Air Quality Monitoring Results

Titnore Lane, West Durrington

Client: Compass Travel (Sussex) Limited

Reference: 5051-3r1

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1.0 INTRODUCTION

1.1 Instruction

1.1.1 Redmore Environmental Ltd was commissioned by Compass Travel (Sussex) Limited to undertake a programme of Ambient Air Quality Monitoring in support of a planning application associated with an existing bus depot on land off Titnore Lane, West Durrington.

1.2 Site Location and Context

1.2.1 The site is located on land off Titnore Lane, West Durrington, at approximate National Grid Reference (NGR): 510405, 103845. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the authorisation of existing operations at the bus depot to allow for permanent use.

1.3 Consultation

1.3.1 An Air Quality Assessment[1] was previously completed by Redmore Environmental Ltd in support of the initial planning application for the bus depot which was approved with an operational lifetime of three years. The Applicant has subsequently submitted a new planning application to Worthing Borough Council (WBC) (reference: AWDM/0068/25) in order to allow for permanent use of the site as a bus depot.

1.3.2 A number of concerns have been raised by local residents in relation to existing air pollution levels at the site, which could be adversely affected by the continued operation of the bus depot. Consultation was therefore undertaken with WBC in order to determine a suitable methodology for determining baseline air quality conditions and the potential for air quality impacts as a result of the scheme. This indicated that sole reliance on the existing Air Quality Assessment[2] would not be suitable and a requirement was outlined for a 3-months programme of Air Quality Monitoring to be undertaken.

[1] Air Quality Assessment, Titnore Lane, West Durrington, Redmore Environmental, 2023.

[2] Air Quality Assessment, Titnore Lane, West Durrington, Redmore Environmental, 2023.

1.3.3 Ambient air quality monitoring was undertaken at the site over a 3-month period between 27th March 2025 to 27th June 2025 in order to address the requirement. A summary of the monitoring methodology, results and overall findings is provided in the following report.

2.0 LEGISLATION AND POLICY

2.1.1 The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO_2);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM_{10});
- Particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$);
- Benzene; and,
- Carbon monoxide.

2.1.2 Air Quality Target Values were also provided for several additional pollutants. It should be noted that the AQLV for $PM_{2.5}$ stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

2.1.3 The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published on 28th April 2023[3]. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.1.4 The Environmental Improvement Plan 2023[4] was published in January 2023, providing long term and Interim Targets in order to reduce population exposure to $PM_{2.5}$. The Concentration Target for 2040 was subsequently adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

2.1.5 Table 1 presents the AQOs, Interim Target and Concentration Target for pollutants considered within this report.

[3] AQS: Framework for Local Authority Delivery, DEFRA, 2023.

[4] Environmental Improvement Plan 2023, DEFRA, 2023.

Table 1 Air Quality Objectives/ Interim Target/ Concentration Target

Pollutant	Air Quality Objective/ Interim Target/ Concentration Target	
	Concentration (µg/m^3)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM_{10}	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
$PM_{2.5}$	12[(a)]	Annual mean
	10[(b)]	Annual mean

Note: (a) Interim Target to be achieved by end of January 2028.
(b) Concentration Target to be achieved by 2040.

3.0 AIR QUALITY MONITORING METHODOLOGY

3.1 Scope of Works

3.1.1 A programme of ambient air quality monitoring was undertaken at the site between 27th March 2025 and 27th June 2025 in order to allow quantification of the following pollutants:

- NO_2;
- PM_{10}; and,
- $PM_{2.5}$.

3.1.2 The monitoring position and methodology were agreed with Nadeem Shad, Team Leader (Environmental Protection) at Adur & Worthing Councils prior to installation. Following initial consultation, a daily log of site activities and qualitative observations of weather conditions was requested by Nadeem Shad. Reference should be made to Appendix 1 for the full log provided by the client.

3.2 Monitoring Location

3.2.1 The existing bus depot is located on the southern section of an existing car park which is owned by the neighbouring Northbrook College. The monitor was installed on the north-eastern boundary of the wider car park, adjacent to the closest residential properties to the site. These are located downwind of the depot with respect to prevailing meteorological conditions. Reference should be made to Figure 1 for a site layout plan and a visual representation of the monitoring position.

3.2.2 The specific monitoring location is outlined in Table 2.

Table 2 Monitoring Location

Monitoring Location	NGR (m)	
	X	Y
Titnore Lane Monitor	510453	103911

3.3 Monitoring Equipment

3.3.1 Monitoring was undertaken using an EarthSense Zephyr air quality analyser. This instrument has been awarded MCERTS status for indicative ambient particulate monitors and uses light-scattering optical particle counters to provide continuous measurement of PM_{10} and $PM_{2.5}$ concentrations in ambient air. NO_2 concentrations are measured using electrochemical sensors. The instrument features an internal data logger and cellular GPS connections, which allow access to real-time air quality measurements and analysis tools.

