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Air Quality Technical Note

To:	Anna Davies	Project:	Land Southwest of Newfound Farm: Phase 2, Cringleford
Company:	Barratt David Wilson Homes (Eastern Counties)	MLM Engineer:	Joshua Jones
Technical Note No:	C01	MLM Project Manager:	Karunakar Nagula
Date Sent:	10/03/2020		

1 Introduction

MLM Consulting Engineers Ltd ('MLM') has been instructed by Barratt David Wilson Homes (Eastern Counties) (the 'Client') to prepare an Air Quality Technical Note ('AQTN') to assess air quality constraints with regards to a proposed residential-led development on land southwest of Newfound Farm, Cringleford, Norfolk ('Site'). The AQTN has been prepared for South Norfolk District Council (SNDC) to consider the proposals for the Site to be adopted into the Greater Norwich Local Plan (GNLP).

The central grid reference for the Site is 618300 (Easting), 306300 (Northing), falling within the planning jurisdiction of SNDC. The location of the Site is shown in Figure A1 of this AQTN.

The indicative proposals for the Site include residential dwellings, land for educational use and public open space ('Proposed Development'). The indicative layout for the Proposed Development is shown in Figure A2 of this AQTN.

The Site is within the Housing Allocation Area as defined on the Cringleford Neighbourhood Development Plan Proposals Map[1]. The area identified would accommodate part of the 1,200 homes allocated for delivery in Cringleford as per the Joint Core Strategy for Broadland, Norwich and South Norfolk[2]. Planning permission has been received for a neighbouring plot of land immediately northeast of the Site for 650 dwellings with a local centre, land for educational use, associated on-site highways, pedestrian and cycle routes, public open space, play space, allotments and community woodland ('Neighbouring Development').

The aim of this Air Quality Technical Note is to provide a qualitative review of the baseline air quality at the Site to determine its suitability for future residents with regards to exposure to harmful levels of air pollution, and a qualitative assessment of the potential impact of the Proposed Development on the surrounding area.

[1] Available at https://www.south-norfolk.gov.uk/sites/default/files/Cringleford_Neighbourhood_Development_Plan_2013_2026_0.pdf

[2] Available at https://www.greaternorwichgrowth.org.uk/planning/joint-core-strategy/

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The AQTN presents a review of air quality policy; a review of air quality monitoring undertaken by SNDC to determine site suitability; qualitative assessment of the potential impact on surrounding air quality based on a review of publically available information on SNDC's planning portal; and, any potential mitigation measures that may be required.

2 Policy Review

2.1 International Legislation and Policy

The European Directive (2008/50/EC)[3] sets legally binding limits for concentrations of outdoor air of major air pollutants that impact public health such as particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2). The European Directive is implemented in the UK under the Air Quality Standards Regulations 2010[4]. The obligations under the Air Quality Standards Regulations 2010 are separate from those of the 2000 and 2002 UK Regulations because local authorities in the UK will only have powers to manage some of the pollutants in the Air Quality Standards Regulations 2010 as most of the source pollutants will be managed by the Environment Agency under the Environmental Permitting Regime[5]. Therefore, the obligation to meet the Air Quality Standards Regulations 2010 rests with the Secretary of State for Environment.

2.2 National Legislation and Policy

2.2.1 Local Air Quality Management

Part IV of the Environment Act 1995[6], requires the UK Government to publish an Air Quality Strategy and local authorities to review, assess and manage air quality within their areas. This is known as Local Air Quality Management (LAQM). The 2007 Air Quality Strategy[7] establishes the policy for ambient air quality in the UK. It includes the National Air Quality Objectives (AQOs) for the protection of human health and vegetation for 11 pollutants. Those NAQOs included as part of LAQM are prescribed in the Air Quality (England) Regulations 2000 and the Air Quality (Amendment) (England) Regulations 2002. Table 2.1 presents the AQOs for Nitrogen dioxide (NO_2) and particulate matter with an aerodynamic diameter of 10 µg or less (PM_{10}), the key pollutants of concern in relation to vehicle emissions.

