VANGUARDIA

A BURO HAPPOLD COMPANY

Technical Note

Project	Goldthorpe - Air Quality Comments
Subject	Further Consultation Response
Project no	00052805
Date	8 August 2024

1   Introduction

This Technical Note (TN) has been prepared by Vanguardia on behalf of Equite Newlands (Goldthorpe) Ltd (the applicant) to address further comments (Ricardo ref: ED18432127) received in respect to Air Quality works undertaken for planning Ref: 2023/1105.

An Air Quality ES Chapter was submitted in December 2023 by Vanguardia. Ricardo, on behalf of Barnsley Metropolitan Borough Council (BMBC) undertook a review of this Chapter and provided comments in May 2024. Vanguardia, on behalf of the applicant, submitted a Technical Note (TN) (ref Air Quality VC-00052805-EN-RP-0001_TN_FINAL (hereafter referred to as the 'original TN')) responding to these comments in June 2024. Ricardo, on behalf of BMBC, responded with further comments on this TN (Ricardo ref: ED18432127) on 1st August 2024.

This TN sets out responses (where deemed to be required) to the comments received from Ricardo on behalf of Barnsley Metropolitan Borough Council (BMBC) on 1st August 2024.

This TN should be read in conjunction with the associated comments (which are set out in **Appendix A**).

2   Rebuttals

2.1   Development of Queries Raised in May 2024

The following queries were raised by Ricardo in the first review of the Air Quality ES Chapter, and have been addressed by Vanguardia. With regards to AQ1, AQ3 and AQ6, Ricardo have agreed on these points and therefore no further clarification is required. With regards to AQ4, AQ7 and AQ8, these have been addressed in an EIA Addendum produced by Stantec and are not set to be discussed further within this TN. The outstanding queries are AQ2 and AQ5.

2.1.1   AQ2

Ricardo's latest comments on AQ2 state:

> "Ricardo raised a query for the applicant to provide justification for using the meteorological site Doncaster Sheffield meteorological station. The applicant has now confirmed that although the Emley Moor meteorological station was most suitable, it was agreed with the EHO that Doncaster Sheffield should be utilized for the assessment scenario. An updated modelling has now been undertaken for 2023 using Emley Moor meteorological station. However, no justification has still been provided on why the site is considered representative of the meteorological conditions at the dispersion site. The applicant should confirm the distance away from the site, the height above sea level and any other parameters that can help justify that the met site is representative of the dispersion site. We have reviewed the meteorological site location, and provided that data capture is sufficient we agree that this choice of meteorological site is sensible"

Emley Moor meteorological station is ~ 26.9 km from the dispersion site. The meteorological station is ~ 268 m above sea level. The data capture for the relevant parameters is between 92.8% and 93.6%. In line with Paragraph 7.523 of TG22,

this sits above the minimum 85% required, and therefore it is deemed reasonable to assume this query is satisfied for both the applicant and BMBC sub-consultant.

2.1.2   AQ5

Ricardo's latest comments on AQ5 state:

> *"Ricardo raised a query for the applicant to take into consideration the stringent $PM_{2.5}$ target of $10\mu g/m^3$. The applicant has stated that "the $PM_{2.5}$ targets are central government targets primarily focusing on tackling emissions, rather than requiring local authorities to assess concentrations against these new $PM_{2.5}$ targets. In March 2023, the Department or Levelling Up Housing and Communities write to all Chief Planning Officers in England advising that guidance was progressing on how these targets should be integrated into the planning system but that until such guidance is published local authorities should continue to asse local air quality impacts in accordance with existing guidance. It is thus not appropriate to consider these new targets until such guidance has been published which at this time it is understood this guidance has not been released."*
> *The proposed guidance referred to by the applicant is expected to be specific to local authorities assessing whether they would meet the $PM_{2.5}$ targets based on the assessment of individual projects in the LA. Furthermore, it is important that the impact of a new scheme is considered in the context of whether it will be detrimental to the LA meeting these new $PM_{2.5}$ targets. Air quality professionals have the expertise to make this judgement based on the modelled concentrations. However, given that this is a future target, the LA has the discretion to decide if this should be considered for this and any upcoming planning applications."*

