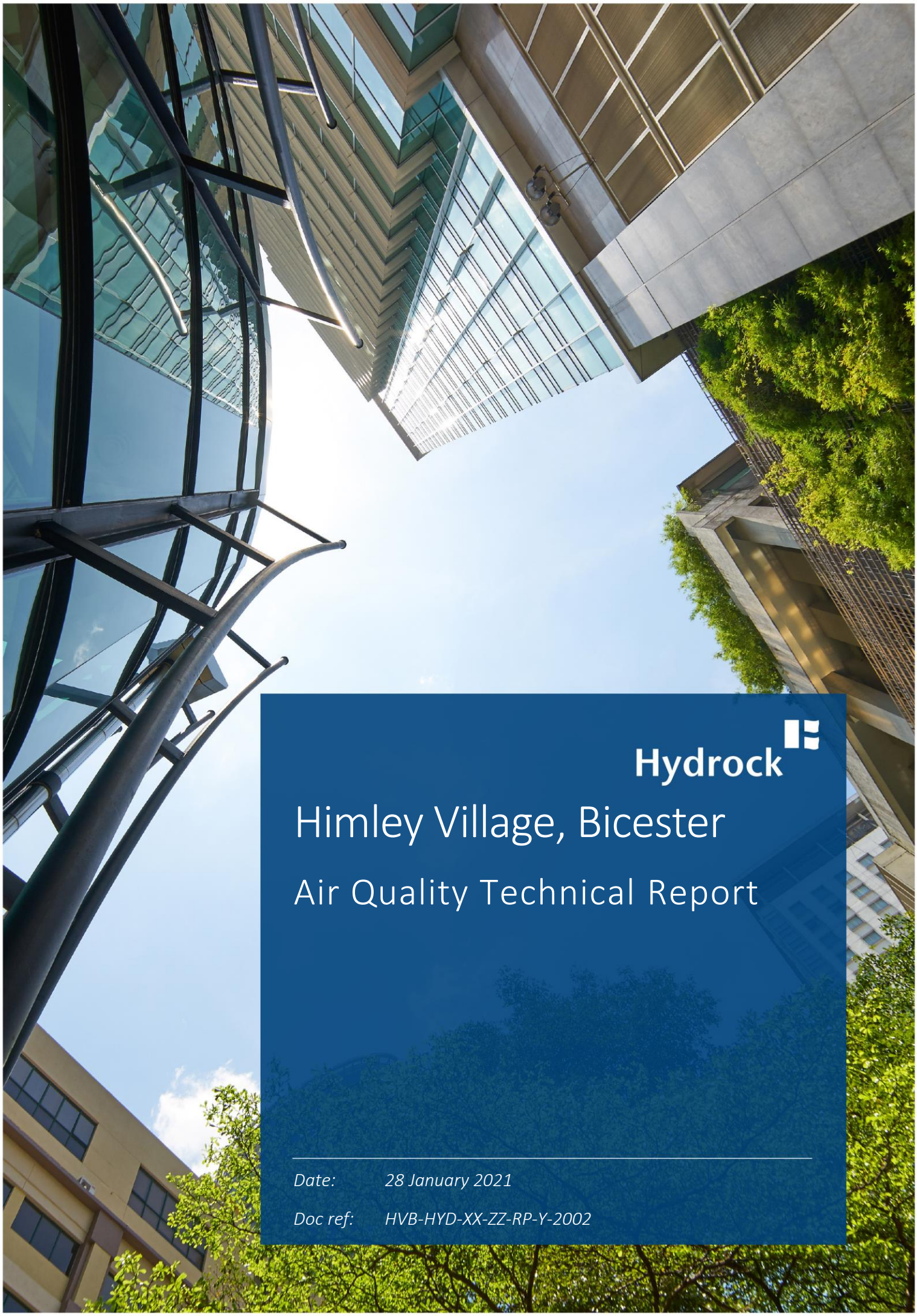

Hydrock

Himley Village, Bicester

Air Quality Technical Report

Date: *28 January 2021*

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1. INTRODUCTION

Hydrock have been commissioned to prepare an air quality technical note to support the Reserved Matters Application (RMA) of 500 homes at the proposed Himley Village, North West Bicester, Middleton Stoney Road, Bicester, Oxfordshire. It is understood that this RMA represents one phase of the development that will occur as part of the wider Himley Village development, previously approved as part of an Outline Planning Application (OPA).

1.1 Outline Application

The OPA (Planning Application Reference: 14/02121/OUT) for the proposed Himley Village North West Bicester, was approved by Cherwell District Council (CDC), subject to conditions in January 2020, for the proposals as described below:

> *"Development to provide up to 1,700 residential dwellings (Class C3), a retirement village (Class C2), flexible commercial floorspace (Classes A1, A2, A3, A4, A5, B1, C1 and D1), social and community facilities (Class D1), land to accommodate one energy centre and land to accommodate one new primary school (up to 2FE) (Class D1). Such development to include provision of strategic landscape, provision of new vehicular, cycle and pedestrian access routes, infrastructure and other operations (including demolition of farm buildings on Middleton Stoney Road)."*

These proposals were supported by an Environmental Statement (hereafter referred to as the 2014 ES).