Table 2.1 Relevant Objectives set out in the Air Quality Strategy

Pollutant	Concentrations	Measured As
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times per year	1 hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3 not to be exceeded more than 35 times per year	24 hour mean
	40 µg/m^3	Annual mean
Particulate Matter ($PM_{2.5}$)	25 µg/m^3	Annual Mean

[3] Directive 2008/50/EC Of The European Parliament And Of The Council, 21st May 2008.
[4] Air Quality Regulations 2010 – Statutory Instrument 2010 No. 1001
[5] The Environmental Permitting (England and Wales) Regulations 2016, as amended.
[6] Environment Act 1995, 1995, The Stationery Office.
[7] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, March 2011.

The Air Quality Strategy also introduced a new policy framework for tackling fine particles ($PM_{2.5}$) including an exposure reduction target. However, although EU Directive 2008/50/EC includes a new regulatory framework for $PM_{2.5}$ this pollutant is not included within LAQM, therefore, there is no requirement to assess this pollutant unless as part of an Environmental Impact Assessment (EIA).

However, to ensure a robust assessment $PM_{2.5}$ has been considered in this assessment. The objective for this pollutant has been included in Table 2.1.

The AQOs apply to external air where there is relevant exposure to the public over the associated averaging periods within each objective. Guidance is provided within Local Air Quality Management Technical Guidance 2016[8] (LAQM.TG (16)) issued by Defra for Local Authorities, on where the NAQOs apply as detailed in Table 2.2. The objectives do not apply in workplace locations, to internal air or where people are unlikely to be regularly exposed (ie centre of roadways).

Table 2.2 Locations where Air Quality Objectives Apply

Averaging Period	Objectives Should Apply at:	Objectives Should Generally Not Apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-hour mean and eight-hour mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties*	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
One-hour mean	All locations where the annual mean and: 24 and eight-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more.	Kerbside sites where the public would not be expected to have regular access.

[8] Local Air Quality Management, Technical Guidance (TG16), Department of Environment Food and Rural Affairs (Feb 2018).

Averaging Period	Objectives Should Apply at:	Objectives Should Generally Not Apply at:
	Any outdoor locations where members of the public might reasonably expected to spend one hour or longer.	
15-min mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes.	
* – Such locations should represent parts of the garden where relevant public exposure to pollutants is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied.		

2.2.2 National Planning Policy Framework

The latest national Planning Policy published in February 2019 (updated in July 2019), the National Planning Policy Framework (NPPF)[9] sets out the Government's planning policies for England and how these are expected to be applied. It replaces Planning Policy Statement 23[10]: Planning and Pollution Control and NPPF 2012 which provided planning guidance for local authorities with regards to air quality.

At the heart of the NPPF is a presumption in favour of sustainable development.

It provides a framework within which locally prepared plans for housing and other developments can be produced. It requires Local Plans to be consistent with the principles and policies set out in the Framework, with the objective of contributing to the achievement of sustainable development.

Current planning law requires that applications for planning permissions must be determined in accordance with the relevant development plan (ie Local Plan or Neighbourhood Plan). The NPPF should be taken into account in the preparation of development plans and therefore the policies set out within the Framework are a material consideration in planning decisions.

Under paragraph 103, it states that:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

Under paragraph 170(e), it states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."

[9] National Planning Policy Framework. February 2019. Ministry of Housing, Communities and Local Government
[10] Planning Policy Statement 23 (PPS 23): Planning and Pollution Control (ODPM).

Under paragraph 181, it states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

2.3 Control of Dust and Particulates Associated with Construction

Section 79 of the Environmental Protection Act (1990)[11] states that where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Statutory nuisance is defined as:

'Any dust or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance'; and

'Any accumulation or deposition which is prejudicial to health or a nuisance'

Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.

In the context of the proposed development, the main potential for nuisance of this nature will arise during the construction phase - potential sources being the clearance, earthworks, construction and landscaping processes.