In further support of the points already set out in the original TN, the UK Air Quality Strategy (2023)[1] provides that the government expects local authorities to *"effectively use their powers to reduce $PM_{2.5}$ emissions from the sources which are within their control"* (pp.20-21). The Strategy references the legally binding targets set out in the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. However, it is important to note that the duty to comply with the those targets is on the Secretary of State as competent authority, not the Council as set out in the Environment Act 2021[2]. Consistent with the above, it is not deemed possible to model compliance with the more stringent $PM_{2.5}$ targets at a local level; these targets should be met via long-term monitoring, at a national level. This query has been left to be satisfied by the Local Authority (LA), and therefore cannot fully be satisfied by virtue of this TN, although it is agreed by Vanguardia and the applicant that the LA should adopt the aforementioned view.

2.2   Additional Queries Raised in August 2024

Six additional comments require addressing in line with comments received in August 2024 by Ricardo (ref: ED18432127) on behalf of BMBC. AQ9, AQ10 and AQ11 are recommendations which *"need to be resolved to provide evidence that receptors would not be exposed to poor air quality"*. Nonetheless, commentary is provided in order to further examine these points. AQ12, AQ13 and AQ14 are modelling queries which are also addressed below.

2.2.1   AQ9

AQ9 states:

> *"The applicant should provide the specification of the mechanical ventilation, its maintenance routine and the improvement in air quality expected from the mechanical ventilation device. Where this air quality improvement reveals that air quality impact would be reduced to a negligible impact, then no further work is required."*

Mitigation measures are discussed fully in the ES Addendum produced by Stantec, with the technical specification and efficiency of one option for mechanical ventilation that could be used is provided in **Appendix B**. Furthermore, additional mitigation measures have been proposed including Roadvent (supplied by Pollution Solution), which is a measure highlighted in the emerging Doncaster Air Quality Action Plan (AQAP) as set out in **Appendix C**. In both instances, it is considered that the implementation of these measures in Hickleton would lead to compliance with the NO_2 annual air quality standards at affected receptors. To note, with regards to the emerging AQAP, the measures outlined in this document are subject to their own regime of testing and it should be assumed that the measures will have passed some degree of efficiency checks before being formally adopted.

Technical specifications of the above technology are based on performance testing of the equipment and it is reasonable to assume they are accurate. This is not an exhaustive list of technologies which would help achieve compliance with the relevant air quality standards. The implementation of mitigation measures will be secured via the S106 agreement with BMBC.

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[1] Department for Environment, Food & Rural Affairs, 2023. *Air Quality strategy: framework for local authority delivery*.
[2] UK Public General Acts, 2021. *Environment Act 2021*.

2.2.2 AQ10

AQ10 states:
> *"The applicant should also confirm that there are no other receptors apart from John O Gaunts (R29 and R30) where non-negligible (i.e., slight, moderate or substantial adverse impacts) would occur. If there are, the proposed mitigation measures should also be applied to these receptors."*

As set out in the original TN, without consideration for cumulative impacts, the only receptors where non-negligible impacts would occur are R29 and R30, at John O Gaunts. However, with consideration of cumulative impacts, as set out in Table C.10 of the original TN, additional non-negligible (Slight) impacts are predicted to occur for NO_2 at receptors R11 and R12 (16 Barnsley Road), R22 (19 Garden Cottage), R26 (9 Barnsley Road) and R31 (also on John O Gaunts), totalling three properties, in addition to John O Gaunts.

With regards to proposed mitigation measures, while certain mitigation measures proposed would benefit the village of Hickleton as a whole (Roadvent technology, the proposed bypass and potentially the junction improvements), if mechanical ventilation was adopted as the primary mitigation measure, this would only be applied to receptors experiencing a substantial adverse impact and exceeding the annual mean objective for NO_2.