1.2 Reserved Matters Application

This air quality technical note supports the RMA for 500 residential units at the proposed Himley Village. It is understood the opening year of this phase of the development is 2022. The location of this development is shown below in Figure 1:

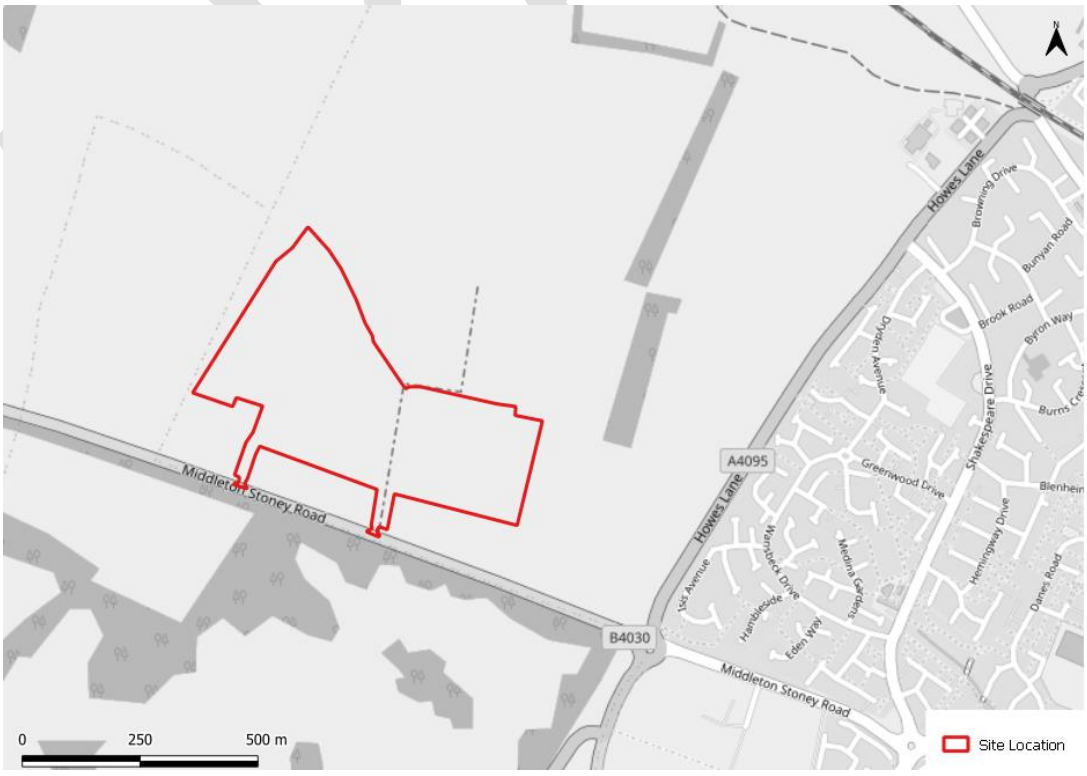

Figure 1 – Site Location

1.3 Aims of report

Through consultation with CDC's Air Quality Officers in January 2021, it was agreed this Air Quality Technical Note would provide the following:

- A review of relevant national and local planning policy, including a review of local air quality management.
- A review of baseline air quality in the study area, since the delivery of the 2014 ES, to assess the risk of exceedance of National Air Quality Objectives (NAQOs) at the site and surrounding area.
- The findings of the 2014 ES are reviewed taking into consideration the updated baseline air quality conditions, updated national and local planning policy context and the context of the RMA.
- An updated assessment of the impact of construction dust for this phase of development to conclude on the requirements for mitigation to reduce the significance of impacts to negligible.

2. RELEVANT LEGISLATION

Below provides an updated review of relevant legislation and national and local planning policy. Where any changes have occurred since the provision of the 2014 ES these are emphasised and discussed.

2.1 EU

Whilst the UK has now officially left the EU, the overriding policy regarding air quality still applies. The overriding policy document which governs air regulation is the EU Council Directive on ambient air quality and cleaner air for Europe (2008/50/EC)[1], which came into force in 2008, and provides statutory guidance on air quality. This presents statutory requirements for the protection of human health and ecosystems through long and short-term limit values for: oxides of nitrogen (NOx), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), particulate matter with a diameter of less than 10 microns (PM_{10}), particulate matter with a diameter of less than 2.5 microns ($PM_{2.5}$) carbon monoxide (CO), lead, benzene and ozone (O_3). The above legislation replaces the EU's previous three daughter directives.

2.2 UK

The above EU limit/target values within the EU Directives 2008/50/EC and 2004/107/EC were transposed into UK Law as part of the Air Quality Standards Regulations[2] which came into force in 2010.

These set out how the government has interpreted these directives and sets out Air Quality Objectives (AQOs) that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale. One of the main additions to these was the addition of regulatory framework on $PM_{2.5}$.

The Air Quality Strategy 2007 Volume 1[3] outlines the National Air Standards (AQS) and National Air Quality Objectives (NAQOS) that should be achieved. A summary table of the AQS concentrations and NAQOs of relevance to this technical note is provided below in Table 1:

Table 1 - UK Air Quality Standards

Pollutant	units	Averaging Period	Air Quality Standard (AQS)	National Air Quality Objectives (NAQO)
Nitrogen dioxide (NO_2)	µg/m³	1 Hour Mean	200 µg/m³	Not to be exceeded more than 18 times in a year.
		Annual Mean	40 µg/m³	
Particulate matter (PM_{10})	µg/m³	24 Hour Mean	50 µg/m³	Not to be exceeded more than 35 times in a year.
		Annual Mean	40 µg/m³	
Particulate matter ($PM_{2.5}$)	µg/m³	Annual Mean	25 µg/m³	25 µg/m³

[1] EC, "Directive 2008/50/EC of the European Parliament and of the Council," May 21, 2008, 50.
[2] Air Quality Standards Regulations 2010.
[3] Defra, "The Air Quality Strategy for England, Scotland, Wales and Northern Ireland - Volume 1" (Department for Food, Environment and Rural Affairs (Defra), July 2007), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf.

2.3 Local Air Quality Management

Obligations under the Environment Act 1995[4] require local authorities to declare an Air Quality Management Area (AQMA) at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below NAQOs. CDC's local air quality management is reviewed in section 3.3.

2.4 National Policy Planning Framework

The National Planning Policy Framework (nPPF)[5] requires that planning decisions for any new development should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of AQMAs and Clean Air Zones (CAZs), 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. Furthermore, planning decisions should ensure that any new development in AQMAs and CAZs is consistent with the local AQAP.

