

Proposed Mixed Use Development Sandlesford Park, Newbury, West Berkshire

APP/26 Appendices – Nigel Mann, Air Quality

A106825-1

Bloor Homes and the Sandlesford Farm Partnership

6th April 2021

Prepared by Tetra Tech Limited (Formerly WYG)

APP/26/A

**Proposed Mixed Use Development Sandleford Park,
Newbury, West Berkshire**

Air Quality Technical Note – Ecological Receptors

A106825-1

Bloor Homes and the Sandlesford Farm Partnership

Proposed Mixed Use Development Sandlesford Park, Newbury, West Berkshire

Air Quality Technical Note

September 2020

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Document control

Project: Proposed Mixed Use Development, Sandleford Park, Newbury, West Berkshire

Client: Bloor Homes and the Sandleford Farm Partnership

Job Number: A106825-1

File Origin: O:\Acoustics Air Quality and Noise\Active Projects

Document Checking:

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Issue	Date	Status
1	14 th August 2020	First Issue
2	18 th September 2020	Second Issue – Updated Following Comments

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1. Introduction

1.1.1 WYG has been appointed by Bloor Homes Limited and the Sandleford Farm Partnership to provide air quality advice in relation to a planning application at Sandleford Park, Newbury, West Berkshire.

1.1.2 This Technical Note has been prepared in addition to the Air Quality Assessment, dated 15th January 2020, in relation to concerns raised by Natural England on the 29th July 2020 with the aim of demonstrating the air quality impacts of the proposed development on the following ecological sensitive sites:

- Kennet Valley Alderwoods SAC
- Kennet and Lambourn Floodplain SAC
- River Lambourn SAC

1.1 Scope of Technical Note

1.1.3 This Technical Note considers the air quality impacts that the development flows associated with the proposed development has on the additional ecological receptors requested by Natural England on the 29th July 2020. The assessment has been informed by *Natural England Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulation, June 2018*.

1.2 Update History

1.2.1 Following comments received on behalf on Natural England this Technical Note has been updated. The comments dated 4th September 2020 state:

"Many thanks for sending us through the Air Quality technical note for the proposal at Sandleford Park. Whilst we appreciate the work that has gone into this note, we do not feel that the requirements outlined in our letter dated 20th July 2020 have been adequately addressed by the applicant. Primarily, we required a reassessment under the Habitats Regulations of the likely impacts on air quality on the mentioned European sites. The note includes no Habitats Regulations work. Secondly, we asked for the potential air quality impacts of the proposed development to be assessed in-combination with other plans and projects. This assessment has not been provided."

- 1.2.2 Following the aforementioned comments on behalf of Natural England, a Habitats Regulations Assessment has been undertaken.
- 1.2.3 The assessment of air quality impacts on the ecologically sensitive sites undertaken within this Technical Note is an in-combination assessment. As such, the 'Do Minimum' traffic accounts for future developments in the area and any additional local growth, as Air Quality Assessments for surrounding sites have been obtained to inform the assessment. Furthermore, traffic data for the scenario "Do Something 1" also includes traffic flows associated with 100 dwellings as part of the adjacent Sandlesford Park West Scheme.

2. Traffic Data

- 2.1.1 WYG has undertaken an assessment to determine the impacts of additional air quality emissions associated with the increase in development traffic from the proposed development. Ecological receptors in accordance with the concerns raised by Natural England on the 29th July 2020 have been included within the assessment.
- 2.1.2 Baseline 2018 data has been obtained for the operational phase assessment in the form of Annual Average Daily Traffic figures (AADT).
- 2.1.3 Baseline 2017 data and projected 2031 'do minimum', 'do something (DS1)' and 'do something (DS2)' traffic data has been obtained for the operational phase assessment in the form of Annual Average Daily Traffic figures (AADT). Baseline 2017, 2031 'do minimum', 2031 'do something' scenarios AADT have been provided by Vectos Transport Consultants.
- 2.1.4 A TEMPro factor of 1.01 has been applied to the 2017 traffic data to provide 2018 baseline data, to coincide with the latest available monitoring and meteorological data. Additionally, traffic data (baseline 2018 and 'do minimum' and 'do something' 2031) from surrounding Air Quality Assessments have been obtained to include as part of the assessment. Due to the availability of traffic data, the "Do Something 1" traffic data also includes traffic flows associated with 100 dwellings as part of the adjacent Sandleford Park West Scheme.
- 2.1.5 Additional 2018 traffic flows have been obtained from the Department for Transport website. A TEMPro factor has been applied to the 2018 traffic data to provide 2031 'do minimum' traffic data. A TEMPro factor of 1.16 has been applied to the A34 2018 traffic data, and a factor of 1.15 has been applied to the A4 2018 traffic data to provide 2031 'do minimum' traffic data.
- 2.1.6 Emission factors for the 2018 baseline and 2031 projected 'do minimum' and 'do something' scenarios have been calculated using the Emission Factor Toolkit (EFT) Version 9.0 (May 2019). The EFT and Defra NO_x-to-NO₂ Calculator only calculate emissions up to the year 2030. With the operational year being 2031, it is thought that the emissions will be greater during 2030. Therefore, with the emissions being greater during 2030 this assessment will be higher than 2031 predictions would be and have been used in this assessment.
- 2.1.7 It is assumed the average vehicle speeds on the local road network in an opening year of 2031 will be broadly the same as the ones in 2018. Where unavailable, traffic speeds have been estimated based on site observations and national speed limits.

2.1.8 A 50m 20km/hr slow down phase is included on each link at every junction and roundabout within the assessment. All of the roads within the dispersion model are illustrated in Figure 1. Detailed traffic figures are provided in the Table 2.1.

Table 2.1 Traffic Data

Link	Speed	2018		2031					
		AADT	%HGV	Do Minimum		Do Something 1		Do Something 2	
				AADT	%HGV	AADT	%HGV	AADT	%HGV
SPW Site Access	48	1356	5.0	1521	4.0	5055	4.0	5055	4.0
Andover Road (South of Double Mini)	48	10750	0.4	13973	1.5	15135	1.4	14176	1.5
Monks Lane (West)	48	11370	0.3	11924	2.0	11622	1.9	11393	2.0
Andover Road (North of Double Mini)	48	17840	2.0	15025	2.0	17083	2.0	17083	2.0
Essex Street, Newbury	48	6980	0.2	7081	2.1	6969	2.0	7559	1.9
A343 Andover Road South (West of Newtown Road)	48	13024	0.1	17384	1.2	18649	1.2	18530	1.1
Bloor Western Site Access	48	0	0.0	0	0.0	2500	0.0	2500	0.0
Monks Lane (Central)	48	12473	5.0	16010	4.0	15346	4.0	15346	4.0
Bloor Eastern Site Access	48	0	0.0	0	0.0	798	0.0	798	0.0
Monks Lane (East)	48	10750	0.4	10125	2.0	7227	2.1	11457	1.7
Monks Lane East (Pinchington Junction Approach)	48	12482	5.0	16035	4.0	16279	4.0	16279	4.0
A339 South (South of Pinchington Lane)	80	24327	3.9	26028	3.4	26402	3.5	26242	3.5
A339 North (North of Pinchington Lane)	80	26071	8.0	32928	7.0	30755	7.0	30755	7.0
Pinchington Lane Newbury	48	997	2.1	10708	2.3	9928	2.3	10287	2.0
A343 St Johns Road	48	17840	2.0	15025	2.0	17083	2.0	17083	2.0
A339 Newbury (North of Retail Park)	65	23785	3.3	43726	2.9	44787	2.9	45115	2.8
Greenham Road, Newbury	48	5847	0.3	4712	1.3	4900	1.5	5225	1.6
A339 Newbury (South of Robin Hood)	65	39667	2.2	39245	3.0	40285	2.9	41048	2.8
B3421 Kings Road, Newbury	48	7295	0.5	10749	1.7	11074	1.6	10990	1.4
A339 East of Swan Roundabout	80	21873	3.9	27250	3.4	26458	3.5	29988	3.1
A343 South of A34	96	9864	0.4	10215	1.7	9831	1.8	13497	1.3
New A339 Access	48	0	0	596	0	3236	0	3236	0
A34	112	56137	12.3	64939	12.3	67193	11.9	66352	12.0
A4	96/48	12009	2.8	13778	2.8	14593	2.6	14300	2.7
Bath Road (A4) (East of B4000)	96	19647	2.5	22541	2.5	23356	2.4	23063	2.5
Bath Road (A4) (West of B4494)	64	17862	1.9	20493	1.9	21308	1.8	21015	1.8
Bath Road (A4) (East of B4494)	64	14361	2.1	16476	2.1	17291	2.0	16998	2.1
Eddington Hill	48	8357	4.1	9341	4.1	9613	3.9	9515	4.0