The EPUK & IAQM (2017) guidance[3] states "*Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact*". The guidance goes on to give an example of how significance could be judged:
> *"An individual property exposed to a moderately adverse impact might not be considered a significant effect, but many hundreds of properties exposed to a slight adverse impact could be."*

In the case of Hickleton, the judgment of a significant effect is solely determined by the Substantial adverse impacts at R29 and R30, and there is little to no contribution from additional Slight adverse impacts. With regards to mitigating these effects, the guidance states:

> *"In those circumstances where the assessment concludes that there will be a significant effect, then there is a requirement for mitigating these residual impacts, where this is feasible."*

It is therefore adjudged that, since the significant effect (and exceedance of the NO_2 annual mean objective) is restricted to one property (John O Gaunts), this is where mitigation measures should be focused, and proposed mitigation for the three additional receptors would not be necessary, although may still be achieved depending on the mitigation agreed.

2.2.3 AQ11

AQ11 states:
> *"Where the ventilation strategy is unable to achieve the appropriate reduction to achieve a negligible air quality impact, then further modelling studies should be undertaken based on traffic estimates of the proposed bypass and junction improvements to predict the air quality improvement from this additional mitigation."*

As set out in the ES Addendum produced by Stantec, further modelling studies regarding a proposed bypass and junction improvements are not possible. The benefits arising from these measures are self-evident and should an application be submitted for the bypass or junction improvements, a modelling study could be undertaken as part of this planning application to show how the works improved adverse air quality at affected receptors.

2.2.4 AQ12

AQ12 states:

> *"The applicant should provide a commentary on why the updated 2023 model is performing significantly worse than the original model at kerbside sites."*

As set out in Section 4.2.1 in the original TN, the updated verification process at kerbside sites considered the now relocated DT47. This monitoring location was previously located within the modelled street canyon, however has since moved to sit outside the street canyon, causing a reduction in the modelled road NO_x between the 2022 model and the 2023 model. This led to the increase in the adjustment factor as well as the Root Mean Squared Error (RMSE).

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[3] EPUK & IAQM (2017). *Land-Use Planning & Development Control: Planning for Air Quality*.

Nonetheless, as set out in Appendix B of the original TN, the modelled results in the kerbside verification are working within an acceptable margin of error, in line with TG22 and therefore no further adjustment was deemed to be required.

2.2.5 AQ13

AQ13 states:

> *"An explanation should be provided for why predicted baseline concentrations in 2026 are significantly lower using the updated model compared to the previous modelling."*

The modelled 2026 baseline concentrations in the 2023 modelling exercise have reduced for the majority of the residential receptors compared to the 2022 modelling exercise. It is considered this reduction is in line with the updated verification results, summarised in Section 4.2.1 and set out in full in Appendix B of the original TN. Since the majority of the residential receptors were classed as 'roadside', and the roadside adjustment factor reduced due to data not being available for automatic monitoring location CM7, the majority of the modelled residential receptors did indeed see a reduction in baseline concentrations. The exception to this was for receptors R29 and R30, which were classed as 'kerbside' receptors, and hence had the kerbside adjustment factor applied to the modelled road NO_x and resultantly saw an increase in modelled baseline concentrations.

Other factors did change between the modelling process, including using updated Emission Factor Toolkits (EFTs) and different meteorological data.

Further analysis has been undertaken to gain better understanding of the reductions between the two modelling exercises with regards to the different meteorological data used. A less significant prevailing southerly component was identified in the 2023 Emley Moor meteorological data compared to the 2022 Doncaster Sheffield Data. This conspired in a more notable reduction in roadside concentrations on the north side of the A635 (Average: 27%), while a more subtle reduction was noted at receptors on the south side of the A635 (Average: 5%).

The combination of these factors has driven the changes AQ13 refers to.

