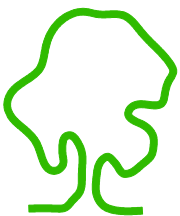


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Air Quality Assessment

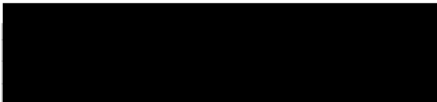
May 2026



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Environmental Assessment Services Ltd

REPORT DATA SHEET

Requirement	Data
Report Reference	891/LDVArchitecture/NewBarnFarm/AQA
Date	May 2026
Client	Steve Lamb
Report type	Air Quality Assessment
Purpose	To satisfy environmental health concerns for planning.
Revisions	
Prepared by	Daniel Milford BSc (Hons)  Signed
Approved by	Eur Ing Malcolm McKemey BSc (Hons), CEng, CEnv, MICE, MCIWEM, MIEnvSc  Signed

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RH12 4PZ

Air Quality Assessment

May 2026

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RH12 4PZ

Air Quality Assessment

May 2026

1. THE SITE AND BACKGROUND

- 1.1 The site is currently used as a farm to train and house horses, comprising a central stable block with parking to the north and south of the building. Additionally, the site boundary includes four residential dwellings, with a detached residence and main farmhouse and gardens to the west of the site boundary and main entrance from Capel Road. To the east of the site lies a secondary entrance to Capel Road with an office building to the immediate west and paddocks to the east. There is a track leading from this entrance southwards to connect to the wider site, with a storage unit and caravan to the east of the track and barn to the west (to be retained). To the south of the redline boundary are two sand schools.
- 1.2 The Ordnance Survey map reference for the centre of the site is TQ 18456 37489 and site elevation is approximately +82 m OD. The site area (redline boundary) is approximately 2.5 ha. See Figure 1 in appendix A for the site location.
- 1.3 It is proposed to redevelop the site after the demolition of the existing stables, office, and sand schools for residential accommodation comprising ten dwellings – three five-bedroom houses to the south, three two-bedroom chalets in the centre of the site, a two-bedroom semi-detached house towards the northern section of the site and two four bedroom detached houses (one near the centre of the site and one adjacent to the northern redline boundary); with associated gardens and parking. Under a separate application a three-bedroom house is to be developed where the caravan currently exists, and a new office building is to replace the existing one in the same footprint. See Figure 2 in Appendix A for the proposed development.
- 1.4 An air quality assessment is required to support the planning application for the proposed redevelopment. The assessment has been carried out with reference to the National Planning Policy Framework (NPPF) and associated guidance.
- 1.5 The report has been based on data from a Nitrogen Dioxide (NO₂) monitoring exercise undertaken in March/April 2026, together with a review of longer-term air quality records from existing monitoring sites operated by Horsham District Council.
- 1.6 The surrounding land use in the vicinity of the sites is predominantly agricultural field or woodland, with exceptions being two caravan parks Northeast of Capel Road (Pinewood Park and River Dale Paddocks) and K9-IQ indoor dog park.

- 1.7 The most likely source of air pollution at the site is highway traffic emissions along Capel Road (north of the site) and on site vehicle use.
- 1.8 The site is not within an Air Quality Management Area (AQMA).
- 1.9 This assessment includes a desktop review of air quality in the surrounding area, and an assessment of baseline air quality at the site. The assessment comprised two site visits and placement of nitrogen dioxide (NO₂) diffusion tubes at the site for a period of four weeks. Local air quality monitoring data and information on local air quality were obtained online from the HDC 2025 Air Quality Annual Status Report and the Department of Food and Rural Affairs (DEFRA) UK-Air, online Air Information Resource website. Evaluation of the likely impact of air pollution on the development was based on comparison of the monitoring data and the current Air Quality Objectives.