Link	Speed	2018		2031					
		AADT	%HGV	Do Minimum		Do Something 1		Do Something 2	
				AADT	%HGV	AADT	%HGV	AADT	%HGV
Charnham Street	48	10972	3.0	12265	3.0	12536	2.9	12439	3.0
Bridge Street	48	3310	2.8	3700	2.8	3972	2.6	3874	2.7

3. Ecological Receptors

3.1.1 Natural England have commented on the previous ecological receptors used in the Air Quality Assessment dated 15th January 2020, suggesting that it would be beneficial to include additional sites of ecological importance, such as Kennet Valley Alderwoods (SAC), Kennet and Lambourn Floodplain (SAC), and the River Lambourn (SAC) to identify how the proposed development trips would impact these sites.

3.1.2 The additional ecological receptor locations assessed as part of this Technical Note are summarised in Table 3.1 and the spatial locations of all of the receptors are illustrated in Figure 1.

Table 3.1 Construction Phase: Modelled Existing Sensitive Receptor Locations

Site ID	Site	Designation	UK NGR (m)		Distance from Site (km)	Distance from Nearest Affected Road (m)
			X	Y		
E21	Kennet Valley Alderwoods	SAC	444542	167060	2.8	430
E22	Kennet Valley Alderwoods	SAC	444543	166732	2.6	393
E23	Kennet Valley Alderwoods	SAC	439398	167724	7.4	760
E24	Kennet Valley Alderwoods	SAC	439679	167811	7.2	645
E25	Kennet Valley Alderwoods	SAC	439873	167868	7.1	567
E26	Kennet Valley Alderwoods	SAC	440026	167857	6.9	555
E27	Kennet Valley Alderwoods	SAC	440702	167565	6.2	812
E28	Kennet Valley Alderwoods	SAC	440702	167464	6.2	917
E29	Kennet Valley Alderwoods	SAC	439462	167272	7.2	1202
E30	Kennet and Lambourn Floodplain	SAC	434856	168613	12.0	84
E31	Kennet and Lambourn Floodplain	SAC	434669	168763	12.2	24
E32	Kennet and Lambourn Floodplain	SAC	434398	168892	12.5	27
E33	Kennet and Lambourn Floodplain	SAC	434277	168948	12.6	26
E34	Kennet and Lambourn Floodplain	SAC	434201	168992	12.7	13
E35	Kennet and Lambourn Floodplain	SAC	434229	168709	12.6	266
E36	Kennet and Lambourn Floodplain	SAC	434355	168619	12.5	290
E37	Kennet and Lambourn Floodplain	SAC	434645	168524	12.2	250
E38	Kennet and Lambourn Floodplain	SAC	434825	168505	12.0	195
E39	River Lambourn	SAC	445512	169081	4.0	16
E40	River Lambourn	SAC	445526	169123	4.1	17
E41	River Lambourn	SAC	445542	169170	4.1	18
E42	River Lambourn	SAC	445573	169152	4.1	16
E43	River Lambourn	SAC	445558	169114	4.1	16
E44	River Lambourn	SAC	445539	169070	4.0	15

- 3.1.3 It should be noted that the IAQM Guidance (A guide to the assessment of air quality impacts on designated nature conservation sites, May 2020) only requires the assessment of ecological receptors which are located within 200 m of the affected road network. For robustness, all ecological receptors above in Table 3.1 have been included within the air quality assessment.
- 3.1.4 Background concentrations at each of the ecologically sensitive sites are determined through a review of the NO_x pollutants published on the APIS website.

Table 1.2 APIS Ecological Receptor Background NO_x Concentrations

Receptor ID	NO _x (µg/m ³)
E21	16.75
E22	16.75
E23	16.75
E24	16.75
E25	16.75
E26	16.75
E27	16.75
E28	16.75
E29	16.75
E30	15.93
E31	15.93
E32	15.93
E33	15.93
E34	15.93
E35	15.93
E36	15.93
E37	15.93
E38	15.93
E39	16.75
E40	16.75
E41	16.75
E42	16.75
E43	16.75
E44	16.75

- 3.1.5 The below assessment has been undertaken in accordance with A Guide to the Assessment of Air Quality Impacts in Designated Nature Conservation Sites (IAQM, 2019).
- 3.1.6 These receptors have been included within the ADMS model to determine the NO_x contribution from traffic associated with the Proposed Development.

3.1 Scenario 1 ('Do Something 1') Assessment Results – With Bloor Homes Development – three accesses

Table 3.3 Modelled NO_x Concentrations at Ecologically Sensitive Receptors

Receptor ID	Ecological Receptor	Predicted Maximum Annual Mean Concentration (µg/m ³)		
		Do Minimum 2031 NO _x	Do Something 2031 NO _x	Process Contribution (PC)
E21	Kennet Valley Alderwoods	17.64	17.67	0.04
E22	Kennet Valley Alderwoods	17.69	17.73	0.04
E23	Kennet Valley Alderwoods	16.90	16.90	0.01
E24	Kennet Valley Alderwoods	16.91	16.92	0.01
E25	Kennet Valley Alderwoods	16.93	16.94	0.01
E26	Kennet Valley Alderwoods	16.93	16.94	0.01
E27	Kennet Valley Alderwoods	16.91	16.91	0.01
E28	Kennet Valley Alderwoods	16.90	16.90	0.01
E29	Kennet Valley Alderwoods	16.86	16.87	0.01
E30	Kennet and Lambourn Floodplain	16.66	16.71	0.04
E31	Kennet and Lambourn Floodplain	18.00	18.11	0.12
E32	Kennet and Lambourn Floodplain	18.06	18.17	0.11
E33	Kennet and Lambourn Floodplain	19.07	19.21	0.15
E34	Kennet and Lambourn Floodplain	21.78	22.05	0.27
E35	Kennet and Lambourn Floodplain	16.35	16.36	0.01
E36	Kennet and Lambourn Floodplain	16.24	16.26	0.01
E37	Kennet and Lambourn Floodplain	16.23	16.24	0.01
E38	Kennet and Lambourn Floodplain	16.28	16.30	0.02
E39	River Lambourn	23.96	24.23	0.27
E40	River Lambourn	24.08	24.36	0.27
E41	River Lambourn	24.28	24.56	0.28
E42	River Lambourn	28.24	28.66	0.43
E43	River Lambourn	27.43	27.82	0.40
E44	River Lambourn	26.33	26.68	0.36
Critical Level (CL)		30		

3.1.1 As indicated in Table 3.3, the maximum predicted increase in the annual average exposure to NO_x at any ecological receptor, due to changes in traffic movements associated with the development, is 0.43 µg/m³ at River Lambourn (E42).

3.1.2 All modelled ecological receptors outlined in Table 3.3 are below the Critical Level (CL) for NO_x. Therefore, there are not predicted to be any exceedance of the CL as a result of traffic from the proposed development.

