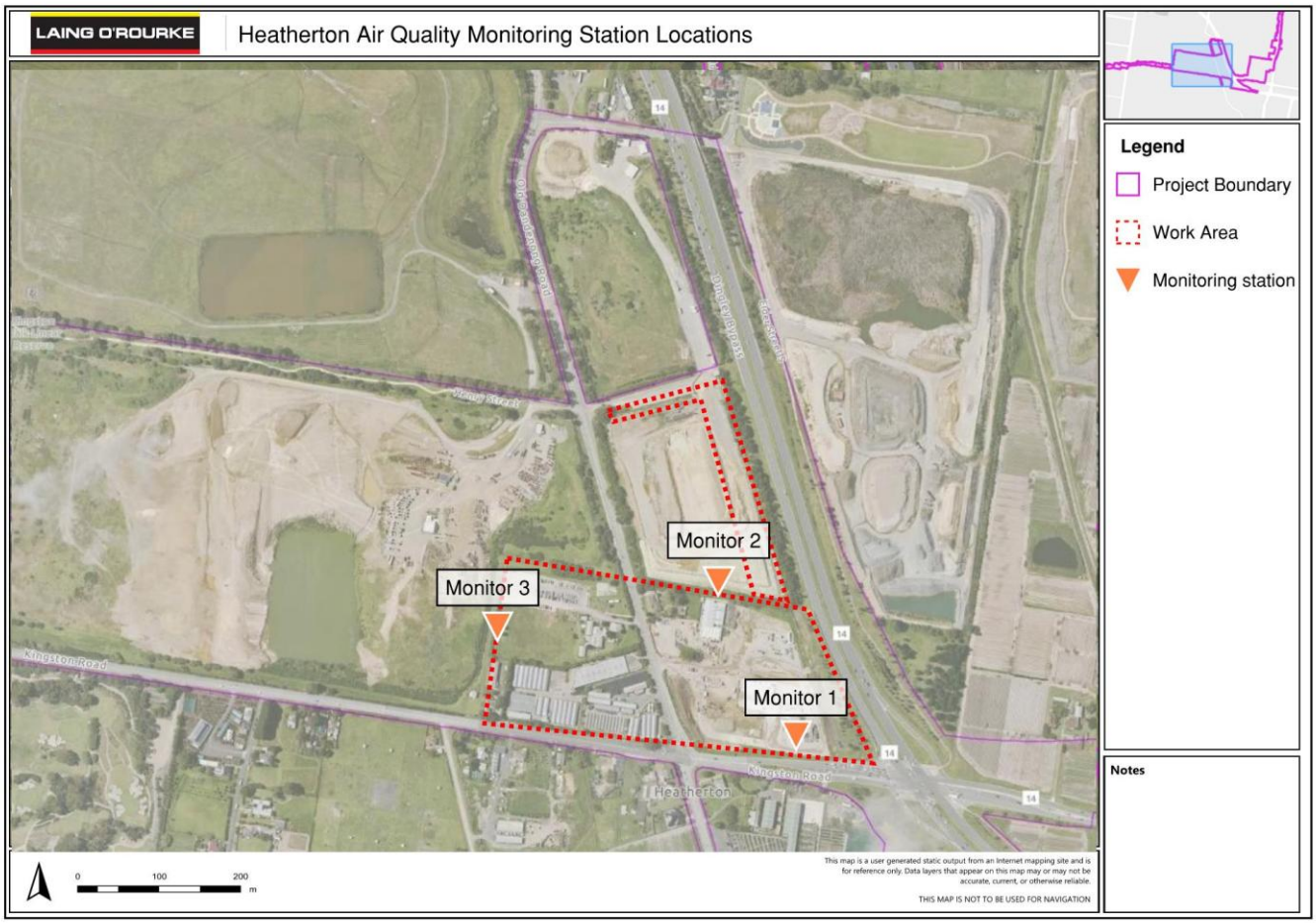


Figure 5: Heatherton air quality monitoring stations.

Table 6: Heatherton PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Days TARP Triggered in the Month	Days TARP Implemented in the Month
-	Representative Background - Dandenong	27.6	15	-	-
1	SSY - South	29.8	12.9	0	0
2	Site Office	20.2	10.0	0	0
3	SS17	27.5	12.9	0	0

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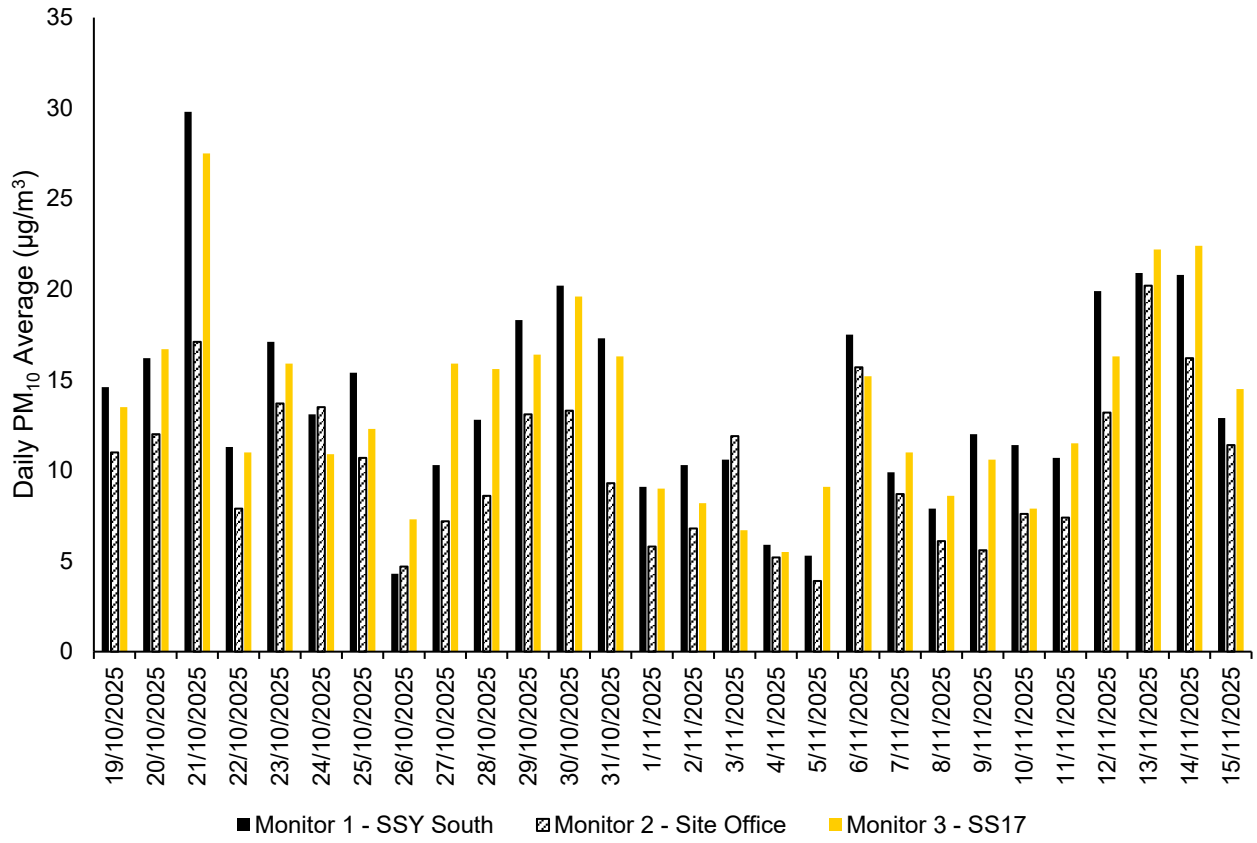


Figure 6: Heatherton PM_{10} daily averages.

3.6.1. Analysis

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.

The maximum daily average PM_{10} concentrations were 29.8 µg/m^3 (n =28), 20.2 µg/m^3 (n = 28), and 27.5 µg/m^3 (n = 28) at SSY South (Monitor 1), Site Office (Monitor 2), and SS17 (Monitor 3) respectively. The TARP was not implemented during the reporting period. Proactive controls were implemented such as water cart operation, soil binders on disused stockpiles and covering truck loads.

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3.7. Cheltenham

No Early Works took place at Cheltenham during the reporting period; therefore no monitoring was required.

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4. Meteorological Conditions

Table 7: Daily weather observations for Melbourne (Olympic Park), Victoria 19 October 2025 – 15 November 2025. 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	10.7	20.0	-	36.1	68.9
Lowest	5.2	12.7	WSW, SSW	20.0	30.0
Highest	14.7	32.3	NNW	72.0	100.0

Table 8: Daily weather observations for Melbourne (Moorabbin), Victoria 19 October 2025 – 15 November 2025. 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	9.9	19.8	-	43.6	68.8
Lowest	2.2	13.7	SSW	22.0	26.0
Highest	14.2	33.2	WNW	80.0	94.0

Table 9: Daily rain data for Melbourne (Olympic Park and Moorabbin), Victoria 19 October 2025 – 15 November 2025. Data Source BOM.

Statistic	Rain data Olympic Park (mm)	Rain data Moorabbin (mm)
Daily Low	0.0	0.0
Daily High	35.4	35.6
Total	143.2	133.4

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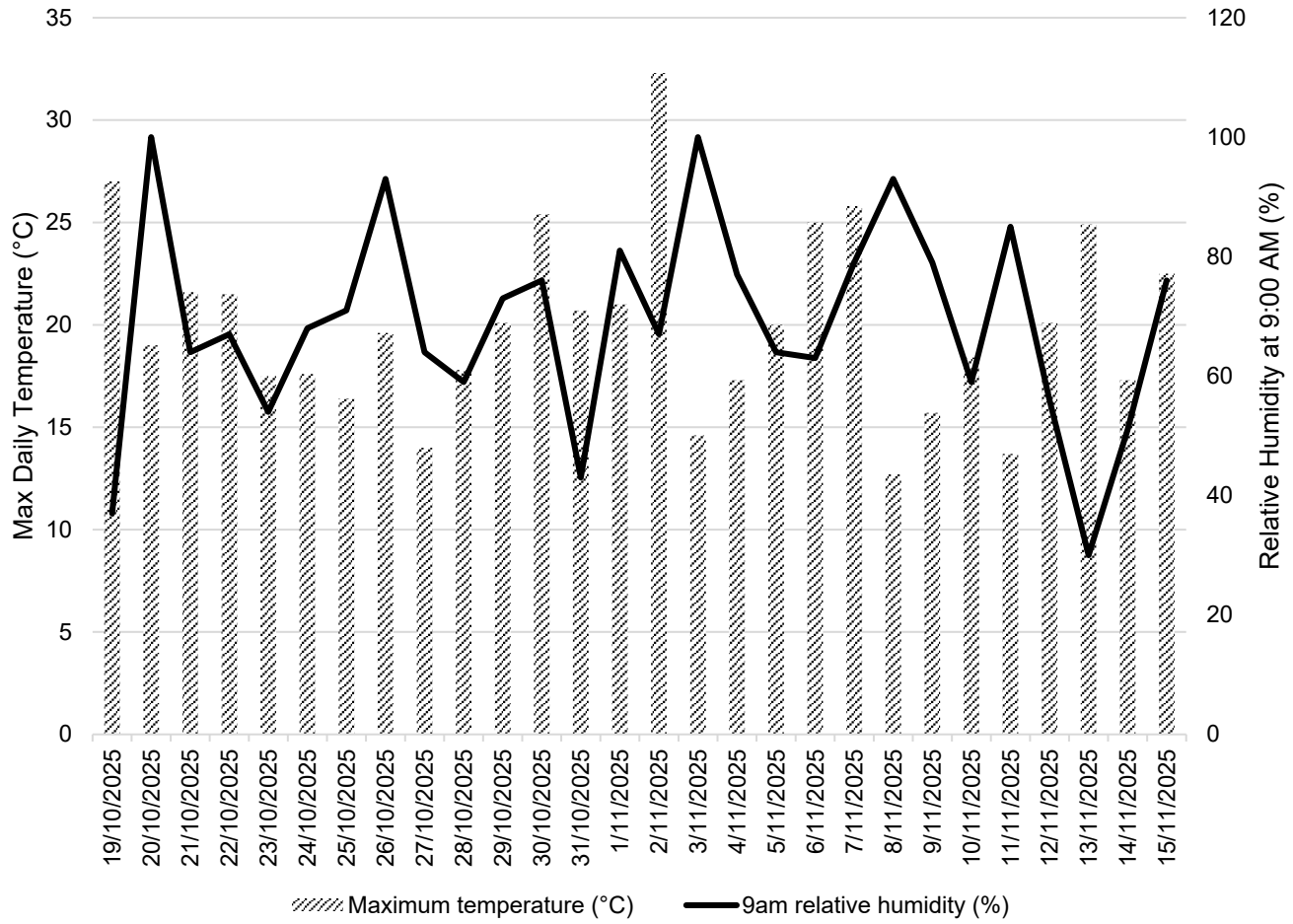


Figure 7: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19 October 2025 – 15 November 2025. Data Source BOM.