3.3.2 Prior to deployment of the monitor, the system was checked to provide verification of sensor readings and to determine any adjustment required to optimise the accuracy of measurement data. In addition, the monitor was configured to measure PM_{10}, $PM_{2.5}$ and NO_2 concentrations at one-minute intervals with average levels logged every 1-hour. Following completion of system verification, installation of the monitor at the sampling location was undertaken by a trained technician.

3.4 Continuous Monitoring Data Annualisation

3.4.1 Monitoring was undertaken over a total period of 3-months. Annualisation of the results subsequently completed in accordance with DEFRA guidance[5] to allow direct comparison to the relevant AQOs and Concentration Target.

3.4.2 Reference should be made to Appendix 2 for details of the annualisation process.

3.5 Erroneous Data

3.5.1 Upon completion of the monitoring programme, review of the final data set was undertaken in accordance with DEFRA guidance[6] to identify any erroneous results and validate the concentrations for subsequent comparison with the relevant AQOs. This process indicated a number of anomalies in the recorded NO_2 concentrations. Consultation was therefore undertaken with EarthSense, the technology supplier for the monitoring equipment. This indicated that a technical issue had occurred during the

[5] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

[6] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

monitoring period which affected the accuracy of NO_2 data across the entire Zephyr fleet.

3.5.2 The Zephyr units operate using electrochemical sensors which are particularly sensitive to changes in local environmental conditions. During normal operation the proprietary algorithms correct for environmental effects to provide accurate concentrations. However, in the first half of 2025, rapid changes in temperature and humidity occurred outside normal operating conditions. As such, during the data validation process, the proprietary algorithms did not correct effectively due to these rapid changes and abnormally high short-term peaks of NO_2 were observed in the raw data.

3.5.3 Peaks in NO_2 concentrations associated with bus activity would typically be accompanied by corresponding increases in PM_{10} and $PM_{2.5}$ concentrations. To assess the validity of the observed NO_2 spikes, these periods were therefore cross-referenced against recorded particulate matter levels and the temperature recorded by the monitor. Any time period which did not record a spike in particulate matter concentration, linked with an elevated temperature, was considered erroneous and were removed from the data set.

3.5.4 Following completion of the above steps, as well as removal of any other time periods with incomplete data, the overall data capture for the monitoring period was calculated as follows:

- NO_2 - 98.6%;
- PM_{10} - 99.5%; and,
- $PM_{2.5}$ - 99.5%.

3.5.5 As shown above, data capture for all pollutants was above the 75% required by DEFRA guidance[7]. As such, the results are considered valid for comparison against the relevant AQOs and Concentration Target.

[7] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

4.0 AIR QUALITY MONITORING RESULTS

4.1 Introduction

4.1.1 Monitoring of NO_2, PM_{10} and $PM_{2.5}$ concentrations was undertaken between 27th March 2025 and 27th June 2025. Annualisation of the monitoring results was subsequently undertaken in order to estimate annual mean pollutant concentrations and facilitate direct comparison of the measurement data to the relevant AQOs and Concentration Target. This process was undertaken in accordance with DEFRA guidance[8], as outlined in Appendix 2.

4.1.2 A summary of the results is provided in the following Sections. It should be noted that the data shown in this report is the final dataset which has been subsequent to relevant quality assurance and annualisation procedures outlined previously. As such, values may differ from those shown in the Interim Monthly Monitoring Reports.

4.2 Nitrogen Dioxide

4.2.1 The annualised NO_2 concentration recorded during the monitoring period is outlined in Table 3.

Table 3 Annualised NO_2 Concentration

Monitoring Location	Annual Mean NO_2 Concentration (µg/m³)
Titnore Lane Monitor	28.93

4.2.2 As shown in Table 3, the annual mean NO_2 concentration was below the AQO of 40µg/m³ at the site.

4.2.3 The number of 1-hour mean NO_2 concentrations above 200µg/m³ recorded during the monitoring period is outlined in Table 4.

[8] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Table 4 1-hour Mean NO_2

Monitoring Location	Number of 1-hour Mean NO_2 Concentrations above 200µg/m³
Titnore Lane Monitor	0

4.2.4 As shown in Table 4, the number of 1-hour mean NO_2 concentrations above 200µg/m³ was below the permitted number of 18 at the site.

4.2.5 Further to the above, as detailed in DEFRA guidance[9], exceedences of the 1-hour mean AQO for NO_2 are unlikely to occur where the annual mean is below 60µg/m³. As shown in Table 3, the monitored NO_2 concentration was below this value. As such, exceedences would not be anticipated over an annual monitoring period.