3.1.3 Section 5.5.4.1 of *A Guide to the Assessment of Air Quality Impacts in Designated Nature Conservation Sites*, IAQM 2019 states:

Where the assessment indicates that changes in annual mean NO_x concentrations within a designated site cannot be dismissed as imperceptible (i.e. an increase of over 0.4 µg/m³) and the NO_x critical level is exceeded, then changes in nutrient nitrogen deposition should be calculated as supporting information to further assist in the evaluation of significance.

3.1.4 As the NO_x contribution at E42 (River Lambourn, SAC) is above 0.43 µg/m³, a full nitrogen deposition assessment has been undertaken below.

3.1.5 Ammonia (NH₃) and Sulphur Dioxide (SO₂) emissions from traffic are 0.001% and 0.4% of the road NO_x contribution respectively. There is not predicted to be a significant increase in either NH₃ or SO₂ as a result of the proposed development at any ecological receptor as a result of traffic movements from the proposed development.

Nitrogen Deposition

3.1.6 The dry deposition calculation has used the spreadsheet provided by the Air Quality Modelling and Assessment Unit (AQMAU). These calculations take the predicted maximum annual concentration (µg/m³) and use an assumed deposition velocity to estimate deposition concentration in kgN/ha/year or keq/ha/year. The available deposition velocity is 0.14 for grasslands or similar habitats, in accordance with in LA 105 (published November 2019). The calculated total nitrogen depositions at the ecological receptors are presented in Table 3.4. The calculated nitrogen deposition was compared to the available critical load of nitrogen deposition.

Table 3.4 The Predicted Total PC Nitrogen Deposition

Ecological Receptor	Long-Term PC of NO _x (µg/m ³)	Dry PC Nitrogen Deposition (kgN/ha/year)	Background	Total PC Nitrogen Deposition (kgN/ha/year)	Critical load (CL) (kgN/ha/year)	PC as %age of CL
E42	0.43	0.06	17.22	17.28	10 - 15	0.4 - 0.6

Critical Load Function Tool

3.1.7 Calculating exceedance of an acidity critical load function, or the impact description of a contribution from a source is complex. Critical Load Function Tool has been used to calculate the exceedance (<http://www.apis.ac.uk/critical-load-function-tool>). It enables the comparison of acid deposition to the critical load function to help make a decision on the impact description of a process contribution.

River Lambourn (SAC)

3.1.8 The results of exceedance and deposition as a proportion of the critical level (CL) function for E42, are presented both in Figure 2 and in Table 3.5. The following data has been used in the calculations.

Background deposition: 1.2 (N: 1.23 |S: 0.17) (keq/ha/yr).

CLmax S: 4.18 CLminN: 0.223 CLMaxN: 4.403 (keq/ha/yr)

Nitrogen PC deposition: = 0.43*0.14 = 0.06 kqN/ha/yr

Table 3.5 Exceedance and deposition as a proportion of the CL Function at E42

Source	Exceedance (keq/ha/year)	% of CL function
Process Contribution (PC)	No exceedance of CL function	1.4
Background	No exceedance of CL function	31.8
Predicted Environmental Concentration (PEC)	No exceedance of CL function	33.2

3.1.9 The maximum predicted total acid deposition PC at receptor E42 is 0.06 keqN/ha/yr, which is “no exceedance of CL function” and 1.4 % of CL function. It can be concluded that the impact of nitrogen depositions from the road at E42 are negligible.

3.2 Scenario 2 ('Do Something 2') Assessment Results – Strategic Development – four accesses

Table 3.6 Modelled NO_x Concentrations at Ecologically Sensitive Receptors

Receptor ID	Ecological Receptor	Predicted Maximum Annual Mean Concentration (µg/m ³)		
		Do Minimum 2031 NO _x	Do Something 2031 NO _x	Process Contribution (PC)
E21	Kennet Valley Alderwoods	17.64	17.66	0.02
E22	Kennet Valley Alderwoods	17.69	17.71	0.02
E23	Kennet Valley Alderwoods	16.90	16.90	0.01
E24	Kennet Valley Alderwoods	16.91	16.92	0.01
E25	Kennet Valley Alderwoods	16.93	16.94	0.01
E26	Kennet Valley Alderwoods	16.93	16.94	0.01
E27	Kennet Valley Alderwoods	16.91	16.91	0.01
E28	Kennet Valley Alderwoods	16.90	16.90	0.00
E29	Kennet Valley Alderwoods	16.86	16.86	0.00
E30	Kennet and Lambourn Floodplain	16.66	16.69	0.03
E31	Kennet and Lambourn Floodplain	18.00	18.07	0.07
E32	Kennet and Lambourn Floodplain	18.06	18.13	0.07
E33	Kennet and Lambourn Floodplain	19.07	19.16	0.09
E34	Kennet and Lambourn Floodplain	21.78	21.95	0.17
E35	Kennet and Lambourn Floodplain	16.35	16.36	0.01
E36	Kennet and Lambourn Floodplain	16.24	16.25	0.01
E37	Kennet and Lambourn Floodplain	16.23	16.23	0.01
E38	Kennet and Lambourn Floodplain	16.28	16.29	0.01
E39	River Lambourn	23.96	24.13	0.17
E40	River Lambourn	24.08	24.26	0.17
E41	River Lambourn	24.28	24.46	0.18
E42	River Lambourn	28.24	28.50	0.27
E43	River Lambourn	27.43	27.67	0.25
E44	River Lambourn	26.33	26.55	0.22
Critical Level (CL)		30		

3.2.1 As indicated in Table 3.6, the maximum predicted increase in the annual average exposure to NO_x at any ecological receptor, due to changes in traffic movements associated with the development, is 0.27 µg/m³ at River Lambourn (E42).

3.2.2 Section 5.5.4.1 of *A Guide to the Assessment of Air Quality Impacts in Designated Nature Conservation Sites*, IAQM 2019 states:

Where the assessment indicates that changes in annual mean NO_x concentrations within a designated site cannot be dismissed as imperceptible (i.e. an increase of over 0.4 µg/m³) and

the NO_x critical level is exceeded, then changes in nutrient nitrogen deposition should be calculated as supporting information to further assist in the evaluation of significance.

- 3.2.3 As maximum predicted increase in the annual average exposure to NO_x at E42 River Lambourn is below 0.4 µg/m³, a nitrogen deposition assessment has been scoped out of the assessment.
- 3.2.4 All modelled ecological receptors outlined in Table 3.4 are below the Critical Level for NO_x. Therefore, there are not predicted to be any exceedance of the CL as a result of traffic from the proposed development.
- 3.2.5 Ammonia (NH₃) and Sulphur Dioxide (SO₂) emissions from traffic are 0.001% and 0.4% of the road NO_x contribution respectively. There is not predicted to be a significant increase in either NH₃ or SO₂ as a result of the proposed development at any ecological receptor as a result of traffic movements from the proposed development.

4 Habitat Regulations Assessment

4.1 Overview

4.1.1 Natural England provides guidelines that advise on the assessment of the impacts of road traffic emissions of proposed developments (referred to as “plans and projects”) on protected European habitat sites in its guidance *Natural England’s approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Version: June 2018)*.

4.1.2 The guidance primarily covers the screening stage that initially identifies the risk of the possibility of significant adverse effects on a European site which could undermine the achievement of its conservation objectives and which would therefore require further detailed examination through an “appropriate assessment”. If risks which might undermine a site’s conservation objectives can clearly be ruled out (based on the consideration of objective information), a proposal will have no likely significant effect and no appropriate assessment will be needed.

4.1.3 Advice on Screening

The advice on screening the need for an appropriate assessment is set out in 4 steps, as described below. If the proposal does not meet the criteria of one of the steps, there is no need to progress to the next step:

Step 1: Does the proposal give rise to emissions which are likely to reach a European Site?

- Any emissions from road traffic associated with a specific proposal and the proximity to European sites should be considered.

Step 2: Are the qualifying features of the sites within 200m of a road sensitive to air pollution?

