

02 December 2019

Our Ref: 325\_Anglia Square Inquiry

## **RE-development of Anglia Square, Norwich.**

### **Ref WH 8/1: Proof of Evidence of Melanie Hobson MSc, BSc on Air Quality Matters**

PINS ref: APP/G2625/V/19/3225505; LPA ref: 18/00330/F

#### **Author's qualifications and experience**

Melanie Hobson will say:

1. I am a Director at Aether Ltd, an air quality and climate change consultancy that specialises in the compilation and development of emission inventories, the application of policies and measures to reduce emissions and undertaking air quality assessments for planning applications.
2. I have worked at Aether for eleven years and prior to that worked for AEA Technology (now part of Ricardo) for 8 years.
3. I have a Bachelor of Science in Environmental Sciences from the University of East Anglia and a Masters in environmental technology from Imperial College, London. I am a member of the Institute of Air Quality Management, which reflects my experience in this area.
4. I have undertaken many air quality assessments across my career in the air quality consulting field. These have ranged from individual properties to multi-use large scale developments and industrial sites. The work involves data collection and detailed dispersion modelling to predict pollutant concentrations without and with development. Monitoring work has also been undertaken to enhance modelling results where applicable. Building on this work, I have also conducted reviews of annual local authority air quality reports for Defra and air quality assessments for planning applications on behalf of the GLA for many years.

#### **Background and context**

5. The letter from the Planning Inspectorate (PINS) dated 21 March 2019 sets out the Secretary of State's (SoS) relevant matters to be considered at the 'call in' Public Inquiry; the letter is also the SoS's Rule 6 'Statement of Case'. In this regard, the SoS has not raised matters relating to Chapter 15 of the National Planning Policy Framework (NPPF) 2019 – 'Conserving and enhancing the natural environment'. Notwithstanding this, the SoS indicates that other relevant matters should also be considered by the Inspector, and it is noted that Norwich Cycling Campaign, a Rule 6 Party, has requested that, inter alia, NPPF Chapter 15 be included within the scope of the Inquiry. The evidence outlined in this Proof therefore relates to item f, Paragraph 7, of the SoS's letter which highlights 'other matters considered relevant by the Inspector'.
6. In this regard all matters relating to air quality issues will be comprehensively explained in evidence to ensure that the SoS, Rule 6 Parties and other interested bodies are made fully aware of the work that has been completed in support of the current planning application and the agreements reached hitherto with the planning authority which has responsibility to consider air quality matters: Norwich City Council (NCC).

7. The Air Quality evidence will address the impact on local air quality associated with the redevelopment of Anglia Square through the implications for generated vehicle journeys. The evidence will be structured as follows to explain the work completed by Aether on behalf of the Applicant and to respond to representations raised by Rule 6 parties and other interested bodies:
  - a) Discussions with Norwich City Council
  - b) Statement of the argument supported by the evidence presented in this proof
  - c) Outline of evidence and summary of findings
  - d) Main objections to the evidence and responses
  - e) Conclusions

## Discussions with Norwich City Council

8. Comprehensive discussions have been held with NCC from the inception of the project through to the development of the agreed approach. It was agreed with Officers at NCC where the diffusion tube monitoring sites would be located around the redevelopment site (hereinafter referred to as the Site) for the diffusion tube monitoring survey that was conducted in 2017. It was also agreed with NCC Officers that a detailed assessment would be carried out to model the impact of the redevelopment on local air quality.
9. Subsequent to the submission of the planning application, a second version of the AQA was prepared by Aether to respond to comments received from NCC (report dated August 2018 and note of clarification). These comments broadly related to the impacts of proposed mitigation measures, specifically the proposed Travel Plan and provisions made for the use of electric vehicles, and whether these impacts had been taken into account in the 'with development' modelling scenario. The comments also queried the impacts of the existing (closed) multi-storey car park (MSCP) and office space not in use (e.g. Sovereign House), which if brought back in use, would result in greater baseline traffic. These comments were addressed in the second version of the AQA which involved a remodelling of air pollutant concentrations around the Site.
10. Following the submission of the second version of the AQA together with the note of clarification, NCC agreed the assessment as outlined fully in the Statement of Common Ground.
11. NCC has subsequently provided a draft copy of their 2019 Air Quality Annual Status Report (containing their 2018 air pollution monitoring data results). At NCC's suggestion, this more up-to-date evidence has been examined. As a result of the delay in planning permission being granted due to the public inquiry and hence the knock on effect upon the expected completion date of the development, the modelling results have been updated in accordance with guidance that the decision maker should operate on the most up-to-date evidence to take into account not only the revised year of completion to be modelled, but also incorporating the latest air quality monitoring data. The updated air quality assessment results are provided in a report dated November 2019 (see WH 8/3). This has resulted in an improvement to the predicted air pollutant concentrations compared to that submitted in the August 2018 assessment report (which was based on the amended scheme). Of significance is that an exceedance of the hourly nitrogen dioxide objective was predicted in the August 2018 report and no exceedances of this objective are now predicted.