4.3 Particulate Matter

4.3.1 The annualised PM_{10} concentration recorded during the monitoring period is outlined in Table 5.

Table 5 Annualised PM_{10} Concentration

Monitoring Location	Annual Mean PM_{10} Concentration (µg/m³)
Titnore Lane Monitor	9.06

4.3.2 As indicated in Table 5, the annual mean PM_{10} concentration was below the AQO of 40µg/m³ at the site.

4.3.3 The number of days with 24-hour mean PM_{10} concentrations greater than 50µg/m³ recorded during the monitoring period is outlined in Table 6.

Table 6 24-hour Mean PM_{10}

Monitoring Location	Number of Days with 24-hour Mean PM_{10} Concentrations Greater than 50µg/m³
Titnore Lane Monitor	0

[9] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

4.3.4 As indicated in Table 6, the number of days with 24-hour mean PM_{10} concentrations above 50µg/m^3 was below the permitted number of 35 at the site.

4.3.5 The annualised $PM_{2.5}$ concentration recorded during the monitoring period is outlined in Table 7.

Table 7 Annualised $PM_{2.5}$ Concentration

Monitoring Location	Annual Mean $PM_{2.5}$ Concentration (µg/m^3)
Titnore Lane Monitor	6.94

4.3.6 As shown in Table 7, the annual mean PM_{10} concentration was below the Concentration Target of 10µg/m^3 at the site.

5.0 DISCUSSION

5.1 Introduction

5.1.1 In order to determine the potential for air quality impacts as a result of the proposed development, review of the following was undertaken:

- Air Quality Monitoring results;
- Air Quality Assessment results; and,
- Site characteristics.

5.1.2 This is provided in the following Sections.

5.2 Monitoring Results

5.2.1 As outlined in Section 4.0, the monitoring results indicated that the annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations, and 1-hour mean NO_2 and 24-hour mean PM_{10} concentrations, were below the relevant AQOs and Concentration Target at the site.

5.2.2 As the monitor was adjacent to the closest residential properties to the site, which are located downwind of the depot, with respect to prevailing meteorological conditions, the monitored results are considered to be representative of levels experienced at existing dwellings. As such, air quality impacts are not considered likely to occur as a result of the proposals.

5.3 Air Quality Assessment

5.3.1 Redmore Environmental Ltd prepared an Air Quality Assessment[10] in support of the previous planning application for the proposed bus depot in order to determine the potential for air quality impacts at sensitive receptors during the operational phase of the development.

[10] Air Quality Assessment, Titnore Lane, West Durrington, Redmore Environmental, 2023.

5.3.2 The assessment determined that predicted NO_2 concentrations were below the relevant AQO at all receptor locations and impacts were considered to be **not significant**, in accordance with the relevant Institute of Air Quality Management (IAQM) guidance[11].

5.3.3 The assessment determined that predicted PM_{10} concentrations were below the relevant AQO at all receptor locations and impacts were considered to be **not significant**, in accordance with the IAQM guidance[12].

5.3.4 The assessment determined that predicted $PM_{2.5}$ impacts were considered to be **not significant**, in accordance with the IAQM guidance[13].

5.3.5 Due to the differences in assessment methodology and variations in air quality conditions since the Air Quality Assessment was completed it is not possible to provide direct comparison between predicted and monitored pollutant concentrations. However, the overall conclusion of both assessments is that the relevant AQOs will not be exceeded at sensitive locations as a result of the development.

5.4 Site Characteristics

5.4.1 Compass Travel operations are confined to the southern section of the Northbrook College car park, maintaining a minimum distance of approximately 35m from the closest residential properties. The Company applies disciplinary measures to any drivers operating outside the designated area, as well as enforcing a no-idling policy. This ensures potential air quality impacts as a result of vehicle exhaust emissions are minimised as far as practicable.

5.4.2 It should be noted that during the monitoring period, construction works were taking place within the eastern portion of the Northbrook College site. Construction vehicles and lorries associated with the works were reported to have been accessing the site via the car park, in close proximity to the air quality the monitor during busy periods. Reference should be made to Figure 2 for a diagram showing the vehicle movements.

11 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

12 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

13 Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

5.4.3 The movements generated during the construction works are not part of standard operations and will cease upon completion of the works. As no exceedences of the relevant AQOs were recorded during this period of increased activity, it is considered likely that following the completion of the construction works, pollution levels will remain constant or decrease further.

5.5 Summary

5.5.1 A review of the following was undertaken in order to determine the potential for air quality impacts as a result of the scheme:

- Air Quality Monitoring results;
- Air Quality Assessment results; and,
- Site characteristics.

5.5.2 This indicated that pollutant concentrations are below the relevant AQOs and Concentration Target at existing sensitive receptors. As such, it is considered unlikely that air quality impacts would occur at nearby dwellings as a result of the development.

