SUBURBAN RAIL LOOP

Air Quality Monthly Report

Early Works

Tunnels South

Tunnels North

19 June – 18 July 2025

SUBURBAN RAIL LOOP AUTHORITY

VICTORIA'S BIG BUILD

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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.

SRLA East Tunnels North is a fully tunnelled metro corridor between Cheltenham 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 June 25 – 18 July 2025

Document Information

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A	Draft issued to SRLA	23/07/2025	Issued for Review
B	Draft issued to SRLA	29/07/2025	Issued for Review
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Contents

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.

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. Proactive dust mitigation measures included routine water cart and hose use on exposed soil and covering stockpiles to reduce dust. Additional controls included maintaining stockpiles below hoarding heights and covering loads prior to trucks exiting the site.
- In Glen Waverley, the TARP was not implemented during the reporting period. A water cart and hose were used to dampen exposed soil, and stockpiles were covered to minimise wind carrying dust. Truck loads were also covered to minimise the risk of dust leaving the site during spoil haulage.
- 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 requiring trucks to cover loads prior to leaving the site.
- 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 June 2025 and 18 July 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.

Results

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

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

Location	Parameter	Averaging Period	Max Concentration (µg/m^3)	Median Concentration (µg/m^3)	Days TARP Implemented in the Month
Representative Background[1]					
Alphington	PM_{10}	24-hour	29.1	14.8	-
Dandenong	PM_{10}	24-hour	27.8	14.3	-
Burwood					
Corner of McComas Grove and Sinnott Street	PM_{10}	24-hour	18.1	9.4	0
16 McComas Grove	PM_{10}	24-hour	14.7	6.2	
Site 4 – East	PM_{10}	24-hour	18.4	8.1	
Site 4 – West	PM_{10}	24-hour	25.2	13.0	
Site 1 – South	PM_{10}	24-hour	28.3	13.2	
Glen Waverley					
Coleman Parade	PM_{10}	24-hour	35.8	12.7	0
Railway Parade	PM_{10}	24-hour	28.4	12.4	
Heatherton					
SSY - South	PM_{10}	24-hour	23.3	12.7	0
Site Office	PM_{10}	24-hour	13.7	6.5	
SS17	PM_{10}	24-hour	27.1	11.8	

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 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

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

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

- Ground improvement works
- Tram terminus works, and
- Site preparations for tunnel boring machines.

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

1.2. Environmental Management Framework

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

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

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

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

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.

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 – 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
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

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.

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.

3.2. Burwood

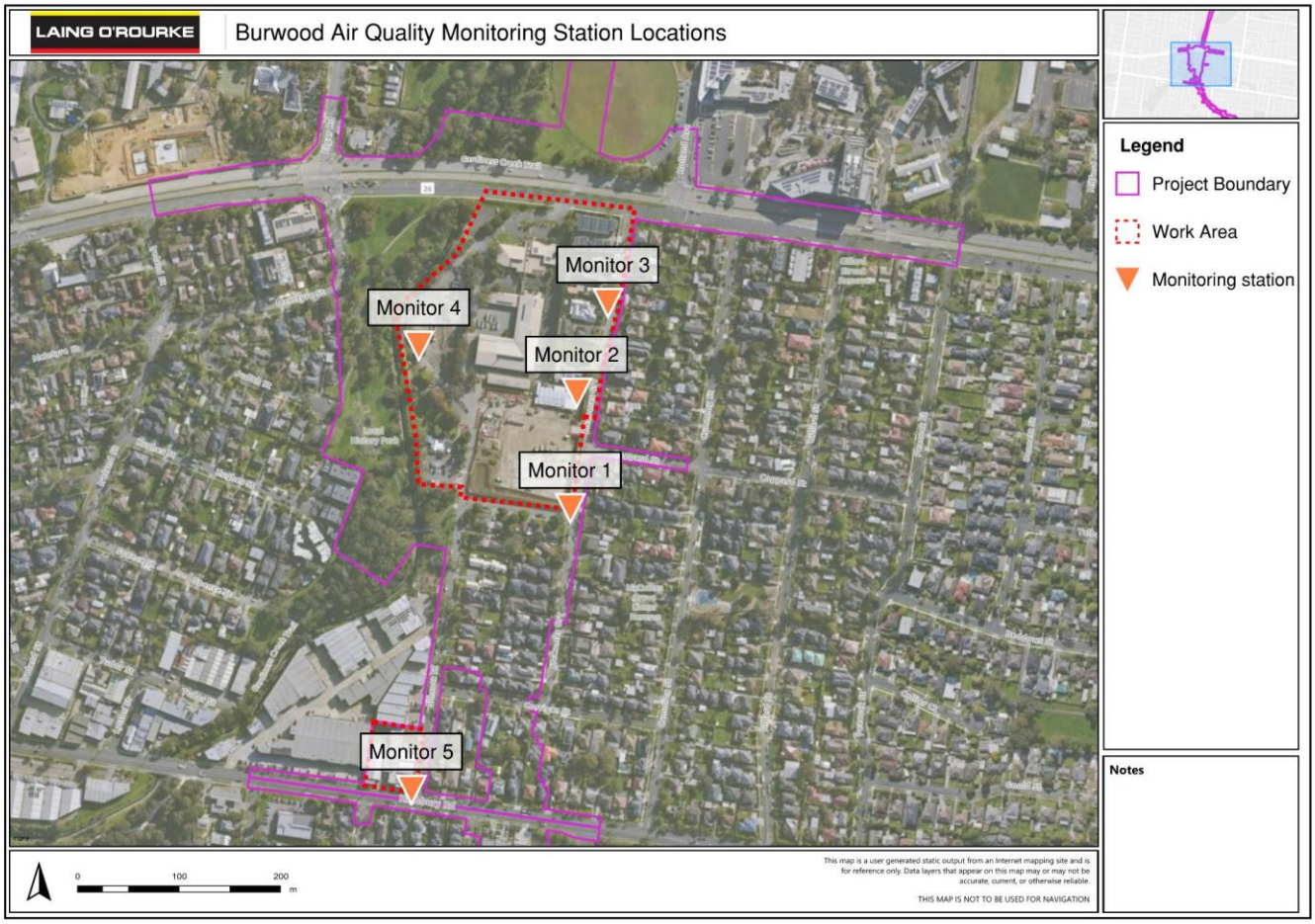

Figure 1: Burwood air quality monitoring stations.

Table 4: Burwood PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Implemented in the Month
-	Representative Background - Alphington	29.1	14.8	-
1	Corner of McComas Grove and Sinnott Street	18.1	9.4	0
2	16 McComas Grove	14.7	6.2	
3	Site 4 - East	18.4	8.1	
4	Site 4 – West	25.2	13.0	
5	Site 1 – South	28.3	13.2	

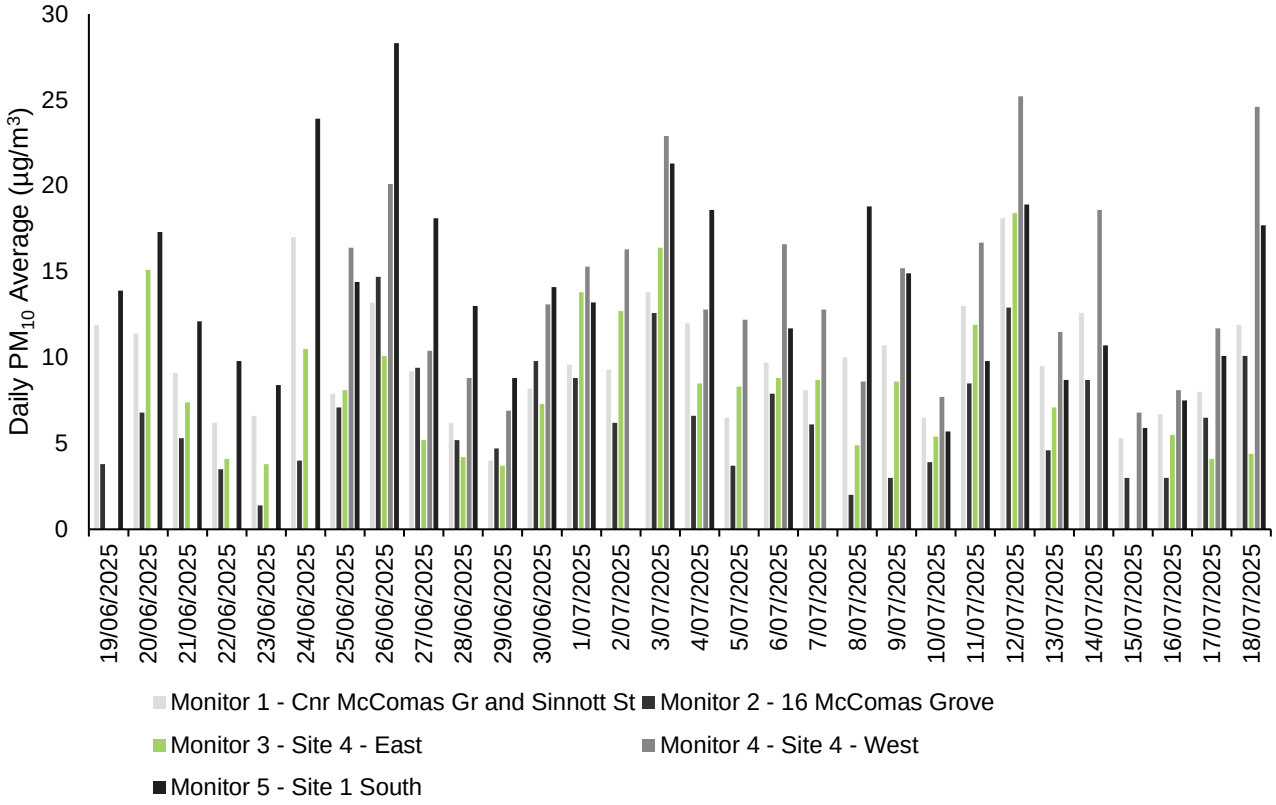

Figure 2: Burwood PM_{10} daily averages.

3.2.1. Analysis

The maximum daily average PM_{10} concentrations reported at the Burwood monitoring stations were 18.1 µg/m^3 (n = 30) at the corner of McComas Grove and Sinnott Street (Monitor 1), 14.7 µg/m^3 (n = 30) at 16 McComas Grove (Monitor 2), 18.4 µg/m^3 (n = 27) at Site 4 – East (Monitor 3), 25.2 µg/m^3 (n = 24) at Site 4 – West (Monitor 4), and 28.3 µg/m^3 (n = 27) at Site 1 South (Monitor 5).

The TARP was not implemented during the reporting period. Proactive measures were implemented during this period to manage dust on site. This included routine water cart and hose use on exposed soil and covering stockpiles to reduce dust. Additional controls included maintaining stockpiles below hoarding heights and covering loads prior to trucks exiting the site. Regular site inspections were maintained during this period to ensure these measures were regularly implemented.