## Main argument

12. This proof will set out how the evidence establishes that the air quality implications of the proposal are in accordance with the relevant local and national policies. The relevant policies have been listed below:
  - NPPF Chapter 15. Conserving and enhancing the natural environment, with specific reference to paragraph 181

- DM11, with specific reference to the Air and Water Quality section
  - DM2, with reference to the living and working conditions of existing and future occupiers
13. As outlined in the Council's 2019 Annual Status Report, overall air pollutant concentrations within the Council's Air Quality Management Area are falling. In 2012, 10 of the diffusion tube monitoring locations exceeded the annual mean nitrogen dioxide objective. In 2018, only two locations exceeded the objective.
  14. The air quality evidence will show that whilst the Site is currently located in an area of poor air quality, improvements are expected by 2031 (the expected first full year of occupation) as a result of the national government's low carbon agenda and increasingly stringent Euro standards with which new vehicles will have to comply. Under this scenario (called the 'policy applied' scenario), at all locations modelled, the nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) objectives will be met by a substantial amount in both the 'without' and 'with' development scenario.
  15. The national government policy will be enhanced by NCC's commitment to their air quality action plan. An update on progress is provided in their latest Annual Status Report. Recently completed measures include extending cycle routes, retrofitting buses with SCRT technology, working with taxi operators to improve the Euro standard of their vehicles and enforcement of vehicle engine switch off whilst idling.
  16. Even where **no** account is taken of predicted air quality improvements (which is a worst case and unrealistic scenario) only one on-site location at ground floor level (the north side of New Botolph Street) and two receptors modelled on St Augustines Street at ground level are estimated to exceed the annual mean nitrogen dioxide objective in the 'without development scenario'. This scenario takes into account the current and artificially low levels of use of the site. No other air quality objectives are predicted to be exceeded. As a conservative measure, it is proposed that mechanical ventilation or NO<sub>x</sub>/NO<sub>2</sub> filters are installed on the ground floor residential units on the north side of New Botolph Street to ensure that residents in the new development are not exposed to high levels of pollution.
  17. In the 'with development' no policy applied scenario, an increase in air pollutant concentrations are predicted compared to the current use of the site. However, the increase in air pollutant emissions as a result of the development is minimised through the installation of electric vehicle charging points at the development site and the implementation of a travel plan. In the majority of cases, the impact is predicted to be negligible. When the impact of the development is compared to the no policy applied 'proxy' scenario (where the existing site is back in use and the multi-storey car park is assumed to be re-opened), there is predicted to be an improvement at many locations. Overall, the NCC was correct to raise no objection in air quality terms when the matter was before it. The SOCG reflects that position. The further evidence confirms the correctness of that assessment.

## Main body of evidence

18. The primary piece of evidence that supports this argument is the air quality assessment that was produced by Aether in February 2018 and then the updates in August 2018 (in response to comments received from NCC and updates made in accordance with the amended scheme) and in November 2019 (following revisions to the expected year of completion of the development) – see WH 8/3. The latest assessment modelled the impacts of the Development's forecasted impact on traffic flows on the surrounding roads, as modelled by WSP in the Transport Assessment and Addendum Transport Assessment and also utilises the 2018 diffusion tube data now available from NCC. The following scenarios were modelled in the latest version of the assessment:
  - **2018 Baseline:** to enable model verification to be undertaken
  - **2031 Without Development No Policy Applied:** modelled with predicted traffic levels for local roads without the impact of the Development, as estimated in the traffic assessment, and without

the predicted impact of improvements to the fleet emission factors and background concentrations as a result of the UK's road to zero strategy and expected air quality improvements in the road transport fleet. (this assumption is adopted for testing purposes but is an unrealistic worst case given the nature and status of government policy.)