6.0 CONCLUSION

6.1.1 Redmore Environmental Ltd was commissioned by Compass Travel (Sussex) Limited to undertake a programme of Ambient Air Quality Monitoring in support of a planning application associated with an existing bus depot on land off Titnore Lane, West Durrington.

6.1.2 A programme of ambient air quality monitoring was undertaken at a single location towards the north-east of Northbrook College car park over a 3-month period between 27th March 2025 to 27th June 2025.

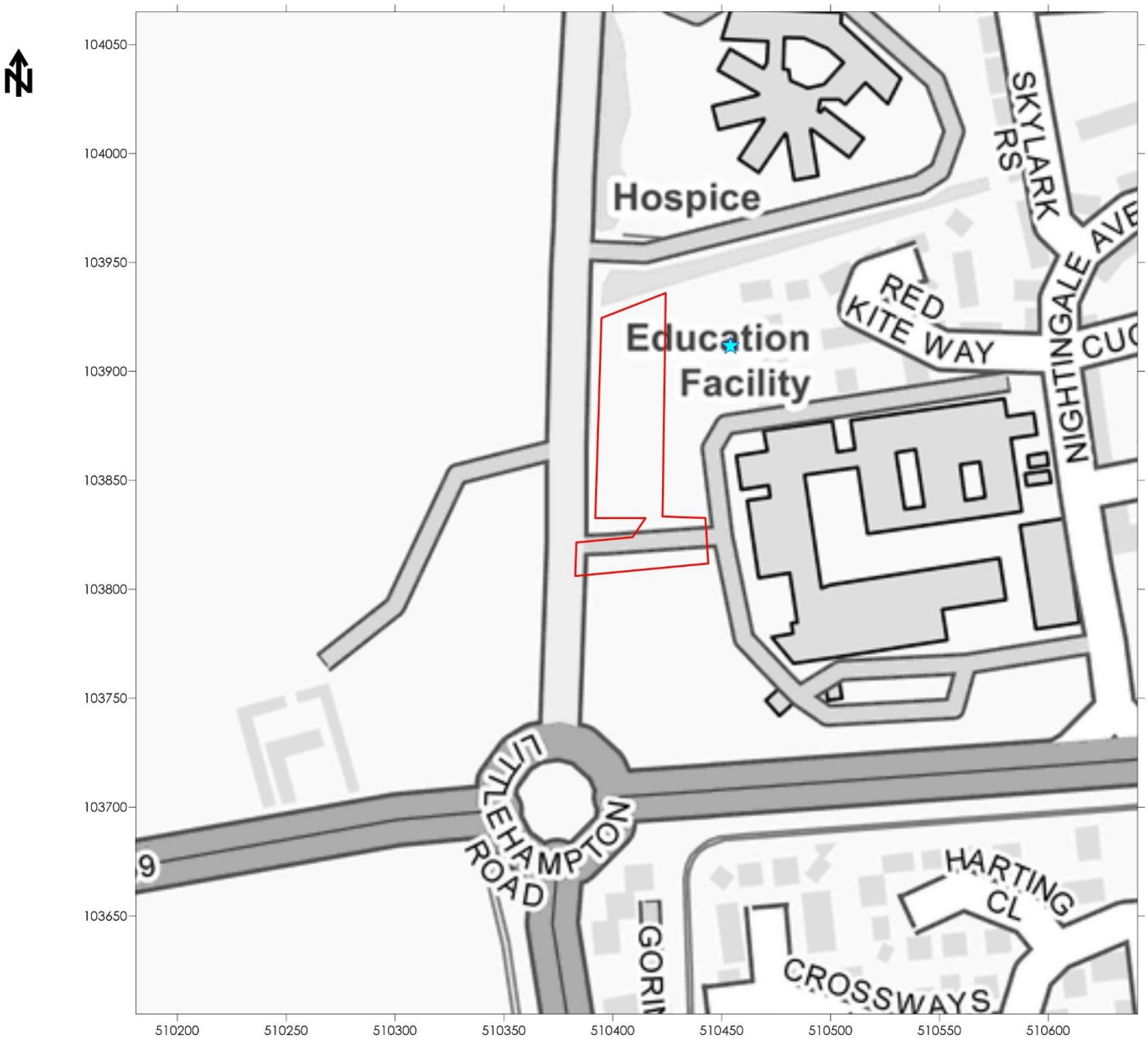
6.1.3 The monitoring results indicated that NO_2, PM_{10} and $PM_{2.5}$ concentrations were below the relevant AQOs and Concentrations Target.

6.1.4 The findings of the Air Quality Assessment[14] prepared for the proposed scheme determined that air quality impacts as a result of the operation of the development were considered to be **not significant**, in accordance with the IAQM guidance.