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 (µg/m³)	Median Daily PM_{10} Concentration (µg/m³)	Days TARP Implemented in the Month
-	Representative Background - Alphington	29.1	14.8	-
1	Coleman Parade	35.8	12.7	0
2	Railway Parade North	28.4	12.4	

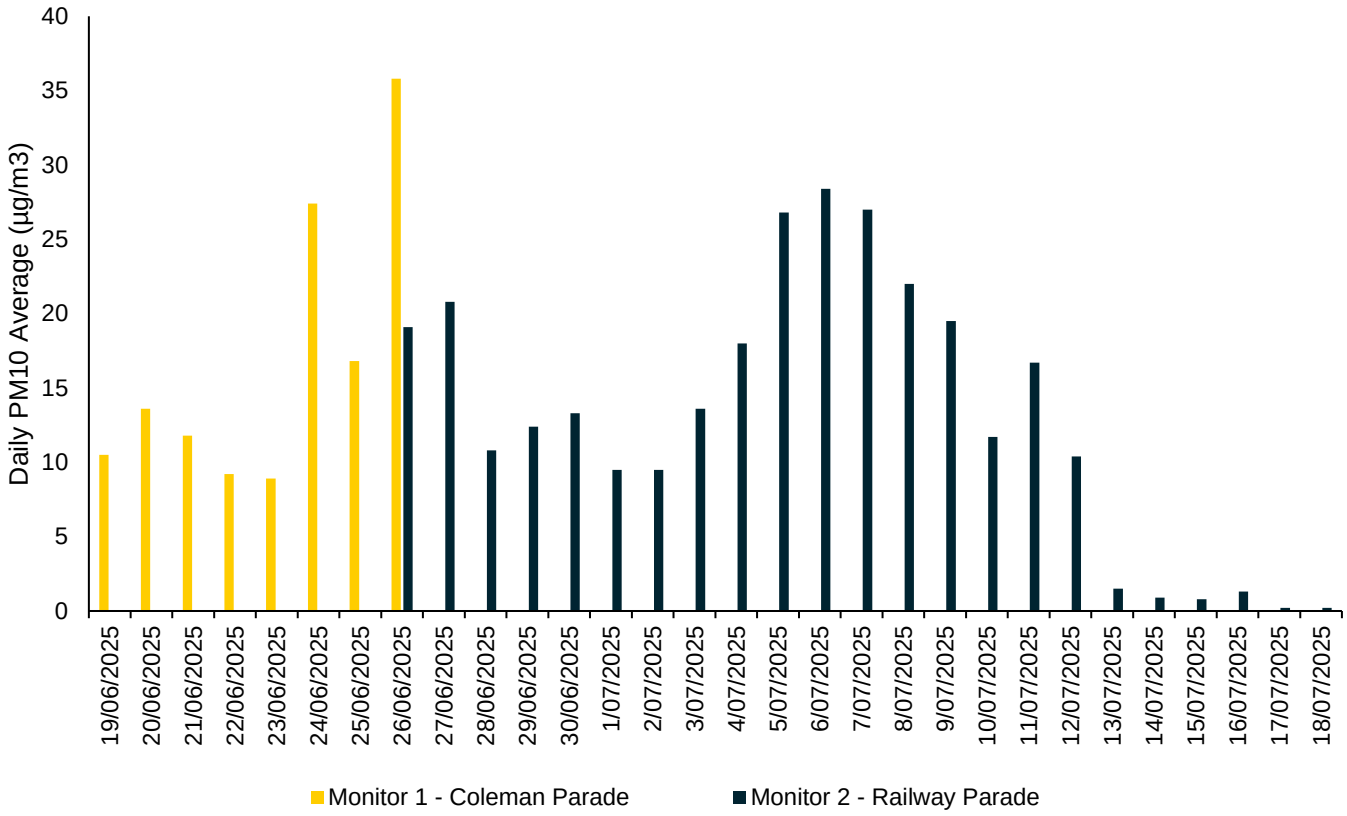

Figure 4: Glen Waverley PM_{10} daily averages.

3.3.1. Analysis

The maximum daily average PM_{10} concentrations were 35.8 µg/m^3 (n = 8), and 28.4 µg/m^3 (n = 23) at the monitoring locations at Coleman Parade (Monitor 1) and Railway Parade (Monitor 2), respectively.

The TARP was not implemented during the reporting period. Proactive measures implemented during the reporting period included routine water cart and hose use to dampen exposed soil, and covering stockpiles to reduce wind carrying dust. Truck loads were covered to minimise the risk of dust leaving site during spoil haulage. Regular site inspections were maintained during this period to ensure these measures were effective and implemented.

Monitor 1 was decommissioned on 26 June 2025 as dust generating works were completed in the area.

3.4. Monash

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

3.5. Clayton

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

3.6. Heatherton

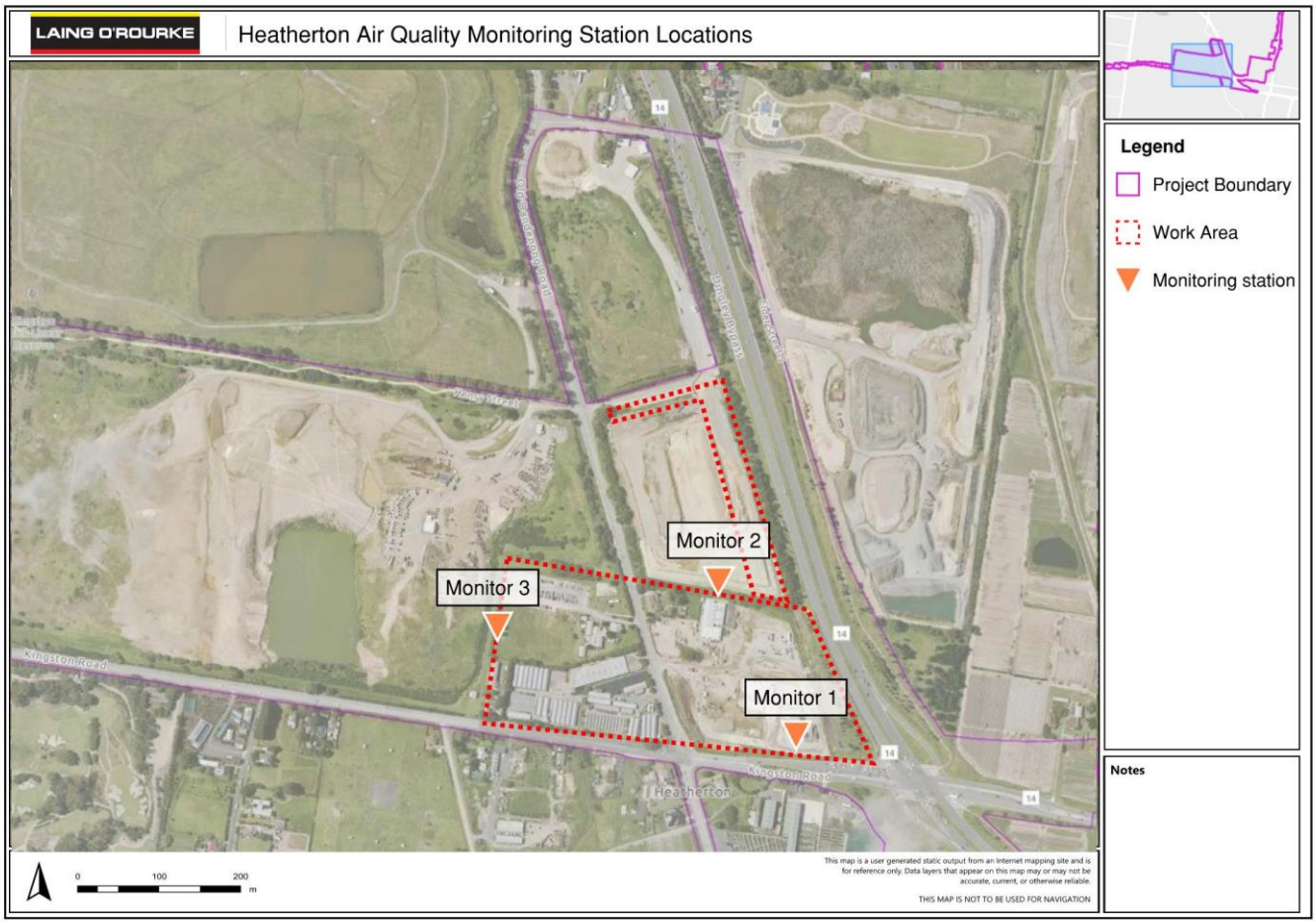

Figure 5: Heatherton air quality monitoring stations.

Table 6: Heatherton PM_{10} results.

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Implemented in the Month
-	Representative Background - Dandenong	27.8	14.3	-
1	SSY - South	23.3	12.7	0
2	Site Office	13.7	6.5	
3	SS17	27.1	11.8	

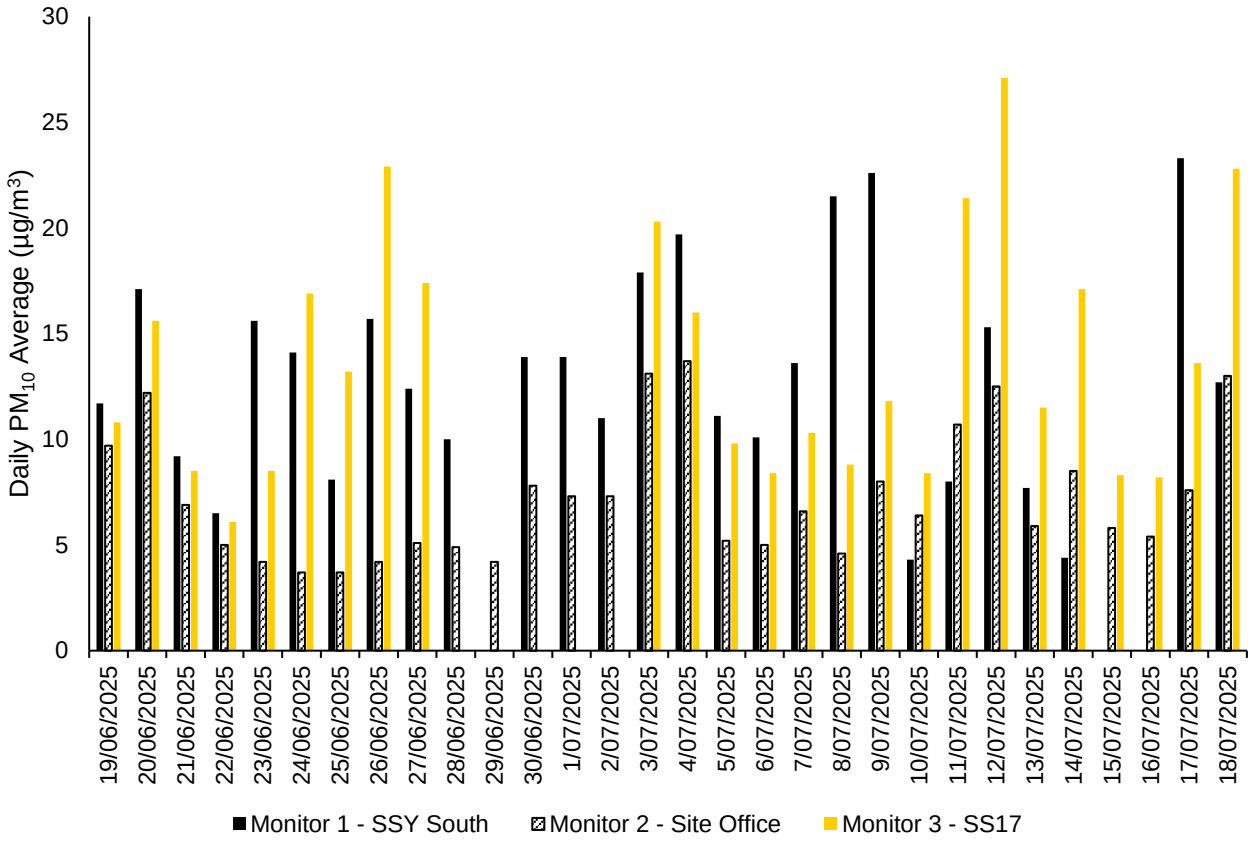

Figure 6: Heatherton PM_{10} daily averages.