2. AIR QUALITY STANDARDS

- 2.1 Current UK air quality legislation is mainly based on the implementation of European Union Directives and the introduction of new “Daughter” Directives. General air quality standards started with addressing substances associated with the burning of coal, but more recently concentrate largely on substances associated with vehicle emissions.
- 2.2 In the UK, the Environment Act of 1995 required the production of a National Air Quality Strategy. The Strategy sets out National Air Quality Objectives (AQOs) in order to meet UK standards and EU target values, to achieve reductions in air pollution in the medium term.
- 2.3 Areas where there is difficulty in achieving the objectives may be classified as Air Quality Management Areas (AQMAs), and additional controls may be imposed on activities likely to give rise to air pollution in these areas. See Table 2.1 below:

TABLE 2.1
UK AIR QUALITY OBJECTIVES

Pollutant	Air Quality Objective		Date to be achieved by (and maintained thereafter)
	Concentration	Measured as	
Benzene	5.00 µg/m ³	Annual mean	31.12.2010
1,3-butadiene	2.25 µg/m ³	Annual mean	31.12.2003
Carbon monoxide	10 mg/m ³	Max daily 8 hr mean	31.12.2003
Lead	0.25 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide (NO ₂)	200 µg/m ³ 40 µg/m ³	1-hr mean <18/yr Annual mean	31.12.2005
Particulate (PM ₁₀)	50 µg/m ³ 40 µg/m ³	24-hr mean <35/yr Annual mean	31.12.2004 31.12.2004
Sulphur dioxide	350 µg/m ³ 125 µg/m ³ 266 µg/m ³	1-hr mean <24/yr 24-hr mean <3/yr ¼-hr mean <35/yr	31.12.2004 31.12.2004 31.12.2005

- 2.4 The two parameters of most concern in the urban and sub-urban environment are presently NO₂ and PM₁₀. These are the pollutants considered most likely to exceed current air quality objectives.
- 2.5 Horsham District Council (HDC) has one current Air Quality Management Area (AQMA) that has been in effect in Storrington since December 2010. Formerly an AQMA was in effect in Cowfold since December 2011 but since has been revoked in February 2026.
- 2.6 The proposed development is not within the AQMA and is unlikely to significantly impact traffic within the area. See Figure 2 in Appendix A for the proposed site layout.

3. AIR QUALITY MONITORING

- 3.1 In accordance with the National Air Quality Strategy, air quality is regularly monitored by local authorities at locations throughout the UK. These locations may be adjacent to major highways, in central urban or rural locations for indications of background air quality, in industrial areas, or close to other significant air pollution sources such as airports. DEFRA provides an estimated background for the site based on 2021 concentrations as 8.23 µg/m³ for NO₂ and 11.04 µg/m³ for PM₁₀.
- 3.2 Monitoring stations can be fixed units which continuously measure a range of pollutants, known as automatic monitoring stations. Some monitoring units are re-locatable and may be moved around from time to time. The continuous monitoring data was taken from the Air Quality Annual Status Report for Horsham District Council (July 2025).

- 3.3 The nearest comparable automatic monitoring site lies approximately 7 km southwest of the site. Site details are summarised in Table 3.1 below:

TABLE 3.1
DETAILS OF NEARBY AUTOMATIC MONITORING STATION LOCATIONS

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? ⁽¹⁾	Monitoring Technique	Distance to Relevant Exposure (m) ⁽²⁾	Distance to kerb of nearest road (m) ⁽¹⁾	Inlet Height (m)
HO2	Horsham Park Way	Roadside	517485	130590	NO ₂ , PM ₁₀	No	N/A	Chemiluminescence (APNA-370); TEOM	8.9	1.5	3.0
HO4	Storrington AURN	Roadside	509083	114198	NO ₂ , PM ₁₀ , PM _{2.5}	No	N/A	Chemiluminescence (T200); FIDAS200	9.6	4.6	3.3
HO5	Cowfold	Roadside	521356	122553	NO ₂ , PM _{2.5} [*]	Yes	Horsham Cowfold AQMA	Chemiluminescence (ML9841B); FDMS 1405F	4.0	6.5	2.0

- 3.4 The nearest comparable non-automatic monitoring site is Rusper Primary School, approximately 2 km east of site. Details are summarised in Table 3.2 below.

TABLE 3.2
DETAILS OF NEAREST NON-AUTOMATIC MONITORING STATION LOCATIONS

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
Rusper sites										
Rusper 1	Rusper Primary School	Kerbside	520537	137137	NO ₂	No	8.9	0.7	No	1.9

- 3.5 See Table 3.3 below for the annual mean NO₂ monitoring results from the Horsham Park Way and Rusper Primary School monitoring stations.