2.5 Planning Practice Guidance

Reference ID 32 (Air Quality) of the National Planning Practice Guidance (nPPG)[6] which was updated in November 2019, provides guiding principles on how planning can take account of the impact of new development on air quality. The PPG summarises the importance of air quality in planning and the key legislation relating to it.

2.6 Local Policy: Cherwell District Council

CDCs Local Planning Policy addresses air quality in both the saved policies from the Cherwell Local Plan 1996[7] and The Cherwell Local Plan 2011-2031 Part 1 (incorporating Policy Bicester 13 re-adopted on 19 December 2016)[8]. These are shown below.

Policy ENV1 from the Cherwell Local Plan 1996 states that:

> *"Development which is likely to cause materially detrimental levels of noise, vibration, smell, smoke, fumes or other type of environmental pollution will not normally be permitted."*

Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment in The Cherwell Local Plan 2011-2031 Part 1 states that:

> *"Protection and enhancement of biodiversity and the natural environment will be achieved by the following:*

[4] Environment Agency, "Environment Act 1995" (The Environment Agency, 2002), http://www.legislation.gov.uk/ukpga/1995/25/contents.
[5] Department for Communities and Local Government, "National Planning Policy Framework," February 2019, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf.
[6] Ministry of Housing, Communities & Local Government, "Reference ID (32) Air Quality" (Ministry of Housing, Communities & Local Government, 2019), https://www.gov.uk/guidance/air-quality--3.
[7] Cherwell District Council, "Cherwell Local Plan 1996," November 1996, https://www.cherwell.gov.uk/info/83/local-plans/373/adopted-local-plan-1996-november-1996.
[8] "The Cherwell Local Plan 2011-2031 (Incorporating Policy Bicester 13 Re-Adoption December 2016)," July 2015, https://www.cherwell.gov.uk/downloads/download/45/adopted-cherwell-local-plan-2011-2031-part-1-incorporating-policy-bicester-13-re-adopted-on-19-december-2016.

…Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution."

2.7 Updates to Policy since 2014 ES

Since the creation of the previous the 2014 ES, the nPPG for Air Quality has been updated (in 2019). A review of these updates revealed they would not impact on the validity of the work undertaken. Therefore, the conclusions of the 2014 ES are deemed to be unaffected.

Since the delivery of the 2014 ES, the Cherwell Local Plan 2011-2031 Part 1 (incorporating Policy Bicester 13 re-adopted on 19 December 2016) has been updated to include Policy Bicester 13. This is not deemed to affect the validity or scope of the 2014 ES.

It is recognised there is also ongoing consultation on the Local Plan Review 2040. At the time of writing there were no specific proposal options or policies available in the Community Involvement Paper Consultation, therefore this is deemed to not affect the findings of the 2014 ES.

3. BASELINE CONDITIONS

The updated baseline conditions, since the 2014 ES was reported, are provided below. This includes a review of CDC's Local Air Quality Management (LAQM). CDC's latest available air quality monitoring data, derived from the latest available air quality annual status report published in 2020[9] is used. At the time of writing, these data were from 2019. It also includes an update to include the latest Defra background concentrations which were published in August 2020 based on 2018 concentrations.

3.1 Background concentrations

Defra provides estimated background concentrations of AQS pollutants at the UK-AIR website. These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km^2 National Grid square locations across the UK.

The updated UK-AIR estimated background concentrations of the key AQS pollutants are presented in Table 2 for NO_2, NO_x, PM_{10} and $PM_{2.5}$. The background concentrations are all below the NAQOs. The 2013 values, as reported in the 2014 ES, are also shown for reference. All concentrations are for grid square 455500, 223500 within which the RMA site lies.

Table 2 - UK-AIR background concentrations and NAQOs

Pollutant		Annual Mean National Air Quality Objectives (NAQO)	Annual Mean (µg/m^3)		
Description	units		2013	2021	2022
Nitrogen dioxide (NO_2)	µg/m^3	40	13.2	9.1	8.7
Particles (PM_{10})	µg/m^3	40	18.0	14.7	14.5
Particles ($PM_{2.5}$)	µg/m^3	25	11.9	9.1	9.0
Oxides of nitrogen (NO_x)	µg/m^3	-	18.3	11.8	11.2

The data show that annual mean background concentrations of NO_2, PM_{10} and $PM_{2.5}$, at the grid square within which the application site is located, are modelled by Defra to be well below the NAQOs in both 2013, as originally reported, and 2021. The concentrations for all pollutants have reduced since 2013. These are forecast to decline further in 2022, the opening year of the development. This reduction is principally due to the forecast effect of the roll out of cleaner vehicles and strategies to reduce emissions across all sectors.

3.2 Cherwell District Council Monitoring

Below the CDC's air quality monitoring data is updated from what was reported in the 2014 ES. At the time of writing CDC monitored at 42 sites in 2019 using passive diffusion tubes. No automatic monitoring is performed.

[9] Cherwell District Council, "2020 Air Quality Annual Status Report (ASR)," June 2020.

The sites reported for are shown in Figure 2 below and the results from the monitoring sites are shown in Table 3.