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. These included earthworks associated with the Eastern Portal Tunnel Access Structure (TAS) and the safe removal of hazardous materials.

The maximum daily average PM_{10} concentrations were 23.3 µg/m^3 (n =27), 13.7 µg/m^3 (n = 30), and 27.1 µg/m^3 (n = 25) 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 trucks with covered loads.

3.7. Cheltenham

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

4.Meteorological Conditions

Table 7: Daily weather observations for Melbourne (Olympic Park), Victoria 19 June 2025 – 18 July 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	7.2	14.7	-	34.2	80.6
Lowest	4.3	10.1	SSW	15	61
Highest	11.5	19	N	70	100

Table 8: Daily weather observations for Melbourne (Moorabbin), Victoria 19 June 2025 – 18 July 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	6.4	14.9	-	40.7	79.9
Lowest	-0.1	10.6	WSW	17.0	59.0
Highest	11.5	19.8	N	83.0	96.0

Table 9: Daily rain data for Melbourne (Olympic Park and Moorabbin), Victoria 19 June 2025 – 18 July 2025. Data Source BOM.

Statistic	Rain data Olympic Park (mm)	Rain data Moorabbin (mm)
Daily Low	0.0	0.0
Daily High	15	12.0
Total	44	36.4

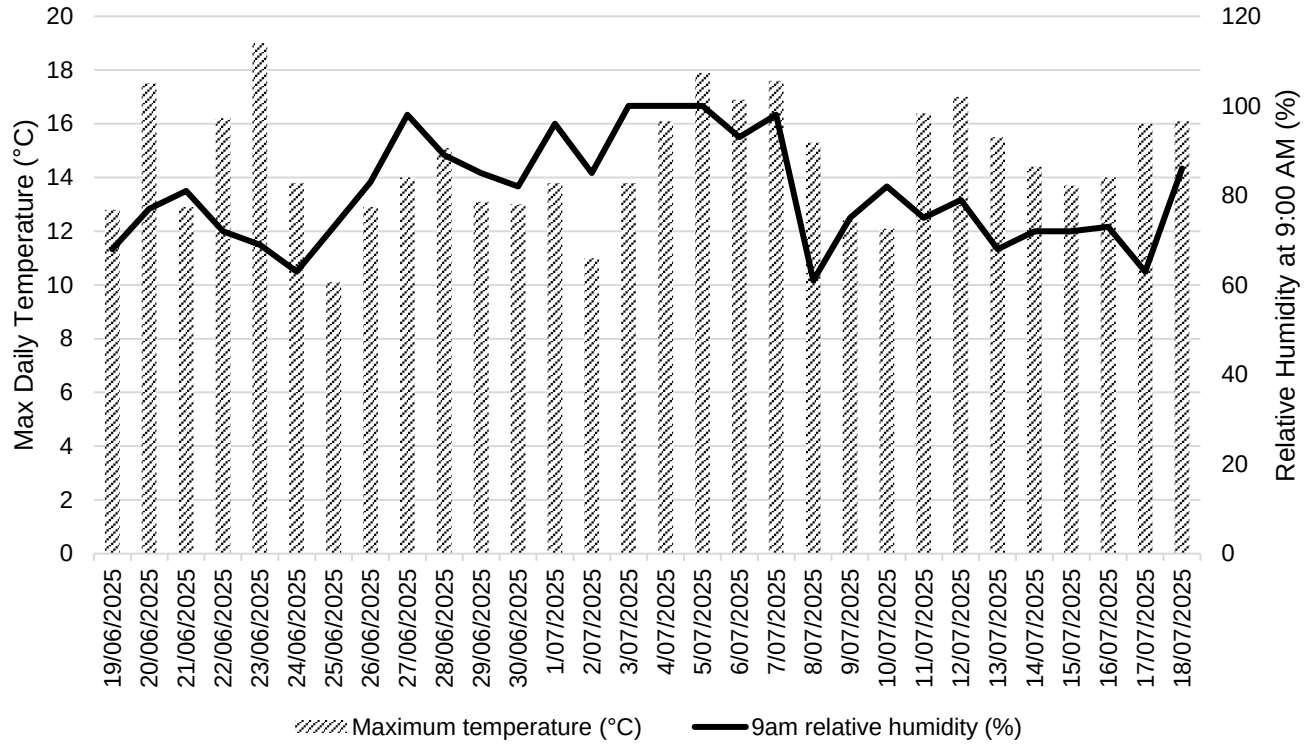

Figure 7: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 19 June 2025 – 18 July 2025. Data Source BOM.

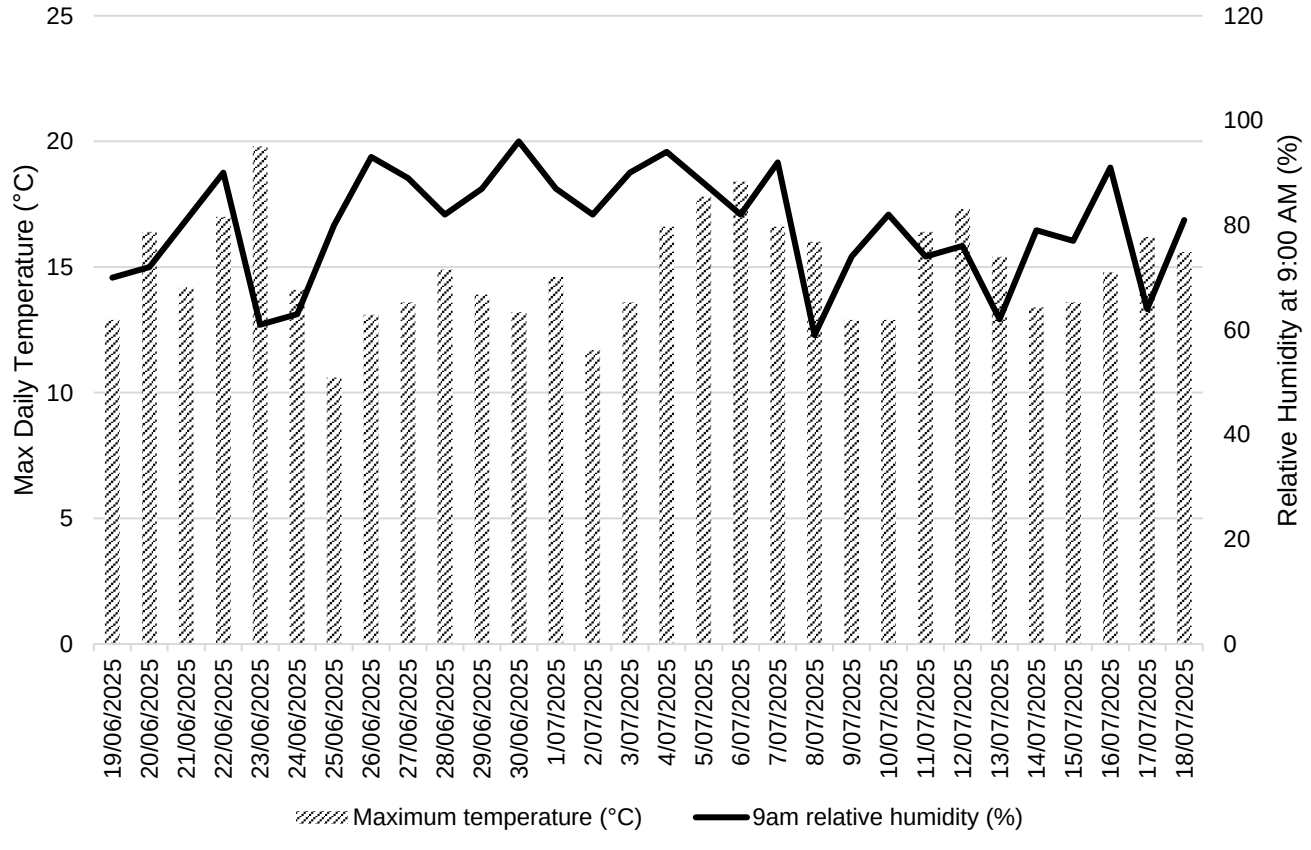

Figure 8: Daily relative humidity and temperature observations for Melbourne (Moorabbin), Victoria 19 June 2025 – 18 July 2025. Data Source BOM.

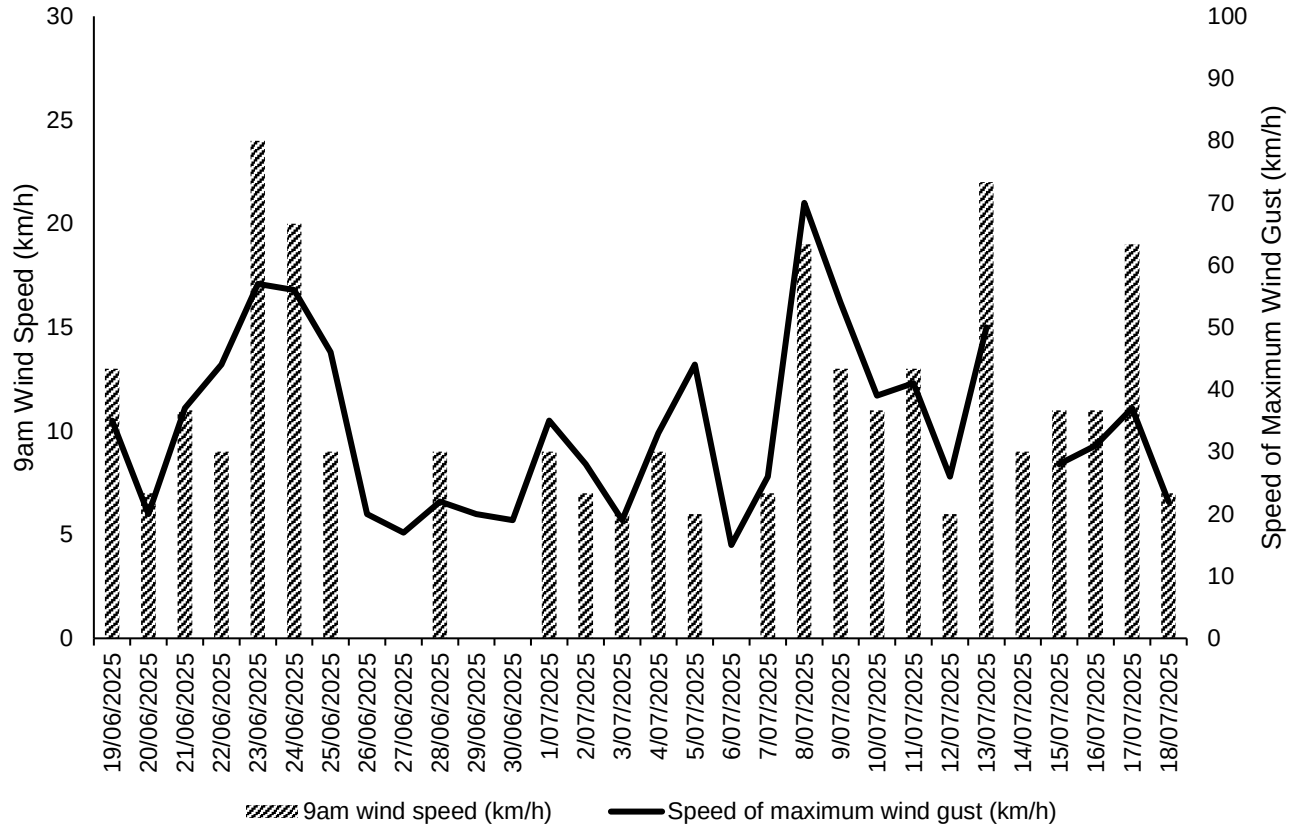

Figure 9: Daily wind speed observations for Melbourne (Olympic Park), Victoria 19 June 2025 – 18 July 2025. Data Source BOM.