There are no statutory limit values for dust deposition above which 'nuisance' is deemed to exist - 'nuisance' is a subjective concept and its perception is highly dependent upon the existing conditions and the change which has occurred. However, research has been undertaken by a number of parties to determine community responses to such impacts and correlate these to dust deposition rates. However, impacts remain subjective and statutory limits have yet to be derived.

2.4 Local Planning Policy

2.4.1 South Norfolk Local Plan Development Management Policies Document (October 2015)

The latest draft of the South Norfolk Local Plan Development Management Policies Document[12] was published in October 2015. The policies set out below are directly relevant to air quality.

[11] Environmental Protection Act 1990, 1990, The Stationery Office.
[12] Available at https://www.south-norfolk.gov.uk/sites/default/files/Development_Management_Policies_Document_0.pdf

Policy DM 3.13: Amenity, noise and quality of life states that:

"(1) Development should ensure a reasonable standard of amenity reflecting the character of the local area. In all cases particular regard will be paid to avoiding: a. Overlooking and loss of private residential amenity space b. Loss of day light, overshadowing and overbearing impact c. Introduction of incompatible neighbouring uses in terms of noise, odour, vibration, air, dusts, insects, artificial light pollution and other such nuisances.

Planning permission will be refused where proposed development would lead to an excessive or unreasonable impact on existing neighbouring occupants and the amenity of the area or a poor level of amenity for new occupiers.

…"

Policy DM 3.14: Pollution, health and safety states that:

"…

b) When assessed individually or cumulatively, development proposals should ensure that there will be no unacceptable impacts on:

i. Air quality

ii. Surface and ground water quality

iii. Land quality and condition

iv. Health and safety of the public

…

d) Developments which may impact on air quality will not be permitted where they have an unacceptable impact on human health, sensitive designated species or habitats, and general amenity, unless adequate mitigation can be ensured. Development will not be granted in locations where it is likely to result in an Air Quality Management Area being designated or the worsening of air quality in an existing Air Quality Management Area.

…"

2.5 Guidance

A summary of the publications referred to in the undertaking of this assessment is provided below.

2.5.1 Local Air Quality Management Review and Assessment Technical Guidance[13]

Defra has published technical guidance for use by local authorities in their review and assessment work. This guidance, referred to in this document as LAQM.TG16, has been used where appropriate in the assessment presented herein.

[13] Available at https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf

2.5.2 Land-Use Planning & Development Control: planning for Air Quality[14]

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance that offers comprehensive advice on: when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and, the possible mitigation measures that may be implemented to minimise these impacts.

2.5.3 Guidance on the Assessment of Dust from Demolition and Construction[15]

Guidance on the Assessment of Dust from Demolition and Construction published by the Institute of Air Quality Management (IAQM) was produced to provide guidance to developers, consultants and environmental health officers on how to assess the impacts arising from construction activities. The emphasis of the methodology is on classifying sites according to the risk of impacts (in terms of dust nuisance, PM_{10} impacts on public exposure and impact upon sensitive ecological receptors) and to identify mitigation measures appropriate to the level of risk identified.

2.5.4 Technical Guidance for Air Quality and Land Use Planning[16]

The Technical Guidance for Air Quality and Land Use Planning document has been prepared by Norfolk Local Air Quality Management Group to ensure consistency in the approach to air quality assessment for the local authorities within Norfolk.

The document sets out the circumstances when an assessment may be required and provides details of the information required to undertake such an assessment. The document also provides guidance on mitigation and offsetting of impacts.

3 Review of Baseline Air Quality

3.1 Local Air Quality Management

A review of SNDC's LAQM activities indicates that no Air Quality Management Area (AQMA) has been declared in its administrative area. This indicates that air quality is generally acceptable across the district.

The nearest AQMA to the Site is Central Norwich AQMA, located 4.6km to the northeast. The Central Norwich AQMA was declared by the neighbouring Norwich City Council (NCC) for exceedances of the annual mean AQO for NO_2.

3.2 Local Authority Automatic Monitoring

SNDC's 2019 Air Quality Annual Status Report[17] (ASR) confirms that SNDC did not undertake any automatic (continuous) monitoring within its jurisdiction during 2018.