TABLE 3.3
MEASURED ANNUAL MEAN NITROGEN DIOXIDE CONCENTRATIONS (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
HO2	517485	130590	Roadside	95.1	92.9	18.8	21.1	17.7	16.2	15.7
HO4	509083	114198	Roadside	96.7	96.7	17.4	20.1	17.6	17.4	16.6
HO5	521356	122553	Roadside	98.9	95.5	23.6	20.3	21.0	24.6	16.2
					(%) ⁽¹⁾	(%) ⁽²⁾				
Rusper sites										
Rusper 1		520537	137137	Kerbside	100.0	100.0	-	-	-	11.4

- 3.6 No exceedances of the NO₂ annual mean air quality objective of 40µg/m³ have been identified at the above monitoring stations. It can be assumed NO₂ levels at the proposed site are of similar or lower concentrations.
- 3.7 The NO₂ monitoring results for the automatic monitoring station show a continuing slow decline in concentrations, despite population and traffic increases in recent years. Covid restrictions caused some distortion of the 2020 and 2021 results.

- 3.8 PM₁₀ is monitored at the Horsham Park Way monitoring station. See Table 3.4 for annual mean PM₁₀ concentrations.

TABLE 3.4
MEASURED ANNUAL MEAN PM₁₀ CONCENTRATIONS (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
HO2 *	509083	114198	Roadside	99.6	99.6	11.0	12.3	13.1	14.6	10.1
HO4	521356	122553	Roadside	99.6	99.6	-	-	7.3	7.7	7.7

- 3.9 PM₁₀ concentrations recorded at the above monitoring station have consistently fallen below the UK annual mean Air Quality Objective of 40 µg/m³. It can be safely assumed that the levels of PM₁₀ at the site are also at or below this level. These levels are not expected to increase significantly as a result of the proposed development.

4. AMBIENT CONDITIONS AT THE SITE

4.1 Nitrogen Dioxide (NO₂)

- 4.1.1 Air quality monitoring was carried out at the site between 5 March and the 7 April 2026. NO₂ diffusion tubes were placed in triplicate at five locations around the site boundary. See Figure 4 in Appendix A for the monitoring locations.
- 4.1.2 With reference to Local Air Quality Management Technical Guidance (LAQM.TG16 February 2018), the results from the NO₂ diffusion tube monitoring at the site can be annualised by comparison with monitoring data for the same period from continuous monitoring stations within the area. TG16 suggests that comparison sites should ideally be background sites, with at least 85% data capture rates. Data from the nearest automatic monitoring site has been used to annualise the data from the on-site monitoring.
- 4.1.3 The diffusion tube data presented has been corrected for bias using the national bias adjustment factor of 0.78. The results from the analysis of the exposed NO₂ diffusion tubes are given in Appendix B and are summarised in Table 4.1 below.

TABLE 4.1
RESULTS OF NO₂ DIFFUSION TUBE MONITORING AT THE SITE

Ref. No.	Location	NO2 Concentration (µg/m³)					
		Sample No.			Average	Annualised	With Bias Factor
1	2	3					
A	N border of site 3 m	4.9	4.6	4.8	4.77	4.26	3.32
B	S border of site 3 m	5.5	5.5	8.6	6.53	5.83	4.55
C	SW corner of the site 3 m	5.8	7.5	4.8	6.03	5.38	4.20
D	W Border of site 3 m	5.3	5.0	4.9	5.07	4.52	3.53
E	NW corner of the site 3 m	4.9	4.7	4.6	4.73	4.22	3.29

- 4.1.4 The equivalent annual mean NO₂ concentration (annualised and with bias factor) measured at the site ranges between 3.29 – 4.55 µg/m³. The highest value was measured at location B, the southern border of the site adjacent to pastoral fields and paddocks.
- 4.1.5 The results above show that the NO₂ at the site is within the AQO annual mean limits of 40 µg/m³. It is considered unlikely that any residents of the proposed development will be exposed to harmful levels of pollution.

5. PROBABLE IMPACTS OF THE PROPOSED DEVELOPMENT ON AIR QUALITY

- 5.1 The site is to be redeveloped following demolition of the existing stables, office, and sand schools for residential accommodation comprising ten dwellings. The proposed development is expected to increase emissions compared with existing use. These emissions would be from the additional traffic generated by the new residents, from heating flues, cooking, and from process ventilation. The site lies in an area with mixed residential and agricultural usage, and the impact of any additional traffic would be minor when compared against the existing traffic already accessing the site.

