



APPENDIX 7

Air Quality Supplementary Statement – Aecom

Monks Cross

Air Quality Supplementary Statement

Redrow Homes Limited

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Quality information

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1. Introduction

- 1.1 An air quality assessment of Redrow Homes' proposed Monks Cross development (the 'Proposed Development') was undertaken by AECOM in 2017; it was included within Volume 2 of the Environmental Statement for the Proposed Development. In January 2022, as part of a review of the EIA, Redrow Homes commissioned AECOM to provide a Supplementary Statement to the air quality assessment. The Supplementary Statement was required to provide relevant air quality information, in response to a request by The Planning Inspectorate in their letter of 10th December 2021 (ref: APP/C2741/W/21/3282969).
- 1.2 This Supplementary Statement includes the following:
- Section 2: A Summary of the 2017 Air Quality Assessment;
 - Section 3: A discussion of the Method and Approach followed, and the appropriateness of it at the time of writing in 2022, in terms of informing the ongoing appeal;
 - Section 4: An update in relation to potential Cumulative Impacts;
 - Section 5: An update in relation to potential Demolition Impacts;
 - Section 6: An update in relation to potential Earthworks Impacts;
 - Section 7: Conclusion; and
 - Section 8: Document List.

Statement of Expertise

- 1.3 Dr Tom Stenhouse, the author of this document, also oversaw the delivery of and approved the 2017 Air Quality Assessment. Tom is a Chartered Environmentalist, experienced project manager and team leader, who provides technical leadership in the field of air quality, greenhouse gases, odour and dust. He has a strong academic background in atmospheric chemistry and has undertaken assessments for a wide variety of projects; from road schemes, airports, and water treatment works, to oil & gas, office, retail and residential. Tom specialises in urban air quality, particularly assessing and forecasting emissions from road vehicles, and considering measures to improve air quality in our towns and cities.
- 1.4 Tom is a member of the Institute of Air Quality Management and the Institution of Environmental Sciences, and has worked at AECOM since 2003.
- 1.5 The AECOM air quality team of approximately 50 specialists has extensive air quality experience and offers a comprehensive range of air quality management services, all provided in accordance with the latest legislative requirements and guidelines. AECOM undertake assessments and provide expert advice for a wide range of public and private clients, including local and national government, developers and industry, whilst working closely with environmental management and assessment teams, planners and engineers to provide a comprehensive and co-ordinated approach to our projects.

2. Summary of the 2017 Air Quality Assessment

- 2.1 A qualitative construction phase assessment was undertaken in accordance with the Institute of Air Quality Management (IAQM, 2014) 'Guidance on the assessment of dust from demolition and construction', to determine potential dust and vehicle emission impacts. Taking into consideration the risk of potential impacts, appropriate mitigation measures were recommended.
- 2.2 A quantitative operational phase assessment was undertaken in accordance with the Environmental Protection UK (EPUK)/IAQM guidance, 'Land Use Planning & Development Control: Planning for Air

Quality' (EPUK/IAQM, 2017). Detailed dispersion modelling, using ADMS Roads software, was undertaken to determine the impact of traffic derived pollutant concentrations at nearby sensitive receptors. The assessment was conducted for the following scenarios:

- Baseline 2016 to establish existing conditions;
- Do-Minimum (DM) 2025, without the Proposed Development going ahead; and,
- Do-Something (DS) 2025, with the Proposed Development.

2.3 The assessment included recommendations for measures to minimise operational air quality impacts, including for instance implementation of the Travel plan.

2.4 No significant residual impacts were concluded for either the construction phase assessment or operational phase assessment:

- Annual mean nitrogen dioxide (NO₂) concentrations at all receptor locations in the study area were predicted to be below the annual mean NO₂ national objective of 40 µg/m³ in all scenarios. The highest predicted annual mean NO₂ concentration in 2025 was 19.5 µg/m³. The maximum increase in annual mean NO₂ concentration due to the Proposed Development was predicted to be 2.2 µg/m³.
- Annual mean PM₁₀ and PM_{2.5} concentrations at all receptor locations were predicted to be well below the respective annual mean objectives in all scenarios. The maximum increase in annual mean PM₁₀ concentration due to the Proposed Development was 0.4 µg/m³.
- The assessment emphasised that a conservative assessment approach was followed and as such the predicted impacts, particularly on NO₂ concentrations, were likely to have been overestimated.

3. Method and Approach

3.1 The previous assessment was performed over four years before the time of writing this Supplementary Statement. Over that period, there have been a number of changes to assessment techniques and typical best practices, which are described and considered in this section. In addition, the latest air quality monitoring data published by City of York Council (CYC) is analysed.