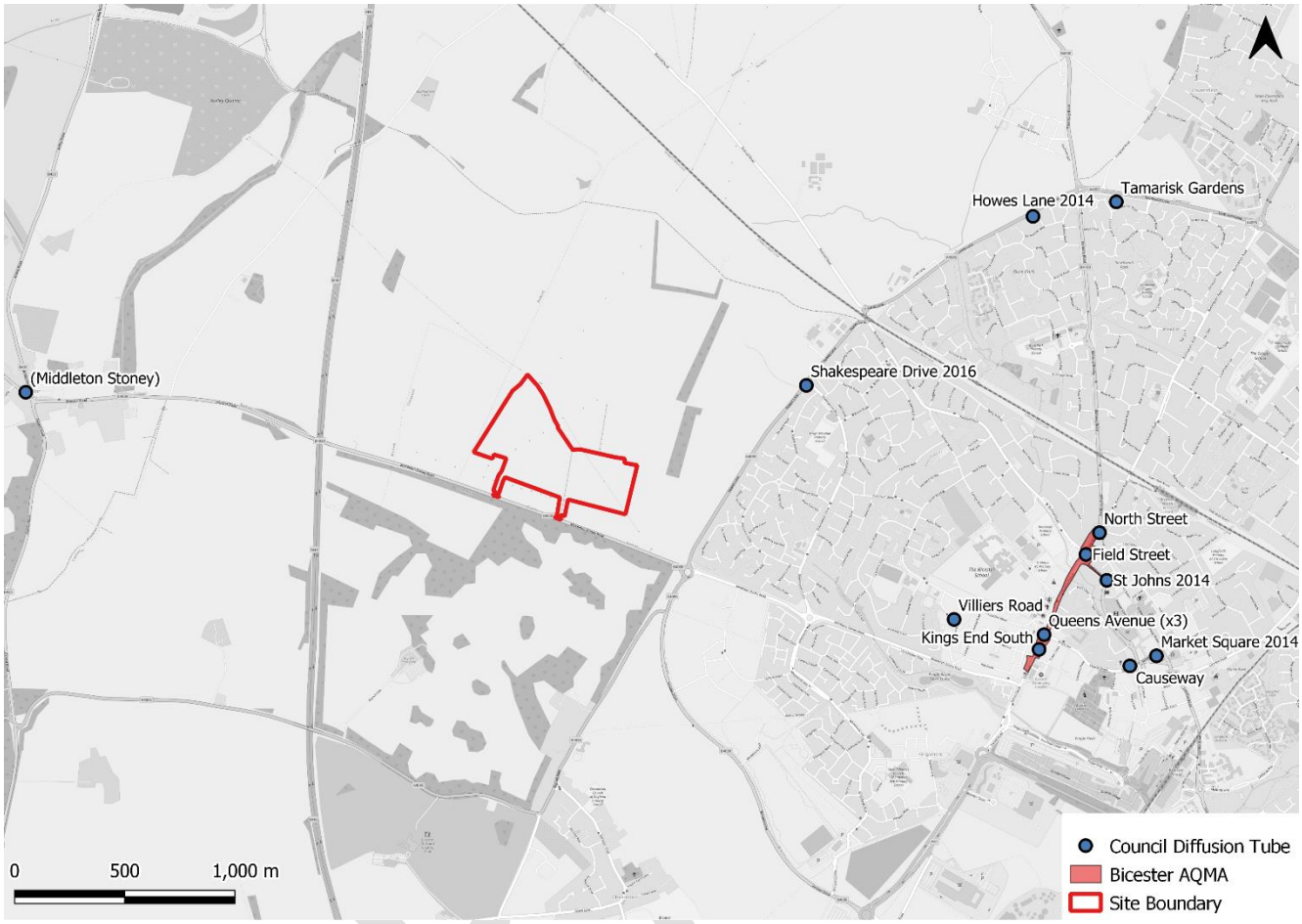

Figure 2 - CDC Air Quality Monitoring

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Table 3 - Annual Mean NO_2 from diffusion tubes

					Results (µg/m³)						
Site Name	Site Type	X(m)	Y(m)	In AQMA	2013	2014	2015	2016	2017	2018	2019
(Middleton Stoney)	Kerbside	453397	223516	NO	-	34.1	32.4	33.3	33.6	33.1	31.3
Shakespeare Drive 2016	Roadside	456937	223586	NO	-	-	-	23.2	24	23.4	23.2
Howes Lane 2014	Roadside	457956	224362	NO	-	23.4	23.9	25.6	25.6	24.5	20.7
Tamarisk Gardens	Urban Background	458333	224432	NO	17.4	15.9	15.7	17.2	16.3	15.9	15
Villiers Road	Urban Background	457619	222535	NO	19.8	18.3	16.9	18.2	17.9	17.2	17
North Street	Kerbside	458274	222935	YES	**44.7**	**41.9**	39.8	37.9	36.5	37.6	35.6
Field Street	Kerbside	458214	222836	YES	**40.3**	36.2	36.5	34.3	33.5	31.6	32.1
St Johns 2014	Kerbside	458310	222720	YES	-	36.3	38.3	36.2	37.8	38.6	31.7
Queens Avenue (x3)	Kerbside	458028	222471	YES	**41**	**40.3**	38.7	38.7	39.5	35	35.6
Kings End South	Roadside	458006	222404	YES	**48.5**	**46.9**	**46**	**46**	**41.7**	**41.9**	**41.5**
A41, Oxford Road (Premier Inn)	Kerbside	458419	222334	NO	-	-	-	-	-	-	25.5
Market Square 2014	Roadside	458539	222381	NO	-	23.5	23.7	25.4	24.7	23.1	22.2
Notes: **Bold** values denote exceedance of the Annual Mean NAQO.											

The highest concentrations of NO_2 are seen at locations within the Bicester AQMA. Overall, the NO_2 concentrations both within the AQMA and outside the AQMA have decreased since 2013. Since 2015, only Kings End South has exceeded the NO_2 annual mean NAQO. In 2019, this location demonstrated a 3.75% exceedance of the NAQO. At all other monitoring locations, the 2019 NO_2 annual mean concentrations were not at risk of exceeding the NAQO, in accordance with Defra LAQM.TG (16)[10], as were greater than 10% below the NAQO.