2.2.6 AQ14

AQ14 states:
> *"The applicant should confirm why the predicted change at the majority of sensitive receptors in the domain is significantly lower in the 2023 model than in the 2022 model. These changes affect the impact descriptor as per the significant assessment methodology outlined in the report."*

The reason for this is in line with the above response to AQ13. When modelled road NO_x was adjusted, the lower roadside adjustment factor narrows the predicted change between the 'Baseline' scenario and any 'with Development' scenario when adjusted modelled road NO_x goes through the relevant conversions to be calculated as NO_2. Again, the exception to this is where the kerbside adjustment factor is used, and in this instance the predicted change increases.

3 Conclusions

This TN has been produced to address the comments raised by the BMBC subconsultant, received in August 2024. The below summarises the queries raised and the responses made in this TN:

- AQ1, AQ3 and AQ6 are now agreed;

- AQ2 has been satisfied within this TN;

- AQ4, AQ7 and AQ8 are addressed in an ES Addendum produced by Stantec;

- AQ5 is left up to the discretion of the LA, although it is advised that they share the view of the applicant in this instance;

- AQ9, AQ10 and AQ11 have lead to additional commentary provided in this TN. These points are also inherently covered in the ES Addendum produced by Stantec; and

- AQ12, AQ13 and AQ14 are technical points which all revert back to the updated model verification process, which is adjudged to be robust and working within the realms of a reasonable margin of error

In line with the above, it is considered that between this TN and the ES Addendum produced by Stantec, all queries raised by the BMBC subconsultant have been satisfied, apart from AQ5 which is up to the discretion of the LA.

Appendix A – Consultation Comments

John Scott
Service Manager (Pollution Control) – Regulatory Services
Public Health Directorate
Barnsley Metropolitan Borough Council
PO Box 634
Barnsley
S70 9GG

Our reference: ED18432127

01 August 2024

Dear John,

Planning Application for Land to the south of Dearne Valley Parkway (23/02596/CON) – Review of Applicants' Response

Ricardo undertook a review of the of the Air Quality Chapters and associated appendices included within the Environmental Statements (ES) for Land to the south of Dearne Valley Parkway (Application Reference: 23/02596/CON) on behalf of Barnsley Metropolitan Borough Council (BMBC) on 2nd May 2024. In addition, the review also looked at the City of Doncaster Council (CDC's) response to the planning application to determine whether they have valid reasons which have led to the rejection to support the planning application.

Ricardo's review of the Air Quality ES identified eight issues and clarifications (referred to as AQ1 to AQ8) to be considered by the applicant.

The purpose of this letter is to review the applicants' response to the eight issues which they have provided in the Technical Note (TN) "*Air Quality VC-00052805-EN-RP-0001_TN_FINAL.pdf*" to confirm whether the issues have been suitably addressed and also provide recommendations with regards the conclusions of the report. This letter also reviews the updated 2023 modelling provided with the submission.

Review of Applicants' Response

AQ1

Ricardo raised a query for the applicant to clarify the surface roughness value used at the dispersion and meteorological site (AQ1). The applicant has confirmed the use of a SF for 0.5 at the dispersion site and SF of 0.2 at the meteorological site. These values are appropriate for the dispersion site (a semi urban location) and for the meteorological site (low lying grass). Therefore, no further clarification is required regarding this issue.

AQ2

Ricardo raised a query for the applicant to provide justification for using the meteorological site Doncaster Sheffield meteorological station. The applicant has now confirmed that although the Emley Moor meteorological station was most suitable, it was agreed with the EHO that Doncaster Sheffield should be utilized for the assessment scenario. An updated modelling has now been undertaken for 2023 using Emley Moor meteorological station. However, no justification has still been provided on

why the site is considered representative of the meteorological conditions at the dispersion site. The applicant should confirm the distance away from the site, the height above sea level and any other parameters that can help justify that the met site is representative of the dispersion site. We have reviewed the meteorological site location, and provided that data capture is sufficient we agree that this choice of meteorological site is sensible.