6.1.5 In overview of the above, it is considered that the bus depot does not have a significant impact on local air quality. As such, the development should not be constrained on air quality grounds.

[14] Air Quality Assessment, Titnore Lane, West Durrington, Redmore Environmental, 2023.

Figures



Legend

Site Boundary

Monitor

Title
Figure 1 - Site Location Plan and Monitoring Location

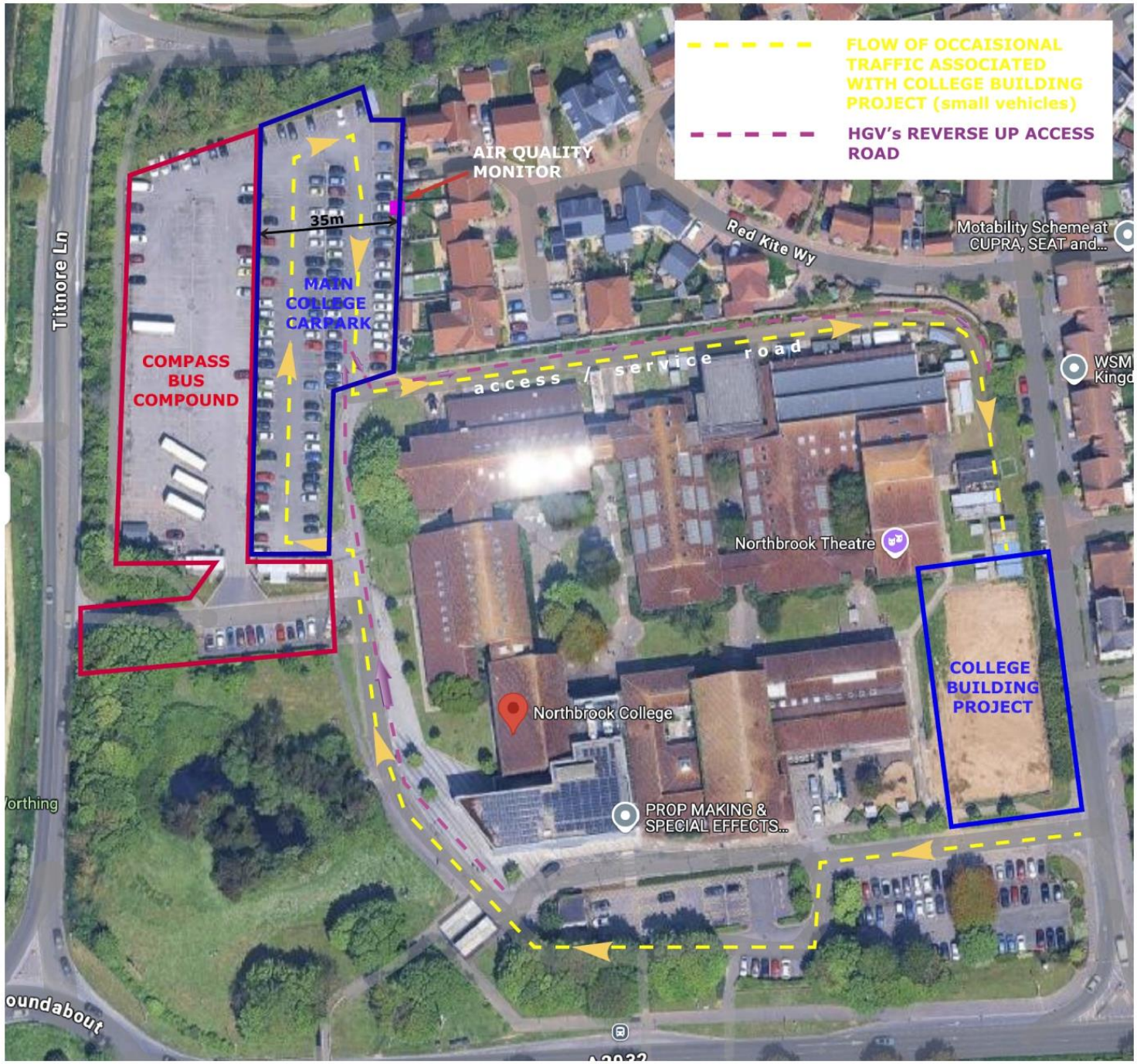
Project
Air Quality Monitoring
Titnore Lane, West Durrington

Project Reference
5051-3

Client
Compass Travel (Sussex) Limited

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Legend

Title
Figure 2 - Vehicle Movement Associated with Construction Works

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Appendix 1 - Daily Log: Site Activity and Meteorological Observations