Whilst all UK-AIR background concentrations have decreased, the NO_2 background concentration used in the 2014 ES modelling was sourced from the Villiers Road diffusion tube monitoring site. In 2013 this was 19.8 µg/m3 NO_2, but has since decreased to 17 µg/m3 NO_2 for 2019 (most recent data available). Therefore, since the production of the 2014 ES all background concentrations have decreased, as expected.

Overall, the updated CDC monitoring data suggests air quality has improved since the 2014 ES, with most monitoring sites having seen some improvements and those sites within the AQMA demonstrating significant improvements. Therefore, the updated monitoring data does not affect the validity of the findings within the 2014 ES as has not revealed a worsening of air quality in the area and concentrations have decreased as expected.

[10] Defra, "LAQM Technical Guidance LAQM.TG16" (Department for Food, Environment and Rural Affairs (Defra), February 2018), https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf.

3.3 Local Air Quality Management

In 2015 the Bicester AQMA (AQMA area no.4), as seen in Figure 2, was declared. This was declared for exceedances of the NO_2 annual mean NAQO. Whilst this AQMA has been declared since the provision of the 2014 ES, it was recognised at the time that this area of Bicester was demonstrating exceedances of the NAQOs. Furthermore, since 2014, the concentrations of NO_2 at these locations have decreased. Therefore, the declaration of the Bicester AQMA (AQMA area no.4) is not considered to impact upon the findings or validity of the previous 2014 ES.

4. OPERATIONAL PHASE ASSESSMENT

4.1.1 Review of Previous Assessment

The OPA was supported by the 2014 ES (Appendix A of this document), which detailed the likely environmental effects that the Himley Village development would have. This included the likely effect that the development would have on air quality, contained within an Air Quality chapter, chapter 9. The chapter was supported by chapter 9.1 of a Technical Appendix containing details of the Air Quality Modelling Assessment, this is found at Appendix B.

The chapter on air quality within the 2014 ES assessed the impacts the development would have on air quality at sensitive receptor locations in the area. The findings of a modelling exercise, using ADMS-Roads, were that for an opening year of 2031 the development would have negligible effect on air quality, and therefore no mitigation was required.

A NO_2 sensitivity analysis was also performed, which assumed there would be no improvements in NO_2 background concentrations or improvements in emissions from vehicles from 2013 levels. The findings of this sensitivity analysis were that the impacts of the development on air quality would be negligible at 28 of the existing receptors and of minor adverse significance at the remaining 5 receptors, with the conclusion still being that no mitigation was required.

Ecological receptors in the areas were also assessed. The changes in air quality from the development were considered to have a Negligible effect on these receptors.

The OPA was also supported by an Environmental Statement Addendum report, published September 2015. However, Air quality was not considered to need further consideration at this stage, as stated in this Environmental Statement Addendum Report:

> *"As no changes have been made to the traffic data upon which the Air Quality Assessment was based, the effects presented within the Air Quality Chapter of the 2014 ES are considered to remain unchanged and no further assessment has been undertaken."*

4.2 Operational Assessment of Current Application

The assessment of air quality within the 2014 ES at outline considers traffic flows associated with a much higher quantum of homes (1700 homes) and other land uses, than those associated with the RMA (for 500 homes), and concludes that the development will not result in significant impacts. Therefore, this phase of the development, with lower traffic flows and therefore lower traffic emissions, will also likely result in no significant impacts on air quality. This is also supported by the following themes as discussed previously:

- All background concentrations for all pollutants in the 2014 ES modelling assessment have decreased since 2013 (the base year used in the assessment). This includes the NO_2 background concentration used in the 2014 ES modelling sourced from the Villiers Road diffusion tube monitoring site. Therefore, as expected there has been a decrease in background concentrations of pollutants as expected and shown by the modelling.
- The updated CDC monitoring data suggests air quality has improved since the 2014 ES. With most monitoring sites having seen at least some improvement in air quality and those sites within the AQMA demonstrating significant improvements in annual mean NO_2 concentrations. Therefore, as expected there has been a decrease in local concentrations of pollutants as expected and shown by the modelling.

- The declaration of the Bicester AQMA (AQMA area no.4) is not considered to impact upon the findings or validity of the previous 2014 ES due to the concentrations of NO_2 decreasing at this location since 2013.
- The 2014 ES also provided an NO_2 sensitivity analysis, assuming no improvements in background concentrations and emissions from vehicles, from which the impacts of the development on air quality were still considered to not be significant. The most recent monitoring indicates that there has been an improvement in both background concentrations and roadside concentrations. Therefore, the sensitivity analysis provides a very much worst-case scenario.

Despite the 2014 ES modelling for a future year of 2031, when considering the above, such as improvements in local air quality since the 2014 ES, improvements in background concentrations and lower traffic associated with the RMA, the OPA assessment can still be considered a worst-case assessment. Therefore, the current RMA is likely to have negligible impacts and is unlikely to have significant effects on air quality.

5. CONSTRUCTION PHASE ASSESSMENT

The previous assessment of nuisance dust considered proposals that involved more construction and demolition activities than will occur at the reserved matter application, as well as considering additional receptors. Therefore, it is considered appropriate to perform a construction dust assessment specific to this phase of the development. As such, a qualitative construction dust risk assessment has been carried out accordance with the IAQM's guidance on assessing impacts from construction[11].

As the previous assessment found the traffic associated with the construction phase to be of minor adverse significance as a worst for the OPA, and the assessment of the current RMA considers much fewer homes and a smaller area of development, it is not considered necessary to re-assess the construction phase traffic associated with this development.

5.1 Overview

The IAQM guidance states that the potential dust emission magnitude from Demolition, Earthworks, Construction and Trackout should all be assessed individually. In addition, the sensitivity of the area to adverse dust impacts should also be defined.

The overall significance of the risk of adverse impacts during the construction phase can then be defined using the 'risk of impacts matrix' for each stage of the construction phase described above.