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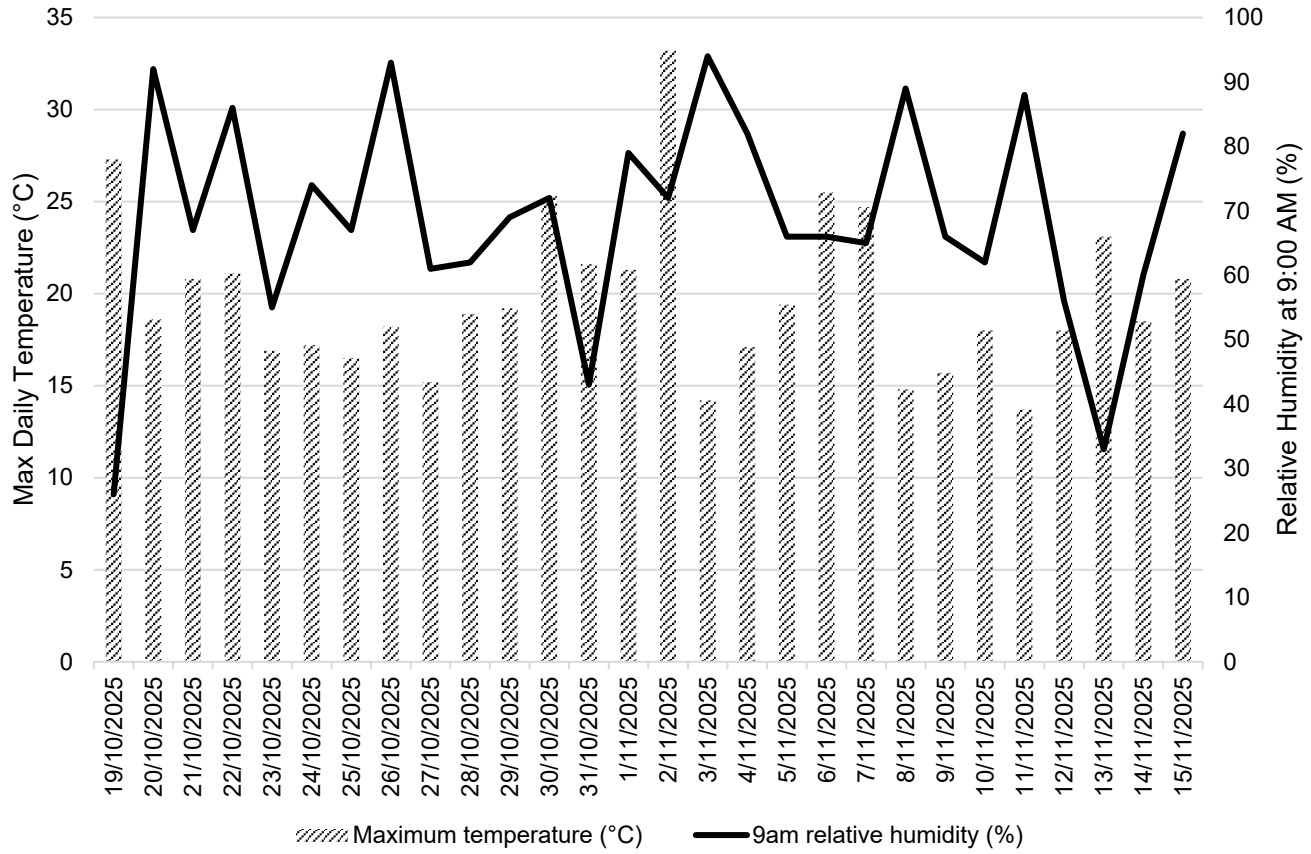


Figure 8: Daily relative humidity and temperature observations for Melbourne (Moorabbin), Victoria 19 October 2025 – 15 November 2025. Data Source BOM.

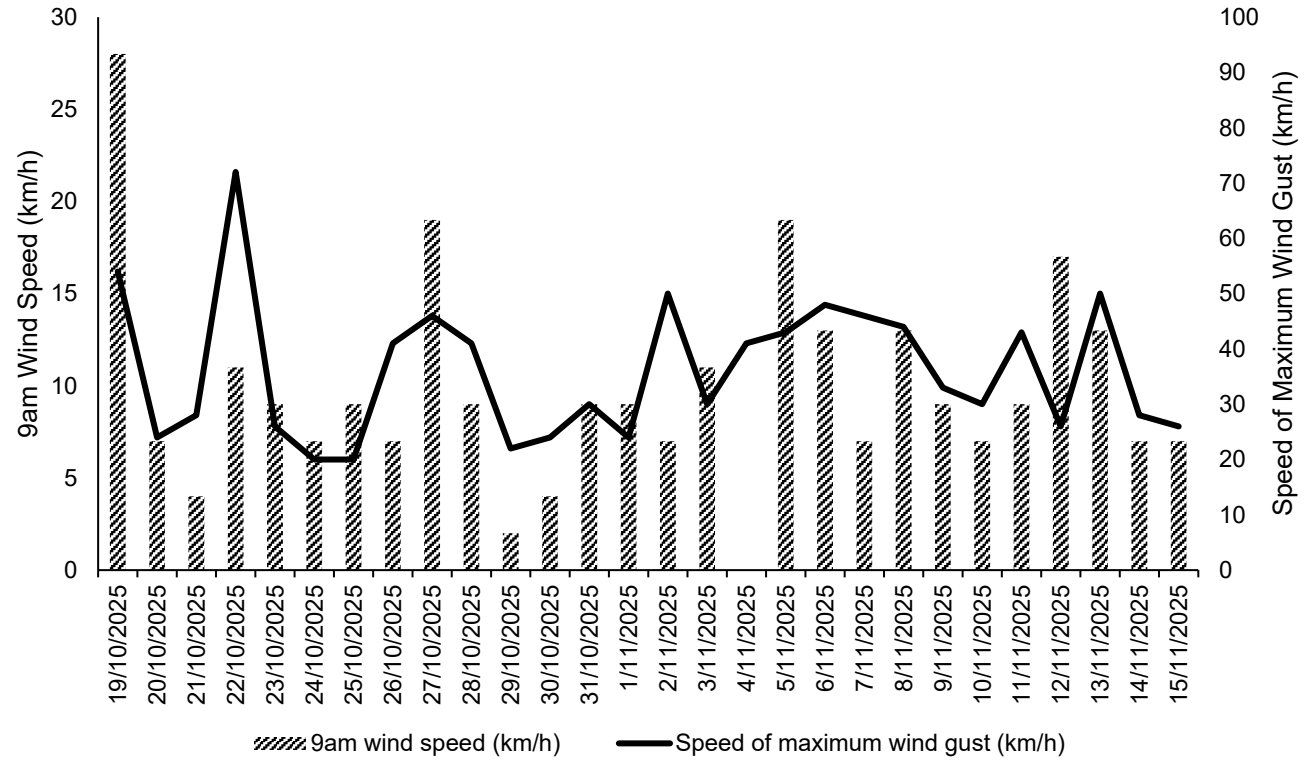


Figure 9: Daily wind speed observations for Melbourne (Olympic Park), Victoria 19 October 2025 – 15 November 2025. Data Source BOM.

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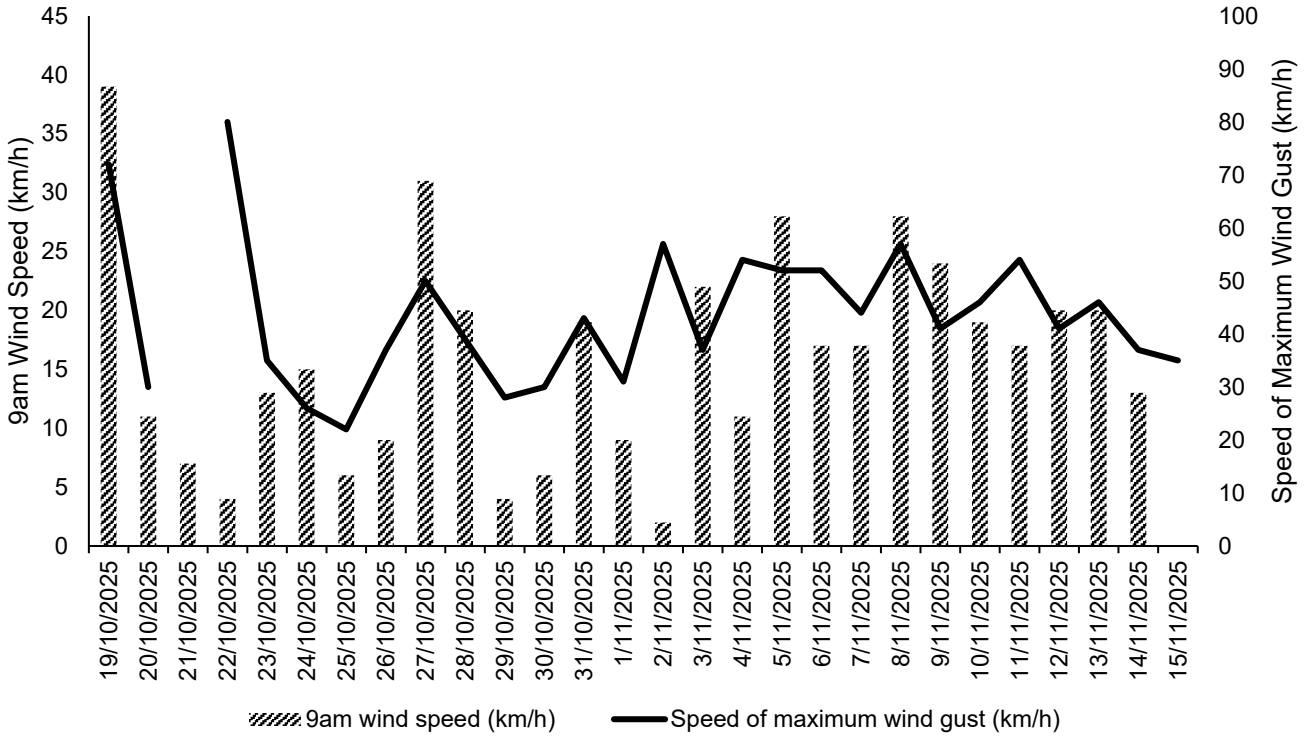


Figure 10: Daily wind speed observations for Melbourne (Moorabbin), Victoria 19 October 2025 – 15 November 2025. Data Source BOM.

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 2025 to 15 November 2025 are shown in Table 10.

Data capture statistics were 100% for all parameters at all stations for the reporting period.

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 10: Air quality monitoring, data capture summary

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Burwood – Site 1 - South	PM_{10}	24-hours	5	5	100%
Glen Waverley – Site 1 North	PM_{10}	24-hours	28	28	100%
Heatherton – SSY – South	PM_{10}	24-hours	28	28	100%
Heatherton – SSY – Site Office	PM_{10}	24-hours	28	28	100%
Heatherton – SSY - SS17	PM_{10}	24-hours	28	28	100%

Suburban Rail Loop Initial Works and Early Works
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5.2. Data Validation

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

Table 11: Monitoring device calibration information.