[14] Available at http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf
[15] Available at http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf
[16] Available at https://www.south-norfolk.gov.uk/sites/default/files/Air_Quality_Technical_Guidance.pdf
[17] Broadland District Council and South Norfolk District Council, 2019 Air Quality Annual Status Report, May 2019.

According to NCC's latest ASR[18], NCC operated two automatic monitors in 2018; however, the monitoring sites are located approximately 5km from the Site and are therefore not considered to be indicative of pollutant concentrations at the Site.

3.3 Local Authority Non-Automatic Monitoring

SNDC and NCC undertook non-automatic (passive) diffusion tube monitoring of NO_2 at 29 and 23 sites during 2018, respectively.

Details of the diffusion tube monitoring locations within 2km of the Site and their monitored data from 2014 to 2018 is shown in Table 3.1 below. The diffusion tube monitoring locations within 2km of the Site are shown in Figure A3.

Table 3.1 Annual Mean NO_2 Concentrations from Diffusion Tube Sites 2014 - 2018

ID	Site Name	Site Type	Distance from the Site (in km)	Annual Mean NO_2 concentration (µg/m^3)				
				2014	2015	2016	2017	2018
DT11	2 Thickthorn Cottages	Rural	0.6	15.9	12.8	15.8	14.9	13.9
DT29	25 Broad Street, Harleston	Suburban	1.0	28.2	31.5	27.8	24.2	22.5
DT26	Newmarket Road, Cringleford	Roadside	1.5	24.4	21.4	25.5	24.1	22.4
DT1	46a Newmarket Road, Cringleford	Suburban	1.9	21.5	17.1	20.2	21.2	19.7
Notes – Data in **bold** indicates annual mean NO_2 NAQO of 40µg/m^3.								

Table 3.1 details that all monitoring sites within 2km of the Site recorded NO_2 concentrations which were 'well below' (at less than 75% of) the AQO in the past five years. In addition, the diffusion tube results demonstrate a general decline in concentrations since 2014.

According to the indicative layout, the closest sensitive receptors of the Proposed Development are set back approximately 150m from the A47 Norwich Southern Bypass due to the proposed landscape buffer. Therefore, the most representative monitoring sites are considered to be DT1 and DT11.

3.4 DEFRA Air Quality Background maps

Additional information on estimated background pollutant concentrations has been obtained from the Defra background maps provided on UK-AIR, the Air Quality Information Resource. The background data, based on the 2017 version of background maps[19], are available in 1km x 1km grid squares and provide an estimate of concentrations for the grid covering the Site. The background concentrations of pollutants have been taken for the closest grid square (618500, 306500) of the Site. Background data for NO_2, PM_{10} and $PM_{2.5}$ for years 2017-2020 and 2025 are presented in Table 3.2.

[18] Norwich City Council, 2019 Air Quality Annual Status Report, June 2019.
[19] Available at https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017

Table 3.2 Defra Estimated Background Concentration Data

Pollutant	Estimated Annual Mean Background Concentration (µg/m³)				
	2017	2018	2019	2020	2025
NO_2	12.0	11.6	11.2	10.7	8.9
PM_{10}	16.6	16.4	16.2	16.0	15.3
$PM_{2.5}$	9.7	9.5	9.4	9.2	8.6
Notes – Data in **bold** indicates annual mean NO_2 and PM_{10} NAQO of 40µg/m³ or annual mean $PM_{2.5}$ NAQO of 25µg/m³.					

The Defra background concentrations are 'well below' the long term AQOs for the respective pollutants.

4 Operational Phase Assessment

4.1 Suitability of the Site for the Proposed Development

According to the indicative layout, the closest sensitive receptors of the Proposed Development are set back approximately 150m from the A47 Norwich Southern Bypass due to the proposed landscape buffer. Therefore, the most representative monitoring sites are considered to be D1 and D11.