AQ3

Ricardo raised a query for the applicant to clarify the source of the background data used for the ecological receptors. The applicant has confirmed that the data was sourced from Air Pollution Information System (APIS) provided by JNCC. This is a reputable data sources and as such no further clarification is required.

AQ5

Ricardo raised a query for the applicant to take into consideration the stringent $PM_{2.5}$ target of 10 μg/m^3. The applicant has stated that " *the $PM_{2.5}$ targets are central government targets primarily focusing on tackling emissions, rather than requiring local authorities to assess concentrations against these new PM2.5 targets. In March 2023, the Department or Levelling Up Housing and Communities write to all Chief Planning Officers in England advising that guidance was progressing on how these targets should be integrated into the planning system but that until such guidance is published local authorities should continue to asse local air quality impacts in accordance with existing guidance. It is thus not appropriate to consider these new targets until such guidance has been published which at this time it is understood this guidance has not been released.*"

The proposed guidance referred to by the applicant is expected to be specific to local authorities assessing whether they would meet the $PM_{2.5}$ targets based on the assessment of indiviudal projects in the LA. Furthermore, it is important that the impact of a new scheme is considered in the context of whether it will be detrimental to the LA meeting these new $PM_{2.5}$ targets. Air quality professionals have the expertise to make this judgement based on the modelled concentrations. However, given that this is a future target, the LA has the discretion to decide if this should be considered for this and any upcoming planning applications.

AQ6

Ricardo raised a query for the applicant to clarify the source of power and heating of the development. The applicant has responded that the heating technology to be used will be a combination of Air Source Heat Pumps (ASHPs), Electric Heaters and Solar Photovoltaic (PV). It is agreed that none of these technologies have any emissions associated with them and as such no air quality impacts are likely, therefore no further clarification is required.

AQ4, AQ7 and AQ8

Ricardo raised the following queries:

- The applicant should undertake further modelling studies of the proposed mitigation measures to **confirm that the impacts would become "negligible"**. It is recommended that the ecological assessment of air quality impact's is reviewed by Barnsley's Ecologist to confirm an adequate assessment has been undertaken (AQ4).
- The applicant should undertake further modelling studies of the proposed mitigation measures to confirm that **cumulative impacts** would be negligible (AQ7).
- The applicant should conduct a more robust study of the effects of mitigation measures and then provide an overall **significance of the impact** of the development based on the outcome of this study (AQ8).

The applicant has provided a mitigation strategy in response to the impacts at the ecology sites and human receptors, however no modelling has been undertaken based on the proposed junction improvement or bypass to demonstrate the extent of air quality improvement expected to be achieved. Cumulative impacts and the signfcance of impacts have also not been re-assessed.

The applicant has undertaken an updated air quality modelling assessment using 2023 traffic data and provided an updated the model verification exercise using 2023 monitoring data. The updated modelling results do not change the conclusions of the previous modelling assessment with regards to the signfcance of impacts of the scheme alone and in combination with cumulative developments

at John O Gaunts, as substantial impacts are still predicted. However, slight and moderate adverse impacts are no longer predicted at other sensitive receptors in Hickleton.

The mitigation strategy provided in the TN is specific to John O Gaunts and assumes that mechanical ventilation is viable. However, the mechanical ventilation system proposed, its maintenance strategy and the effectiveness of this to reduce concentrations such that the air quality impact would become negligible has not yet been established.

BMBC and Natural England have provided a response on the air quality impacts at the ecological sites and their view is that appropriate mitigation should be secured via planning conditions to ensure minimal impact on sensitive habitat. This is agreed.

Review of updated modelling

The applicant's response includes updated modelling for 2023. This modelling includes the following changes:

- The version of the Emission Factor Toolkit used has been updated to v12.
- Meteorological data for 2023 has been taken from the Emley Moor site.
- Traffic flows have been updated using growth factors derived from nearby DfT traffic counts.
- An updated model verification has been carried out using available monitoring data for 2023.