Construction Assessment

3.2 There has been no material change in the guidance relating to the assessment of construction and demolition phase effects since the undertaking of the previous assessment. The Institute of Air Quality Management's 'Guidance on the assessment of dust from demolition and construction' (IAQM, 2014) remains the primary guidance document with an update of the document (version 1.1) being released in 2016 containing small amendments to one table. Notwithstanding the additional information provided in Sections 5 and 6, the findings and conclusions of the 2017 Air Quality Assessment, summarised in Section 2, remain valid.

Operational Phase Assessment

3.3 There has been no change in the guidance relating to the assessment of operational phase effects since the undertaking of the previous assessment. The Institute of Air Quality Management and Environmental Protection UK's 2017 document, 'Land-Use Planning and Development Control: Planning for Air Quality' (IAQM/EPUK, 2017), remains the primary guidance document. There have, however, been a number of changes regarding the approach that should be followed to adhere to the guidance, as described below.

3.4 The 2017 assessment used the latest version of dispersion model software 'ADMS-Roads' (version 4.0.1.0) to predict pollutant concentrations. Whilst there have been updates and improvements to the software since 2017, none of these are fundamental updates to the way in which the software works.

3.5 ADMS requires vehicle emissions factors to function. The factors used in 2017 derived from Defra's Emissions Factor Toolkit (EFT) version 8 (released in November 2017) (Defra website). There have been

several updates to the toolkit since 2017 as a result of numerous studies and research. The effects of these changes are to alter the emissions from individual vehicle types. Whilst the use of the current EFT version 11 (released in November 2021) would result in different pollutant concentrations being predicted, the differences would not be considered significant.

- 3.6 Accompanying technical tools and databases have been updated since 2017, but these updates would not significantly alter the findings of the assessment:
- NO_x to NO₂ conversion tool (Defra website)
 - Background pollutant model database (Defra website)
- 3.7 Other changes to note are updates to Defra's local air quality management guidance (LAQM Technical Guidance LAQM.TG(16) (Defra, 2021). This update would not significantly alter the findings of the assessment.
- 3.8 A much more significant influence on the concentrations predicted are the assumptions that were made when undertaking the assessment. For instance, due to known uncertainties in the EFT in 2017, it was decided to take a cautious approach and essentially assume that there would be no improvements in vehicle emissions between 2020 and the hypothetical opening year of 2025. The current phasing plan (provided in Appendix A) proposed full occupation of the Proposed Development by 2034. As it was assumed for the purposes of the previous assessment that the development would be fully occupied by 2025 rather than 2034, this will have additionally provided some conservatism. Both of these assumptions mean that the concentrations and the impacts predicted will have been overestimated.

Local Monitoring

- 3.9 As is generally the case in towns and cities in the UK, air quality in York has generally been improving year on year as vehicle technology improves, despite more vehicles being on the roads. CYC's latest air quality report (CYC, 2021) notes this general downward trend in NO₂ across the city since 2012. The report also reveals the same trend at the monitoring sites closest to the Proposed Development:
- 47 (Strensall Road): concentrations have fallen from 28.3 µg/m³ in 2016 to 26.8 µg/m³ in 2019;
 - B19 (Huntington Primary School): concentrations have fallen from 21.1 µg/m³ in 2016 to 19.3 µg/m³ in 2019;
 - B38 (482 Malton Road): concentrations have fallen from 20.0 µg/m³ in 2016 to 17.2 µg/m³ in 2019; and
 - B36/B37 (60 Malton Road): concentrations have fallen from 16.3 µg/m³ in 2016 to 14.6 µg/m³ in 2019.
- 3.10 These observed falling concentrations validate the modelling undertaken in 2017, which predicted concentrations would fall at all receptors modelled, by approximately 20%, between 2016 and 2025.
- 3.11 Concentrations in 2020 should be considered to be atypical due to the Covid-19 pandemic and so are not discussed here.

Model Verification

- 3.12 The modelling undertaken in the previous assessment 2017 was verified by comparison with one monitoring site (B38 - 482 Malton Road) for the 2016 baseline scenario. Given the measured low concentrations, this was considered adequate. However, verification against more than one site would have resulted in more accurate modelling results. It is therefore recommended that air quality modelling undertaken for future detailed planning applications is verified against more monitoring sites. To allow this to happen, traffic data for more roads in the vicinity would be required.

Study Area

- 3.13 The study area for the air quality modelling undertaken in 2017 was restricted to nearby roads. It is recommended that air quality modelling undertaken for future detailed planning applications is supported by traffic data covering a larger area. In particular, it is recommended that traffic impacts are predicted on

key roads links leading into York (e.g. Malton Rd, south of Monks Cross retail park), where air quality is generally of greater concern.

Traffic Data

- 3.14 The traffic data that was provided to AECOM in 2017 by the project transport consultant (Optima) is still the most up to date source of data. It should be noted that the Transport Assessment was based on a 2034 Design Year (i.e. the year when it was assumed all dwellings would be occupied), whereas the air quality assessment assumed an earlier hypothetical opening year (2025), representing a worst case scenario from an air quality perspective.