- **2031 With Development No Policy Applied:** modelled with the impact of predicted traffic levels for local roads from the Development, as estimated in the traffic assessment, but without the predicted impact of improvements to the fleet emission factors and background concentrations as a result of UK air quality strategy.
- **2031 Proxy Re-use No Policy Applied:** modelled with the impact of predicted traffic levels for local roads should the Site be re-used as the existing planning conditions allow for, as estimated in the traffic assessment. Also, without the predicted impact of improvements to the fleet emission factors and background concentrations as a result of UK air quality strategy.
- **2031 Without Development Policy Applied:** modelled with predicted traffic levels for local roads without the impact of the Development, as estimated in the traffic assessment, and with the predicted impact of improvements to the fleet emission factors, applied using the Defra EFT, and background concentrations, applied using Defra background pollutant concentration maps, as a result of UK air quality strategy.
- **2031 With Development Policy Applied:** modelled with the impact of predicted traffic levels for local roads from the Development, as estimated in the traffic assessment, and with the predicted impact of improvements to the fleet emission factors and background concentrations as a result of the UK's road to zero strategy and expected air quality improvements in the road transport fleet.
- **2031 Proxy Re-use Policy Applied:** modelled with the impact of predicted traffic levels for local roads should the Site be re-used as the existing planning conditions allow for, as estimated in the traffic assessment. Also, with the predicted impact of improvements to the fleet emission factors and background concentrations as a result of the UK's road to zero strategy and expected improvements in the road transport fleet

19. NCC have highlighted that their 2018 diffusion tube monitoring results have indicated significantly lower NO<sub>2</sub> concentrations than the results from the original diffusion tube monitoring survey. This has been taken into account in the November 2019 assessment.
20. It is noted that following the submission of the August 2018 air quality assessment to NCC, the proposed mitigation measures were agreed to be satisfactory and appropriate to mitigate the impact of the development. The updated results presented in the November 2019 assessment are broadly similar but better.

## Main objections to the air quality evidence and Applicant's responses

21. Norwich Cycling Campaign, as a Rule 6 Party, have raised the following objections in relation to air quality matters, this proof addresses each of these objections in turn.
  - Three separate AQAs for three major constructions in the area have been conducted with three different methodologies. *In the Anglia Square air quality assessment, the impact of the other relevant committed developments on traffic flows during the operational phase has been taken into account. In addition, the impact of cumulative developments during the construction phase is discussed in the Environmental Statement.*
  - Norwich Cycling campaign asks, "what is the "agreed target"" with reference to mitigating the construction phase of the development. *The agreed targets in this case refer to the UK and EU air quality limits as set out in the Air Quality Strategy. Whilst we recognise that evidence points to no safe level of air pollution, however the national air quality objectives provide standards which are*

*considered to be acceptable in terms of what is scientifically known about the effects of each pollutant on health and on the environment.*

- Modelled exceedances of the short-term objective for NO<sub>2</sub> at the ground floor locations adjacent to Magdalen Street and on the corner between Edward Street and New Botolph Street. *The updated modelling undertaken in November 2019 does not now show any predicted exceedances of the short-term objective for NO<sub>2</sub>.*
- Request for an assessment of the impacts on the wider air quality adjacent the site, in particular St Augustine's Street which is predicted to have 3,000 additional daily traffic movements and already has two sites regularly exceeding current DEFRA levels of NO<sub>2</sub> and Magpie Rd which has a number of residential properties along it. *This has now for completeness been included in the updated modelling undertaken in November 2019. Traffic flows in 2031 are now predicted to increase by only approximately 1,370 vehicles per day. The 2018 diffusion tube results show that annual mean NO<sub>2</sub> concentrations were 27µg/m<sup>3</sup>, 37µg/m<sup>3</sup> and 44µg/m<sup>3</sup> respectively at 130 Magdalen Street, 13 Augustines Street and 52 Augustines Street respectively. Therefore, only one location is regularly exceeding the objective levels, and even there levels have declined significantly in recent years.*
- Comments have been made on the multi-storey car park and lack of consideration with the AQA. *Local Air Quality Management Technical Guidance (TG16) document, Paragraph 7.417, states that 'Car parks are unlikely to require detailed modelling for Review and Assessment'. Therefore, and in accordance with the methodology agreed with NCC, the impact of the car park as a specific area source was not specifically considered. The guidance goes on to say that consideration should be given to local access roads. This latter aspect has been considered in the assessment.*
- NCyC have commented on NCC's lack of progress with public transport policy and the lack of improvements to emissions standards. *Progress with NCC's actions to improve air quality are provided in their latest Annual Status Report. As identified above, this includes modernising the local bus fleet and taxis. Emission factors in the model have been extracted from the Defra issued emissions factors toolkit for 2018, which uses regional emission factors based on road type, average speed and % Heavy Duty Vehicles. In the 'no policy applied' scenario, no improvement between 2018 and the first full expected year of occupation (2031) is assumed. However substantial improvements are now expected between now and 2031 with the introduction of Euro 6/VI vehicle standards, together with the push for electric vehicles as a result of the climate change agenda.*