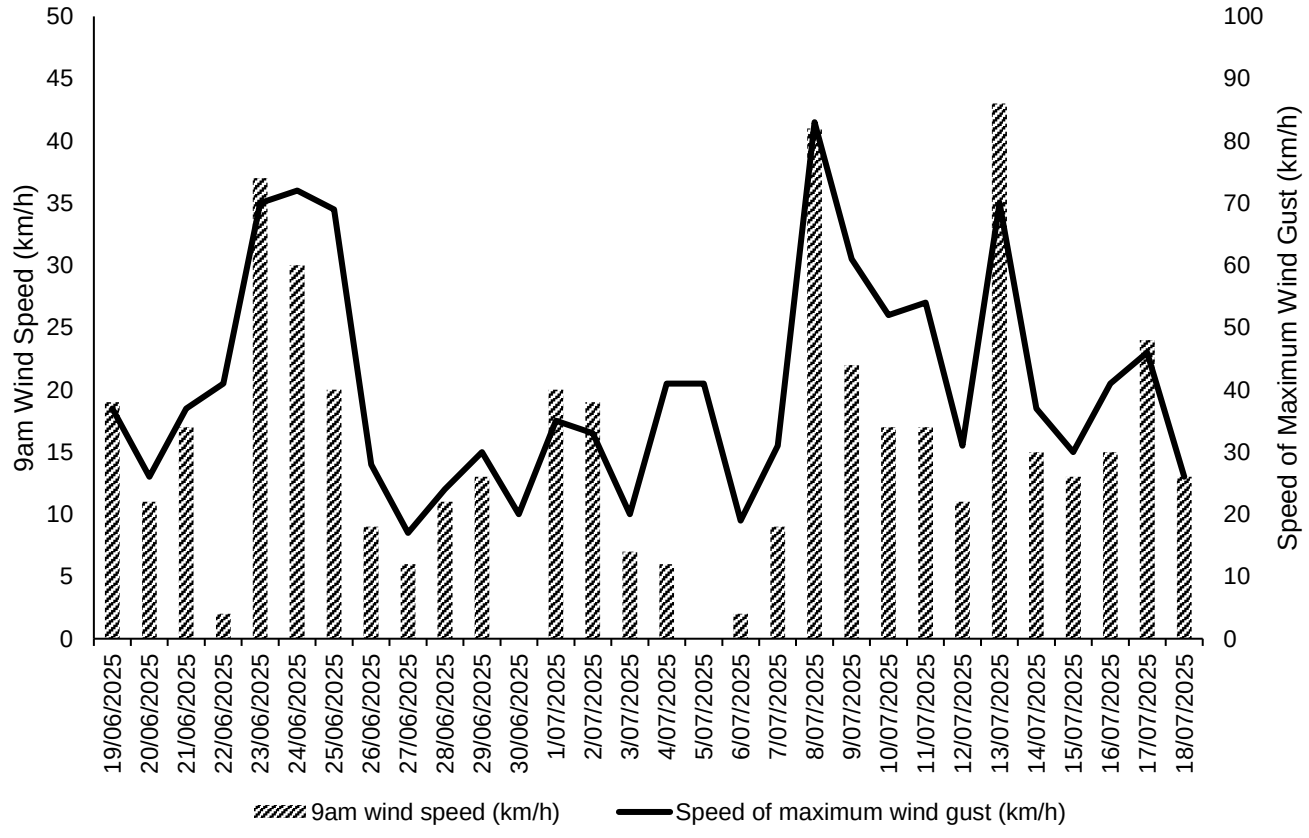

Figure 10: Daily wind speed observations for Melbourne (Moorabbin), Victoria 19 June 2025 – 18 July 2025. Data Source BOM.

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 June 2025 to 18 July 2025 are shown in Table 10.

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

- At Box Hill all monitors have been decommissioned.
- At Burwood, the gaps in reporting at Monitor 3 on 19 June 2025, 14 and 15 July 2025, and at Monitor 5 on 2 July 2025, 5 July 2025 and 7 July 2025 can be attributed to energy source issues.
- At Glen Waverley, the gap in reporting data at Monitor 2 between 19 June 2025 and 25 July 2025 were due to battery issues, requiring delivery of a replacement battery. Monitor 1 was decommissioned on 26 June 2025 as dust generating works were completed in the area.
- At Monash, all monitors have been decommissioned.
- At Clayton, all monitors have been decommissioned.
- At Heatherton, the gap in data of Monitor 1 on 29 June 2025, 15 July 2025 and 16 July 2025 were due energy source issues. The gap in data of Monitor 3 between 28 June 2025 and 2 July 2025 was due to battery issues. This has since been rectified.
- At Cheltenham all monitors have been decommissioned.
- 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 – Corner of McComas Grove and Sinnott Street	PM_{10}	24-hours	30	30	100%
Burwood – 16 McComas Grove	PM_{10}	24-hours	30	30	100%
Burwood – Site 4 - West	PM_{10}	24-hours	24	30	80%
Burwood – Site 4 - East	PM_{10}	24-hours	27	30	90%
Burwood – Site 1 - South	PM_{10}	24-hours	27	30	90%
Glen Waverley – Coleman Parade	PM_{10}	24-hours	8	8	100%
Glen Waverley – Railway Parade	PM_{10}	24-hours	23	30	77%
Heatherton – SSY – South	PM_{10}	24-hours	27	30	90%
Heatherton – SSY – Site Office	PM_{10}	24-hours	30	30	100%
Heatherton – SSY - SS17	PM_{10}	24-hours	25	30	83%

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 – 16 McComas Grove	HEX-000162	22 August 2024	22 August 2026
Burwood – Corner of McComas Grove and Sinnott Street	HEX-000300	11 June 2025	11 June 2027
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
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

Suburban Rail Loop East Tunnels South

Air Quality Monthly Report

19 June 2025 to 18 July 2025

Document Information

Document Details	
Document Number	SRL-WPC-SCC-SPKW-REP-XEV-PWD-000012
Revision Date	8-Aug-2025
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Revision Control

Revision Number	Change Detail	Date	Comment
A	Draft issued to SRLA	23/07/2025	Issued For Review
B	Draft issued to SRLA	29/07/2025	Issued For Review
C	Draft issued to SRLA	07/08/2025	Issued For Review

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Executive Summary

Key Outcomes

Key outcomes arising from the monthly air quality monitoring program:

- Works took place at:
  - Train Stabling Facility West
  - Clarinda CC01
  - Clarinda Tunnel Access Structure Site
  - Clayton
- 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.
- The TARP was not triggered during the reporting period.

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 main works construction site for the period between 19 June 2025 to 18 July 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 – CC01
- Clarinda – Clarinda TBM launch site
- Clayton – Clayton Site

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

- Cheltenham
- Train Stabling Facility East
- Monash
- Glen Waverley

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/m³)	Median Concentration (µg/m³)	Days TARP Actions Implemented in the Month
Representative Background Locations					
Dandenong	PM_{10}	24-hour	21.5	9.7	N/A
Suburban Connect Monitoring Locations					
Train Stabling Facility West – North West	PM_{10}	24-hour	25.4	10.0	0
Train Stabling Facility West – South East Boundary	PM_{10}	24-hour	19.2	8.2	0
Train Stabling Facility West – Linear Reserve North	PM_{10}	24-hour	18.7	9.6	0
Train Stabling Facility West – Linear Reserve South	PM_{10}	24-hour	19.9	8.2	0
Clarinda CC01	PM_{10}	24-hour	24.4	14.7	0
Clarinda TBM launch site- South Boundary	PM_{10}	24-Hour	73.1	30.1	0
Clarinda TBM launch site – East	PM_{10}	24-hour	42.8	28.3	0
Clarinda TBM launch site- North	PM_{10}	24-hour	17.8	1.2	0
Clayton Site - Central	PM_{10}	24-hour	13.1	7.2	0

Location	Parameter	Averaging Period	Max Concentration (µg/m^3)	Median Concentration (µg/m^3)	Days TARP Actions Implemented in the Month
Clayton Site – North West	PM_{10}	24-hour	23.1	10.9	0
Clayton Site – South	PM_{10}	24-hour	31.8	15.2	0
Clayton Site – East (Church)	PM_{10}	24-hour	26.3	11.8	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 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 SETS
- Box excavations at Clayton and Monash station locations
- Interface works with the 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 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, 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 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 active during reporting period

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
Train Stabling Facility West – North West	7 May 2025	Latitude: -37.9524° Longitude: 145.0926°	PM_{10}	Dandenong EPA monitoring station
Train Stabling Facility West – South East	8 May 2025	Latitude: -37.9545° Longitude: 145.0922°	PM_{10}	Dandenong EPA monitoring station
Train Stabling Facility West – Linear Reserve North	15 May 2025	Latitude: -37.9529° Longitude: 145.0886°	PM_{10}	Dandenong EPA monitoring station
Train Stabling Facility West – Linear Reserve South	15 May 2025	Latitude: -37.9539° Longitude: 145.0883°	PM_{10}	Dandenong EPA monitoring station
Clarinda CC01	24 Oct 2024	Latitude: -37.9559° Longitude: 145.1063°	PM_{10}	Dandenong EPA monitoring station
Clarinda TBM launch site – South Boundary	21 Feb 2025	Latitude: -37.9570° Longitude: 145.1094°	PM_{10}	Dandenong EPA monitoring station
Clarinda TBM launch site – East Boundary	3 Dec 2024	Latitude: -37.9573° Longitude: 145.1109°	PM_{10}	Dandenong EPA monitoring station
Clarinda TBM launch site – North	23 Jan 2025	Latitude: -37.9553° Longitude: 145.1093°	PM_{10}	Dandenong EPA monitoring station
Clayton Site - Central	21 May 2025	Latitude: -37.9214° Longitude: 145.1199°	PM_{10}	Dandenong EPA monitoring station
Clayton Site – North West	3 Dec 2024	Longitude: -37.9217° Latitude: 145.1194°	PM_{10}	Dandenong EPA monitoring station
Clayton Site - South	5 Mar 2025	Latitude: -37.9237° Longitude: 145.1193°	PM_{10}	Dandenong EPA monitoring station

Monitoring Location	Date Commissioned	Coordinates	Monitoring Parameters	Representative Control Site
Clayton Site – East (Church)	4 Jun 2025	Latitude: -37.9224° Longitude: 145.1207°	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.