The resulting effects on the results of the modelling exercise can be summarised as follows:

- The kerbside adjustment factor (used at R29 and R30 where a "substantial" adverse impact is predicted in the operational phase of the proposed site) has increased from 2.5 to 2.9. The RMSE for this adjustment factor has increased substantially (from 4.4 μg.m^{-3} to 8.3 μg.m^{-3}), suggesting that the updated model is performing substantially worse than the 2022 model at kerbside sites.
- The roadside adjustment factor (used for the majority of sensitive receptors) is reduced from 1.8 μg.m^{-3} to 1.5 μg.m^{-3}. The new model adjustment factor has been calculated using measurements from a single monitoring site, DT46, rather than 2 sites as in the original modelling which included results from CM7. As a result, it is no longer possible to assess the performance of the model at roadside sites.
- Baseline predicted annual mean NO_2 concentrations are substantially lower at all sensitive receptors.
- The predicted change in concentrations resulting from the implementation of the proposed scheme on annual mean NO_2 concentrations is lower at the majority of receptors.
- The combined impact of these effects is to reclassify impacts from the proposal as 'Negligible' at 7 sensitive receptors.

Results for these receptors in the 2022 and 2023 based models are summarised in Table 1.

Table 1: Predicted annual mean concentrations in the original submission and the 2023 model update

Receptors	2022 model (Table G.1)				2023 model (Table C.7)			
	2026 Baseline	2026 Base + Op	Conc. increase	Impact Descriptor	2026 Baseline	2026 Base + Op	Conc. increase	Impact Descriptor
R06	24.2	26.4	2.22	Slight	18.1	19.4	1.3	Neg.
R11	29.4	32.3	2.87	Mod.	23.6	25.7	2.1	Neg.
R12	26.9	29.3	2.49	Slight	21.3	23.0	1.7	Neg.
R22	26.1	28.4	2.37	Slight	21.2	22.9	1.7	Neg.
R23	25.0	27.2	2.20	Slight	20.4	22.0	1.6	Neg.
R28	25.8	28.1	2.24	Slight	20.4	21.9	1.5	Neg.
R29	55.1	60.2	5.09	Sub.	57.6	63.4	5.8	Sub.
R30	50.7	55.3	4.69	Sub.	53.2	58.5	5.3	Sub.
R31	27.6	30.1	2.51	Slight	21.7	23.4	1.7	Neg.

It is unlikely that the change in EFT version, meteorological data and adjustment factor are likely to be sufficient to explain this change, which substantially alters the conclusions of the study. Therefore, additional issues and clarifications have been made to the original eight issues (AQ1 to AQ8). These are summarised in the recommendations below.

Recommendations

AQ 9 - The applicant should provide the specification of the mechanical ventilation, its maintenance routine and the improvement in air quality expected from the mechanical ventilation device. Where this air quality improvement reveals that air quality impact would be reduced to a negligible impact, then no further work is required.

AQ10 - The applicant should also confirm that there are no other receptors apart from John O Gaunts (R29 and R30) where non-negligible (i.e., slight, moderate or substantial adverse impacts) would occur. If there are, the proposed mitigation measures should also be applied to these receptors.

AQ11 - Where the ventilation strategy is unable to achieve the appropriate reduction to achieve a negligible air quality impact, then further modelling studies should be undertaken based on traffic estimates of the proposed bypass and junction improvements to predict the air quality improvement from this additional mitigation.

AQ12 - The applicant should provide a commentary on why the updated 2023 model is performing significantly worse than the original model at kerbside sites.

AQ13 – An explanation should be provided for why predicted baseline concentrations in 2026 are significantly lower using the updated model compared to the previous modelling.

AQ14 - The applicant should confirm why the predicted change at the majority of sensitive receptors in the domain is significantly lower in the 2023 model than in the 2022 model. These changes affect the impact descriptor as per the significance assessment methodology outlined in the report.