Location	Device Serial Number	Calibration Date	Calibration Due
Burwood – Site 1 South	HEX-000138	5 Mar 2025	5 Mar 2027
Glen Waverley – Site 1 North	HEX-000277	5 Feb 2025	5 Feb 2027
Heatherton – SSY – South	HEX-000317	13 Dec 2023	13 Dec 2025
Heatherton – SSY – Site Office	HEX-000317	13 Dec 2023	13 Dec 2025
Heatherton – SSY - SS17	HEX-000499	5 March 2025	5 March 2027

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Suburban Rail Loop East Tunnels South

Air Quality Monthly Report

19 October 2025 to 15 November 2025

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Executive Summary

Key Outcomes

Key outcomes arising from the monthly air quality monitoring program:

- Visual air inspections were undertaken proactively to monitor and confirm there were no dust impacts due to works on site.
- All instances of elevated monitoring results were investigated and confirmed existing mitigation measures were sufficient to manage dust risks onsite.

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 main works construction site for the period between 19 October 2025 to 15 November 2025 in accordance with SRL East Environmental Management Framework (EMF) and Environmental Performance Requirements (EPRs) AQ1 and AQ2.

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

This report compares the measured concentrations to air quality objectives that are defined in the Environment Reference Standard (ERS) which is a tool under the Environment Protection Act 2017. The ERS sets out the air quality objectives for PM_{10} which are measured over a 24-hour averaging period.

The objectives are risk-based concentrations that are not intended to be compliance levels, but they assist Suburban Connect understand the risk to human health. When the instrumental monitor and/or visual observations identify a change in site conditions this prompts Suburban Connect to take actions on site to reduce dust impacts, and review mitigation measures applied.

Scope of Reporting

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

- Train Stabling Facility West
- Clarinda TBM launch site
- Clayton
- Monash

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.
- 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

Location	Parameter	Averaging Period	Max Concentration (µg/m^3)	Median Concentration (µg/m^3)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
Representative Background Locations						
Dandenong	PM_{10}	24-hour	27.6	15.0	-	-
Train Stabling Facility West						
Linear Reserve North	PM_{10}	24-hour	36.7	22.5	0	0
Linear Reserve South	PM_{10}	24-hour	39.5	11.6	0	0
North	PM_{10}	24-hour	28.1	11.8	0	0
South	PM_{10}	24-hour	32.3	11.5	0	0
Clarinda TBM launch site						
East	PM_{10}	24-hour	125.0	45.3	12	0
North West	PM_{10}	24-hour	45.5	18.9	0	0
South Boundary	PM_{10}	24-Hour	76.6	29.2	3	0
Clayton						
Central	PM_{10}	24-hour	25.5	9.4	0	0
East (Church)	PM_{10}	24-hour	29.1	11.8	0	0
South	PM_{10}	24-hour	34.0	14.3	0	0
North West	PM_{10}	24-hour	33.7	14.2	0	0
Monash						
LP1 SE Boundary	PM_{10}	24-hour	22.9	9.6	0	0
54 Howleys East Boundary	PM_{10}	24-hour	30.5	12.2	0	0
Compound	PM_{10}	24-hour	29.1	12.3	0	0
SW Demo Boundary	PM_{10}	24-hour	16.4	13.6	0	0

1 Introduction

1.1 SRL East

Suburban Rail Loop (SRL) will deliver a 90km rail line linking every major train service from the Frankston Line to the Werribee Line via Melbourne Airport and transforming our public transport network.

SRL East from Cheltenham to Box Hill is now in major construction. The new rail line will connect major employment, health, education and retail destinations in Melbourne's east and south east, slashing travel times, reducing congestion and connecting passengers travelling on the Gippsland corridor to destinations across Melbourne.

The SRL East – Tunnels South scope of works include:

- Initial launch of four TBMs from the Clarinda TBM launch site
- Construction of approximately 16km of twin tunnels between Cheltenham and Glen Waverley
- Construction of cross passages between the tunnels
- Construction of the western and eastern decline structures at the train stabling facility
- Protection of the South Eastern Trunk Sewer (SETS)
- Box excavations at Clayton and Monash station locations
- Interface works with the Melbourne Metro Rail Network.

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 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.

1.2 Environmental Management Framework

The EMF for SRL East 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 of the Project. The EMF is available on 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 Environment Effects Statement (EES) and the Minister's Assessment, dated 5 August 2022.

The EMF requires the Principal Contractor (PC) to develop and implement an Environmental Air Quality and Dust Management Plan (EAQDMP). As part of implementing this document plan, the PC is required to conduct monitoring of PM_{10} concentrations and measure wind speed and direction at each Early Works construction site and at a representative control site. The EAQDMP also includes a Trigger Action Response Protocol (TARP) which defines a set of triggers that prompt actions on site to reduce dust impacts, and review mitigation measures applied.

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

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. Environment Protection Authority (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 the PC 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 PC can respond when conditions on site change. Having records of wind conditions is also helpful for retrospectively identifying the activity that is causing any elevated dust concentrations.

2.2 Purpose

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

The measured concentrations are compared to air quality objectives that are defined in the Environment Reference Standard (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 PC to understand the risk to human health. The ERS sets out the air quality objectives for PM_{10} which are measured over a 24-hour averaging period, as reproduced below in Table 2.

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

Indicator	Air Quality Objective (µg/m^3)	Averaging Period
Indicator 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 and compared against the air quality objective. 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 construction sites, to represent local air quality conditions and measure the potential impact of works on local sensitive receivers including residents. As activities and site layouts change throughout construction, monitors will be moved to maintain the most optimal location for ongoing monitoring of air quality.

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

Latitude and longitude coordinates of monitoring equipment are sourced directly from the monitoring equipment management system and locations may differ between reporting periods due to variance in GPS readings.

Table 3: Suburban Connect air quality monitoring locations for active works during reporting period

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
Train Stabling Facility West				
North	7 May 2025	Latitude: -37.9517° Longitude: 145.0942°	PM_{10}	Dandenong EPA monitoring station
South	8 May 2025	Latitude: -37.9549° Longitude: 145.0935°	PM_{10}	Dandenong EPA monitoring station
Linear Reserve North	15 May 2025	Latitude: -37.9529° Longitude: 145.0884°	PM_{10}	Dandenong EPA monitoring station
Linear Reserve South	15 May 2025	Latitude: -37.9542° Longitude: 145.0882°	PM_{10}	Dandenong EPA monitoring station
Clarinda TBM Launch Site				
South Boundary	21 Feb 2025	Latitude: -37.9570° Longitude: 145.1093°	PM10	Dandenong EPA monitoring station
East Boundary	3 Dec 2024	Latitude: -37.9570° Longitude: 145.1108°	PM10	Dandenong EPA monitoring station
North West Boundary	23 Jan 2025	Latitude: -37.9549° Longitude: 145.1075°	PM_{10}	Dandenong EPA monitoring station
Clayton				
Central	21 May 2025	Latitude: -37.9213° Longitude: 145.1199°	PM_{10}	Dandenong EPA monitoring station
North West	3 Dec 2024	Latitude: -37.9215° Longitude: 145.1193°	PM_{10}	Dandenong EPA monitoring station
South	5 Mar 2025	Latitude: -37.9238° Longitude: 145.1193°	PM_{10}	Dandenong EPA monitoring station

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
East (Church)	4 Jun 2025	Latitude: -37.9223° Longitude: 145.1205°	PM_{10}	Dandenong EPA monitoring station
Monash				
Compound	2 Jul 2025	Latitude: -37.9032° Longitude: 145.1383°	PM_{10}	Dandenong EPA monitoring station
SW Demo Boundary	6 Aug 2025	Latitude: -37.9048° Longitude: 145.1377°	PM_{10}	Dandenong EPA monitoring station
54 Howleys East Boundary	2 Jul 2025	Latitude: -37.9050° Longitude: 145.1398°	PM_{10}	Dandenong EPA monitoring station
LP1 SE Boundary	6 Aug 2025	Latitude: -37.9062° Longitude: 145.1390°	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.
- Proximity of site monitors to public roads, industrial businesses and other factors will impact data recording.
- Monitors may need to be located close to works due to security requirements.
- Monitor locations will change as works progress and construction activity locations change.

Data has been provided in tabular and graphical form in Section 3 to visually present 24-hour averages of PM_{10} over the monthly period. The data included in this report 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 PM_{10} dust concentration over the monthly period for each active construction site.

The indicative air monitoring levels measured by sensors show the levels are generally in the range of 10 µg/m3 and 40 µg/m3, with the exception of the Clarinda TBM Launch Site which includes indicative air monitoring levels higher than 50 µg/m3. The sensor data has been adjusted to closer align with EPA's air quality monitoring station data at Dandenong.

EPA's Dandenong air quality monitoring station is categorised to be generally representative of the area and measured levels ranging from approximately 10 µg/m3 and 40 µg/m3.

The average levels of PM10 measured over a 24-hour period is compared to the Environment Reference Standard of 50 µg/m3 to understand air quality impacts.

3.1 Train Stabling Facility West



Figure 1: Train Stabling Facility West site air quality monitoring stations

Table 4: Train Stabling Facility West Site PM_{10} Results

Location	Parameter	Averaging Period	Max Concentration (µg/m³)	Median Concentration (µg/m³)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
Representative Background Locations						
Dandenong	PM_{10}	24-hour	27.6	15.0	-	-
Train Stabling Facility West						
Linear Reserve North	PM_{10}	24-hour	36.7	22.5	0	0
Linear Reserve South	PM_{10}	24-hour	39.5	11.6	0	0
North	PM_{10}	24-hour	28.1	11.8	0	0
South	PM_{10}	24-hour	32.3	11.5	0	0

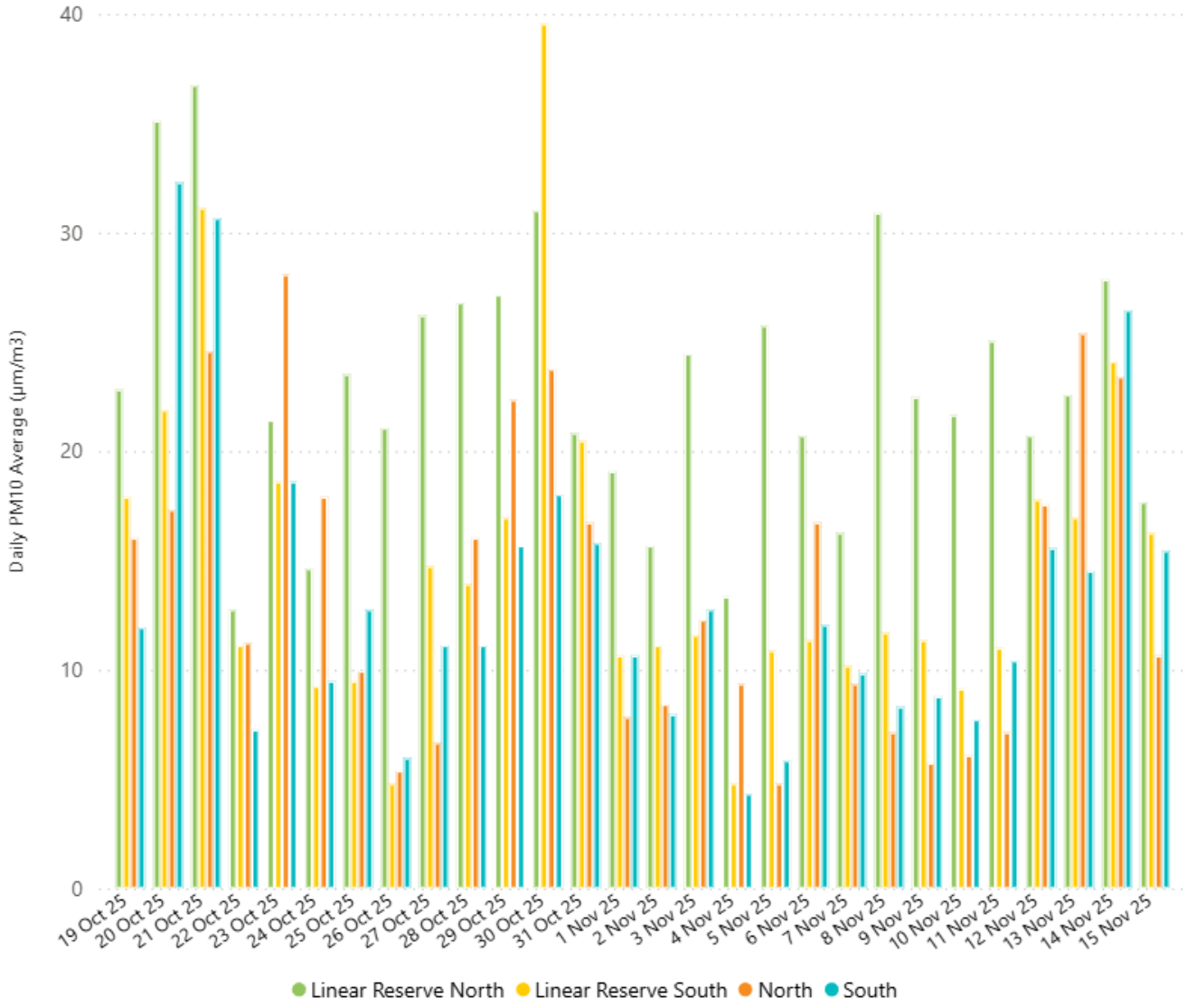


Figure 2: Daily Averages PM_{10} Results at Train Stabling Facility West

3.1.1 Analysis

Measures implemented to proactively manage dust on this site included water carts, wheel wash and street sweepers. In addition, daily observations by supervisors and environmental representatives were performed to respond to areas of concern. Visual air inspections were also undertaken to proactively monitor and confirm there was no off-site dust impacts due to construction activities on site.