NORTHBROOK COLLEGE VEHICLE MOVEMENT LOG / WEATHER BN12 6NU

DATE	COMPASS	COLLEGE	COMMENTS	HALF TERM	WEATHER AM	WEATHER PM
MARCH						
Wed 26th	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
Thurs 27th	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30	The Arundel Restaurant lunch 12.00-14.30			
Fri 28th	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
Sat 29th	Buses depart 06.00*-08.00, return17.00-20.00	No students, skeleton college staff				
Sun 30th	No movements					
Mon 31st	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
APRIL						
Tues 1st	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
Weds 2nd	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
Thurs 3rd	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30	The Arundel Restaurant lunch 12.00-14.30			
Fri 4th	Buses depart 06.00*-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
Sat 5th	Buses depart 06.00*-08.00, return17.00-20.00	No students, skeleton college staff				
Sun 6th	No movements					
Mon 7th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Tues 8th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Weds 9th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Thurs 10th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff	The Arundel Restaurant lunch 12.00-14.30			
Fri 11th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff	College used carpark in evening for theatre production			
Sat 12th	Buses depart 06.00*-09.30, return17.00-20.00	No students, skeleton college staff	College used carpark in evening for theatre production			
Sun 13th	No movements					
Mon 14th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Tues 15th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Weds 16th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Thurs 17th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff	The Arundel Restaurant lunch 12.00-14.30			
Fri 18th	No movements		Bank holiday (Good Friday)			
Sat 19th	Buses depart 06.00*-09.30, return17.00-20.00	Skeleton college staff				
Sun 20th	No movements					
Mon 21st	No movements		Bank holiday (Easter Monday)			
Tues 22nd	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30				
Weds 23rd	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30			Cloudy	Cloudy
Thurs 24th	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30	The Arundel Restaurant lunch 12.00-14.30		Cloudy 13º w/s 5-7	Cloudy 14º w/s 6
Fri 25th	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30			Clear 12º w/s 7 (S/E)	Sunny 13º w/s 9 (S/E))
Sat 26th	Buses depart 06.00-08.00, return17.00-20.00	No students, skeleton college staff			Clear 13º w/s 8 (E-S/E)	Sunny 15º w/s 8 (S/E)
Sun 27th	No movements				Clear 13º w/s 4 (S)	Clear 16º w/s 9 (S/W)
Mon 28th	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30			Sunny 15º w/s 3 (S/E)	Sunny 17º w/s 6 (S-S/E)
Tues 29th	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30			Sunny 17º w/s 8 (E-S/E)	Sunny 21º w/s 10 (E-S/E)
Weds 30th	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30			Sunny 17º w/s 5 (E-S/E)	Sunny 20º w/s 7 (S/E)
MAY						
Thurs 1st	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30	The Arundel Restaurant lunch 12.00-14.30		Sunny 19º w/s 5 (E-S/E)	Sunny 20º w/s 6 (S/E)
Fri 2nd	Buses depart 06.00-08.00, return17.00-20.00	Staff/student cars arrive 08.00, leave 16.30	The Arundel Restaurant lunch 12.00-14.30		Sunny 17º w/s 6 (S/W)	Sunny 18º w/s 9 (S/W)
Sat 3rd	Buses depart 06.00-08.00, return17.00-20.00	No students, skeleton college staff			Clear 17º w/s 9 (N/W)	Sunny 19º w/s 10 (N-N/W)
Sun 4th	No movements				Clear 12º w/s 13 (N-N/E)	Clear 15º w/s 13 (N-N/E)
Mon 5th	No movements		Bank holiday (May Day)		Cloudy 10º w/s 15 (N-N/E)	Clear 13º w/s 16 (E-N/E)
Tues 6th					Cloudy 13º w/s 11 (N/E)	Cloudy 14º w/s 12 (E-N/E)