3.1 Train Stabling Facility West

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

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

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Actions Implemented in the Month
-	Representative Background – Dandenong	21.5	9.7	-
1	North West	25.4	10.0	0
2	South East	19.2	8.2	0
3	Linear Reserve North	18.7	9.6	0
4	Linear Reserve South	19.9	8.2	0

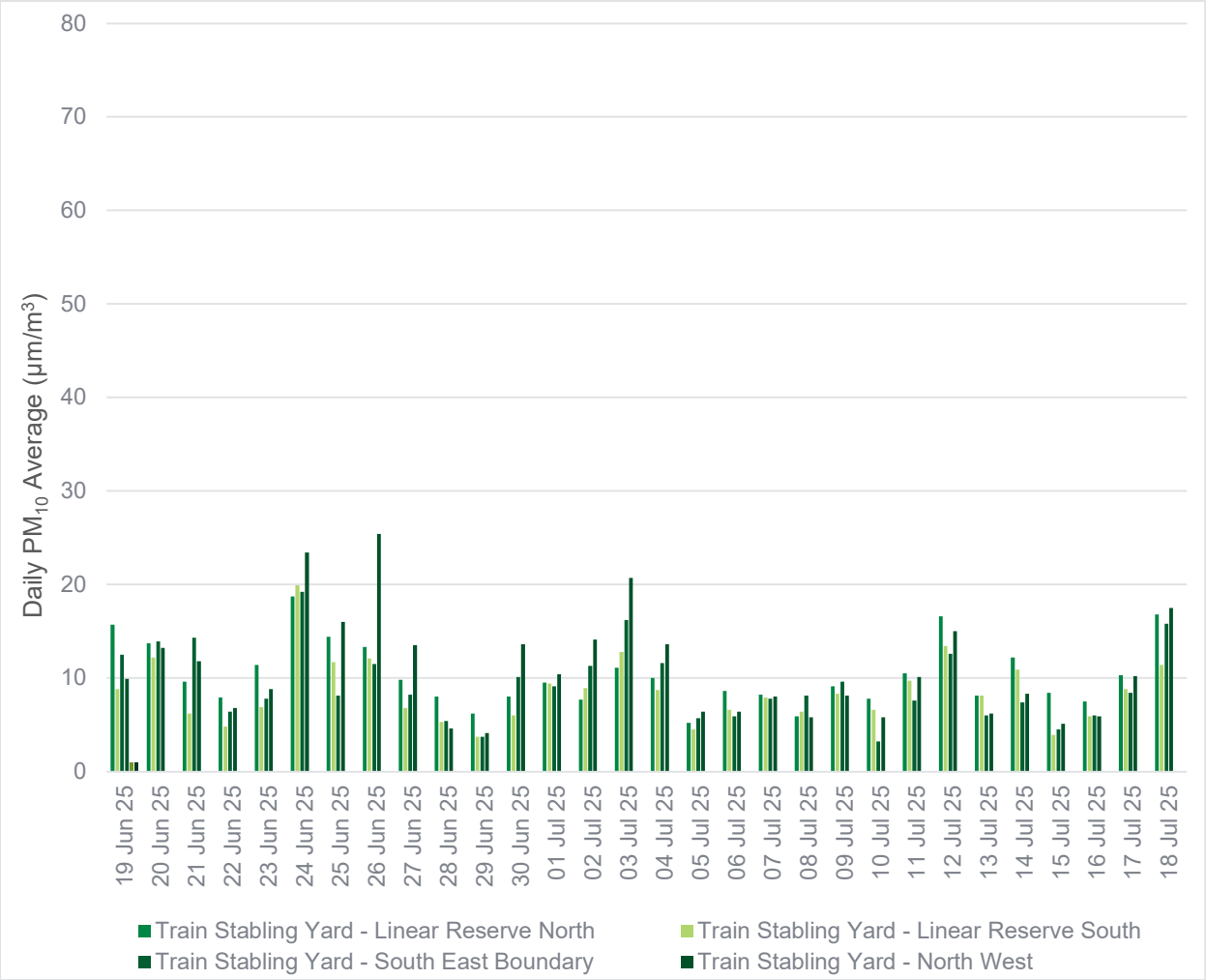

Figure 2: Daily Averages PM_{10} Results at Train Stabling Facility West

3.1.1 Analysis

Water carts were used proactively on site when works were occurring. The existing mitigation measures were sufficient to manage dust onsite, there were no elevated PM_{10} events and the TARP was not implemented during the reporting period.

3.2 Clarinda CC01

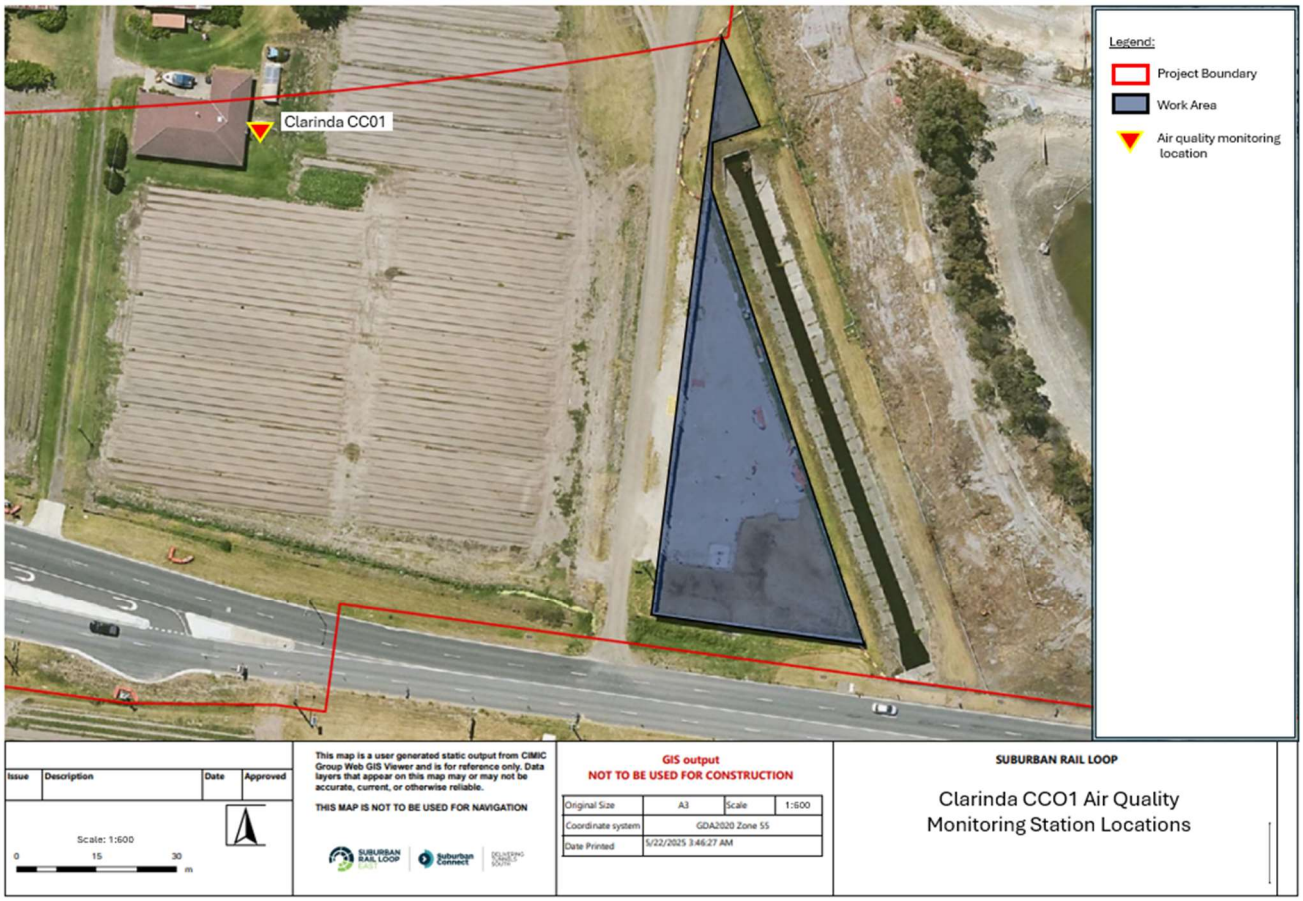

Figure 3: Clarinda CC01 air quality monitoring station

Table 5: Clarinda CC01 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 Actions Implemented in the Month
-	Representative Background – Dandenong	21.5	9.7	-
1	Clarinda CC01 – nearest residential property	24.4	14.7	0

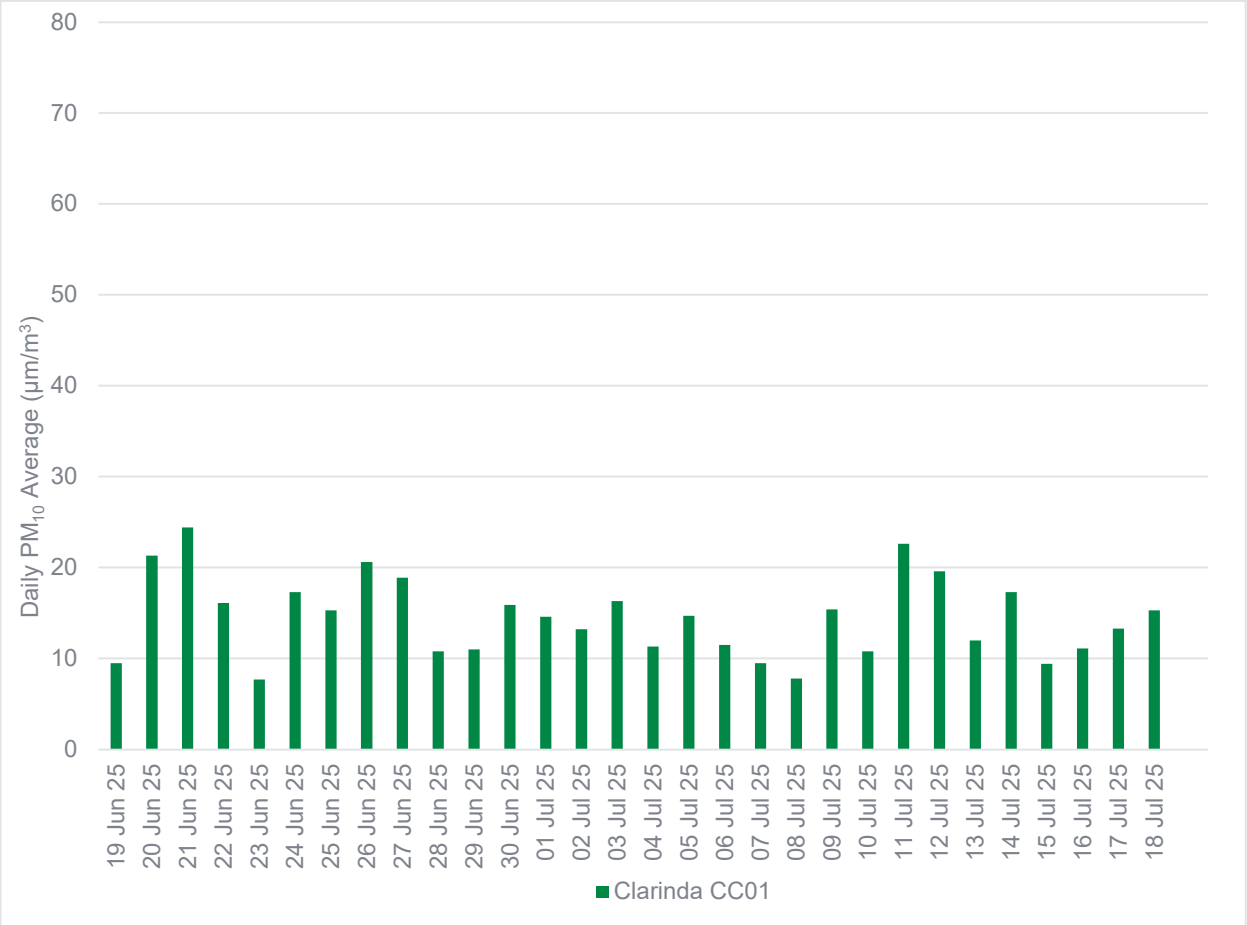

Figure 4: Daily Averages PM_{10} Results at Clarinda CC01

3.2.1 Analysis

There were no active construction works at the site during the reporting period. There were no elevated PM_{10} events and the TARP was not implemented during the reporting period.