There were no elevated PM_{10} events during the reporting period.

3.2 Clarinda TBM launch site



Figure 3: Clarinda TBM launch site air quality monitoring stations

Table 5: Clarinda TBM launch site PM_{10} Results

Location	Parameter	Averaging Period	Max Concentration (µg/m³)	Median Concentration (µg/m³)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
Representative Background Locations						
Dandenong	PM_{10}	24-hour	27.6	15.0	-	-
Clarinda TBM launch site						
East	PM_{10}	24-hour	125.0	45.3	12	0
North West	PM_{10}	24-hour	45.5	18.9	0	0
South Boundary	PM_{10}	24-Hour	76.6	29.2	3	0

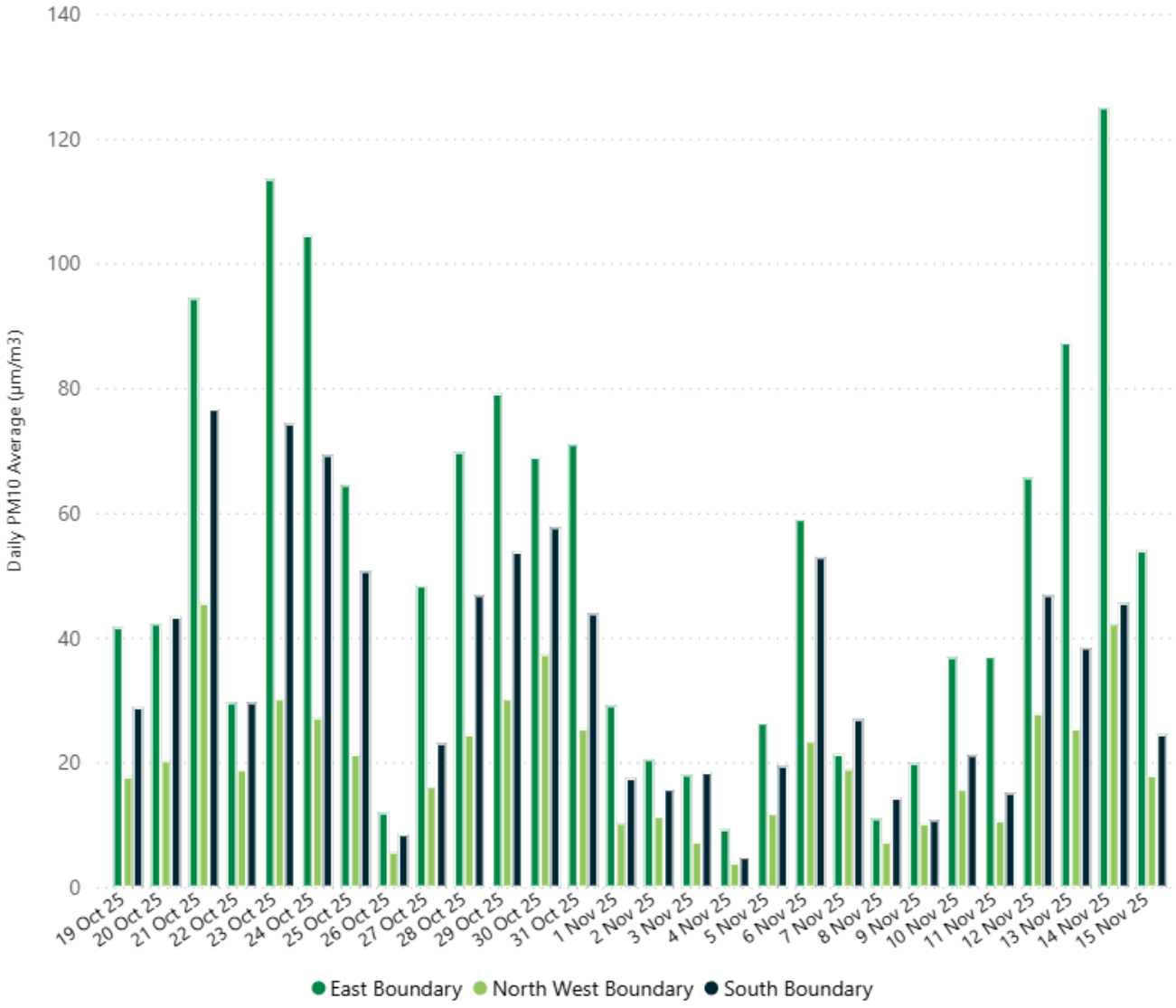


Figure 4: Daily Averages PM10 Results at Clarinda TBM Launch Site

3.2.1 Analysis

Measures implemented to proactively manage dust on this site included a boundary sprinkler system, water carts, rumble grids, and street sweepers. In addition, daily observations by supervisors and environmental representatives were performed to respond to areas of concern. Visual air inspections were also undertaken to proactively monitor and confirm there were no off-site dust impacts due to construction activities on site.

Three elevated PM_{10} levels occurred at the South Boundary monitor and twelve elevated PM_{10} levels occurred at the East Boundary monitor during the reporting period. Investigations determined the elevated levels were due to an external source, site inspections observed no dust generation from site construction activities and no further TARP actions were implemented. Dust management measures were confirmed to be active and sufficient for the activities on site.

3.3 Clayton



Figure 5: Clayton air quality monitoring stations

Table 6: Clayton PM_{10} Results

Location	Parameter	Averaging Period	Max Concentration (µg/m³)	Median Concentration (µg/m³)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
Representative Background Locations						
Dandenong	PM_{10}	24-hour	27.6	15.0	-	-
Clayton						
Central	PM_{10}	24-hour	25.5	9.4	0	0
East (Church)	PM_{10}	24-hour	29.1	11.8	0	0
South	PM_{10}	24-hour	34.0	14.3	0	0
North West	PM_{10}	24-hour	33.7	14.2	0	0

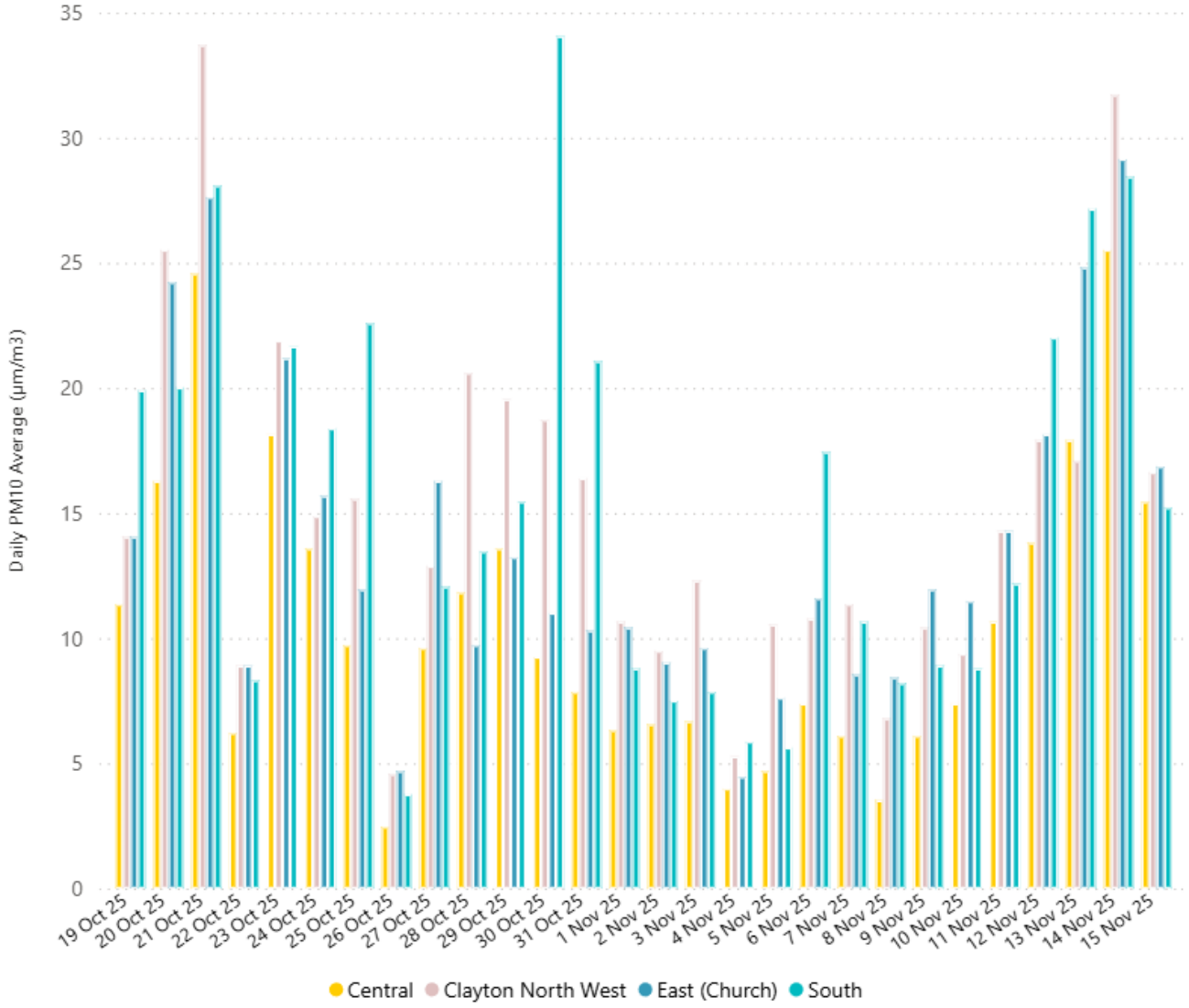


Figure 6: Daily Averages PM10 Results at Clayton Site

3.3.1 Analysis

Measures implemented to proactively manage dust on this site include water carts and street sweepers. Sealed surfaces have also contributed to reducing dust on site. In addition, daily observations by supervisors and environmental representatives are performed to respond to areas of concern. Visual air inspections are also undertaken to proactively monitor and confirm there are no off-site dust impacts due to construction activities on site.

There were no elevated PM_{10} events during the reporting period.