Weds 7th					Cloudy 12º w/s 10 (N/E)	Cloudy 14º w/s 9 (S-S/E)
Thurs 8th			The Arundel Restaurant lunch 12.00-14.30		Sunny 13º w/s 12 (N/E)	Sunny 15º w/s 10 (S/E)
Fri 9th			The Arundel Restaurant lunch 12.00-14.30		Sunny 15º w/s 10 (N/E)	Sunny 17º w/s 12 (E-S/E)
Sat 10th		No students, skeleton college staff			Sunny 16º w/s 12 (E-S/E)	Sunny 20º w/s 12 (E-S/E)
Sun 11th	No movements				Sunny 17º w/s 13 (E-S/E)	Sunny 20º w/s 9 (S/E)
Mon 12th					Cloudy 13º w/s 6 (S-S/E)	Clear 16º w/s 7 (E-S/E)
Tues 13th					Clear 16º w/s 10 (E-S/E)	Sunny 18º w/s 8 (E-S/E)
Weds 14th					Sunny 17º w/s 11 (N/E)	Sunny 20º w/s 10 (E-S/E)
Thurs 15th					Sunny 13º w/s 11 (N-N/E)	Sunny 18º w/s 11 (S/E)
Fri 16th			The Arundel Restaurant lunch 12.00-14.30		Sunny 15º w/s 10 (N-N/E)	Sunny 20º w/s 10 (N-N/E)
Sat 17th		No students, skeleton college staff			Sunny 15º w/s 10 (S)	Sunny 16º w/s 9 (S-S/W)
Sun 18th	No movements				Sunny 14º w/s 7 (N-N/E)	Sunny 16º w/s 9 (S)
Mon 19th					Cloudy 14º w/s 9 (E-N/E)	Sunny 17º w/s 7 (S-S/E)
Tues 20th					Sunny 17º w/s 8 (N-N/E)	Sunny 20º w/s 9 (S/W)
Weds 21st					Rain 13º w/s 6 (N)	Rain 14º w/s 6 (SW)
Thurs 22nd			The Arundel Restaurant lunch 18.00-20.00		Sunny 12º w/s 4 (E-S/E)	Sunny 14º w/s 6 (S)
Fri 23rd					Sunny 13º w/s 6 (S)	Sunny 14º w/s 14 (S/W)
Sat 24th		No students, skeleton college staff			Rain 15º w/s 18 (W-S/W)	Cloudy 16º w/s 21 (W-S/W)
Sun 25th	No movements				Cloudy 17º w/s 16 (W-S/W)	Sunny 19º w/s 18 (W-S/W)
Mon 26th	No movements		Bank holiday (Spring bank holiday)		Rain 15º w/s 18 (W-S/W)	Clear 15º w/s 24 (W-S/W)
Tues 27th					Rain 15º w/s 17 (S/W)	Rain 15º w/s 45 (W-S/W)
Weds 28th					Clear 16º w/s 18 (W)	Sunny 19º w/s 17 (W)
Thurs 29th					Cloudy 15º w/s 19 (W-S/W)	Cloudy 17º w/s 21 (S/W)
Fri 30th					Clear 16º w/s 12 (S/W)	Sunny 17º w/s 13 (S/W)
Sat 31st		No students, skeleton college staff			Sunny 17º w/s 6 (S/W)	Sunny 18º w/s 14 (S/W)
JUNE						
Sun 1st	No movements				Sunny 15º w/s 14 (S/W)	Sunny 16º w/s 21 (S/W)
Mon 2nd					Sunny 15º w/s 12 (S/W)	Sunny 18º w/s 14 (S/W)
Tue 3rd					Rain 14º w/s 18 (S/W)	Rain 15º w/s 24 (S/W)
Weds 4th					Sunny 15º w/s 16 (S/W)	Sunny 15º w/s 15 (S/W)
Thurs 5th					Rain 14º w/s 17 (S-S/W)	Cloudy 15º w/s 19 (S/W)
Fri 6th					Rain 14º w/s 18 (W-S/W)	Cloudy 16º w/s 19 (W-S/W)
Sat 7th		No students, skeleton college staff			Rain 14º w/s 13 (W-S/W)	Rain 15º w/s 16 (S/W)
Sun 8th	No movements				Sunny 15º w/s 12 (W)	Sunny 17º w/s 17 (W-S/W)
Mon 9th					Clear 15º w/s 10 (S/W)	Sunny 17º w/s 14 (S/W)
Tues 10th					Cloudy 17º w/s 17 (S/W)	Sunny 18º w/s 15 (S-S/W)
Weds 11th					Sunny 16º w/s 11 (E-S/E)	Sunny 20º w/s 14 (S/E)
Thurs 12th					Cloudy 18º w/s 11 (E)	Cloudy 20º w/s 8 (S-S/E)
Fri 13th					Sunny 18º w/s 6 (S-S/W)	Sunny 23º w/s 5 (S-S/E)
Sat 14th		No students, skeleton college staff			Cloudy 17º w/s 19 (S/W)	Cloudy 18º w/s 16 (W-S/W)
Sun 15th	No movements				Sunny 17º w/s 16 (W-S/W)	Sunny 19º w/s 18 (W-S/W)
Mon 16th					Sunny 17º w/s 4 (W-N/W)	Sunny 19º w/s 9 (S/W)
Tues 17th					Sunny 17º w/s 5 (W-S/W)	Sunny 20º w/s 10 (S/W)
Weds 18th					Sunny 18º w/s 7 (N-N/W)	Sunny 22º w/s 9 (S/W)
Thurs 19th					Sunny 19º w/s 6 (S/E)	Sunny 25º w/s 7 (E-S/E)
Fri 20th					Sunny 22º w/s 11 (E-S/E)	Sunny 25º w/s 12 (E-S/E)
Sat 21st		No students, skeleton college staff			Sunny 21º w/s 12 (E-S/E)	Sunny 25º w/s 11 (E-S/E)
Sun 22nd	No movements				Sunny 18º w/s 15 (W-S/W)	Sunny 19º w/s 19 (W-S/W)
Mon 23rd					Sunny 18º w/s 15 (W)	Sunny 19º w/s 20 (W-S/W)
Tues 24th					Cloudy 16º w/s 18 (W-S/W)	Sunny 20º w/s 19 (W-S/W)