- 5.2 There may be short-term impacts on air quality during the site construction and development phases, principally from dust generated during construction work and emissions from the vehicles on-site. The dust production on-site is best controlled by vigilance and applying dust suppression/control measures where necessary, particularly on dry and/or windy days between April and October, and during works with a high potential to produce dust. Examples of such measures are powered ventilation, filtration and extraction and wheel and boot wash stations. The site vehicles and construction activities will also increase the Nitrogen Dioxide (NO₂) air pollution in the vicinity during construction which will have an impact on the local air quality. This can be mitigated by ensuring the engines of the construction vehicles are Euro 6 standard or have emission lowering retro fitted equipment.
- 5.3 Details of the measures to be adopted to minimise dust and emissions during construction are also given in the Institute of Air Quality Management document '*Guidance on the assessment of dust from demolition and construction*' of January 2024 and the London Council Best Practice Guidance '*The control of dust and emissions from construction and demolition*'.
- 5.4 Once the proposed development is complete, it would appear most likely that the air quality around the site would be like existing. As air quality in the area has shown a slight improving trend over recent years, the impact on the air quality at the nearest residential receptors from the proposed development (once complete) should not be significantly adverse and should not result in any exceedances of current AQOs.

6. CONCLUSIONS

- 6.1 The site presently comprises of a central stable block with parking to the north and south of the building, as well as four residential dwellings, with a detached residence and main farmhouse and gardens to the west of the site boundary and main entrance from Capel Road. To the east of the site lies a secondary entrance to Capel Road with an office building to the immediate west and paddocks to the east. There is a track leading from this entrance southwards to connect to the wider site, with a storage unit and caravan to the east of the track and barn to the west (to be retained). To the south of the redline boundary are two sand schools.
- 6.2 The site does not lie within an Air Quality Management Area (AQMA).
- 6.3 It is proposed to redevelop the site after the demolition of the existing stables, office, and sand schools for residential accommodation comprising ten dwellings with associated gardens and parking. Under a separate application a three-bedroom house is to be developed where the caravan currently exists, and a new office building is to replace the existing one in the same footprint.
- 6.4 The proposed development is not expected to expose future occupiers to pollution concentrations in excess of the UK Air Quality Objective for nitrogen dioxide (NO₂) or particulate (PM₁₀).

- 6.5 To measure actual NO₂ concentrations at the site, additional monitoring was carried out. Nitrogen dioxide diffusion tube monitoring was undertaken at five locations around the site between 5 March and 7 April 2026. The equivalent annual mean NO₂ concentration (annualised with bias factor) measured at the site ranged between 3.29 – 4.55 µg/m³.
- 6.6 All NO₂ concentrations measured at the site were within the UK annual mean AQO for nitrogen dioxide of 40 µg/m³. The highest concentration was measured at monitoring at location B, the southern border of the site adjacent to pastoral fields and paddocks. All measured concentrations have been annualised and adjusted for bias in accordance with LAQM.TG16.
- 6.7 The monitoring results indicate that future occupants of the proposed development are not likely to be exposed to NO₂ concentrations in excess of the UK Air Quality Objectives for nitrogen dioxide.
- 6.8 The on-site monitoring did not include the measurement of particulate matter as there is no viable short-term measurement method. PM₁₀ monitoring has been carried out by Horsham District Council's continuous monitoring stations HO2 and HO4. Annual mean PM₁₀ concentrations in 2024 were significantly below the UK objective of 40 µg/m³. On the basis of the automatic monitoring data, it is considered unlikely that future occupants of the proposed development would be exposed to PM₁₀ or PM_{2.5} concentrations in excess of the relevant Air Quality Objectives.
- 6.9 It is acknowledged that there may be short-term impacts on air quality during the site preparation and redevelopment phases, principally from dust generated during site clearance, demolition and construction work.
- 6.10 Control of dust during redevelopment is best controlled by vigilance and applying dust suppression/control measures where necessary, particularly on dry and/or windy days, and during works with a high potential to produce dust. Detailed guidance on dust management during site works can be found within (for example) the Institute of Air Quality Management guidance document '*The assessment of dust from demolition and construction*' January 2024, and the Mayor of London Supplementary Best Practice Guidance '*The control of dust and emissions from construction and demolition*'.
- 6.11 See air quality assessment matrix in Table 6.1 below for a summary of the findings of this assessment.