Conclusions

It is considered that the applicant's Technical Note provides responses to some of the issues, however there are still several outstanding issues which would need to be addressed.

AQ2 and **AQ5** are outstanding low priority and medium priority issues, respectively that need further clarification.

In conclusion, to resolve the high priority issues **AQ4, AQ7** and **AQ8** which are still outstanding, we have made the additional recommendations **AQ9, AQ10** and **AQ11** (if necessary), which need to be resolved to provide evidence that receptors would not be exposed to poor air quality.

The applicant has not explained what the significance of the impacts of the scheme would be based on the revised modelling results. There are also queries (**AQ12, AQ13** and **AQ14**) about why there is a significant change in the signfance of impact at several receptors. As such the conclusions of the assessment would need to be revisited once the above clarifications have been addressed.

Yours sincerely,

Angela Goodhand

Principal Consultant

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Email: ███████████████████

Appendix B – AAC Eurovent Technical Specification

AAC NITROSORB®

INDOOR AIR NO$_2$ FILTRATION SYSTEMS

Residential

Commercial

Educational

Indoor Air Quality Solutions for Residential Properties, Schools, Universities and Commercial Buildings

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Indoor Air NO₂ Filtration Systems

The European Union Air Quality and Clean Air for Europe 2008/50/EC (CAFE) Directive set stringent NO_2 levels for designated Air Quality Management Areas.

At AAC Eurovent we design and manufacture cutting edge NOx filters.

AAC NITROSORB® filters provide planners, developers and mechanical consultants with an effective and sustainable NO_2 mitigation solution for indoor air projects in new build and retrofit residential, commercial and educational schemes, where NO_2 concentrations exceed the accepted level of $40ug/m^3$

Our high performance solutions offer a number of key benefits;

- Suitable for residential, commercial and educational applications
- Suitable for both new build and retrofit schemes
- Widely accepted by planners in Air Quality Management Areas
- Recommended for use by leading UK air quality consultants
- Routinely specified by mechanical consulting engineers
- Solutions available to suit both Mechanical Ventilation Heat Recovery systems and centralised Air Handling plant
- Offer a very low pressure drop
- Can be supplied in both horizontal and vertical air flow orientations
- Range of standard units available to suit most applications
- Bespoke design service also available
- Compatible with the AAC Colourcell® media filter system
- Transparent viewing panel for ease of inspection
- Available in either Plain Galvanised or Electric Powder Coat finish

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Indoor Air NO_2 Mitigation for Mechanical Ventilation Heat Recovery Units

For residential apartments where individual ventilation systems are connected to an MVHR system, we recommend the AAC Swiftpack® NITROSORB® filter system.

AAC Swiftpack® NITROSORB® Filter System

The AAC Swiftpack® NITROSORB® filter system incorporates AAC NITROSORB® media into the AAC PR™ range of media filter cells.

This compact, high performance solution is suitable for both horizontal and vertical airflows, is designed for use with a wide a range of volume flow rates, and can be accommodated in a false ceiling void as low as 100mm.

The units meet the low pressure drop requirements of MVHR units installed under part F of the Building Regulations and when situated downstream from the MVHR (recommended) offers the benefit of longevity, alongside low pressure drop, with no increased energy consumption from the indoor ventilation system.

PM10 or PM2.5 particulates can also be easily removed by the installation of a suitably rated particulate pre-filter, thus enabling the unit to comply with the particulate aspect of the legislation.

Features & Benefits

- Independently MCERTS tested and verified
- Accepted by planners as an AQMA NO_2 mitigation measure
- Compatible with MVHR units
- G3 after-filter fitted as standard
- Optional PM10/PM2.5 filter can be installed into the unit
- Smart remote system monitoring available
- Compact design, allowing for easy installation
- Bespoke design service available

NO_2 Mitigation for Commercial and Educational Schemes with Air Handling Units

The AAC NITROSORB® filter system can easily be installed into an AAC Swiftkit® or an AAC Skeleton™, to meet the requirements of larger commercial and educational buildings served by AHUs.