3.4 Monash

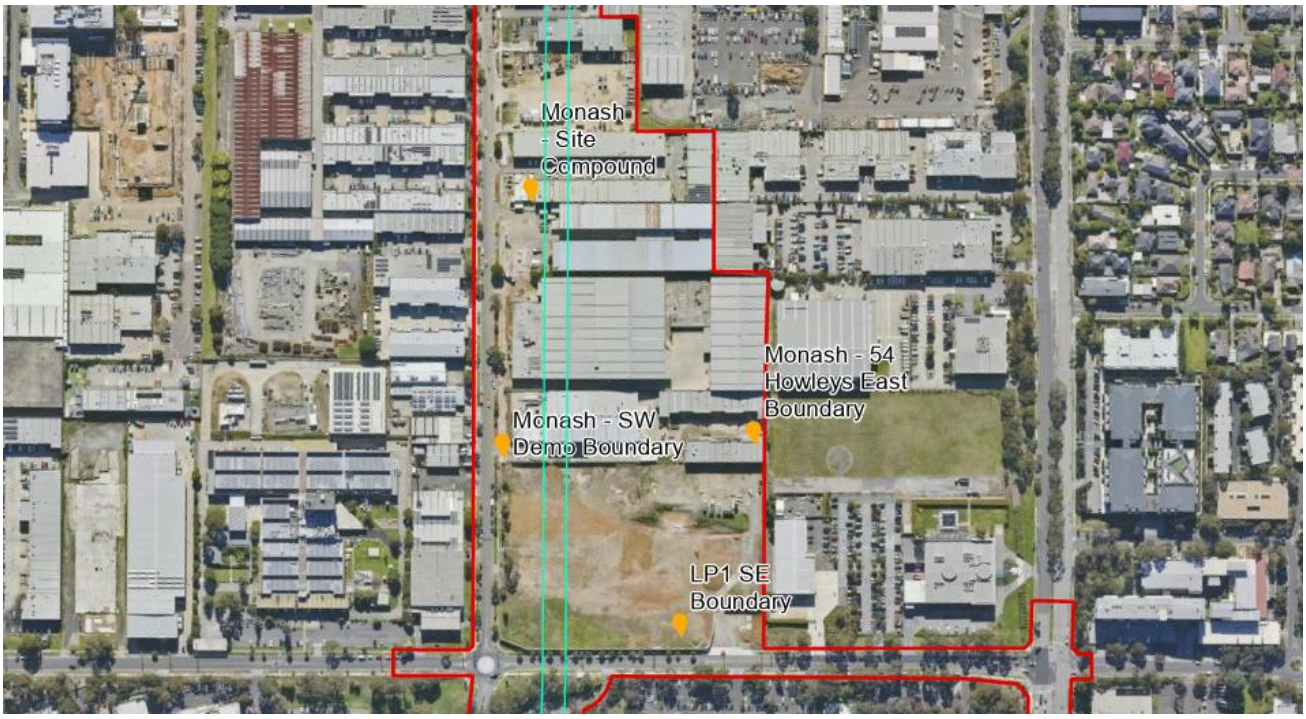


Figure 7: Monash air quality monitoring stations

Table 7: Monash PM_{10} Results

Location	Parameter	Averaging Period	Max Concentration (µg/m³)	Median Concentration (µg/m³)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
Representative Background Locations						
Dandenong	PM_{10}	24-hour	27.6	15.0	-	-
Monash						
LP1 SE Boundary	PM_{10}	24-hour	22.9	9.6	0	0
54 Howleys East Boundary	PM_{10}	24-hour	30.5	12.2	0	0
Compound	PM_{10}	24-hour	29.1	12.3	0	0
SW Demo Boundary	PM_{10}	24-hour	16.4	13.6	0	0

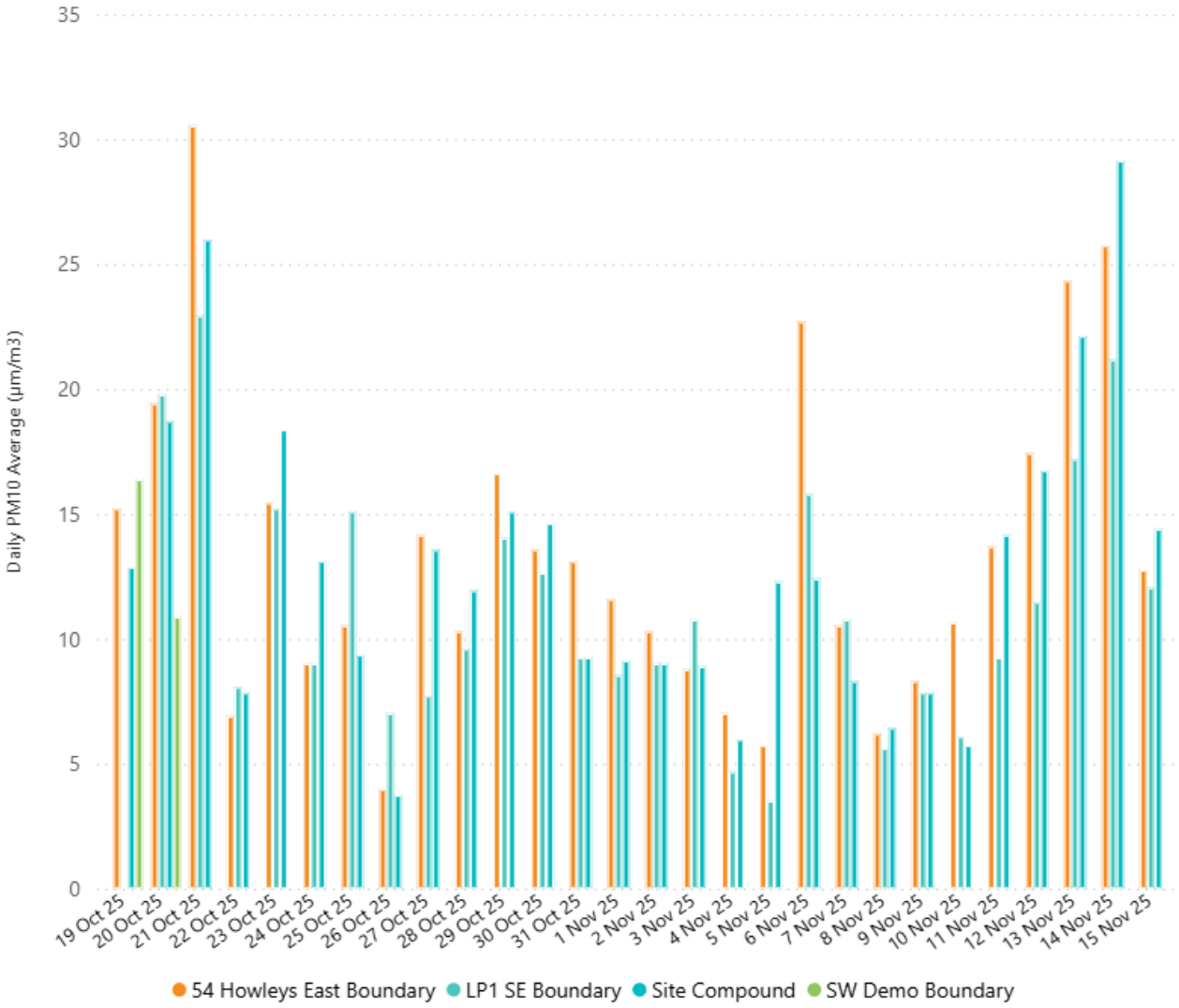


Figure 8: Daily Averages PM10 Results at Monash

3.4.1 Analysis

Measures implemented to proactively manage dust on this site include water carts and street sweepers. In addition, daily observations by supervisors and environmental representatives are performed to respond to areas of concern. Visual air inspections are also undertaken to proactively monitor and confirm there are no off-site dust impacts due to construction activities on site.

On 20th October the monitor at the SW Demo Boundary was relocated to the LP1 SE Boundary location due to changes in site layout for ongoing monitoring of site activities. There were no elevated PM10 events during the reporting period.

3.5 Meteorological Conditions

Table 8: Daily weather observations for Moorabbin, Victoria

Statistic	Min Temperature (°C)	Max Temperature (°C)	Maximum Wind Gust Direction	Maximum Wind Gust Speed (km/h)	Relative Humidity @ 9:00 AM (%)
Mean	9.9	19.8	N/A	43.6	68.8
Lowest	2.2	13.7	SSW	22.0	26.0
Highest	14.2	33.2	WNW	80.0	94.0

Table 9: Daily rain data for Moorabbin, Victoria

Statistic	Rain (mm)
Daily Low	0.0
Daily High	35.6
Total	133.4

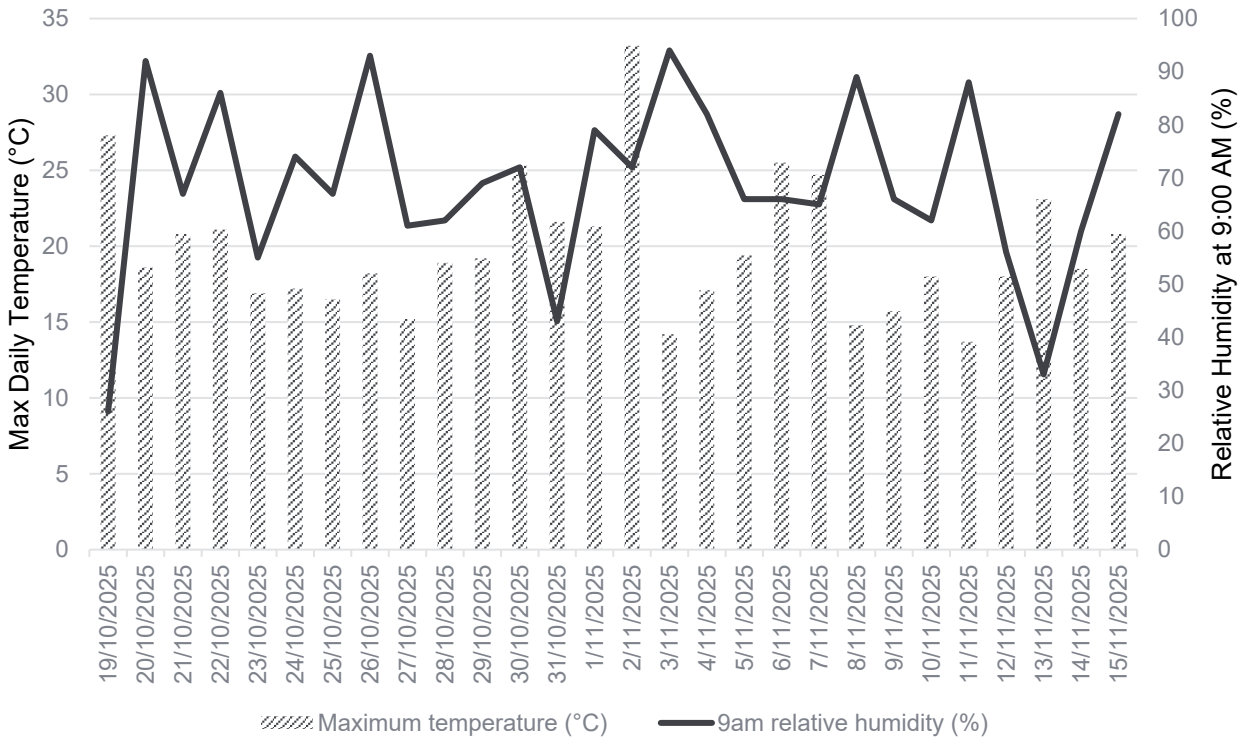


Figure 9: Daily relative humidity and temperature observations for Moorabbin, Victoria