The monitored annual mean NO_2 concentrations at these diffusion tubes are 'well below' the NO_2 AQO in all recorded years, including the latest monitored year 2018. In terms of particulate matter (PM_{10} and $PM_{2.5}$), Defra background estimated concentrations for the Proposed Development's grid square are also 'well below' the AQOs. In future years, air quality is anticipated to improve further due to improvements in vehicle emissions and is therefore expected that the future air quality at the Site would comply with all relevant AQOs. As such, it is considered that future occupants and users of the Proposed Development will not be exposed to poor air quality and the Site is deemed suitable for residential and educational use.

4.2 Impact of the Proposed Development the Surrounding Area

A qualitative assessment has been undertaken following the EPUK/IAQM screening criteria to determine the impact of the Proposed Development on the surrounding area. The results of Stage 1 of the screening assessment is presented in Table 4.1.

Table 4.1 EPUK/IAQM Stage 1 Screening Assessment

Screening Criteria	Development Proposal
A: If any of the following apply > 10 or more residential units of a site area of more than 0.5ha	More than 10 residential units proposed
> 1,000 m2 of floor space for all other uses or a site area > 1 ha	Proposed educational space may exceed 1,000 m2
B. Coupled with any of the following	
Development > 10 parking spaces	More than 10 parking spaces are proposed
Central energy facility or centralised combustion process	N/A

The Proposed Development seeks to provide residential dwellings, educational space and public open space. Based on the size of the Site, the Proposed Development is considered to be a 'major' development, with the potential to impact local air quality through traffic generation. As such the development proposals exceed the Stage 1 criteria and the assessment needs to proceed to Stage 2 (see Table 4.2).

EPUK/IAQM guidance includes a number of indicative criteria that should be used to assess whether there is a need to proceed to a detailed air quality assessment. The criteria also state that exceeding the criteria does not automatically lead to a requirement to undertake a detailed assessment using air dispersion modelling. However, if a qualitative assessment is used it will need to provide a robust conclusion on whether the development is likely to significantly affect air quality. The Proposed Development is not within an AQMA.

Table 4.2 EPUK/IAQM Stage 2 Screening Assessment

Screening Criteria	Development Proposal
1. Change of LDVs flows > 500 AADT[1]	Yes, the Proposed development trip generation is anticipated to exceed 500 AADT.
2. Change of HDVs flows >100 AADT[1]	No, the proposals are residential and educational in nature and would not lead to a change of more than 100 AADT.
3. Change of 5m in road alignment	Not applicable
4. Introduce new junction or remove junction causing significant change in traffic speeds	No, the Proposed Development would link to existing roundabout on Round House Way, and new spine road within neighbouring 650 residential dwelling development to the northeast.
5. Introduce/Change bus station causing bus flows to change by > 100 AADT	Not applicable
6. Underground car park with ventilation within 20m of receptor, with car park movements > 100 (in and out)	Not applicable
7. Substantial Combustion process	The energy strategy has not been confirmed at this stage.
Notes: [1]Annual Average Daily Traffic;	

Table 4.2 indicates the Stage 2 criteria are exceeded, therefore a quantitative air quality assessment is required. A brief summary of the road transport impacts are provided below.

4.2.1 Traffic Generation

The road network in the immediate vicinity of the Site consists of Round House Way to the east and Colney Lane to the north. Round House Way is connected to the A11 to the southeast of the Site, whilst Colney Lane is connected to the B1108 Watton Road to the northwest of the Site. Travelling eastbound, the A11 and the B1108 Watton Road provide routes into Norwich City Centre and travelling westbound, the A11 and the B1108 Watton Road provide routes to the A47 Norwich Southern Bypass and beyond.

As noted above, there is a 150m landscape buffer between the Site and the A47 Norwich Southern Bypass within the indicative layout for the Proposed Development.

Vehicle trip generation information is yet to be supplied by the appointed traffic consultant. However, based on the scale of the proposals, it is considered likely that the Annual Average Daily Traffic (AADT) flows generated by the Proposed Development will exceed the 500 AADT screening criteria on road links with existing residential receptors. As such, a quantitative air quality dispersion modelling assessment is likely to be required.