- Distance-based criteria have been established for several sectors to identify consultations requiring consideration for potential effects from air pollution.
- With regard to potential risks from road traffic emissions, Natural England and Highways England are in agreement that protected sites falling within 200 meters of the edge of a road affected by a plan or project need to be considered further.

Step 3: Could the sensitive qualifying features of the site be exposed to emissions

- “Qualifying features” of a site can be identified by reference to Natural England’s formal advice on their conservation objectives, which include a definitive list of legally qualifying features.
- There are several ways to establish whether qualifying feature is sensitive to the type of air emissions expected from a proposal, ranging from broad, internationally agreed

pollution benchmarks (critical loads and levels) to site specific information such as survey data.

Step 4: Application of screening thresholds: (a) alone; (b) in-combination with emissions from other road traffic plans and projects; and (c) in-combination with emissions from other non-road plans and projects.

- Established guideline thresholds that determine whether a change is likely to be significant are used and applied to the development.
- The parameters used as thresholds are a change in AADT of 1,000 or more (or 200 or more AADT HGV) or 1% of the critical load or critical level for emissions.
- These thresholds do not themselves imply any intrinsic environmental effects and are used solely as a trigger for further investigation.

4.2 Site Specific Screening (Steps 1-4a)

4.2.1 It has been identified that an assessment of the potential impact of road traffic emissions associated with the proposed development on Kennet Valley Alderwoods SAC, Kennet, Lambourn Floodplain SAC, and River Lambourn SAC is required. To facilitate this, a site-specific screening assessment has been carried out to determine whether an Appropriate Assessment is required. Tables 4.1, 4.2, and 4.3 summarise this screening assessment.

Table 4.1 Kennet Valley Alderwoods SAC Screening

Step	Outcome	Justification
Step 1: Does the proposal give rise to emissions which are likely to reach a European Site?	Yes	<i>The proposed development is expected to increase traffic flows along the A4, which passes alongside the Kennet Valley Alderwoods SAC.</i>
Step 2: Are the qualifying features of the sites within 200m of a road sensitive to air pollution?	No	<i>The qualifying features of the Kennet Valley Alderwoods SAC are no located within 200m of a road.</i>
Step 3: Could the sensitive qualifying features of the site be exposed to emissions?	No	<i>The distribution of the qualifying features within Kennet Valley Alderwoods are located further than 200m from an affected road source.</i>
Step 4a: Do the emissions from this proposal alone exceed screening thresholds?	No	<i>Scenario 1 is predicted to increase traffic on the A4 by 815 AADT, while Scenario 2 is predicted to increase traffic on the A4 by 522 AADT. This would not constitute a likely significant effect as it falls below the 1000 AADT threshold considered by Natural England to be suitably precautionary.</i>

Table 4.2 Kennet and Lambourn Floodplain SAC Screening

Step	Outcome	Justification
Step 1: Does the proposal give rise to emissions which are likely to reach a European Site?	Yes	<i>The proposed development is expected to increase traffic flows along the A4, which passes directly alongside the Kennet and Lambourn Floodplain SAC.</i>
Step 2: Are the qualifying features of the sites within 200m of a road sensitive to air pollution?	No	<i>The qualifying features of the Kennet and Lambourn Floodplain SAC are listed as being Desmoulin's whorl snail, Vertigo moulinsiana, which is not noted to be sensitive to NO_x.</i>
Step 3: Could the sensitive qualifying features of the site be exposed to emissions?	Yes	<i>The distribution of the qualifying features within River Avon cannot be determined, so it is assumed that they may be present at the closest section of the SAC within 200 metres of the A4.</i>
Step 4a: Do the emissions from this proposal alone exceed screening thresholds?	No	<i>Scenario 1 is predicted to increase traffic on the A4 by 815 AADT, while Scenario 2 is predicted to increase traffic on the A4 by 522 AADT. This would not constitute a likely significant effect as it falls below the 1000 AADT threshold considered by Natural England to be suitably precautionary.</i>

Table 4.3 River Lambourn SAC Screening

Step	Outcome	Justification
Step 1: Does the proposal give rise to emissions which are likely to reach a European Site?	Yes	<i>The proposed development is expected to increase traffic flows along the A34, which passes directly alongside the River Lamborn SAC.</i>
Step 2: Are the qualifying features of the sites within 200m of a road sensitive to air pollution?	Yes	<i>The qualifying features of the River Lamborn SAC are listed as being part of a broad habitat that is sensitive to NO_x.</i>
Step 3: Could the sensitive qualifying features of the site be exposed to emissions?	Yes	<i>The distribution of the qualifying features within River Lamborn cannot be determined, so it is assumed that they may be present at the section of the river that flows within 200 metres of the A34.</i>
Step 4a: Do the emissions from this proposal alone exceed screening thresholds?	Yes	<i>Scenario 1 is predicted to increase traffic on the A34 by 2254 AADT, while Scenario 2 is predicted to increase traffic on the A34 by 1413 AADT. This would constitute a likely significant effect as it is above the 1000 AADT threshold considered by Natural England to be suitably precautionary.</i>

4.3 In-Combination Effects (Steps 4b and 4c)

- 4.3.1 Steps 4b and 4c of the guidance are to apply the threshold value not only to the traffic flows generated by the site alone (as above, in step 4a), but also to those of the site in combination with those from other projects and proposals that have the potential to affect the site of interest. Step 4b gives guidance for the application of the threshold to emissions in combination with those from other road traffic plans and projects; while Step 4c gives guidance for the application of the thresholds to emissions in combination with those from other non-road plans and projects, for example ammonia emissions from a farm source.
- 4.3.2 These steps have been included in the updated guidance since June 2018 to reflect the requirements of the Habitats Regulations in response to recent clarification provided by the Wealden Judgement (February 2017). This ruled in favour of Wealden District Council that a neighbouring Local Authority had failed to take into account in-combination effects from developments in the protection of the Ashdown Forest Special Area of Conservation in the development of its Local Plan.
- 4.3.3 This Air Quality Technical Note includes an in-combination assessment where the 'Do Minimum' traffic utilised has accounted for developments in the area, as Air Quality Assessments from surrounding sites have been utilised as part of the assessment. Due to the availability of traffic data, the "Do Something 1" traffic data also includes traffic flows associated with 100 dwellings as part of the adjacent Sandleford Park West Scheme.
- 4.3.4 On this basis, adverse air quality effects on the integrity of any European site from the Sandleford Park scheme can be ruled out both alone and in combination.'

5 Summary and Conclusion

- 5.1.1 WYG has been appointed by Bloor Homes Limited and the Sandleford Farm Partnership to provide air quality advice in relation to a planning application at Sandleford Park, Newbury, West Berkshire.
- 5.1.2 This Technical Note has been prepared in addition to the Air Quality Assessment, dated 15th January 2020, in relation to concerns raised by Natural England on the 29th July 2020 with the aim of demonstrating the air quality impacts of the proposed development on the following ecological sensitive sites:
- Kennet Valley Alderwoods SAC
 - Kennet and Lambourn Floodplain SAC
 - River Lambourn SAC
- 5.1.3 The Technical note has assessed the additional ecological receptors for both:
- Scenario 1 ('Do Something 1') Assessment Results – With Bloor Homes Development – three accesses, and,
 - Scenario 2 ('Do Something 2') Assessment Results – Strategic Development – four accesses

Scenario 1

- 5.1.4 The maximum predicted increase in the annual average exposure to NO_x at any ecological receptor, due to changes in traffic movements associated with the development, is 0.43 µg/m³ at River Lambourn (E42).
- 5.1.5 As NO_x contribution at E42 (River Lambourn, SAC) is above 0.43 µg/m³, a full nitrogen deposition assessment has been undertaken.
- 5.1.6 The Nitrogen Deposition assessment indicated that the maximum predicted total acid deposition PC at receptor E42 is 0.06 keqN/ha/yr, which is "no exceedance of CL function" and 1.4 % of CL function. It can be concluded that the impact of nitrogen depositions from the road at E42 are negligible.