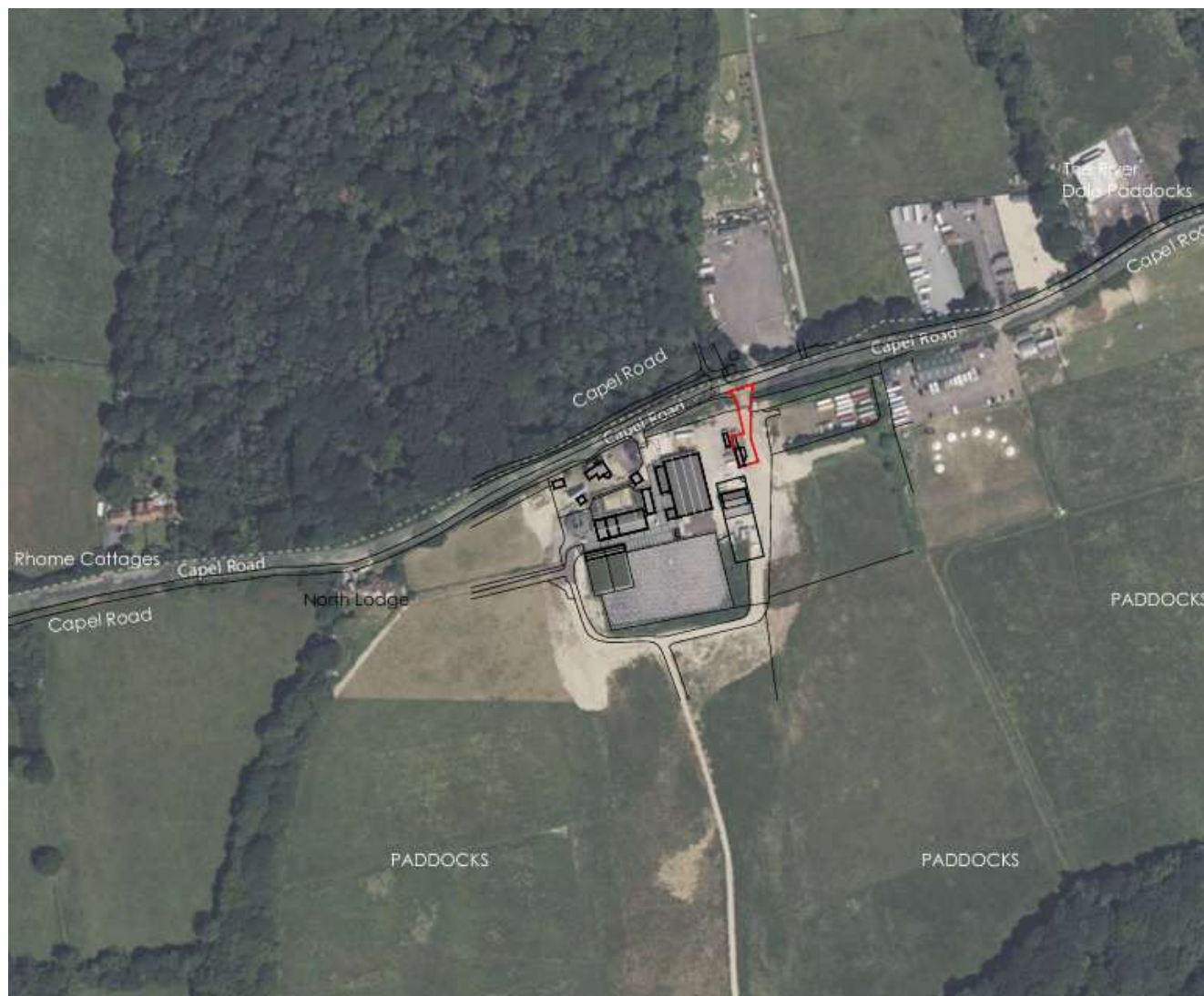
TABLE 6.1
AIR QUALITY ASSESSMENT SUMMARY MATRIX

CRITERIA		CONCLUSION
AQOs likely to be exceeded?	At present	No
	Post-development	No
Increase in number of receptors exposed?		Yes (proposed residents)
Air quality impacts from proposed development in service?		No significant impacts identified
Remedial measures indicated?		No

☆☆☆☆☆☆

APPENDIX A

- Figure 1: Site Location**
- Figure 2: Existing Site**
- Figure 3: Proposed Development**
- Figure 4: NO₂ Diffusion Tube Locations**