3.3 Clarinda TBM launch site

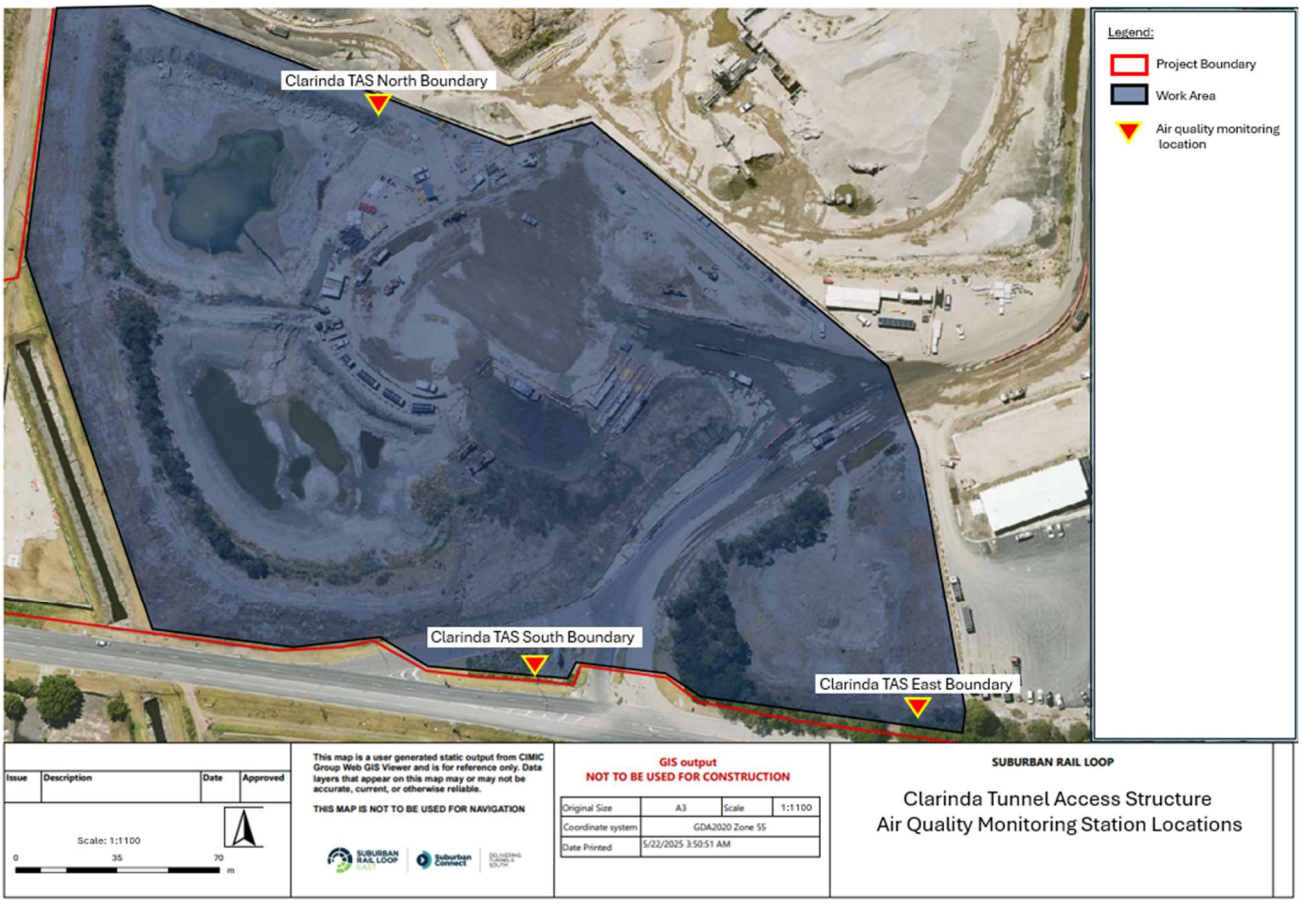

Figure 5: Clarinda TBM launch site air quality monitoring station

Table 6: Clarinda TBM launch site 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 Actions Implemented in the Month
-	Representative Background – Dandenong	21.5	9.7	-
1	Clarinda – TBM launch site – North Boundary	17.8	1.2	0
2	Clarinda – TBM launch site – East Boundary	42.8	28.3	0
3	Clarinda – TBM launch site – South Boundary	73.1	30.1	0

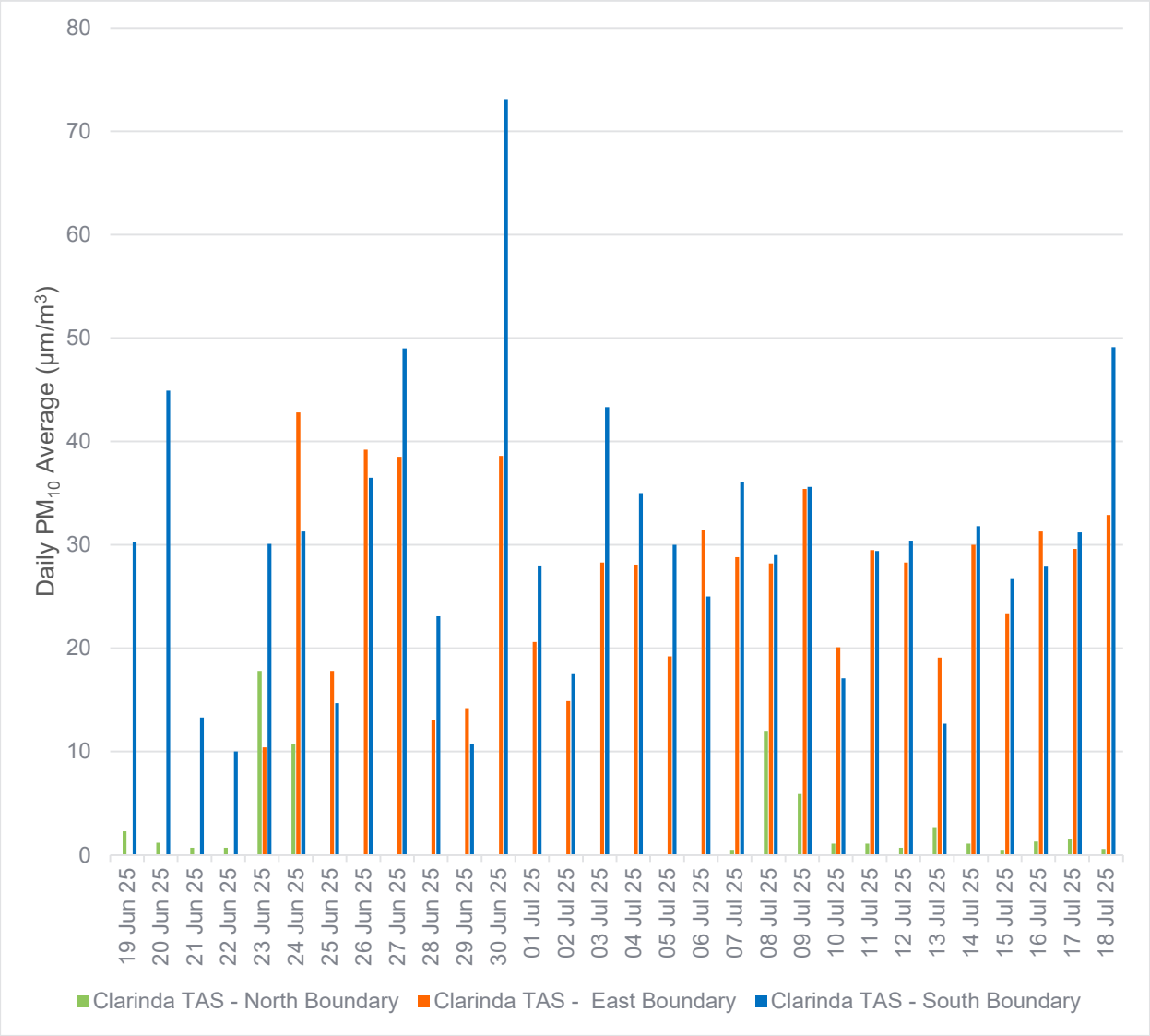

Figure 6: Daily Averages PM10 Results at Clarinda Tunnel Access Structure Site

3.3.1 Analysis

Measures implemented to actively manage dust on this site include a boundary sprinkler system, water carts, rumble grids, and street sweepers. In addition, daily observations by supervisors and environmental representatives are 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.

One elevated PM_{10} level occurred at Clarinda TBM launch site – South Boundary on the 30 June 2025. Investigation of this elevated PM_{10} level showed that haul roads and work areas were not generating observable dust. The elevated reading was not consistent with the additional monitoring units located between the work area and sensitive receivers, attributing this to an external off site source. Dust management measures were confirmed to be active and sufficient for the activities on site and no TARP actions were implemented.

Two monitors were temporarily offline during the reporting period due to flat batteries and have been since replaced. The Clarinda TBM launch site – East Boundary monitor was offline for four days (19 June to 22 June 2025) and the Clarinda TBM launch site – North Boundary monitor was offline for twelve days (26 June 2025 to 7July 2025). The positioning of the Clarinda TBM launch site – North Boundary monitor was behind a

haul road and unable to be accessed during normal operations and required additional time to replace the battery safely. This monitor has since been moved to an adjacent position with safe access and the battery replaced. Visual air inspections continued to occur while the monitors were offline.