5.2 Demolition

It is understood that the Himley Farm Bungalow (also referred to as Himley Farm House), located north of Middleton Stoney Road, is to be demolished. This building is estimated to be well below the IAQM's criteria of total building volume less than 20,000 m^3.

The potential dust emission magnitude during this phase is, therefore, defined as 'Small', with reference to IAQM guidance.

5.3 Earthworks

The total area of the site is within the IAQM's 'Large' criteria as it is significantly over 10,000m^2.

The potential dust emission magnitude during this phase is, therefore, defined as 'Large', with reference to IAQM guidance.

5.4 Construction

An estimation of the total volume of the building to be constructed has been estimated based on the Masterplan layout of the proposed development.

The total volume was estimated to be within the IAQM's Large category of >100,000m^3. Accordingly, the potential dust emission magnitude during construction is considered to be 'Large'.

5.5 Trackout

The risk of impacts occurring during Trackout is predominantly dependent on the number of vehicles accessing the site on a daily basis. However, vehicle size, speed and the duration of activities are also factors which are used to determine the risk of impacts.

[11] IAQM, "Guidance on the Assessment of Dust from Demolition and Construction" (Institute of Air Quality Management (IAQM)), February 2014), http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf.

It is expected that there would be 10 – 50 HDVs accessing the site each day. The initial roads to provide site access to the majority of the site are either currently unpaved (as at Himley Farm Bungalow) or do not yet exist. Therefore, it is expected that unpaved roads, of up to >100m, may be used as least initially. Conservatively, the potential dust emission magnitude during Trackout is considered to be 'Large', with reference to IAQM guidance.

5.6 Sensitivity of Area

The prevailing wind direction for the closest regionally representative meteorological measurement station to the application site, at RAF Brize Norton meteorological station, is shown below in Figure 3. The wind rose shows that the prevailing winds are from the south-west. As such, receptors downwind (i.e. north-east) of the site are more sensitive to dust impacts than those located upwind.

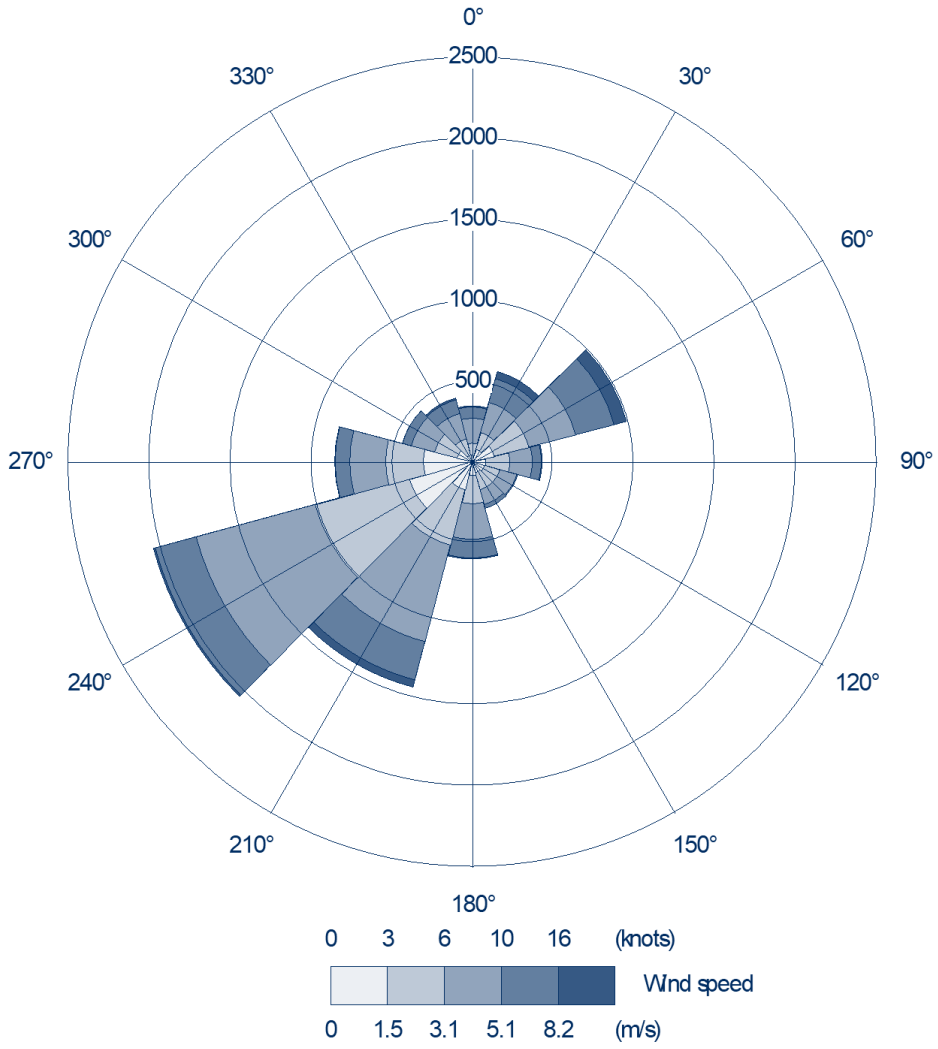

Figure 3 - Wind Rose for RAF Brize Norton

There are few sensitive human receptors in proximity to the site due to its rural location. Based on the IAQM guidance residential dwellings are considered as high sensitivity receptors in relation to both dust soiling and health effects of PM_{10}. Indicative examples of medium sensitivity receptors include places of work, and commercial / industrial properties. Within distances of 20m of the site boundary there is a high risk of dust

impacts. Up to 100m from the construction site, there may still be a high risk. It is considered that for receptors more than 350m from the site boundary, the risk is negligible.