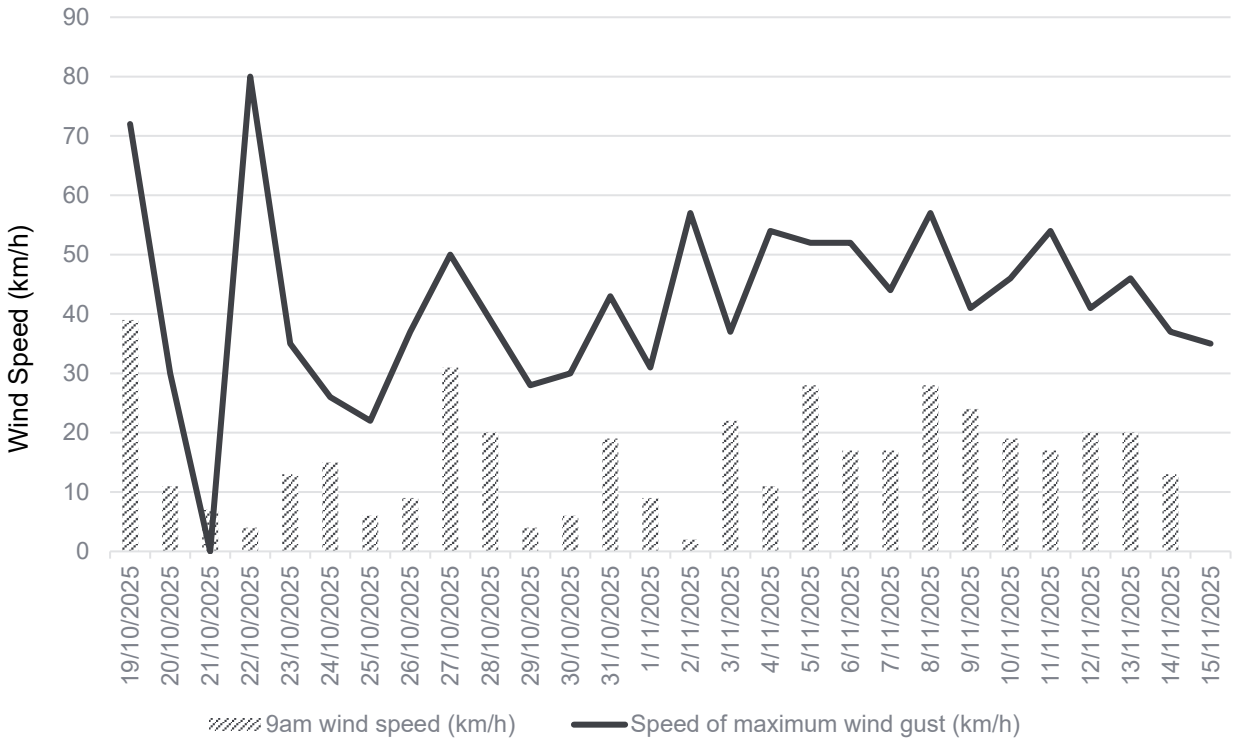


Figure 10: Daily wind speed observations for Moorabbin, Victoria

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 October 2025 to 15 November 2025 are shown below.

Table 10: Daily PM_{10} Air Quality Monitoring Data Capture

Location	Available Periods	Collected Periods	Data Capture	Details
Train Stabling Facility West				
North	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
South	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
Linear Reserve North	28	28	100%	There were no interruptions to monitoring at this location during the reporting period

Location	Available Periods	Collected Periods	Data Capture	Details
Linear Reserve South	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
Clarinda TBM launch site				
South Boundary	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
East	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
North West	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
Clayton				
Central	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
North West	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
South	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
East (Church)	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
Monash				
Compound	28	28	100%	There were no interruptions to monitoring at this location during the reporting period
SW Demo Boundary / LP1 SE Boundary	28	28	100%	There were no interruptions to monitoring at this location during the reporting period. This monitor was relocated from SW Demo Boundary to LP1 SE Boundary.
54 Howleys East Boundary	28	28	100%	There were no interruptions to monitoring at this location during the reporting period

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 11: Monitoring device calibration information

Location	Device Serial Number	Calibration Date	Calibration Due
Train Stabling Facility West			
North	HEX-000418	17 Feb 2025	17 Feb 2027
South	HEX-000498	20 Sep 2024	20 Sep 2026
Linear Reserve North	HEX-000706	19 Feb 2025	19 Feb 2027
Linear Reserve South	HEX-000795	18 Dec 2024	18 Dec 2026
Clarinda			
South Boundary	HEX-000348	19 Feb 2025	19 Feb 2027
East Boundary	HEX-000780	18 Dec 2024	18 Dec 2026
North West Boundary	HEX-000791	18 Dec 2024	18 Dec 2026
Clayton			
Central	HEX-000203	19 Mar 2025	19 Mar 2027
East (Church)	HEX-000705	24 Oct 2024	24 Oct 2026
North West	HEX-000623	19 Feb 2025	19 Feb 2027
South	HEX-000744	27 Nov 2024	27 Nov 2026
Monash			
Site Compound	HEX-000400	11 Jun 2025	11 Jun 2027
SW Demo Boundary	HEX-000527	16 Jul 2025	16 Jul 2027
54 Howleys East Boundary	HEX-000671	11 Jun 2025	11 Jun 2027

Glossary

Term / Abbreviation	Definition
µg/m^3	micrograms per cubic metre is a unit of measurement used to measure the mass of air pollutants (micrograms) per volume of air (cubic metre) as a concentration.
EAQDMP	The Environmental Air Quality and Dust Management Plan (EAQDMP) is environmental management documentation prepared by the PC to manage and monitor air quality impacts during construction of SRL East. It includes the RMMP and TARP and is verified by the IEA.
EES	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.
EMF	The Environmental Management Framework (EMF) provides a transparent and integrated framework to manage environmental effects of the SRL East Project during construction and operation to achieve acceptable environmental outcomes.
EPA	Environment Protection Authority (EPA) is the 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.
EPRs	The Environmental Performance Requirements (EPRs) define the environmental outcomes that must be achieved during the design, construction and operation of SRL East and are included within the EMF.
ERS	The Environmental Reference Standard (ERS) is a tool made under the Environment Protection Act 2017 to identify and assess environmental values, including air quality, in Victoria.
IEA	The Independent Environmental Auditor (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.
PC	Principal Contractor
PM_{10}	Particulate matter with an aerodynamic diameter of 10 micrometres (µm) or less. PM_{10} particles are small enough to have a potential impact on human health.
RMMP	The Risk Management and Monitoring Program (RMMP) 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.
TARP	The Trigger Action Response Protocol (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.
TARP Triggered during the reporting month	This refers to the number of days TARP trigger criteria or the Air Quality Objective was exceeded during the reporting month.
TARP actions implemented during the reporting month	This refers to the number of days additional TARP mitigation measures or actions were required to be implemented as a response to project related exceedances. These actions are in addition to existing controls implemented on site.

TERRAVERDE



SUBURBAN RAIL LOOP EAST

Tunnels North

Air Quality Monthly Report 19 Oct – 15 Nov 2025

SRL-WPD-TVC-NAP-REP-XLP-PWD-000006 Rev C

10 December 2025

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Version control and record

Version	Date	Comments
A	21/11/2025	Report Issued to SRLA
B	3/12/2025	To address SRLA comments
C	10/12/2025	To address SRLA comments

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Glossary

Term	Definition
µg/m^3	micrograms per cubic metre is a unit of measurement used to measure the mass of air pollutants (micrograms) per volume of air (cubic metre) as a concentration.
BUW	Burwood site compound
EAQDMP	The Environmental Air Quality and Dust Management Plan (EAQDMP) is environmental management documentation prepared by the PC to manage and monitor air quality impacts during construction of SRL East. It includes the RMMP and TARP and is verified by the IEA.
EES	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.
EMF	The Environmental Management Framework (EMF) provides a transparent and integrated framework to manage environmental effects of the SRL East Project during construction and operation to achieve acceptable environmental outcomes.
EPA	Environment Protection Authority (EPA) is the 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.
EPRs	The Environmental Performance Requirements (EPRs) define the environmental outcomes that must be achieved during the design, construction and operation of SRL East and are included within the EMF.
ERS	The Environmental Reference Standard (ERS) is a tool made under the Environment Protection Act 2017 to identify and assess environmental values, including air quality, in Victoria.
ESF	Emergency Support Facility
IEA	The Independent Environmental Auditor (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.
PC	Principal Contractor
PM_{10}	Particulate matter with an aerodynamic diameter of 10 micrometres (µm) or less. PM_{10} particles are small enough to have a potential impact on human health.
RMMP	The Risk Management and Monitoring Program (RMMP) 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.
SRL	Suburban Rail Loop
TARP	Trigger Action Response Protocol
TARP Triggered during the month	Refers to the number of days TARP trigger criteria or the Air Quality Objective was exceeded during the reporting month.
TARP actions implemented during the reporting month	Refers to the number of days additional TARP mitigation measures or actions were required to be implemented as a response to project related exceedances. These actions are in addition to existing controls implemented on site.
TV	Terra Verde

Executive Summary

Key Outcomes

Key outcomes arising from the monthly air quality monitoring program:

- All instances of elevated PM_{10} levels were investigated and additional controls implemented, where required.
- Reported exceedances at the Emergency support facility (ESF) southwest monitor were identified as data errors unrelated to site activities. The issue is under investigation, and the monitor will be inspected or replaced. All other monitors complied with air quality objectives.
- At the ESF TARP Level 1 was implemented on one day during the reporting period while excavation works were undertaken. Monitoring data was reviewed, a visual inspection was carried out, and dust suppression controls were implemented until conditions returned to normal.
- At Burwood (BUW), during excavation, piling platform levelling works and drainage installation, TARP Level 1 was actioned on four separate days. Water was used to wet down the work zone until conditions returned to normal. TARP Level 2 was actioned on one day; weather forecasts were monitored, and dust suppression measures were deployed until conditions returned to normal.
- Proactive response undertaken to confirm there were no offsite dust impacts.

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 main works construction site for the period between 19 Oct 2025 – 15 Nov 2025 in accordance with SRL East EMF and EPRs AQ1 and AQ2.

Tunnels North works for SRL East commenced at the ESF, 601 High Street Road, Mount Waverley, on 30 June 2025, and at the Burwood site, 200 Burwood Highway, on 30 September 2025. Terra Verde (TV) is delivering the Tunnels North works as the Principal Contractor (PC).

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

This report compares the measured concentrations to air quality objectives that are defined in the ERS which is a tool under the Environment Protection Act 2017. The ERS sets out the air quality objectives for PM_{10} which are measured over a 24-hour averaging period and are shown in Table 1 below. The objectives are risk-based concentrations that are not intended to be compliance levels, but they assist the PC to understand the risk to human health. When the instrumental monitor and/or visual observations identify a change in site conditions this prompts the PC to take actions on site to reduce dust impacts, and review mitigation measures applied.

Scope of Reporting

Site activities and operations undertaken on the ESF site during the month included:

- Hoarding installation on the southeast
- Piling platform construction/ soft sports rectification
- Demobilisation of temporary sheds
- Excavation works
- Retaining wall installation
- Permanent offices installation
- General works, unloading delivery materials and housekeeping works

Site activities and operations undertaken on the BUW site during the month included:

- STAS excavation and blinding
- Drainage removal and installation
- Piling Pad construction
- Demolition of kerbs, asphalt
- Subgrade preparation for carpark asphalt

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

Location	Parameter	Avg Period	Max Conc. (µg/m^3)	Median Conc. (µg/m^3)	Air Quality Objective (µg/m3)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
Representative Background Locations							
EPA - Alphington	PM_{10}	24-hour	25.7	16.0	NA	N/A	N/A
Mount Waverley - ESF							
ESF Northwest	PM_{10}	24-hour	38.8	15.6	50	0	0
ESF Southwest	PM_{10}	24-hour	81.5	26.5	50	1	1
Burwood- BUW							
BUW East	PM_{10}	24-hour	19.7	9.3	50	0	0
BUW South	PM_{10}	24-hour	35.5	11.8	50	4	4

Notes:

The ESF southwest monitor has been missing data since 14 November due to an issue with the SiteHive equipment in that area. The equipment will be inspected, as multiple data errors have been recorded during the reporting period.

The 24-hour maximum concentration at the ESF southwest monitor was reported as 81.5; however, this is considered a data error and not representative of Terra Verde's activities. Elevated readings were recorded when no works were occurring over the weekend. Additionally, the BoM reported 8.4 mm of rainfall on Monday, which would have suppressed dust and caused airborne particles to settle, preventing dust from becoming airborne.

The Burwood South monitor was offline from 8–10 November while it was being relocated onto the hoarding.

1. Introduction

1.1 SRL East

Suburban Rail Loop (SRL) will deliver a 90km orbital rail line connecting Melbourne's middle suburbs, linking every major train service from the Frankston Line to the Werribee Line via Melbourne Airport and transforming our public transport network.