3.4 Clayton Site

Figure 7: Clayton Site air quality monitoring station

Table 7: Clayton Site PM_{10} Results

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Days TARP Actions Implemented in the Month
-	Representative Background – Dandenong	21.5	9.7	-
1	Clayton Site - Central	13.1	7.2	0
2	Clayton Site – North West	23.1	10.9	0
3	Clayton Site – South	31.8	15.2	0
4	Clayton Site – East (Church)	26.3	11.8	0

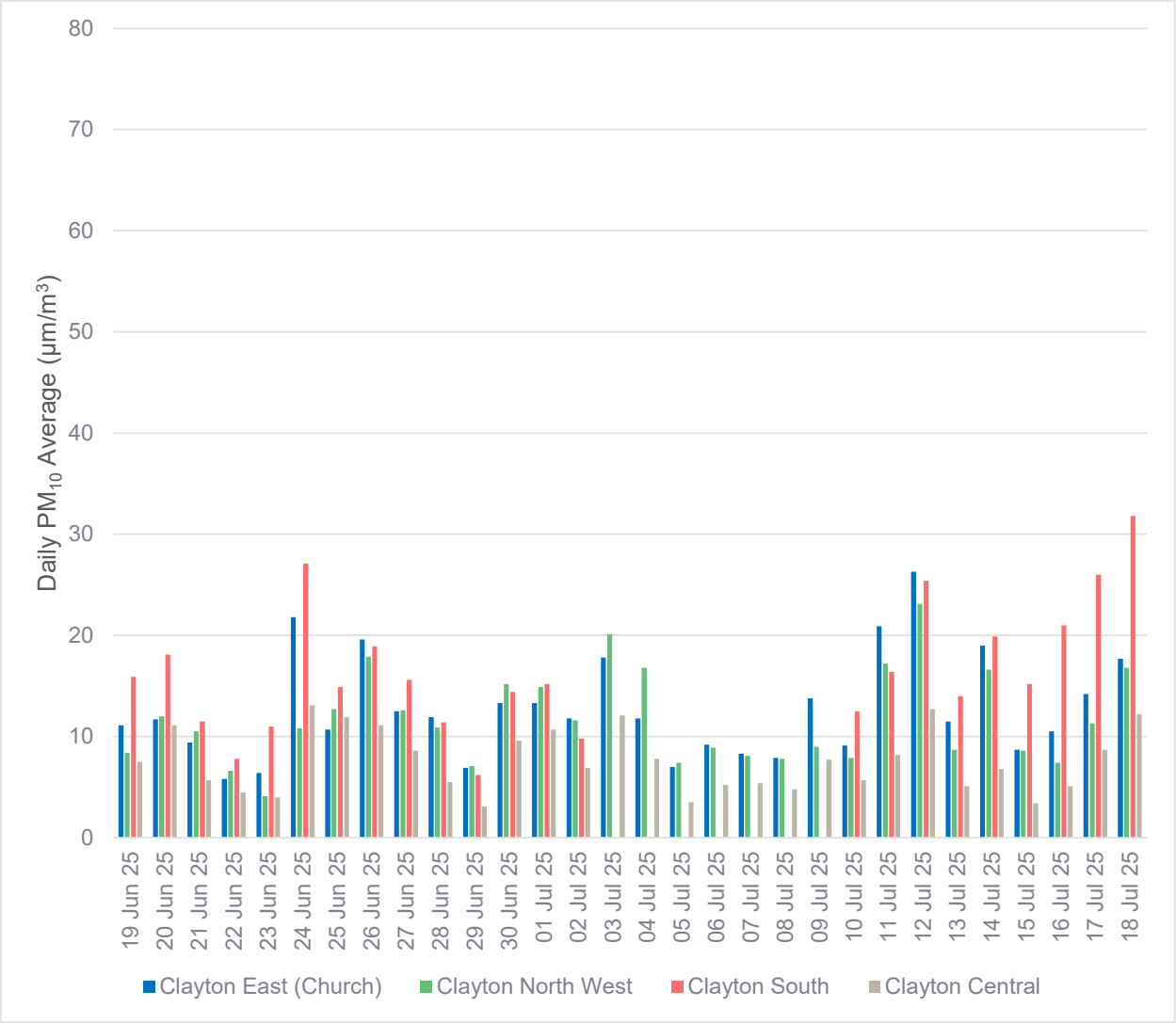

Figure 8: Daily Averages PM_{10} Results at Clayton

3.4.1 Analysis

Active dust suppression activities include the use of water carts and street sweepers, and there were no elevated PM_{10} monitoring events during the reporting period. Visual air inspections were also undertaken to proactively monitor and confirm there were no off-site dust impacts due to works on site.

There were seven days (3 July to 9 July 2025) where the Clayton South monitor was offline due to a flat battery. The battery was replaced and has been active since. Visual air inspections continued to occur while the monitors were offline.

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	6.4	14.9	N/A	40.7	79.9
Lowest	-0.1	10.6	SSW	17	59.0
Highest	11.5	19.8	N	83	96.0

Table 9: Daily rain data for Moorabbin, Victoria

Statistic	Rain (mm)
Daily Low	0.0
Daily High	12.0
Total	36.4

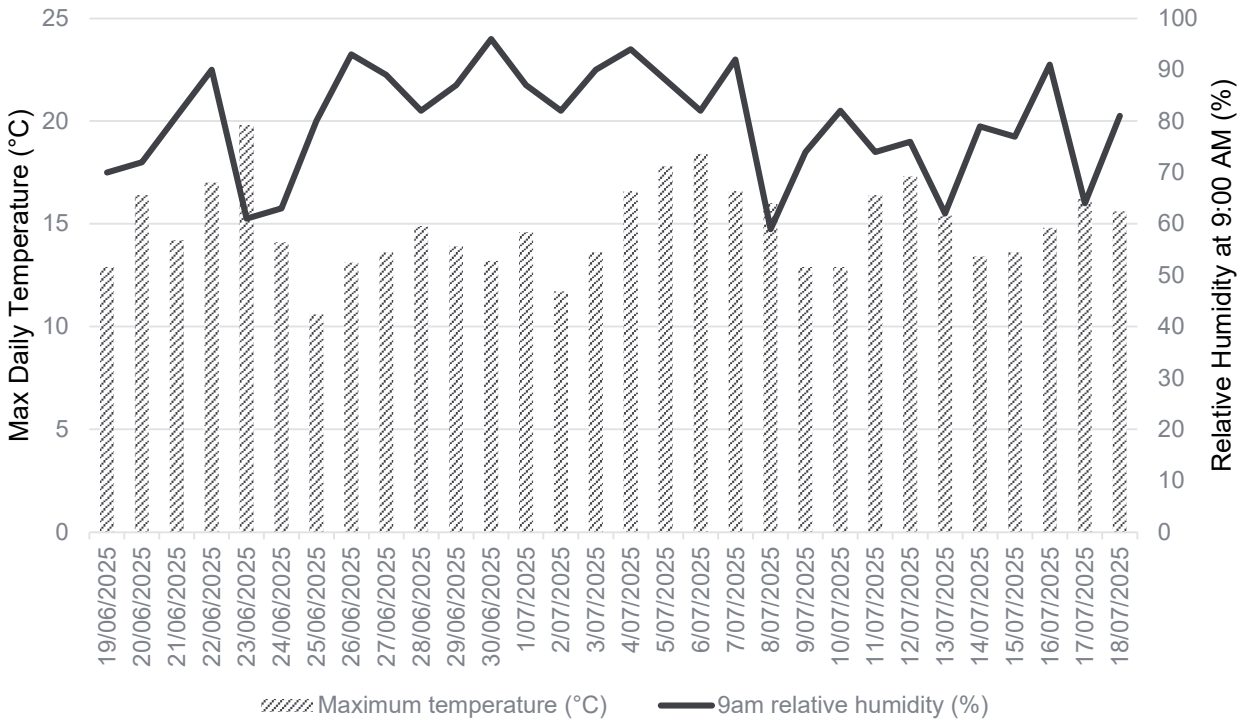

Figure 9: Daily relative humidity and temperature observations for Moorabbin, Victoria

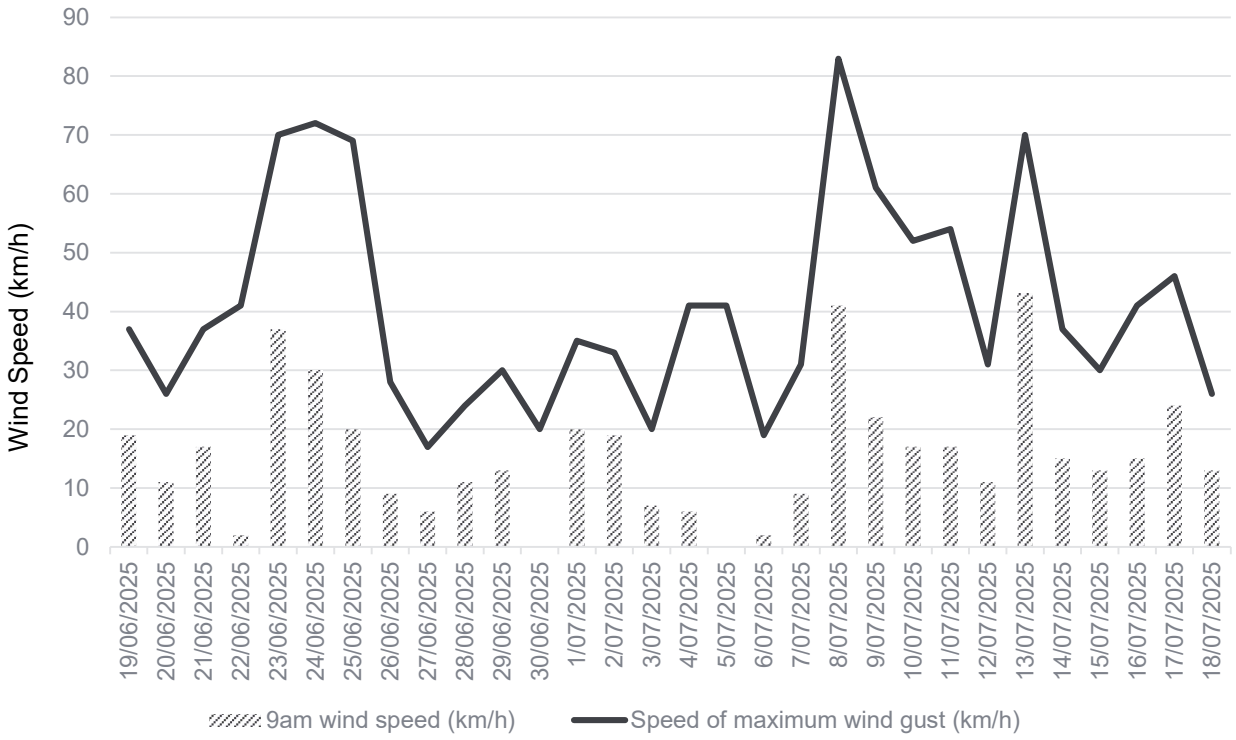

Figure 10: Daily wind speed observations for Moorabbin, Victoria

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 June 2025 to 18 July 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 West	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Train Stabling Facility West – South East Boundary	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Train Stabling Facility West – Linear Reserve North	30	30	100%	There were no interruptions to monitoring at this location during the reporting period

Location	Available Periods	Collected Periods	Data Capture	Details
Train Stabling Facility West – Linear Reserve South	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Clarinda – CC01	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Clarinda Tunnel Access Structure Site – South Boundary	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Clarinda Tunnel Access Structure Site – East Boundary	30	26	87%	Offline for a period of 4 days due to a flat battery. The Monitor battery was replaced.
Clarinda Tunnel Access Structure Site – North	30	18	60%	Offline for a period of 12 days due to a flat battery. The Monitor battery was replaced.
Clayton Site – Central	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Clayton Site – North West	30	30	100%	There were no interruptions to monitoring at this location during the reporting period
Clayton Site - South	30	23	77%	Offline for a period of 7 days due to a flat battery.
Clayton Site – East (Church)	30	30	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 West	HEX-000418	17 Feb 2025	17 Feb 2027
Train Stabling Facility West – South East Boundary	HEX-000498	20 Sep 2024	20 Sep 2026
Train Stabling Facility West– Linear Reserve North	HEX-000706	19 Feb 2025	19 Feb 2027
Train Stabling Facility West – Linear Reserve South	HEX-000795	18 Dec 2024	18 Dec 2026

Location	Device Serial Number	Calibration Date	Calibration Due
Clarinda CC01 – Nearest Residential property	HEX-000626	19 Feb 2025	19 Feb 2027
Clarinda TBM launch site – South Boundary	HEX-000348	19 Feb 2025	19 Feb 2027
Clarinda TB**M launch site** – East Boundary	HEX-000780	18 Dec 2024	18 Dec 2026
Clarinda T**BM launch site** – North	HEX-000791	18 Dec 2024	18 Dec 2026
Clayton – Central	HEX-000203	19 Mar 2025	19 Mar 2027
Clayton – East (Church)	HEX-000705	24 Oct 2024	24 Oct 2026
Clayton – North West	HEX-000623	19 Feb 2025	19 Feb 2027
Clayton – South	HEX-000744	27 Nov 2024	27 Nov 2026

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.