Scenario 2

- 5.1.7 The maximum predicted increase in the annual average exposure to NO_x at any ecological receptor, due to changes in traffic movements associated with the development, is 0.27 µg/m³ at River Lambourn (E42).

- 5.1.8 As maximum predicted increase in the annual average exposure to NO_x at E42 River Lambourn is below 0.4 µg/m³, a nitrogen deposition assessment has been scoped out of the assessment.
- 5.1.9 Overall the air quality assessment indicates that for both Scenarios, there is a negligible impact on the ecological receptors of concern.

Figures

Figure 1 Air Quality Assessment Study Area

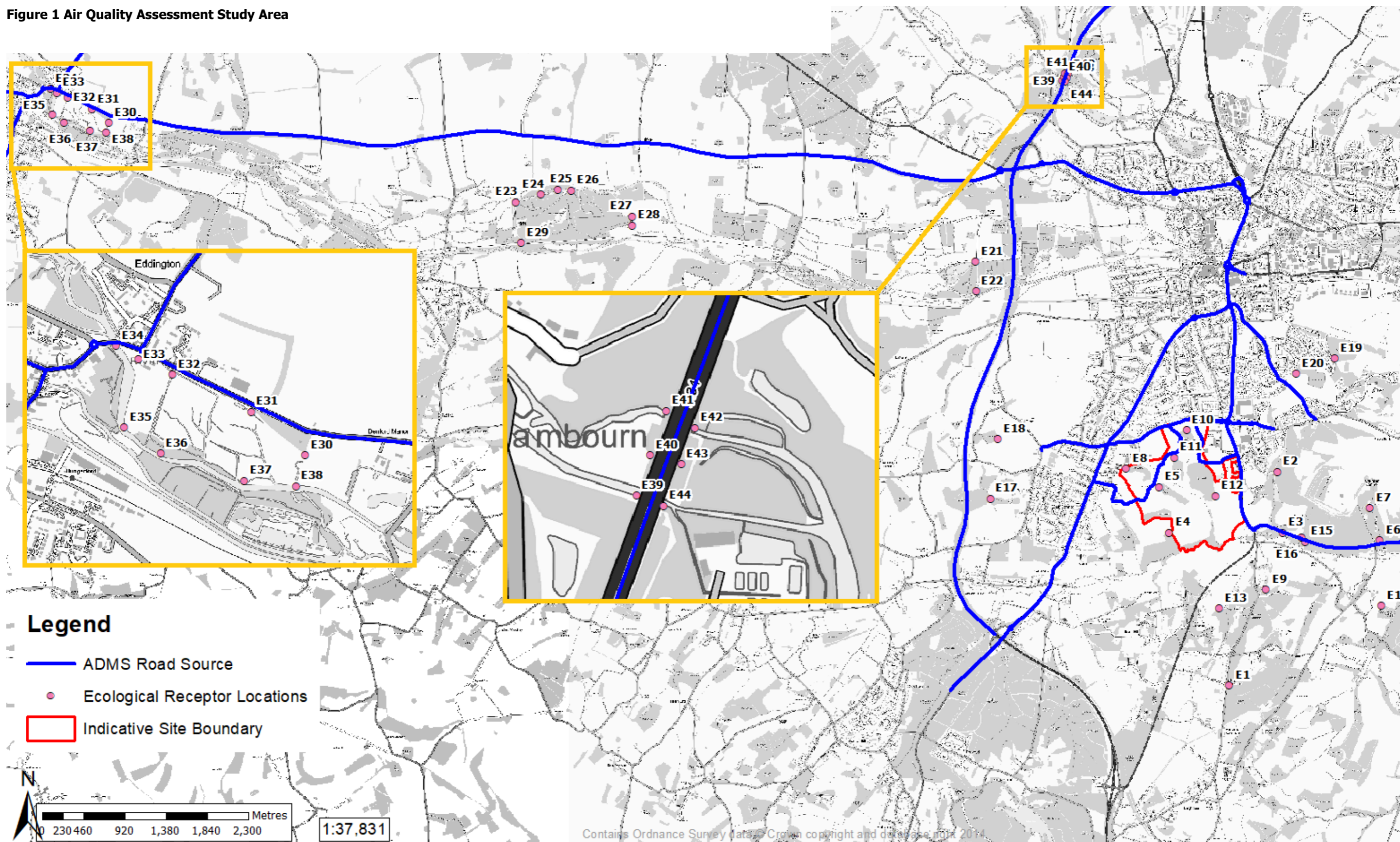
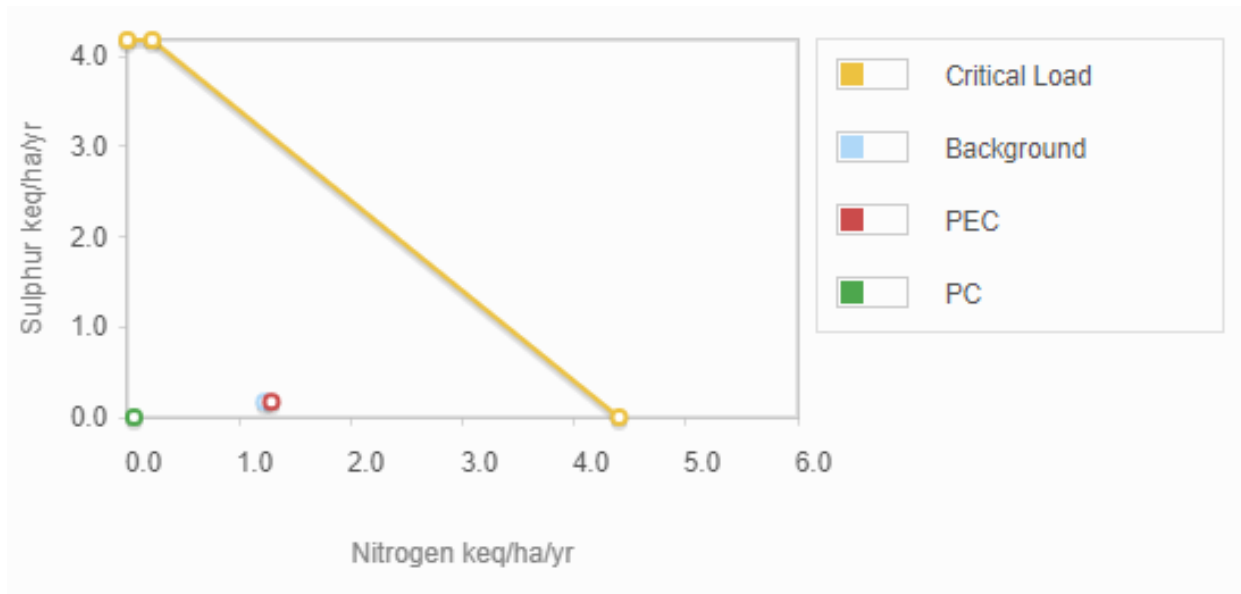


Figure 2 Critical Load Function Tool – E42 (Three Access Scenario Only)



Appendix A Report Terms & Conditions

This Report has been prepared using reasonable skill and care for the sole benefit of Bloor Homes Limited and Sandlesford Farm Partnership ("the Client") for the proposed uses stated in the report by WYG Environment Planning Transport Limited ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

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The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

APP/26/B

**Proposed Mixed Use Development Sandford Park,
Newbury, West Berkshire**

**Air Quality Sensitivity Test – Construction Vehicle
Routes**

A106825-1

This document provides supporting information regarding road traffic trips associated with the construction phase of the development at Sandleford Park, in response to concerns regarding an 'HGV every 4 to 5 minutes' entering the development site via Warren Road.