STEVE LAMB

Scale as shown

New Barn Farm, Capel Road, Horsham, West Sussex, RH12 4PZ

Figure 1: Site Location

May 2026





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Scale as shown

New Barn Farm, Capel Road, Horsham, West Sussex, RH12 4PZ

Figure 2: Existing Site

August 2026



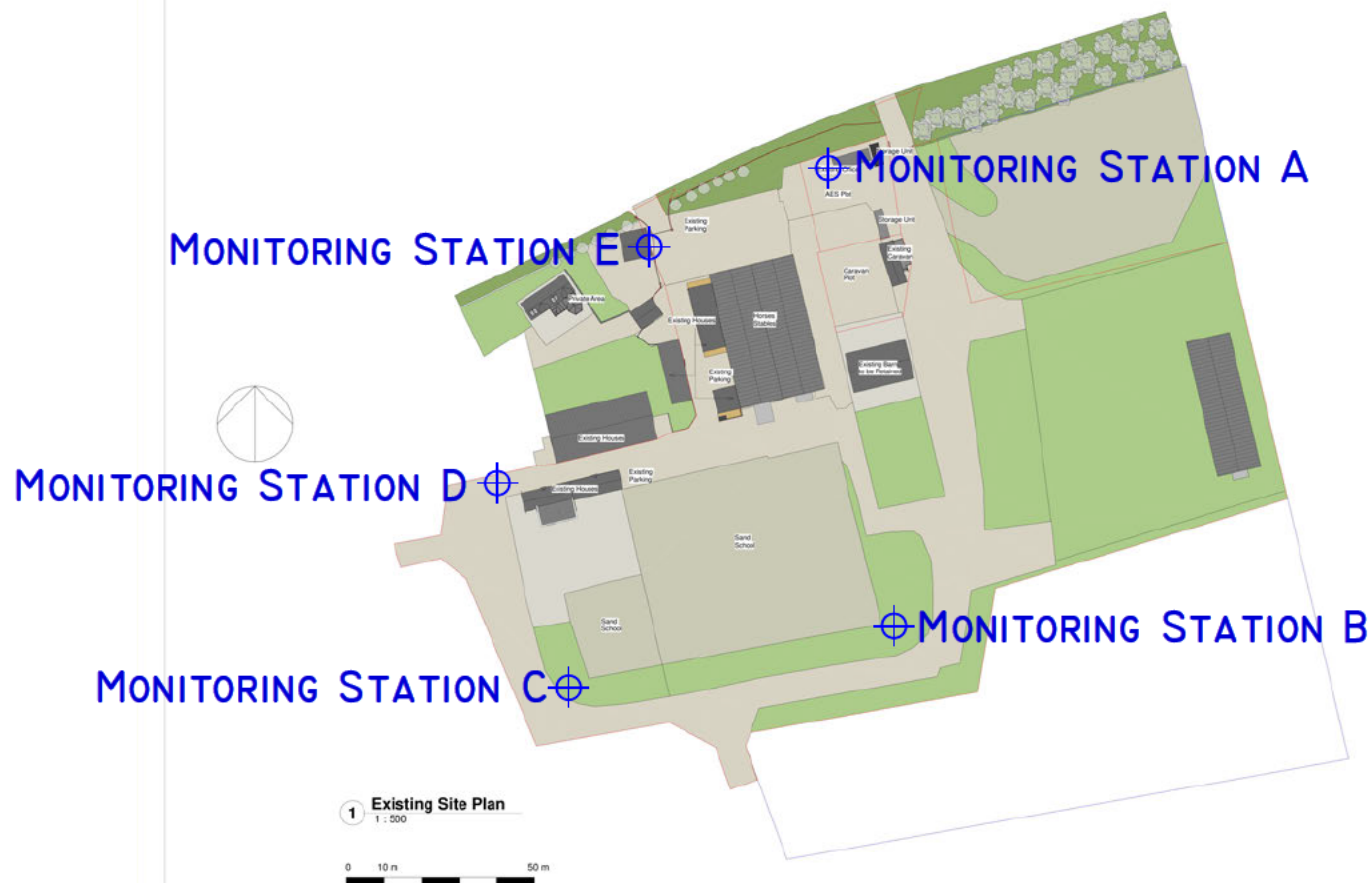
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Scale as shown

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Figure 3: Proposed Development