4.2.2 Existing Receptors

Future dispersion modelling as part of the quantitative assessment will determine whether a selection of high sensitivity receptors in the vicinity of the Proposed Development will be subject to significant adverse changes in local air quality as a result of increased traffic flows. A selection of receptors will be chosen along the relevant roads links. The closest sensitive receptors to the Proposed Development are the residential properties located off Round House Way and Colney Lane.

4.2.3 Review of Neighbouring Development

As noted above, the Neighbouring Development has received planning permission for 650 dwellings with a local centre, land for educational use, associated on-site highways, pedestrian and cycle routes, public open space, play space, allotments and community woodland.

To gauge the potential impacts of the Proposed Development on existing residential receptors, the Air Quality Assessment (AQA) prepared in support of the planning application for the Neighbouring Development has been downloaded from SNDC's planning portal and a review has been undertaken.

The AQA for the Neighbouring Development (Planning Reference: 2013/1793) was completed using traffic data for an outline scheme for 852 residential units. Subsequent to the completion of the assessment, the number of residential units proposed at the application site was reduced to 800 units and then again to 650 units. The results of the assessment are therefore considered to be worst-case.

With regard to the modelled annual mean NO_2 concentrations, the significance of effect was predicted to be minor adverse at two existing receptors locations and negligible at all other receptors. The effects on annual mean and daily mean PM_{10} concentrations were predicted to be negligible at all receptors.

The Proposed Development is smaller in size than the scheme that was assessed for the Neighbouring Development. As such, it is considered that the impact of the Proposed Development on the modelled existing receptors is likely to be similar or smaller in magnitude than the consented Neighbouring Development. The significance of effect on existing receptors is likely to be predominantly negligible as was predicted for the 'Neighbouring Development'. Given the low existing pollutant concentrations and minor adverse predicted effects of both developments, it is unlikely that the cumulative impact of both developments on local air quality would be significant.

5 Potential Mitigation Requirements

Based on the existing concentrations of NO_2, PM_{10} and $PM_{2.5}$, it is considered that future occupants and users of the Proposed Development will not be exposed to poor air quality and the Site is deemed suitable for residential and educational use. As such, mitigation measures to reduce air pollution exposure such as mechanical ventilation are not considered to be necessary.

Based on the information presented within Section 4 of this AQTN, it is considered likely that the significance of the impact of operational phase traffic from the Proposed Development on existing receptors would be predominantly negligible. Where negligible impacts are predicted, mitigation measures

to reduce the impact on local air quality are not considered to be necessary. However, detailed dispersion modelling is required to confirm the significance of the air quality impact on existing receptors.

In addition to potential operational phase mitigation measures, future development of the Site would require the inclusion of construction phase dust control measures within a Construction Environmental Management Plan. As per the IAQM *'Guidance on the Assessment of Dust from Demolition and Construction'*, the required dust control measures are defined following a qualitative assessment of the construction phase dust risk.

6 Conclusion

MLM has been instructed by Barratt David Wilson Homes to prepare an AQTN to assess air quality constraints with regards to a proposed residential-led development on land southwest of Newfound Farm, Cringleford, Norfolk. The indicative proposals for the Site include residential dwellings, land for educational use and public open space. The AQTN has been prepared for SNDC to consider the proposals for the Site to be adopted into the Greater Norwich Local Plan (GNLP).

A review of local authority monitoring data and Defra background data indicates that the existing concentrations of NO_2, PM_{10} and $PM_{2.5}$ are 'well below' the relevant NAQOs. In future years, air quality is anticipated to improve further due to improvements in vehicle emissions and is therefore expected that the future air quality at the Site would comply with all relevant NAQOs. As such, it is considered that future occupants and users of the Proposed Development will not be exposed to poor air quality and the Site is deemed suitable for residential and educational use. As such, mitigation measures to reduce air pollution exposure such as mechanical ventilation are not considered to be necessary.