### **Objections raised by Dr Andrew Boswell**

22. Dr Andrew Boswell, acting on behalf of Norwich Cycling Campaign, as a Rule 6 Party, has raised the following objections and comments that the Development will:

- Increase NO<sub>2</sub> levels at every receptor modelled by the developer except 1. This is for 2028, 18 years after the UK should have met its legal requirements.
  - *The latest monitoring data presented in the Council's latest ASR indicates that annual mean NO<sub>2</sub> concentrations in the AQMA are declining. This trend is predicted to decline with the introduction of more stringent vehicle emission standards and the increasing uptake of electric and plug-in hybrid vehicles as a result of the national low carbon agenda. The latest modelling suggests that the development will have a positive impact on annual mean NO<sub>2</sub> levels at the majority of locations modelled, when compared to the 'proxy re-use' scenario. Compared to the current site use an increase in pollutant concentrations is predicted, but this is deemed to be negligible at the majority of locations. The increase is minimised as much as is feasible due to the installation of electric vehicle charging points and the implementation of a travel plan.*



- Maintain a very high, and illegal, level of NO<sub>2</sub> on Magdalen Street: the developers diffusion tube monitoring in 2017 already shows this area to be illegal, and at a level previously not acknowledged by the Council.
  - *The latest monitoring data shows an annual average NO<sub>2</sub> concentration of 27µg/m<sup>3</sup> at site DT6 – 130 Magdalen Street in 2018, which is below the objective level of 40µg/m<sup>3</sup>. However, the modelling shows an exceedance on Magdalen Street at ground floor level in the ‘without’ and ‘with’ development no policy scenario. However, no residential use is intended at ground floor level and therefore the annual mean NO<sub>2</sub> objective does not apply. Despite this, filtered air will be taken from higher levels and circulated around the retail units, so staff and shoppers will be exposed to lower pollutant concentrations than that outside on the street. From the first-floor level upwards (where residential use is planned), no exceedance of the annual mean is predicted.*
- Other locations where existing breaches of law and regulation continue to 2028, and beyond, in the modelling are Edward Street, New Botolph Street, Pitt Street and St Crispin’s roundabout.
  - *The new modelling shows that in the beyond reasonable worst case ‘no policy applied’ scenario in 2031, exceedances of the annual mean NO<sub>2</sub> objective are only predicted at the northern side of New Botolph Street and on St Augustines Street. However, this is a worst-case scenario as improvements are expected with road vehicles meeting increasingly stringent Euro standards and the uptake of electric vehicles. The latter is modelled in a ‘policy applied’ scenario. Whilst this could be considered slightly optimistic as there is some uncertainty in the future emission factors applied, with the estimated annual mean concentrations forecasted to be very substantially below the objective in this scenario, it is highly likely that the objective will be met at all locations in 2031.*
- PM<sub>10</sub> particulate levels, for 2028 with the development, at all modelled locations exceed the current WHO guidelines although they would meet the current EU legislation.
  - *As stated, the concentrations for PM<sub>10</sub> meet the UK objectives as set out in the Air Quality Strategy.*

## Summary and Conclusions

23. Subject to those matters that may have been agreed with the Rule 6 Parties in advance of this Inquiry and subsequently included within a SoCG, my evidence proves conclusively that:
24. In accordance with WH7/1, the Application Site is in a sustainable and accessible location and would provide a range of travel choices for future residents and employees to use alternative modes, with less reliance on the use of private vehicles, in accordance with the NPPF 2019. This therefore results in the air quality impact of the development being minimised.
25. As outlined in the Council’s 2019 Annual Status Report, overall air pollutant concentrations within the Council’s Air Quality Management Area are falling and in 2018, only two locations exceeded the objective. Concentrations are predicted to continue to fall as a result of the uptake of measures outlined in NCC’s air quality action plan together with national policies to improve air quality.
26. The dispersion modelling shows that in a ‘without development’ and ‘no policy applied’ scenario, exceedances of the annual mean NO<sub>2</sub> objective are predicted on the northern side of New Botolph Street and at locations on St Augustines Street. At other locations however, the annual mean NO<sub>2</sub> objective is predicted to be met. At all locations the hourly NO<sub>2</sub>, annual PM<sub>10</sub> and daily mean PM<sub>10</sub> objective are predicted to be met. However, this is a conservative estimate, as improvements are expected as outlined above. In the ‘policy applied’ scenario, no exceedances of any of the objectives are predicted.
27. Even in the ‘with development’ and ‘no policy applied’ scenario, a negligible impact is predicted at the majority of locations when compared to the current site use. When compared to the ‘proxy re-use’ scenario, an improvement is predicted in the majority of locations.
28. NCC was correct not to raise an air quality objection to the redevelopment of this site as proposed.