High-sensitivity ecological receptors are defined as designated sites, such as Sites of Special Scientific Interest (SSSI) and Special Protection Areas (SPA) with features sensitive to air pollution impacts. In line with IAQM guidance no ecological receptors were identified within 50m of the site boundary, following a review using Defra's MAGIC mapping service[12] and as such ecological impacts have not been considered further.

The relevant receptors have been identified and are shown in Figure 4 below:

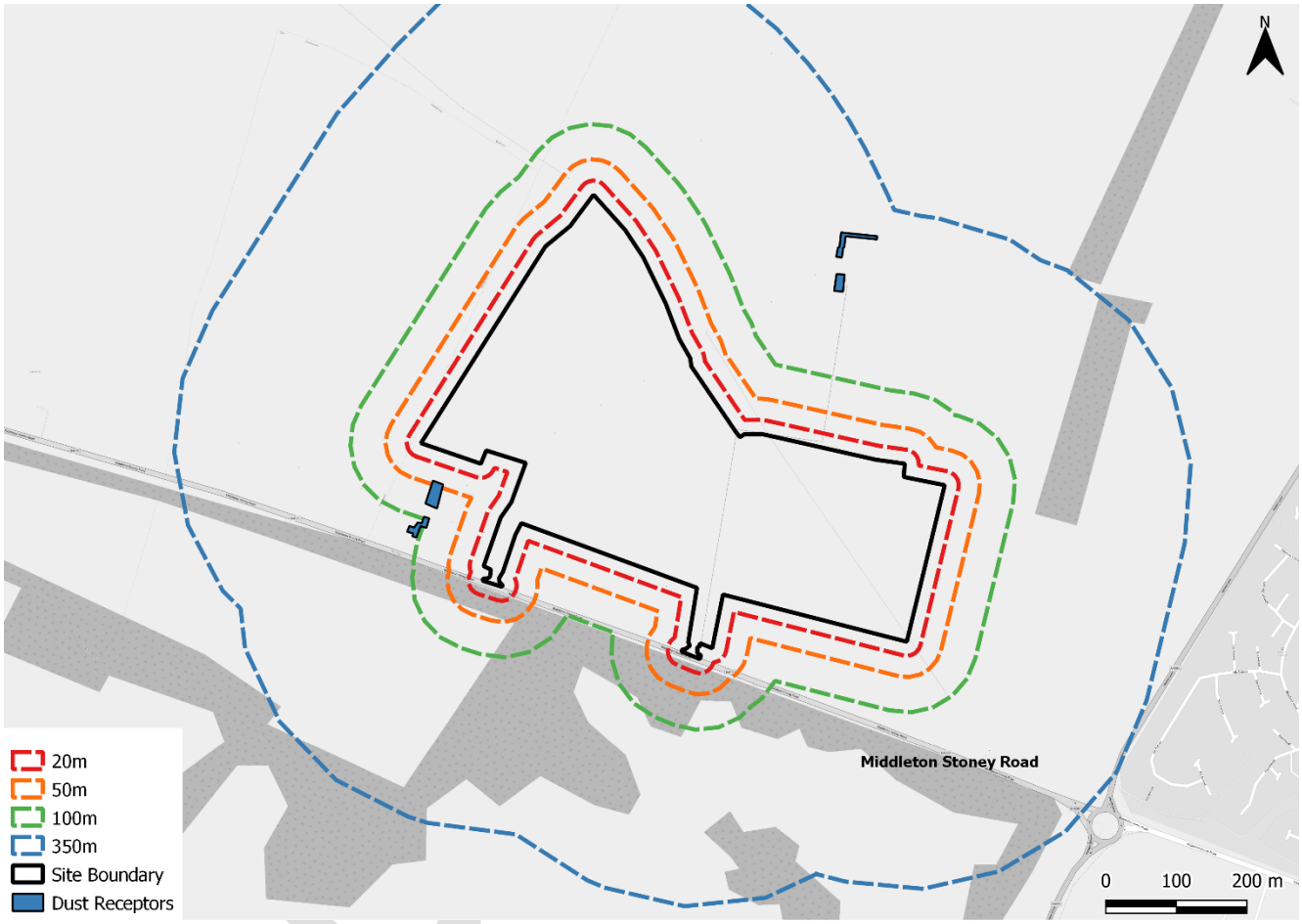

Figure 4 - Construction Dust Assessment Receptors

As it is understood from the outline application, Himley Farm Bungalow, that is within the site boundary of the current reserved matter application, is to be demolished as part of the works on site. Therefore, this property has not been included in the sensitive receptors considered. There are no high sensitivity or medium sensitivity receptors within 20m of the site boundary. There is only one medium sensitivity receptor within 50m of the site and only one high sensitivity receptor within 100m of the site. Therefore, the overall sensitivity of the surrounding area to nuisance dust soiling effects during Demolition, Earthworks and Construction, according to IAQM guidance, is defined as 'Low'.

With regard to Trackout, the sensitivity for Large size sites is assessed where receptors are located within 50m from Trackout routes up to 500m from the site. As there are no high sensitivity receptors within 20m of the

[12] Natural England and MAGIC partnership organisations., "Multi Agency Geographic Information for the Countryside.," 2020, https://magic.defra.gov.uk/MagicMap.aspx.

Trackout route from the site, and only one within 50m, the sensitivity to dust soiling impacts from Trackout is defined as 'Low'.

UK-AIR predictions show that annual mean concentrations of PM_{10} are well below 32 µg/m^3 in the vicinity of the site (the concentration at which exceedance of the 24-hour NAQO is likely), and are not likely to exceed 24 µg/m^3. According to IAQM guidance, where PM_{10} concentrations are <24 µg/m^3 and there are fewer than 100 high sensitivity receptors within 20m of the site boundary, the overall sensitivity of the surrounding area to human health impacts is defined as 'Low' for all stages.

The sensitivity of the surrounding area for the potential impacts discussed above are shown in Table 4 below. As no ecological receptors were identified, so the ecological sensitivity of the study area is not applicable.