Nonetheless, due to the size of the Proposed Development, a quantitative air quality dispersion modelling assessment is likely to be required to determine the impact of changes in traffic volumes on local air quality at a selection of receptor points along the relevant road links. To gauge the potential impacts of the Proposed Development on existing residential receptors, a review of the Air Quality Assessment prepared in support of the planning application for the Neighbouring Development was undertaken.

The Neighbouring Development's AQA predicted that the significance of effect from increased road transport emissions would be minor adverse at two existing receptor locations and negligible at all other receptors in terms of annual mean NO_2 concentrations. The significance of effect was predicted to be negligible at all receptors for annual mean and daily mean PM_{10} concentrations.

The Proposed Development is smaller in size than the scheme that was assessed for the Neighbouring Development. As such, it is considered that the impact of the Proposed Development on the modelled existing receptors is likely to be similar or smaller in magnitude than the consented Neighbouring Development. The significance of effect on existing receptors is likely to be predominantly negligible as was predicted for the Neighbouring Development. Where negligible impacts are predicted, mitigation measures to reduce the impact on local air quality are not considered to be necessary. However, detailed dispersion modelling is required to confirm the significance of the air quality impact on existing receptors.

In addition to potential operational phase mitigation measures, future development of the Site would require the inclusion of construction phase dust control measures within a Construction Environmental Management Plan. As per the IAQM *'Guidance on the Assessment of Dust from Demolition and Construction'*, the required dust control measures are defined following a qualitative assessment of the construction phase dust risk.

Appendix A - Figures

Figure A1 Site Location

Figure A2 Indicative Layout

Figure A3 Local Authority Monitoring Locations

LEGEND

SITE BOUNDARY

0 100 200 300 400 m

THIS DRAWING IS INDICATIVE ONLY

COORDINATE SYSTEM: BRITISH NATIONAL GRID
UNITS: METRE
SCALE: 1:6500
BASEMAP SOURCE: OPEN STREET MAP

REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group Part of Sweco

DRAWING STATUS:	FINAL	DRAWING TITLE:	SITE LOCATION		
CLIENT:	BARRATT DAVID WILSON HOMES (EASTERN COUNTIES)	DRAWN/DESIGN: JJ	DATE: 05/03/2020	STATUS: S2	
		CHECKED: KN	APPROVED: KN	REVISION: C01	
PROJECT:	LAND SOUTHWEST OF NEWFOUND FARM: PHASE 2, CRINGLEFORD	DRAWING NO: 778645-MLM-ZZ-XX-DR-J-FIGURE A1			

REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group
Part of Sweco

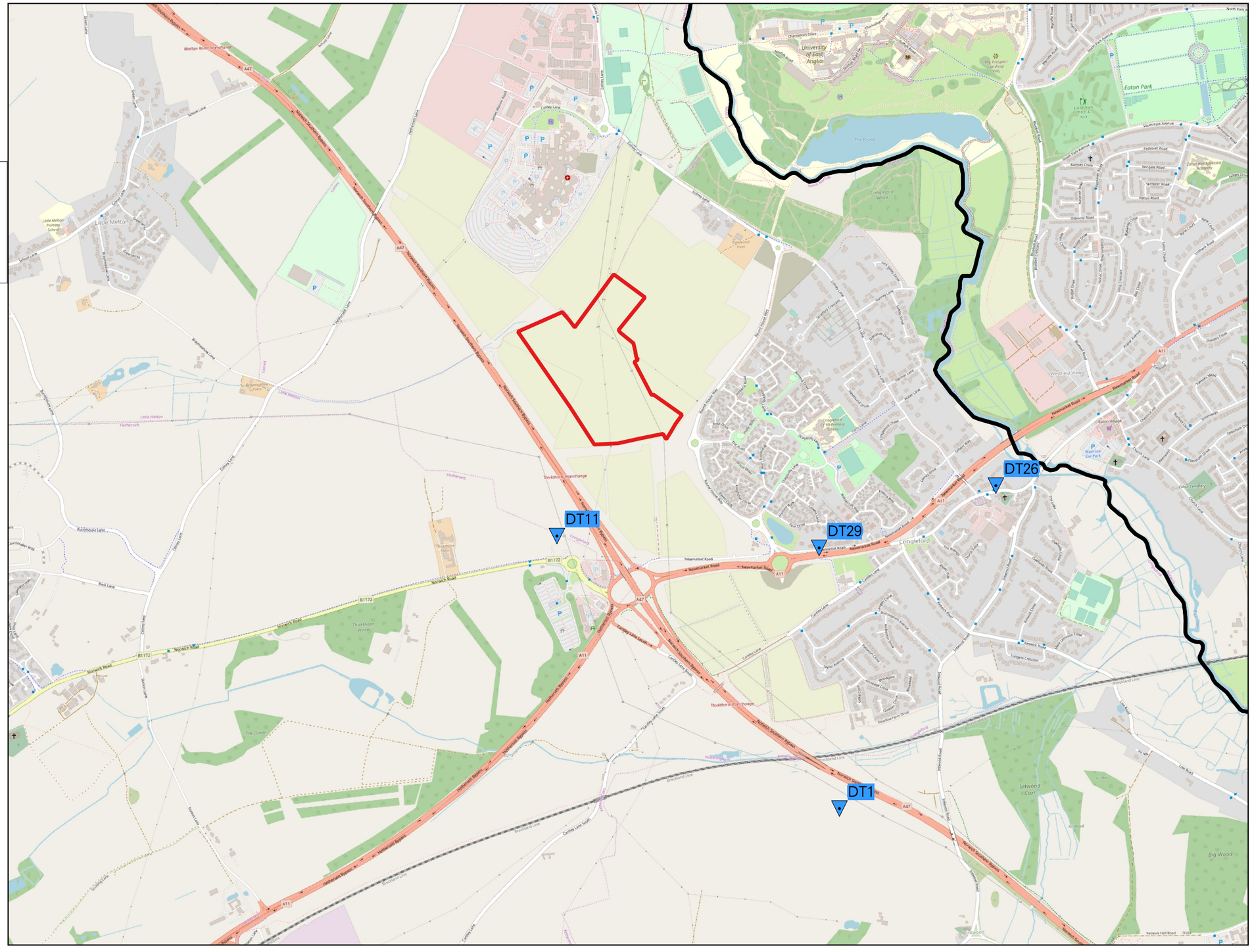
DRAWING STATUS:	FINAL
CLIENT:	BARRATT DAVID WILSON HOMES (EASTERN COUNTIES)
PROJECT:	LAND SOUTHWEST OF NEWFOUND FARM: PHASE 2, CRINGLEFORD
DRAWING TITLE:	INDICATIVE LAYOUT

DRAWN/DESIGN:	JJ	DATE:	05/03/2020	STATUS:	S2
CHECKED:	KN	APPROVED:	KN	REVISION:	C01

DRAWING NO: 778645-MLM-ZZ-XX-DR-J-FIGURE A2

LEGEND

- SITE BOUNDARY
- SNDC DIFFUSION TUBES (<2KM SITE)
- LA BOUNDARY



0 0.25 0.5 0.75 1 km

THIS DRAWING IS INDICATIVE ONLY

COORDINATE SYSTEM: BRITISH NATIONAL GRID
UNITS: KILOMETRE
SCALE: 1:15000
BASEMAP SOURCE: OPEN STREET MAP

REV	DATE	DESCRIPTION	MADE	CKD

MLM. Group Part of Sweco

DRAWING STATUS:	FINAL
CLIENT:	BARRATT DAVID WILSON HOMES (EASTERN COUNTIES)
PROJECT:	LAND SOUTHWEST OF NEWFOUND FARM: PHASE 2, CRINGLEFORD
DRAWING TITLE:	LOCAL AUTHORITY MONITORING LOCATIONS WITHIN 2KM OF SITE

DRAWN/DESIGN:	JJ	DATE:	05/03/2020	STATUS:	S2
CHECKED:	KN	APPROVED:	KN	REVISION:	C01

DRAWING NO: 778645-MLM-ZZ-XX-DR-J-FIGURE A3