Receptor locations on Warren Road and Andover Road (A343) have been assessed, including Park Road School. An assessment of potential impacts has been undertaken within the 2018 Baseline Year to represent a worst case approach.

Using the assumption of one HGV every four minutes throughout a working day of 08:00 to 18:00, an increase of 150 AADT HGV trips has been applied to the road traffic network to determine the air quality impact on receptor locations.

Table Error! No text of specified style in document.-1. Traffic Data

Link	Speed (km/h)	2018 Baseline		2018 Do Something	
		AADT	HGV %	AADT	%HGV
SPW Site Access	48	1356	5.0	1506	14.5
Andover Road (South of Double Mini)	48	10750	0.4	10900	1.8
Monks Lane (West)	48	11370	0.3	11370	0.3
Andover Road (North of Double Mini)	48	17840	2.0	17840	2.0
Essex Steet, Newbury	48	6980	0.2	6980	0.2
A343 Andover Road South (West of Newtown Road)	48	13024	0.1	13024	0.1
Bloor Westen Site Access	48	0	0.0	0	0.0
Monks Lane (Central)	48	12473	5.0	12473	5.0
Bloor Easten Site Access	48	0	0.0	0	0.0
Monks Lane (East)	48	10750	0.4	10750	0.4
Monks Lane East (Pinchington Junction Approach)	48	12482	5.0	12482	5.0
A339 South (South of Pinchington Lane)	80	24327	3.9	24327	3.9
A339 North (North of Pinchington Lane)	80	26071	8.0	26071	8.0
Pinchington Lane Newbury	48	997	2.1	997	2.1
A343 St Johns Road	48	17840	2.0	17840	2.0
A339 Newbury (North of Retail Park)	65	23785	3.3	23785	3.3
Geenham Road, Newbury	48	5847	0.3	5847	0.3
A339 Newbury (South of Robin Hood)	65	39667	2.2	39667	2.2
B3421 Kings Road, Newbury	48	7295	0.5	7295	0.5
A339 East of Swan Roundabout	80	21873	3.9	21873	3.9
A343 South of A34	96	9864	0.4	9864	0.4
New A339 Access	48	0	0	0	0

Model Verification

This sensitivity test has been undertaken using ADMS 5.0. As a result of using ADMS 5.0, the model verification has been updated as detailed below.

Model verification involves the comparison of modelled data to monitored data in order to gain the best possible representation of current pollutant concentrations for the assessment years. The verification process is in general accordance with that contained in Section 7 of the TG16 guidance note and uses the most recently available diffusion tube monitoring data to best represent this.

The verification process consists of using the monitoring data and the published background air quality data in the UK National Air Quality Information Archive to calculate the road traffic contribution of NO_x at the monitoring locations. Outputs from the ADMS Roads model are provided as predicted road traffic contribution NO_x emissions. These are converted into predicted roadside contribution NO₂ exposure at the relevant receptor locations based on the updated approach to deriving NO₂ from NO_x for road traffic sources published in Local Air Quality Management TG16. The calculation was derived using the NO_x to NO₂ worksheet in the online LAQM tools website hosted by Defra. **Table 2** summarises the final model/monitored data correlation following the application of the model correction factor.

Table 2. Comparison of Roadside Modelling & Monitoring Results for NO₂

Link	NO ₂ µg/m ³		
	Monitored NO ₂	Modelled NO ₂	Difference (%)
CM1*	36.00	39.57	9.90
WB1	29.40	30.77	4.66
WB16	23.00	22.57	-1.88
WB17*	36.00	33.32	-7.44
WB18*	36.30	35.82	-1.32
WB22	22.00	21.77	-1.03
WB23	31.00	26.32	-15.09
WB32	14.20	16.00	12.68

*Located in the AQMA

The final model produced data at the monitoring locations to within 25% of the monitoring results at all receptors, as required by TG16 guidance.

The final verification model correlation coefficient (representing the model uncertainty) is 1.00. This was achieved by applying a model correction factor of 1.76 to roadside predicted NO_x concentrations before converting to NO₂. This figure demonstrates that the model predictions were in line with the road traffic emissions at the monitoring locations.

Sensitivity Test Results

The results of the sensitivity test assessing the effects of an increase of construction vehicles associated with the construction phase of the development at Sandleford Park, proposed development are presented below.

The impact of the proposed development is predicted to be 'negligible' at all modelled receptors assessed within this sensitivity test. The results contained within this document show that the impact of the proposed development

during the construction phase is determined to be 'negligible'. The overall concentrations of NO₂, PM₁₀ and PM_{2.5} are lower as a result of this junction improvement as shown below.

Nitrogen Dioxide

Table Error! No text of specified style in document.-3. Predicted Annual Average Concentrations of NO₂ at Receptor Locations

Receptor		NO ₂ (µg/m ³)		
		2018 Baseline	2018 Do Something	Development Contribution
R1	7 Penwood Road, The Chestnuts,	12.26	12.32	0.06
R2	325a Andover Road	13.49	13.61	0.12
R3	266 Andover Road	13.86	13.97	0.11
R4	The Annex at New Warren Farm	10.36	10.37	0.01
R5	Kendrick Road Kimberleys	12.31	12.35	0.04
R6	257 Andover Road	14.54	14.68	0.14
R7	Park House School South Building	10.98	11.13	0.15
R8	Warren Road	13.03	13.32	0.29
R9	241 Warren Road (N façade)	14.79	15.14	0.35
R10	176 Andover Road	13.98	13.99	0.01
R11	17 Dormer Road	11.23	11.24	0.01
R12	225 Andover Road	17.77	18.04	0.27
R13	77 Monks Lane	15.29	15.29	<0.01
R14	211b Andover Road	17.83	17.84	0.01
R15	35 Bodin Gardens (adjacent to A339)	18.46	18.46	<0.01
R16	125 Andover Road	16.47	16.47	<0.01
R17	79 Andover Road	21.80	21.80	<0.01
R18	34 Andover Road	16.44	16.44	<0.01
R19	1 St Johns Road	27.87	27.87	<0.01
R20*	63 St Johns Road	30.01	30.01	<0.01
R21*	1 Winchester Court	36.58	36.58	<0.01
R22*	A339 (20 m south of the continuous monitoring station at Newbury)	31.46	31.46	<0.01
R23	8 Eeklo Place (adjacent to A339)	20.66	20.66	<0.01
R24	66 Priory Road (adjacent to A339)	21.34	21.34	<0.01
R25	61 Dickens Walk (adjacent to A339)	16.66	16.66	<0.01
R26	35 Bodin Gardens (adjacent to A339)	18.63	18.63	<0.01
R27	2 Sandleford Parade (adjacent to A339)	20.81	20.81	<0.01
R28	4 Deadmans Lane (adjacent to A339)	16.26	16.26	<0.01
R29	7 Sandleford Farm (adjacent to A339)	23.08	23.08	<0.01
R30	32 Monks Lane	15.00	15.00	<0.01
R31	52 Monks Lane	15.21	15.21	<0.01
R32	2 Heather Gardens	14.69	14.69	<0.01
Annual Mean AQO		40 µg/m³		

*Located in the AQMA

All modelled existing receptors are predicted to be below the AQO for NO₂ in both the '2018 Baseline' and the '2018 Do Something' scenarios.

As indicated in **Table Error! No text of specified style in document.-3**, the maximum predicted increase in annual average exposure to NO₂ at any existing receptor, due to changes in traffic movements associated with the construction phase is 0.35 µg/m³ at 241 Warren Road (N façade) (R9).

The predicted long-term NO₂ concentrations at all proposed and existing receptors are significantly below 60 µg/m³ in all scenarios. Therefore, it is unlikely there will be any exceedances for the short-term NO₂ AQO at all modelled receptors as outlined in LAQM TG16 technical guidance.