TERRAVERDE

SUBURBAN RAIL LOOP EAST

Tunnels North

Air Quality Monthly Report 19 June – 18 July 2025

SRL-WPD-TVC-NAP-REP-XLP-PWD-000002 Rev B

07 August 2025

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Version control and record

Version	Date	Comments
A	23/07/2025	First report submitted to SRLA
B	07/08/2025	Rev B submitted to SRLA in response to comments

Contents

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.
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
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.
- At the ESF, the TARP was implemented on one day during the reporting period. Tree removal works stopped temporarily until strong winds settled.
- 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 June 2025 – 18 July 2025 in accordance with SRL East EMF and EPRs AQ1 and AQ2.

Tunnels North works for SRL East commenced at the ESF on 30 June 2025, 601 High Street Road, Mount Waverley. Terra Verde (TV) is delivering the Tunnels North works as 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 PM10 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 PM10 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

Activities to date have been:

- Installation of environmental controls.
- Site set up (mobilising caravans, lighting towers, portaloos, etc).
- Vegetation clearing.

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)	Air Quality Objective (µg/m3)	Days TARP Implemented in the Month
Representative Background Locations						
EPA - Alphington	PM_{10}	24-hour	19.8	12.6	50	N/A
Mount Waverley - ESF						
ESF north west	PM_{10}	24-hour	34.09	20.89	50	1
ESF south west	PM_{10}	24-hour	13.30	6.30	50	0

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 on 30 June 2025, 601 High Street Road, Mount Waverley. 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.

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 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 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 north west	30 June 2025	Latitude: -37.87036˚ Longitude: 145.14550 ˚	PM_{10}	Alphington EPA monitoring station
Mount Waverley – ESF south west	30 June 2025	Latitude: -37.87067 ˚ Longitude: 145.14543 ˚	PM_{10}	Alphington 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.

3. Results

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 Terra Verde and relevant subject matter experts.

3.1 Emergency Support Facility (ESF)

Figure 1: ESF air quality monitoring stations (Note: Current ESF north west monitoring location is temporary and the monitor will be relocated to the north of site when a suitable location becomes accessible).

Table 4: ESF PM_{10} Results

Monitor Number	Monitoring Location	Max Daily PM_{10} Concentration (µg/m^3)	Median Daily PM_{10} Concentration (µg/m^3)	Air Quality Objective (µg/m3)	Days TARP Implemented in the Month
-	Representative Background – Alphington EPA monitoring station	19.8	12.6	50	N/A
1	Mount Waverley – ESF north west	34.09	20.89	50	1
2	Mount Waverley – ESF south west	13.30	6.30	50	0

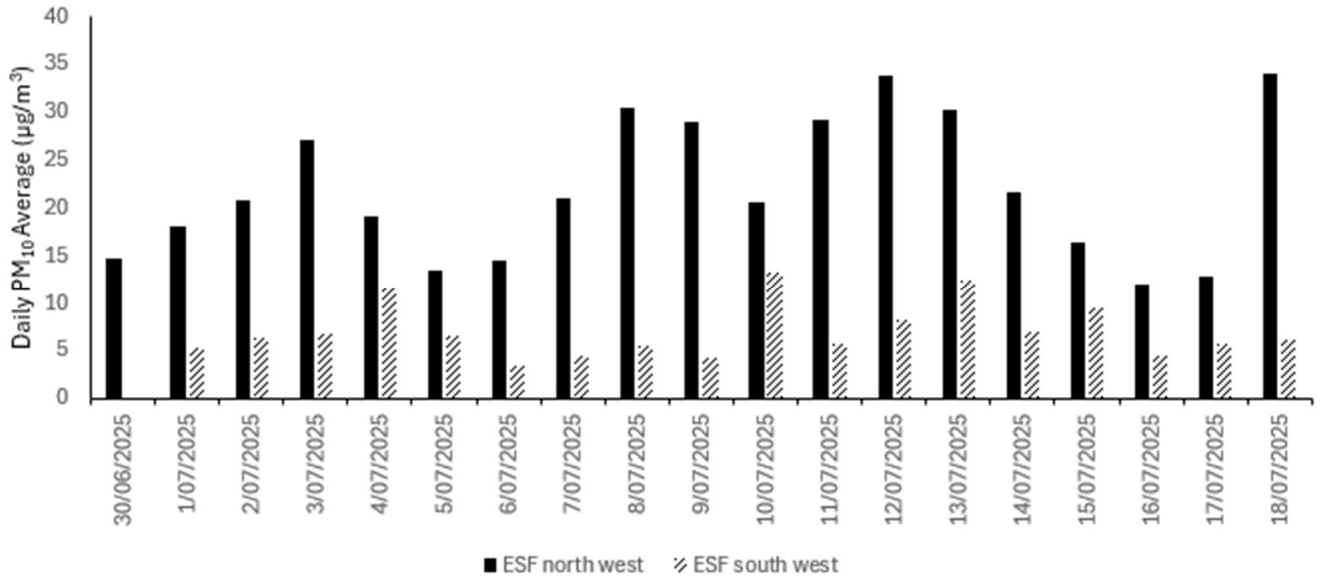

Figure 2: ESF PM_{10} daily averages (Noting TV main works commenced on 30 June 2025).

3.1.1 Daily Objective Analysis

No daily averages above the Daily Objective reported in the period.

The maximum daily average PM_{10} concentration was 34.09 µg/m^3 at the ESF north west monitoring location. A proactive visual inspection was undertaken, and no dust was observed going off site. No high-impact dust generating activities occurred on the day. Northerly winds were reported by BoM.

3.1.2 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.

During tree pruning and removal activities on 9 July 2025, strong wind gusts were observed, the TARP was implemented and pruning works stopped temporarily until wind settled. Simultaneous PM_{10} monitoring data from the ESF south west monitor (located 10 metres from ESF north west) reported lower levels in line with background conditions. The proximity of tree removal works to the north west monitor likely influenced the reading.

All other instances of elevated PM_{10} levels were reported outside of normal working hours or during inclement weather when no construction works were occurring, and therefore discounted from this analysis.

3.2 Meteorological Conditions

Table 5: Daily weather observations for Melbourne (Olympic Park), Victoria 30/06/2025 – 18/07/2025. 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	7.4	14.9	N/A	34.3	82.1
Lowest	4.3	11	SSW	15	31
Highest	9.7	17.9	N	70	100

Table 6: Daily rain data for Melbourne (Olympic Park), Victoria 30/06/2025 – 18/07/2025. Data Source BOM.

Statistic	Rain (mm)
Daily Low	0
Daily High	15
Total	25.4

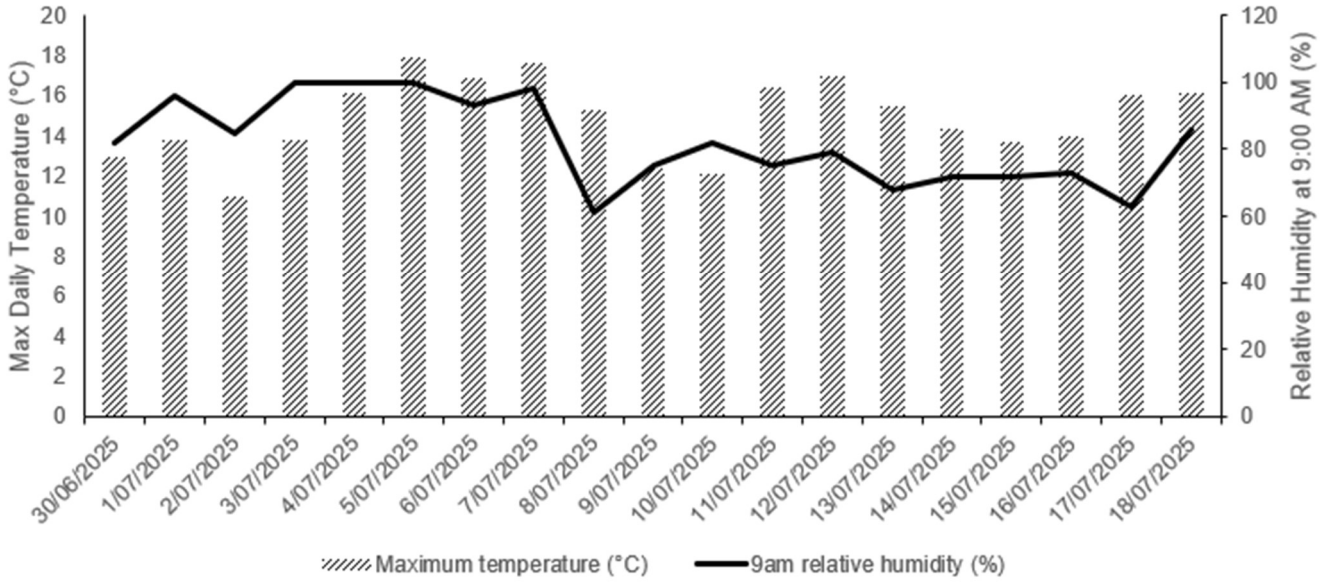

Figure 3: Daily relative humidity and temperature observations for Melbourne (Olympic Park), Victoria 30/06/2025 – 18/07/2025. Data Source BOM.

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 June 2025 – 18 July 2025 are shown in Table 7, below.

Data capture statistics were 100% for all parameters at ESF for the reporting period. Noting TV main works commenced at ESF on 30tJune 2025. Main works have not commenced at Burwood or Glen Waverley.

Table 7: Air quality monitoring, data capture summary

Location	Parameter	Averaging Period	Collected Periods	Available Periods	Data Capture
Mount Waverley – ESF north west	PM_{10}	24-hours	19	19	100%
Mount Waverley – ESF south west	PM_{10}	24-hours	19	19	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 8: Monitoring device calibration information

Location	Device Serial Number	Calibration Date	Calibration Due
ESF north west	HEX-000707	11/06/2025	11/06/2027
ESF south west	HEX-000635	11/06/2025	11/06/2027