August 2026



1	Revision 1	LDV	19/06/19
2	Revision 2	LDV	19/07/19
3	Revision 3	LDV	24/08/19
4	Revision 4	LDV	27/07/20
5	Author	LDV	Author
6	Checker	LDV	Checker
7	Approver	LDV	Approver
8	Notes	1. PRELIMINARY This drawing is prepared under the Copyrights Designs and Patents Act 1988. This drawing is prepared for Publishing PURPOSES ONLY and is not to be used for construction.	
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client	M LAMB		
project	LAND AT NEW BARN FARM		
site	EXISTING SITE PLAN		
scale	1 : 500 @ A1		
date	19/07/19		
drawn	LDV		
checked	LDV		
job no.	P2521	drawing no.	(01)-002
version			D



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Scale as shown

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Figure 4: NO2 Diffusion Tube Locations

August 2026

APPENDIX B

Diffusion Tube Monitoring Results



Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total µg	µg m ⁻³	ppb	Comments
EAS/25B/NB1S1	NEW BARN FARM	05/02/2026 13:35	07/04/2026 12:10	1462.58	0.5	4.9	2.5	SPIDER
EAS/25B/NB1S2	NEW BARN FARM	05/02/2026 13:35	07/04/2026 12:10	1462.58	0.47	4.6	2.4	
EAS/25B/NB1S3	NEW BARN FARM	05/02/2026 13:35	07/04/2026 12:10	1462.58	0.49	4.8	2.5	
EAS/25B/NB1S4	NEW BARN FARM	05/02/2026 13:45	07/04/2026 12:15	1462.50	0.56	5.5	2.9	DIRT
EAS/25B/NB1S5	NEW BARN FARM	05/02/2026 13:45	07/04/2026 12:15	1462.50	0.56	5.5	2.8	
EAS/25B/NB1S6	NEW BARN FARM	05/02/2026 13:50	07/04/2026 12:15	1462.42	0.88	8.6	4.5	SPLIT WHITE CAP
EAS/25B/NB1S7	NEW BARN FARM	05/02/2026 13:50	07/04/2026 12:20	1462.50	0.59	5.8	3	SPLIT WHITE CAP
EAS/25B/NB1S8	NEW BARN FARM	05/02/2026 13:50	07/04/2026 12:20	1462.50	0.76	7.5	3.9	
EAS/25B/NB1S9	NEW BARN FARM	05/02/2026 13:55	07/04/2026 12:20	1462.42	0.49	4.8	2.5	



Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total µg	µg m ⁻³	ppb	Comments
EAS/25B/NB1S10	NEW BARN FARM	05/02/2026 13:55	07/04/2026 12:25	1462.50	0.54	5.3	2.7	
EAS/25B/NB1S11	NEW BARN FARM	05/02/2026 13:55	07/04/2026 12:25	1462.50	0.51	5	2.6	
EAS/25B/NB1S12	NEW BARN FARM	05/02/2026 13:55	07/04/2026 12:25	1462.50	0.5	4.9	2.5	
EAS/25B/NB1S13	NEW BARN FARM	05/02/2026 14:00	07/04/2026 12:30	1462.50	0.5	4.9	2.6	
EAS/25B/NB1S14	NEW BARN FARM	05/02/2026 14:00	07/04/2026 12:30	1462.50	0.48	4.7	2.5	
EAS/25B/NB1S15	NEW BARN FARM	05/02/2026 14:00	07/04/2026 12:30	0.00	0.47	4.6	2.4	
EAS/25B/NB1S16	NEW BARN FARM							MISSING
EAS/25B/NB1S17	NEW BARN FARM							MISSING
EAS/25B/NB1S18	NEW BARN FARM							MISSING



Sample Number	Site	Date and Time ON	Date and Time OFF	Exposure Time (Hours)	Total µg	µg m ⁻³	ppb	Comments
EAS/25B/NB1S19	NEW BARN FARM							MISSING
EAS/25B/NB1S20	NEW BARN FARM							MISSING
EAS/25B/NB1S21	NEW BARN FARM							MISSING
EAS/25B/NB1S22	NEW BARN FARM							MISSING
EAS/25B/NB1S23	NEW BARN FARM							MISSING
EAS/25B/NB1S24	NEW BARN FARM							MISSING

APPENDIX C

Photographs

Monitoring Location A



Monitoring Location B



Monitoring Location C

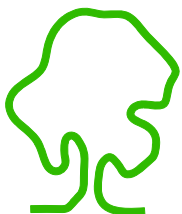


Monitoring Location D



Monitoring Location E





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