The impact description of changes in traffic flow associated with the construction phase with respect to annual mean NO₂ exposure has been assessed with reference to the criteria in Section 3 of the Air Quality Assessment. The outcomes of the assessment are summarised in **Table 4**.

Table 4. Impact Description of Effects at Key Receptors (NO₂)

Impact Description of NO ₂ Effects at Key Receptors					
Receptor	Change Due to Development (DS-DM) (µg/m ³)	Change due to Development (% of AQO)	% Change in Concentration Relative to AQO	% Annual Mean Concentration in Assessment Year	Impact Description
R1	0.06	0.15	0%	≤75% of AQO	Negligible
R2	0.12	0.30	0%	≤75% of AQO	Negligible
R3	0.11	0.28	0%	≤75% of AQO	Negligible
R4	0.01	0.03	0%	≤75% of AQO	Negligible
R5	0.04	0.10	0%	≤75% of AQO	Negligible
R6	0.14	0.35	0%	≤75% of AQO	Negligible
R7	0.15	0.38	0%	≤75% of AQO	Negligible
R8	0.29	0.73	1%	≤75% of AQO	Negligible
R9	0.35	0.88	1%	≤75% of AQO	Negligible
R10	0.01	0.03	0%	≤75% of AQO	Negligible
R11	0.01	0.03	0%	≤75% of AQO	Negligible
R12	0.27	0.68	1%	≤75% of AQO	Negligible
R13	<0.01	0.00	0%	≤75% of AQO	Negligible
R14	0.01	0.03	0%	≤75% of AQO	Negligible
R15	<0.01	0.00	0%	≤75% of AQO	Negligible
R16	<0.01	0.00	0%	≤75% of AQO	Negligible
R17	<0.01	0.00	0%	≤75% of AQO	Negligible
R18	<0.01	0.00	0%	≤75% of AQO	Negligible
R19	<0.01	0.00	0%	≤75% of AQO	Negligible
R20*	<0.01	0.00	0%	≤75% of AQO	Negligible
R21*	<0.01	0.00	0%	76-94% of AQO	Negligible
R22*	<0.01	0.00	0%	76-94% of AQO	Negligible
R23	<0.01	0.00	0%	≤75% of AQO	Negligible
R24	<0.01	0.00	0%	≤75% of AQO	Negligible
R25	<0.01	0.00	0%	≤75% of AQO	Negligible

R26	<0.01	0.00	0%	≤75% of AQO	Negligible
R27	<0.01	0.00	0%	≤75% of AQO	Negligible
R28	<0.01	0.00	0%	≤75% of AQO	Negligible
R29	<0.01	0.00	0%	≤75% of AQO	Negligible
R30	<0.01	0.00	0%	≤75% of AQO	Negligible
R31	<0.01	0.00	0%	≤75% of AQO	Negligible
R32	<0.01	0.00	0%	≤75% of AQO	Negligible

+0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.

*Located in the AQMA

The impact description of the effects of changes in traffic flow as a result of the construction phase, with respect to NO₂ exposure for existing receptors, is determined to be 'negligible' at all modelled receptors. This is based on the methodology outlined in section 3 of the Air Quality Assessment. Given the quantitative nature of the assessment and the verification of the air quality dispersion model, the confidence of the assessment is deemed to be 'high'.

Particulate Matter

Table 5. Predicted Annual Average Concentrations of PM₁₀ at Receptor Locations

Receptor		PM ₁₀ (µg/m ³)		
		2018 Baseline	2018 Do Something	Development Contribution
R1	7 Penwood Road, The Chestnuts,	13.72	13.73	0.01
R2	325a Andover Road	13.89	13.91	0.02
R3	266 Andover Road	13.69	13.71	0.02
R4	The Annex at New Warren Farm	13.54	13.54	<0.01
R5	Kendrick Road Kimberleys	13.49	13.49	<0.01
R6	257 Andover Road	13.78	13.80	0.02
R7	Park House School South Building	13.62	13.64	0.02
R8	Warren Road	13.58	13.63	0.05
R9	241 Warren Road (N façade)	13.79	13.83	0.04
R10	176 Andover Road	13.71	13.71	<0.01
R11	17 Dormer Road	13.65	13.65	<0.01
R12	225 Andover Road	14.35	14.37	0.02
R13	77 Monks Lane	14.05	14.05	<0.01
R14	211b Andover Road	14.38	14.38	<0.01
R15	35 Bodin Gardens (adjacent to A339)	14.49	14.49	<0.01
R16	125 Andover Road	14.21	14.21	<0.01
R17	79 Andover Road	14.96	14.96	<0.01
R18	34 Andover Road	14.44	14.44	<0.01
R19	1 St Johns Road	15.64	15.64	<0.01
R20*	63 St Johns Road	15.94	15.94	<0.01
R21*	1 Winchester Court	16.69	16.69	<0.01
R22*	A339 (20 m south of the continuous monitoring station at Newbury)	16.09	16.09	<0.01
R23	8 Eeklo Place (adjacent to A339)	15.12	15.12	<0.01
R24	66 Priory Road (adjacent to A339)	15.25	15.25	<0.01

R25	61 Dickens Walk (adjacent to A339)	14.45	14.45	<0.01
R26	35 Bodin Gardens (adjacent to A339)	14.75	14.75	<0.01
R27	2 Sandleford Parade (adjacent to A339)	14.71	14.71	<0.01
R28	4 Deadmans Lane (adjacent to A339)	14.45	14.45	<0.01
R29	7 Sandleford Farm (adjacent to A339)	15.49	15.49	<0.01
R30	32 Monks Lane	14.02	14.02	<0.01
R31	52 Monks Lane	14.05	14.05	<0.01
R32	2 Heather Gardens	13.97	13.97	<0.01
Annual Mean AQO		40 µg/m³		

*Located in the AQMA

All modelled existing receptors are predicted to be below the AQO for PM₁₀ in both the '2018 Baseline' and the '2018 Do Something' scenarios.

As indicated in **Table 5**, the maximum predicted increase in annual average exposure to PM₁₀ at any existing receptor, due to changes in traffic movements associated with the construction phase is 0.05 µg/m³ at Warren Road (N façade) (R8).

The impact description of changes in traffic flow associated with the construction phase with respect to annual mean NO₂ exposure has been assessed with reference to the criteria in Section 3 of the Air Quality Assessment. The outcomes of the assessment are summarised in **Table 6**.

Table 6. Impact Description of Effects at Key Receptors (PM₁₀)

Impact Description of NO ₂ Effects at Key Receptors					
Receptor	Change Due to Development (DS-DM) (µg/m ³)	Change due to Development (% of AQO)	% Change in Concentration Relative to AQO	% Annual Mean Concentration in Assessment Year	Impact Description
R1	0.01	0.02	0%	≤75% of AQO	Negligible
R2	0.02	0.04	0%	≤75% of AQO	Negligible
R3	0.02	0.04	0%	≤75% of AQO	Negligible
R4	<0.01	0.00	0%	≤75% of AQO	Negligible
R5	<0.01	0.01	0%	≤75% of AQO	Negligible
R6	0.02	0.05	0%	≤75% of AQO	Negligible
R7	0.02	0.05	0%	≤75% of AQO	Negligible
R8	0.05	0.10	0%	≤75% of AQO	Negligible
R9	0.04	0.08	0%	≤75% of AQO	Negligible
R10	<0.01	0.00	0%	≤75% of AQO	Negligible
R11	<0.01	0.00	0%	≤75% of AQO	Negligible
R12	0.02	0.05	0%	≤75% of AQO	Negligible
R13	<0.01	0.00	0%	≤75% of AQO	Negligible
R14	<0.01	0.00	0%	≤75% of AQO	Negligible
R15	<0.01	0.00	0%	≤75% of AQO	Negligible
R16	<0.01	0.00	0%	≤75% of AQO	Negligible
R17	<0.01	0.00	0%	≤75% of AQO	Negligible
R18	<0.01	0.00	0%	≤75% of AQO	Negligible
R19	<0.01	0.00	0%	≤75% of AQO	Negligible

R20*	<0.01	0.00	0%	≤75% of AQO	Negligible
R21*	<0.01	0.00	0%	≤75% of AQO	Negligible
R22*	<0.01	0.00	0%	≤75% of AQO	Negligible
R23	<0.01	0.00	0%	≤75% of AQO	Negligible
R24	<0.01	0.00	0%	≤75% of AQO	Negligible
R25	<0.01	0.00	0%	≤75% of AQO	Negligible
R26	<0.01	0.00	0%	≤75% of AQO	Negligible
R27	<0.01	0.00	0%	≤75% of AQO	Negligible
R28	<0.01	0.00	0%	≤75% of AQO	Negligible
R29	<0.01	0.00	0%	≤75% of AQO	Negligible
R30	<0.01	0.00	0%	≤75% of AQO	Negligible
R31	<0.01	0.00	0%	≤75% of AQO	Negligible
R32	<0.01	0.00	0%	≤75% of AQO	Negligible

+0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.