Table 4 - Sensitivity of Local Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low	Low	Low	Low
Human Health	Low	Low	Low	Low
Ecological	n/a	n/a	n/a	n/a

5.7 Risk of Impacts

Using the methodology prescribed in the IAQM guidance, the overall risk of impacts can be defined by combining the sensitivity of the area with the potential dust emission magnitude of each stage of the construction phase as described above.

Table 5 provides a summary of the construction dust risk assessment. Overall, the development is considered to be Low Risk for nuisance dust soiling effects and have a Low Risk for PM_{10} health effects, in the absence of mitigation. Risks associated with ecological receptors do not apply to this site.

Table 5 - Risk of adverse impacts during construction phase

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Negligible	Low	Low	Low
Human Health	Negligible	Low	Low	Low
Ecological	n/a	n/a	n/a	n/a

6. MITIGATION MEASURES

6.1 Construction

The qualitative construction dust risk assessment shows that the site is Low Risk for adverse impacts during construction, as a worst-case, in the absence of mitigation.

To effectively reduce the risk of impacts to negligible, appropriate mitigation measures should be adopted. The Greater London Authority provides guidance[13] for mitigation measures which is considered to be best-practice for the UK. Appropriate measures that could be included in the construction of the proposed development include:

- ideally cutting, grinding and sawing should not be conducted on-site and pre-fabricated material and modules should be brought in where possible;
  - » where such work must take place, water suppression should be used to reduce the amount of dust generated;
- skips, chutes and conveyors should be completely covered and, if necessary, enclosed to ensure that dust does not escape;
- any excess material should be reused or recycled on-site;
- developers should produce a waste or recycling plan;
- following earthworks, exposed areas and soil stockpiles should be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- stockpiles should be stored in enclosed or bunded containers or silos and kept damp where necessary;
- hard surfaces should be used for haul routes where possible;
- haul routes should be swept/washed regularly;
- vehicle wheels should be washed on leaving the site;
- all vehicles carrying dusty materials should be securely covered; and
- delivery areas, stockpiles and particularly dusty items of construction plant should be kept as far away from neighbouring properties as possible.

In addition to the above, the IAQM's highly recommended mitigation measures for Low risk sites is provided at Appendix C of this report.

Implementing these measures should effectively reduce the risks of construction phase impacts on the local area to negligible.

6.2 Operational

The proposed development is not predicted to cause any significant impacts on local air quality, as shown by validating the findings of the 2014 ES through considering the RMA will have a lower polluting footprint from having lower traffic flows and improvement in local air quality since 2014.

[13] Greater London Authority (GLA), "The Control of Dust and Emissions During Construction and Demolition.," 2014, https://www.london.gov.uk/file/18750/download?token=zV3ZKTpP.

However, it is understood that the application is being supported by a Framework Travel plan. This proposes initiatives with the overall aim of achieving a reduction in the number of single occupancy vehicle journeys to the development. These initiatives include:

- Promoting walking and cycling;
- Promoting travel by public transport;
- Promoting car sharing, and;
- Reducing the need to travel.

Once implemented, these initiatives will reduce the number polluting journeys generated by the development and therefore will further reduce any potential impacts the development will have on local air quality.

With regard to other measures of air quality mitigation, if any gas fired boilers are proposed for the heating / hot water strategy for the residential units, these should have a NOx emission rate of less than 5 mg/s. This is equivalent to meeting the ultra-low NOx emission rating of <40mg/kWh, in accordance with EPUK/IAQM guidance.

7. CONCLUSION

A review of the air quality assessment undertaken (referred to as the 2014 ES) for the Outline Planning Application (OPA) of the wider Himley Village site has been undertaken to support the Reserved Matters Application (RMA). This includes consideration of updated policy and guidance, reporting of most up to date baseline conditions to show air quality improvements since the OPA, and discussing the validity of the operational assessment in the 2014 ES in support of the RMA.

A qualitative construction dust risk assessment has been undertaken in line with IAQM guidance. It has been shown that the construction phases of the proposed development could give rise to emissions that pose a Low Risk for dust soiling effects on adjacent use, and a Low Risk for human health impacts. However, by adopting appropriate mitigation measures to reduce emissions and their potential impact, such as those recommended in this report, there should be no significant residual effects.

It is considered that the RMA will not give rise to any worsening of negligible air quality impacts beyond those previously identified in the OPA. Impacts are likely to be lower than those reported in the OPA due to lower traffic flows associated with the RMA.

However, it is understood that the RMA is being supported by a Framework Travel Plan which will include measures with the aim to achieve a reduction in the number of single occupancy vehicle journeys to the development. This is considered positive in terms of air quality, as can reduce the number of polling trips generated by the development.

Also, it is recommended that any gas fired boilers, if used for the heating / hot water strategy, meet the EPUK/IAQM guidance criteria of less than 5 mg/s. This is equivalent to meeting the ultra-low NOx emission rating of <40mg/kWh.

From the evidence presented and from the conclusions of the 2014 ES, and by following the guidance provided herein, the proposed development will comply with all relevant air quality policy. As such, air quality should not pose any significant obstacles to the planning process.

Appendix A – 2014 ES

See accompanying document HVB-HYD-XX-XX-Y-RP-2001_Appendix_A

Appendix B – 2014 ES Technical Appendix

See accompanying document HVB-HYD-XX-XX-Y-RP-2001_Appendix_B

Appendix C - Construction Dust Mitigation for Low Risk Sites

In order to mitigate the worst-case dust impacts the following general mitigation measures are highly recommended by the IAQM for Low Risk construction sites. Highly recommended mitigation measures applicable specifically to demolition, earthworks, construction and trackout are provided based on the respective risk of adverse impact.

Highly Recommended

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.
- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Avoid bonfires and burning of waste materials.

- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.