SRL East from Cheltenham to Box Hill is now in major construction. The new rail line will connect major employment, health, education and retail destinations in Melbourne's east and south east, slashing travel times, reducing congestion and connecting passengers travelling on the Gippsland corridor to destinations across Melbourne.

Tunnels North works for SRL East commenced at the ESF site (601 High Street Road, Mount Waverley) on 30 June 2025, and at the Burwood site compound (200 Burwood Highway) on 29 September 2025. TV is delivering the Tunnels North works as PC. The works will involve shaft excavation to enable ventilation and other support of tunnelling activity.

1.2 Environmental Management Framework

The EMF for SRL East 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 of the Project. The EMF is available on 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 EES and the Minister's Assessment, dated 5 August 2022.

The EMF requires the PC to develop and implement an EAQDMP. As part of implementing this document plan, the PC is required to conduct monitoring of PM_{10} concentrations and measure wind speed and direction at each Early Works construction site and at a representative control site. The EAQDMP also includes a TARP which defines a set of proactive and reactive triggers that prompt actions on site to reduce dust impacts, and review mitigation measures applied.

The PC 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 Alphington is used as the representative control site for the ESF and Burwood site .

Without effective management, construction of SRL East 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 PC 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 PC can respond when conditions on site change. Having records of wind conditions is also helpful for retrospectively identifying the activity that is causing any elevated dust concentrations.

2.2 Purpose

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

The measured concentrations are compared to air quality objectives that are defined in the ERS which is a tool under the Environment Protection Act 2017. The air quality objectives defined in the ERS informed the objectives for air quality for SRL East, 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 PC 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 PM_{10}

Indicator	Air Quality Objective (µg/m3)	Averaging Period
Indicator Particles as PM_{10} (maximum concentration)	50	24-hour

The measured concentrations (which include both existing background concentrations and SRL East's incremental contribution over a 24-hour period) are presented in Section 3 and compared against the air quality objective. 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 construction sites, to represent local air quality conditions, in positions that enable the PC to adequately measure potential impact of works on local sensitive receivers including residents.

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
Mount Waverley – ESF northwest	30 June 2025	Latitude: -37.87036˚ Longitude: 145.14550˚	PM_{10}	Alphington EPA monitoring station
Mount Waverley – ESF southwest	30 June 2025	Latitude: -37.87067 ˚ Longitude: 145.14543˚	PM_{10}	Alphington EPA monitoring station
Burwood Site Compound -BUW East	29 September 2025	Latitude: -37.85067˚ Longitude: 145.1122˚	PM_{10}	Alphington EPA monitoring station
Burwood Site Compound -BUW South	2 October 2025	Latitude: -37.85232 ˚	PM_{10}	Alphington EPA monitoring station

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
		Longitude: 145.11106 °		

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.
- Data collection from the ESF southwest monitor was impacted by equipment faults, leading to unreliable readings that are not considered representative of works occurring at the site.

3. Results

Figure 1 shows the location of the ESF air quality monitoring stations. Data has been provided in tabular and graphical form (see Table 4 and Figure 2) to visually present 24-hour averages of PM10 over the monthly period. The data included in this report has been verified by Terra Verde and relevant subject matter experts.

3.1 ESF

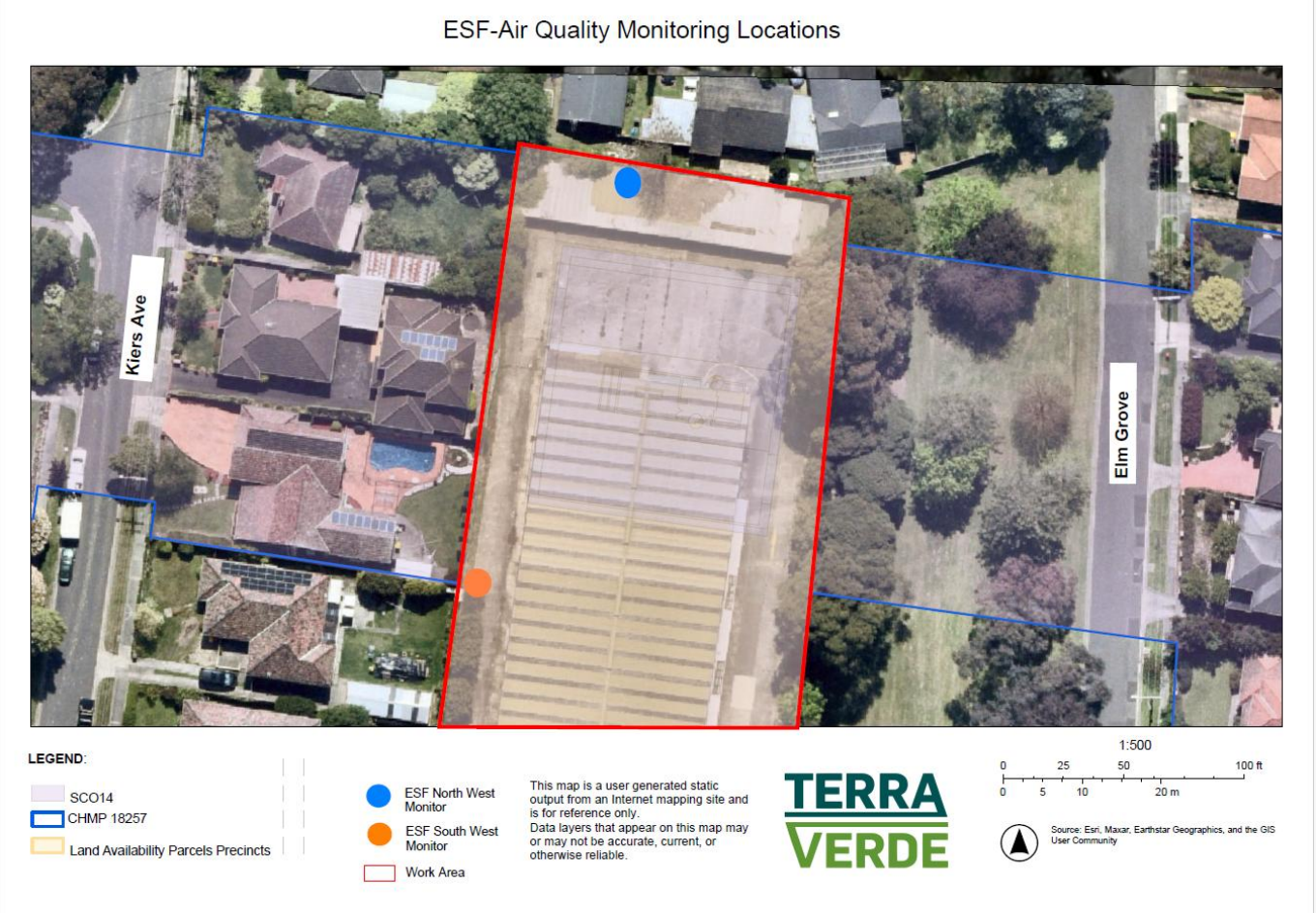


Figure 1: ESF air quality monitoring stations

Table 4: ESF PM_{10} results

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Air Quality Objective (µg/m3)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
-	Representative Background – Alphington EPA monitoring station	25.7	16.01	50	N/A	N/A
1	Mount Waverley ESF Northwest	38.8	15.6	50	0	0

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Air Quality Objective (µg/m3)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
2	Mount Waverley ESF Southwest	81.5	26.5	50	1	1

Notes:

The ESF southwest monitor has been missing data since 14 November due to an issue with the SiteHive equipment in that area. The equipment will be inspected, as multiple data errors have been recorded.

The 24-hour maximum concentration at the ESF southwest monitor was reported as 81.5; however, this is considered a data error and not representative of Terra Verde's activities. Elevated readings were recorded when no works were occurring over the weekend. Additionally, the BoM reported 8.4 mm of rainfall on Monday, which would have suppressed dust and caused airborne particles to settle, preventing dust from becoming airborne.

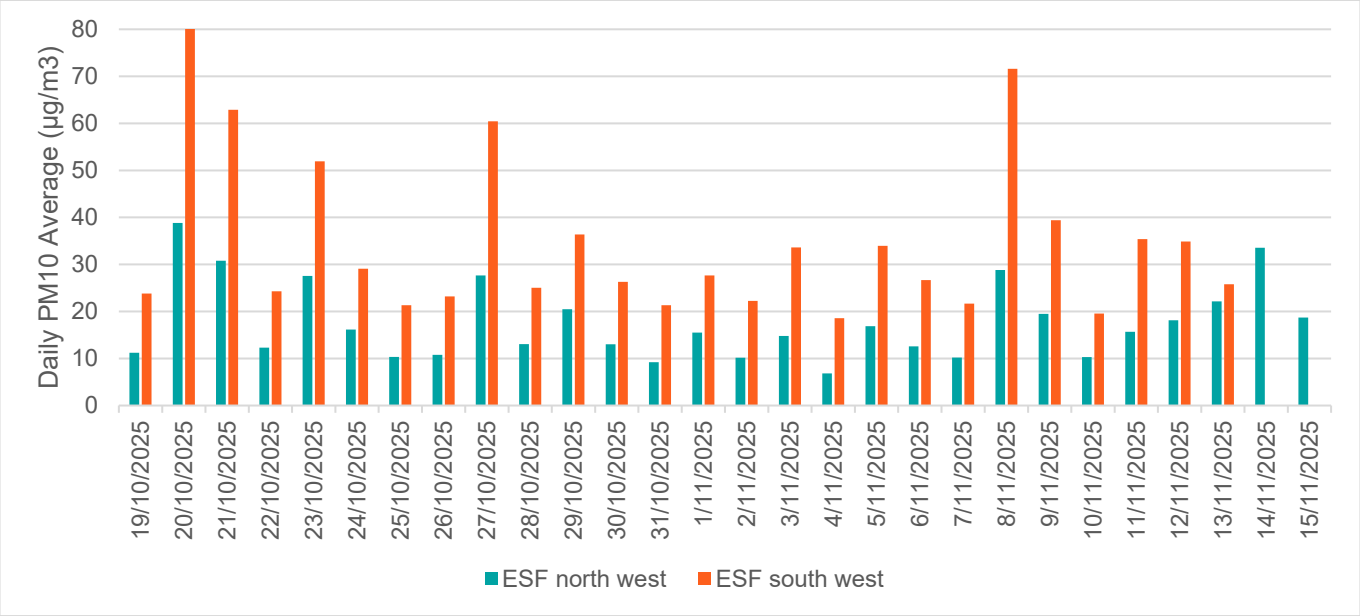


Figure 2: ESF PM_{10} daily averages from 19 October to 15 November

3.1.1 Daily Objective Analysis

The daily average PM_{10} concentration at the ESF Southwest monitor was reported on five separate days, with a maximum of 81.5µg/m³. These results are considered data errors and are not representative of Terra Verde's activities, likely due to potential equipment faults currently under investigation, as the elevated readings occurred primarily when no works were taking place. Bureau of Meteorology (BoM) data confirms rainfall on all of these days, which would have suppressed dust and caused airborne particles to settle.

The issue is under investigation, and the monitor will be inspected and replaced if necessary. Data from the ESF Northwest monitor remains compliant with relevant air quality objectives, further indicating that the Southwest monitor readings are not representative of site activities. It is noted that the monitors are now installed on the hoarding and positioned according to the agreed locations in the Worksite Environmental Management Plan, now that access to that part of the site has become available.

3.1.2 ESF TARP Analysis

The TARP uses the continuous data from the on-site PM_{10} monitors to enable short-term, proactive and reactive air quality management. Alert values are set at three 'levels' in response to PM_{10} concentrations:

- Level 1 – Preventive Alert Level: investigate and prepare.
- Level 2 – Preventive Action Level: action required.
- Level 3 –Trigger Level: further action and changes to operations required.

At ESF, during excavation works on 21 October, Level 1 of the TARP was triggered due to works occurring directly adjacent to the monitor. Monitoring data was reviewed, a visual inspection was undertaken, and dust-suppression controls were implemented until conditions returned to normal.