*Located in the AQMA

The impact description of the effects of changes in traffic flow as a result of the construction phase, with respect to PM₁₀ exposure for existing receptors, is determined to be 'negligible' at all modelled receptors. This is based on the methodology outlined in section 3 of the Air Quality Assessment. Given the quantitative nature of the assessment and the verification of the air quality dispersion model, the confidence of the assessment is deemed to be 'high'.

Table 7. Predicted Annual Average Concentrations of PM₁₀ at Receptor Locations

Receptor		PM _{2.5} (µg/m ³)		
		2018 Baseline	2018 Do Something	Development Contribution
R1	7 Penwood Road, The Chestnuts,	9.07	9.07	<0.01
R2	325a Andover Road	9.17	9.18	0.01
R3	266 Andover Road	9.44	9.45	0.01
R4	The Annex at New Warren Farm	8.97	8.97	<0.01
R5	Kendrick Road Kimberleys	9.31	9.31	<0.01
R6	257 Andover Road	9.50	9.51	0.01
R7	Park House School South Building	9.02	9.03	0.01
R8	Warren Road	9.37	9.40	0.03
R9	241 Warren Road (N façade)	9.50	9.52	0.02
R10	176 Andover Road	9.45	9.45	<0.01
R11	17 Dormer Road	9.04	9.04	<0.01
R12	225 Andover Road	9.50	9.51	0.01
R13	77 Monks Lane	9.74	9.74	<0.01
R14	211b Andover Road	9.95	9.95	<0.01
R15	35 Bodin Gardens (adjacent to A339)	10.01	10.01	<0.01
R16	125 Andover Road	9.84	9.84	<0.01
R17	79 Andover Road	10.31	10.31	<0.01
R18	34 Andover Road	10.06	10.06	<0.01
R19	1 St Johns Road	10.89	10.89	<0.01
R20*	63 St Johns Road	11.08	11.08	<0.01

R21*	1 Winchester Court	11.57	11.57	<0.01
R22*	A339 (20 m south of the continuous monitoring station at Newbury)	11.18	11.18	<0.01
R23	8 Eeklo Place (adjacent to A339)	10.52	10.52	<0.01
R24	66 Priory Road (adjacent to A339)	10.61	10.61	<0.01
R25	61 Dickens Walk (adjacent to A339)	10.00	10.00	<0.01
R26	35 Bodin Gardens (adjacent to A339)	10.19	10.19	<0.01
R27	2 Sandleford Parade (adjacent to A339)	10.19	10.19	<0.01
R28	4 Deadmans Lane (adjacent to A339)	9.55	9.55	<0.01
R29	7 Sandleford Farm (adjacent to A339)	10.21	10.21	<0.01
R30	32 Monks Lane	9.72	9.72	<0.01
R31	52 Monks Lane	9.74	9.74	<0.01
R32	2 Heather Gardens	9.69	9.69	<0.01
Annual Mean AQO		25 µg/m³		

*Located in the AQMA

All modelled existing receptors are predicted to be below the AQO for PM_{2.5} in both the '2018 Baseline' and the '2018 Do Something' scenarios.

As indicated in **Table 7**, the maximum predicted increase in annual average exposure to PM_{2.5} at any existing receptor, due to changes in traffic movements associated with the construction phase is 0.03 µg/m³ at Warren Road (N façade) (R8).

The impact description of changes in traffic flow associated with the construction phase with respect to annual mean NO₂ exposure has been assessed with reference to the criteria in Section 3 of the Air Quality Assessment. The outcomes of the assessment are summarised in **Table 8**.

Table 8. Impact Description of Effects at Key Receptors (PM₁₀)

Impact Description of NO ₂ Effects at Key Receptors					
Receptor	Change Due to Development (DS-DM) (µg/m ³)	Change due to Development (% of AQO)	% Change in Concentration Relative to AQO	% Annual Mean Concentration in Assessment Year	Impact Description
R1	<0.01	0.02	0%	≤75% of AQO	Negligible
R2	0.01	0.04	0%	≤75% of AQO	Negligible
R3	0.01	0.04	0%	≤75% of AQO	Negligible
R4	<0.01	0.00	0%	≤75% of AQO	Negligible
R5	<0.01	0.01	0%	≤75% of AQO	Negligible
R6	0.01	0.05	0%	≤75% of AQO	Negligible
R7	0.01	0.05	0%	≤75% of AQO	Negligible
R8	0.03	0.10	0%	≤75% of AQO	Negligible
R9	0.02	0.08	0%	≤75% of AQO	Negligible
R10	<0.01	0.00	0%	≤75% of AQO	Negligible
R11	<0.01	0.00	0%	≤75% of AQO	Negligible
R12	0.01	0.06	0%	≤75% of AQO	Negligible
R13	<0.01	0.00	0%	≤75% of AQO	Negligible
R14	<0.01	0.00	0%	≤75% of AQO	Negligible

R15	<0.01	0.00	0%	≤75% of AQO	Negligible
R16	<0.01	0.00	0%	≤75% of AQO	Negligible
R17	<0.01	0.00	0%	≤75% of AQO	Negligible
R18	<0.01	0.00	0%	≤75% of AQO	Negligible
R19	<0.01	0.00	0%	≤75% of AQO	Negligible
R20*	<0.01	0.00	0%	≤75% of AQO	Negligible
R21*	<0.01	0.00	0%	≤75% of AQO	Negligible
R22*	<0.01	0.00	0%	≤75% of AQO	Negligible
R23	<0.01	0.00	0%	≤75% of AQO	Negligible
R24	<0.01	0.00	0%	≤75% of AQO	Negligible
R25	<0.01	0.00	0%	≤75% of AQO	Negligible
R26	<0.01	0.00	0%	≤75% of AQO	Negligible
R27	<0.01	0.00	0%	≤75% of AQO	Negligible
R28	<0.01	0.00	0%	≤75% of AQO	Negligible
R29	<0.01	0.00	0%	≤75% of AQO	Negligible
R30	<0.01	0.00	0%	≤75% of AQO	Negligible
R31	<0.01	0.00	0%	≤75% of AQO	Negligible
R32	<0.01	0.00	0%	≤75% of AQO	Negligible
+0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.					
*Located in the AQMA					

The impact description of the effects of changes in traffic flow as a result of the construction phase, with respect to PM_{2.5} exposure for existing receptors, is determined to be 'negligible' at all modelled receptors. This is based on the methodology outlined in section 3 of the Air Quality Assessment. Given the quantitative nature of the assessment and the verification of the air quality dispersion model, the confidence of the assessment is deemed to be 'high'.

Sensitivity Test Conclusion

The results contained within this document show that the impacts of increased construction traffic associated with the construction phase of the development at Sandford Park determined to be 'negligible'. The overall concentrations of NO₂, PM₁₀ and PM_{2.5} are below the relevant AQOs.