Baseline Year

- 3.15 It should be noted that The Planning Inspectorate in their letter of 10th December 2021 refer to an air quality baseline date of 2021. The 2017 assessment assumed a baseline year of 2016 and a future opening year of 2025 (as a conservative assumption). The year 2021 was not referred to in the assessment.

4. Cumulative Impacts

- 4.1 The traffic data that was used in the previous air quality assessment took account of the potential cumulative impact on air quality of the Proposed Development together with other potential developments and schemes. The future year traffic data were established by applying TEMPro growth to the base 2016 flows – an increase of 14.5% and 13.1% in the AM and PM peak hours respectively. Therefore, the pollutant concentrations that were predicted were based on the assumption that vehicle numbers on the roads would increase due to unidentified potential developments and schemes. No specific consented/committed development sites were considered; this approach was discussed and agreed with CYC.

5. Demolition Impacts

- 5.1 As part of the construction of the Proposed Development it will be necessary to demolish a small number of buildings:
- Agricultural sheds and buildings at White Horse Farm (off North Lane, within the northern part of the application site);
 - New House (residential property at White House Farm); and
 - The Bungalow (residential property at White House Farm).
- 5.2 The previous air quality assessment screened these demolition works for their potential to result in dust impacts. Paragraph 5.1.2.1 stated, "...[for demolition works]...*the potential dust emission classification is described as 'Negligible'*". Appendix B of the assessment however listed mitigation measures for construction activities, several of which would also apply to demolition activities, reducing the generation and dispersion of dust.
- 5.3 As stated in the introductory text to the Supplementary Statement by Johnson Mowat, demolition-related impacts to air will be controlled by the proposed Site Construction Management condition.

6. Earthworks Impacts

- 6.1 As part of the preparation of the Proposed Development site for construction, it will be necessary to remove approximately 100,000 m³ of topsoil over the 10 year build. When considering the phased

approach to construction, this equates to approximately two lorry loads per working day over the 10 year period.

- 6.2 Whilst this level of detail was not considered at the time of undertaking the previous 2017 air quality assessment, the potential for impacts associated with earthworks was considered. Paragraph 5.1.2.2 stated, "...it is anticipated that there will be less than 5 heavy earth moving vehicles active at any one time therefore according to the IAQM Guidance (2014) (IAQM, 2014) the proposal is considered to have a 'Medium' magnitude of potential dust emissions during the earthworks". The additional detail in paragraph 6.1 does not therefore materially alter this statement.
- 6.3 Appendix B of the 2017 assessment listed mitigation measures for construction activities, with specific consideration of measures to minimise dust impacts during earthworks. Section 5.1.4 of the assessment discussed the implementation of the measures and Section 6.1 concluded that, "...the overall impact associated with construction phase activities is Not Significant."
- 6.4 As stated in the introductory text to the Supplementary Statement by Johnson Mowat construction related impacts to air will be controlled by the proposed Site Construction Management condition.

7. Conclusion

- 7.1 The information provided in this report demonstrates that the findings and conclusions of the previous 2017 Air Quality Assessment, summarised in Section 2, remain valid, and there should be no reason on air quality grounds to refuse the outline planning permission.

8. Document List

- City of York Council (2012) Low Emissions Strategy (2012)
- City of York Council (2015) Air Quality Action Plan 3
- City of York Council (2017) Low Emission SPD (Draft)
- City of York Council (2021) 2021 Air Quality Annual Status Report (ASR)
- Defra (2000). The Air Quality (England) Regulations, 2000 (SI 2000/928).
- Defra (2002). The Air Quality (England) (Amendment) Regulations, 2002 (SI 2002/3043).
- Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland
- Defra (2017) <https://uk-air.defra.gov.uk/data/laqm-background-home> (accessed March 2017)
- Defra (2015) Government Department on Costs and Benefits (IGCB) Air Quality Damage Costs. <https://www.gov.uk/guidance/air-quality-economic-analysis>
- Defra (2016). Local Air Quality Management Technical Guidance LAQM.TG(16)
- Defra (2021). Local Air Quality Management Technical Guidance LAQM.TG(16)
- Defra website (accessed December 2017, and January 2022) Air Quality Archive <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc>
- IAQM (2014) Guidance on the assessment of dust from demolition and construction (Version 1.1). Institute of Air Quality Management
- Institute of Air Quality Management and Environmental Protection UK (2017). Land-Use Planning and Development Control: Planning for Air Quality, January 2017
- OPTIMA (2017) Land North of Monks Cross, York Proposed Residential Development Transport Assessment & Travel Plan

Appendix A Figures

Figure 1 Phasing Plan



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