3.2 BURWOOD



Figure 3. BUW air quality monitoring stations

Table 5: BUW PM_{10} results

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Air Quality Objective (µg/m3)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
-	Representative Background – Alphington EPA monitoring station	25.7	16.0	50	N/A	N/A
1	Burwood- BUW East	19.7	9.3	50	0	0

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration ($\mu g/m^3$)	Median Daily PM_{10} Concentration ($\mu g/m^3$)	Air Quality Objective (µg/m3)	Days TARP Triggered in the Month	Days TARP Actions Implemented in the Month
2	Burwood- BUW South	35.5	11.8	50	4	4

Note: The Burwood South monitor was offline from 8–10 November while it was being relocated onto the hoarding.

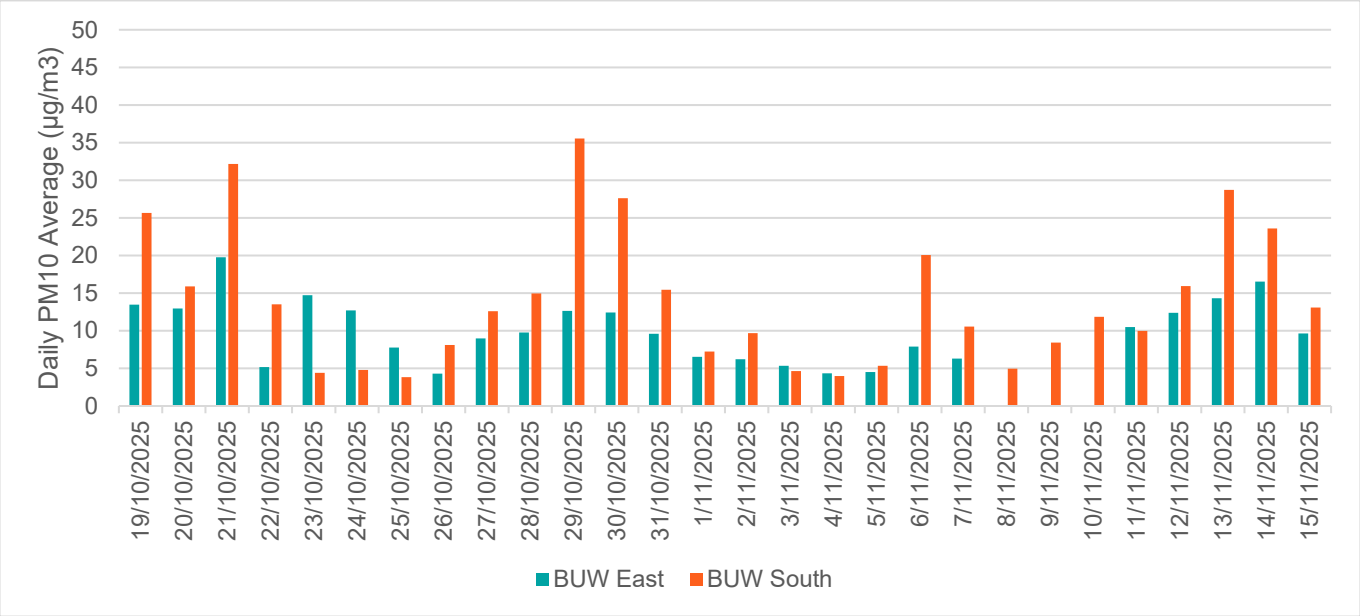


Figure 4. Burwood PM_{10} daily averages from 19 October to 15 November

3.2.1 Daily Objective Analysis

No daily averages above the daily objective were recorded during the reporting period. The maximum daily average PM_{10} concentration was 35.5 µg/m³ at the BUW South monitoring location during excavation and drainage pipe installation. A proactive visual inspection was carried out, and dust controls were in place. Water carts operated on site until conditions returned to normal.

Data from 8 to 10 November are missing due to a wiring issue with the BUW South monitor while it was being installed on the hoarding, which prevented data recording. The monitor has since been inspected and returned to normal operation.

3.2.2 BUW TARP Analysis

The TARP uses the continuous data from the on-site PM_{10} monitors to enable short-term, proactive and reactive air quality management. Alert values are set at three 'levels' in response to PM_{10} concentrations:

- Level 1 – Preventive Alert Level: investigate and prepare.
- Level 2 – Preventive Action Level: action required.
- Level 3 –Trigger Level: further action and changes to operations required.

At BUW, during excavation and leveling of the piling platform, TARP Level 1 was triggered on four separate days. Water trucks were deployed to wet down the work area until dust levels returned to normal. TARP Level 2 was triggered on one occasion, during which the weather forecast was reviewed, and additional water trucks were mobilised to manage conditions until they stabilised

3.3 Meteorological Conditions

Table 6: Daily weather observations for Melbourne (Olympic Park), Victoria 19/10/2025 – 15/11/2025. 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	10.7	20.0	N/A	36.1	68.9
Lowest	5.2	12.7	WSW / SSW	20.0	30.0
Highest	14.7	32.3	NNW	72.0	100.0

Table 7: Daily rain data for Melbourne (Olympic Park), Victoria 19/10/2025 – 15/11/2025. Data Source BOM.

Statistic	Rain (mm)
Daily Low	0
Daily High	35.4
Total	143.2

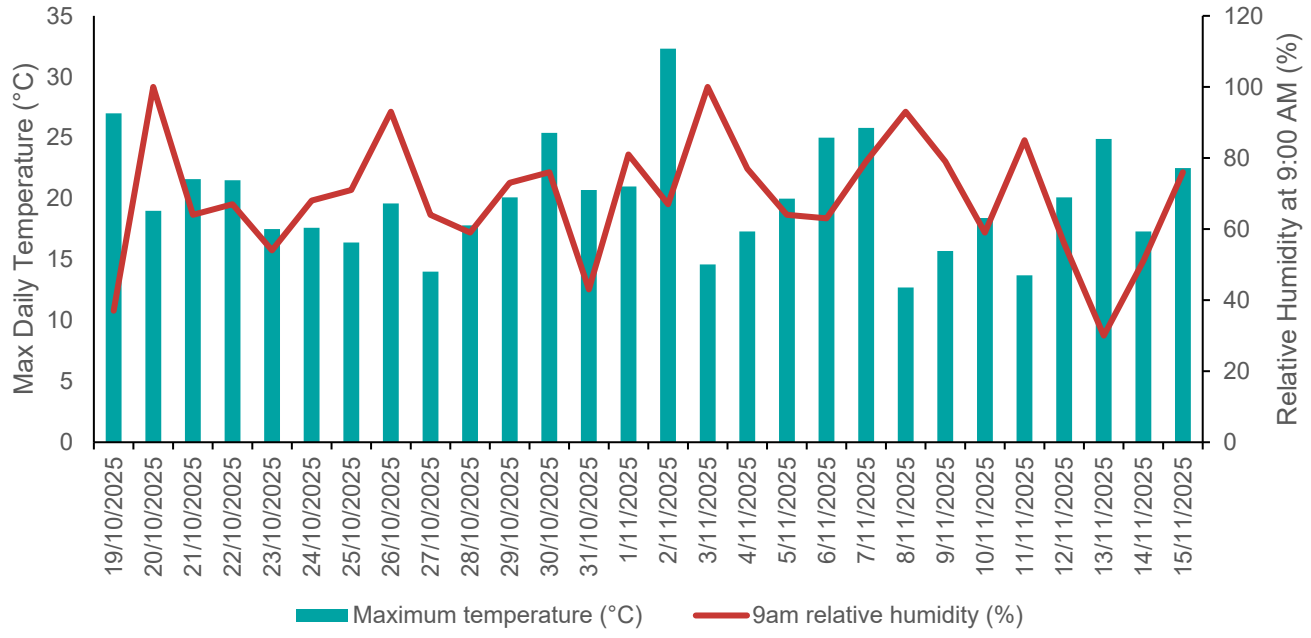


Figure 5: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19/10//2025 – 15/11/2025. Data Source BOM.

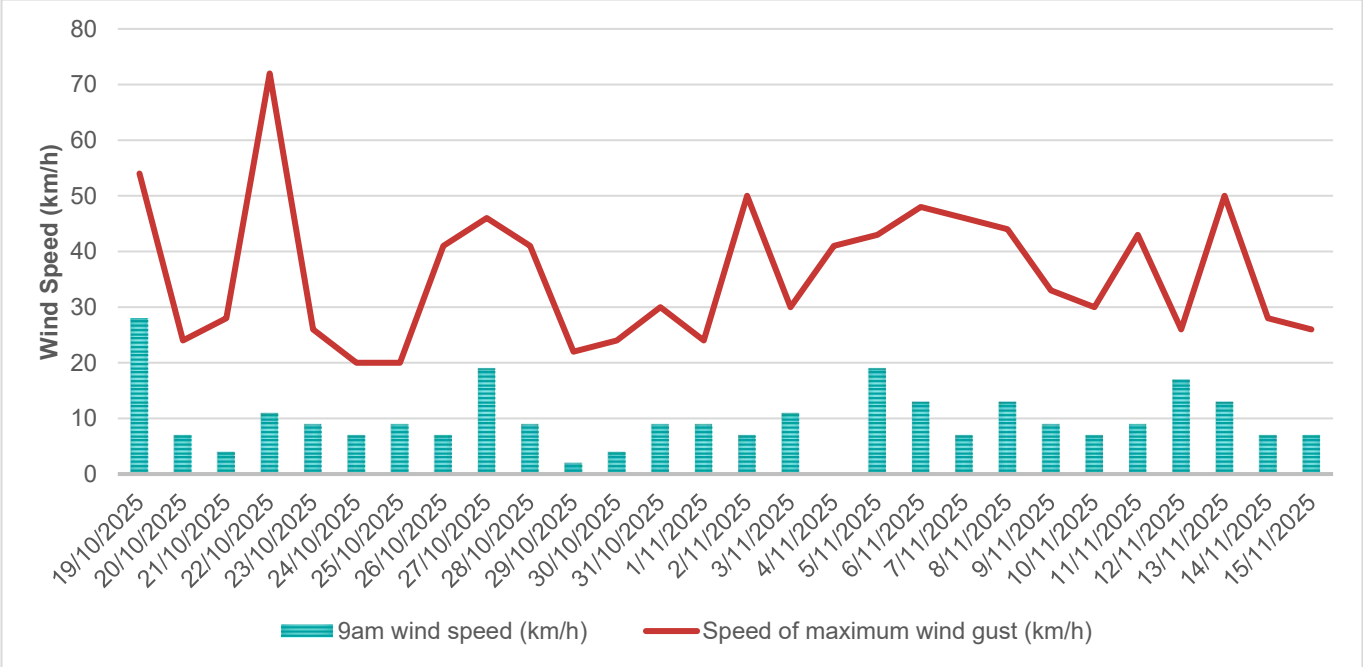


Figure 6. Daily wind speed observations for Melbourne (Olympic Park), Victoria 19/10/2025 – 15/11/2025. Data Source BOM

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 October 2025 – 15 November 2025 are shown in Table 8, below.

Data capture was 100% for all parameters at the ESF northwest monitor, and 93% at the southwest monitor due to a technical firmware issue that caused it to go offline during the reporting period. The Burwood East monitor recorded 89% data capture, while Burwood South achieved 100%. The Burwood South monitor was briefly offline over the weekend as it was being relocated onto the hoarding.

Table 8: Air quality monitoring, data capture summary

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Mount Waverley – ESF northwest	PM_{10}	24-hours	28	28	100%
Mount Waverley – ESF southwest	PM_{10}	24-hours	28	26	93%
Burwood Site Compound - BUW East	PM_{10}	24-hours	28	25	89%
Burwood Site Compound - BUW South	PM_{10}	24-hours	28	28	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 9: Monitoring device calibration information

Location	Device Serial Number	Calibration Date	Calibration Due
Mount Waverley – ESF northwest	HEX-001065	11/06/2025	11/06/2027
Mount Waverley – ESF southwest	HEX-001185	11/06/2025	11/06/2027
Burwood Site Compound -BUW East	HEX-000635	11/06/2025	11/06/2027
Burwood Site Compound -BUW South	HEX-000707	11/06/2025	11/06/2027