Weds 25th					Sunny 16º w/s 15 (W)	Sunny 19º w/s 15 (W)
Thurs 26th					Rain 18º w/s 19 (S/W)	Sunny 20º w/s 24 (W-S/W)
Fri 27th					Sunny 17º w/s 12 (S/W)	Sunny 20º w/s 19 (W-S/W)

* 1 buses leaves at 05.30
# some college evening classes

Appendix 2 - Annualisation

Introduction

Continuous monitoring was carried out over a period of 3-months between 27th March 2025 and 27th June 2025. Annualisation of the monitoring results was undertaken in order to estimate annual mean pollutant concentrations and facilitate direct comparison of the measurement data to the relevant AQOs and Concentration Target. This process was undertaken in accordance with DEFRA guidance[15], as outlined in the following Sections.

Annualisation

An overall period mean for each pollutant was calculated from the raw monitoring results obtained between 27th March 2025 and 27th June 2025. This is shown in Table A1.1.

Table A1.1 Site Specific Monitoring Results

Pollutant	Monitored Concentration (µg/m³)			
	27/03/2025 - 27/04/2025	27/04/2025 - 27/05/2025	27/05/2025 - 27/06/2025	Period Mean (P_m)
NO_2	18.13	24.76	26.37	20.80
PM_{10}	10.78	9.72	7.43	9.64
$PM_{2.5}$	7.67	7.06	6.56	6.74

Annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations for use in the annualisation process were obtained from three background monitoring sites within a 50-mile radius of the project, as outlined in the DEFRA guidance[16]. A summary of the monitoring sites is provided in Table A1.2.

Table A1.2 Monitoring Sites

Site Name	Approximate NGR (m)		Site Classification
	X	Y	
Brighton Preston Park	530524	106225	Urban Background
Portsmouth	465695	103666	Urban Background

15 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

16 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Site Name	Approximate NGR (m)		Site Classification
	X	Y	
Eastbourne	560155	103150	Urban Background

The period mean for each site was calculated for the monitoring interval for the project. The ratio of the 2024 annual mean (A_m) to the period mean (P_m) was then calculated and an average derived as the site specific annualisation factor. A summary of the data used to calculate the adjustment factor for NO_2 concentrations is provided in Table A1.3.

Table A1.3 Annualisation Data for NO_2 Concentrations

Site Name	Station Type	Monitored PM_{10} Concentration (µg/m³)		Ratio (A_m/P_m)
		A_m	P_m	
Brighton Preston Park	Urban Background	10.10	9.69	1.04
Portsmouth	Urban Background	12.67	6.76	1.87
Eastbourne	Urban Background	8.93	7.11	1.26
Average (R_a)				1.39

A summary of the data used to calculate the adjustment factor for PM_{10} concentrations is provided in Table A1.4.

Table A1.4 Annualisation Data for PM_{10} Concentrations

Site Name	Station Type	Monitored PM_{10} Concentration (µg/m³)		Ratio (A_m/P_m)
		A_m	P_m	
Brighton Preston Park	Urban Background	11.67	13.95	0.84
Portsmouth	Urban Background	12.87	12.20	1.06
Eastbourne	Urban Background	10.67	11.51	0.93
Average (R_a)				0.94

A summary of the data used to calculate the adjustment factor for $PM_{2.5}$ concentrations is provided in Table A1.5.

Table A1.5 Annualisation Data for $PM_{2.5}$ Concentrations

Site Name	Station Type	Monitored PM_{10} Concentration (µg/m³)		Ratio (A_m/P_m)
		A_m	P_m	
Brighton Preston Park	Urban Background	8.02	8.43	0.95
Portsmouth	Urban Background	7.61	8.49	0.90
Eastbourne	Urban Background	8.93	7.20	1.24
Average (R_a)				1.03

An estimate of the annual mean concentrations for NO_2, PM_{10} and $PM_{2.5}$ concentrations at the project monitoring location was then calculated by multiplying the measured P_m concentrations by the adjustment factor. This is summarised in Table A1.6.

Table A1.6 Annualised Data

Pollutant	Monitored Concentration (P_m) (µg/m³)	Annualisation Factor	Annual Mean Concentration (A_m) (µg/m³)
NO_2	20.80	1.39	28.93
PM_{10}	9.64	0.94	9.06
$PM_{2.5}$	6.74	1.03	6.94