These units can then be connected to the AHU, or if space allows, fitted within it.

AAC Swiftpack® NITROSORB® Filter System with Colourcell®

Our unique AAC Colourcell® media filter system is designed to save time and money by providing end users and maintenance technicians with a clear indication of the status of the NITROSORB® media and notification when the media replacement should be carried out.

AAC Colourcell is a patented, transparent filter cell containing a media formulated to react to changes in the condition of installed AAC NITROSORB media, by undergoing a series of visible changes in appearance from white (new media) to pink (spent media). Our units feature a transparent viewing panel for ease of inspection.

The result can be further verified by analysis of a media sample in the laboratory.

COLOURCELL®
MEDIA FILTER SYSTEM
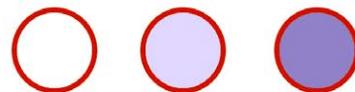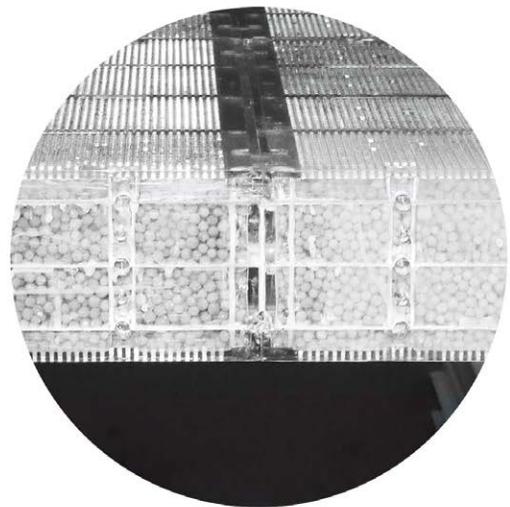
AAC EQUINOX® - NO$_2$ Monitoring & Data Acquisition

AAC EQUINOX® is a NO$_2$ monitoring & data acquisition solution designed to work seemlessly with the AAC Swiftpack® NITROSORB® filter system, continuously measure the efficiency and performance in reducing indoor air levels of NO$_2$. In addition to the monitoring of NO$_2$, AAC EQUINOX® has the capability to monitor: carbon monoxide, temperature, relative humidity and noise.

The Limitations of Conventional NO2 Monitoring

Low data resolution (monthly data from diffusion tubes) and prohibitive costs have rendered conventional air quality monitoring techniques unsuitable for the continuous monitoring of NITROSORB® filter efficiency. AAC EQUINOX® has been developed as a bespoke solution to deliver a continuous monitoring system that offers planners and end users a low cost, reliable and accurate way to continuously measure the efficiency and performance of installed AAC Swiftpack® NITROSORB® filter systems.

About the AAC Swiftpack® NITROSORB® Filter System

The AAC Swiftpack® NITROSORB® filter system is a unique NO$_2$ mitigation solution designed to assist developers, planning consultants, consulting engineers and local authority planning departments to comply with the **EU Directive 2008/50/EC (the CAFE Directive) European Union Air Quality and Clean Air for Europe 2008.**

The role of AAC NITROSORB® in NO$_2$ reduction is well established, and the solution is regularly specified by consulting engineers for residential, school and commercial projects in Air Quality Management Areas where there is a planning requirement to mitigate NO$_2$ from the indoor air.

What is EQUINOX®?

AAC EQUINOX® is a wireless NO_2 monitoring system which operates using an electro-chemical NO_2 sensor on the filter discharge. A second optional sensor can also be fitted on the filter inlet if required.

How Does EQUINOX® Work?

AAC EQUINOX® is designed to communicate over a wireless ZigBee protocol. The EQUINOX® units can be deployed in a network, or mesh which only requires a single gateway hub to communicate data from the entire network back to the central server.
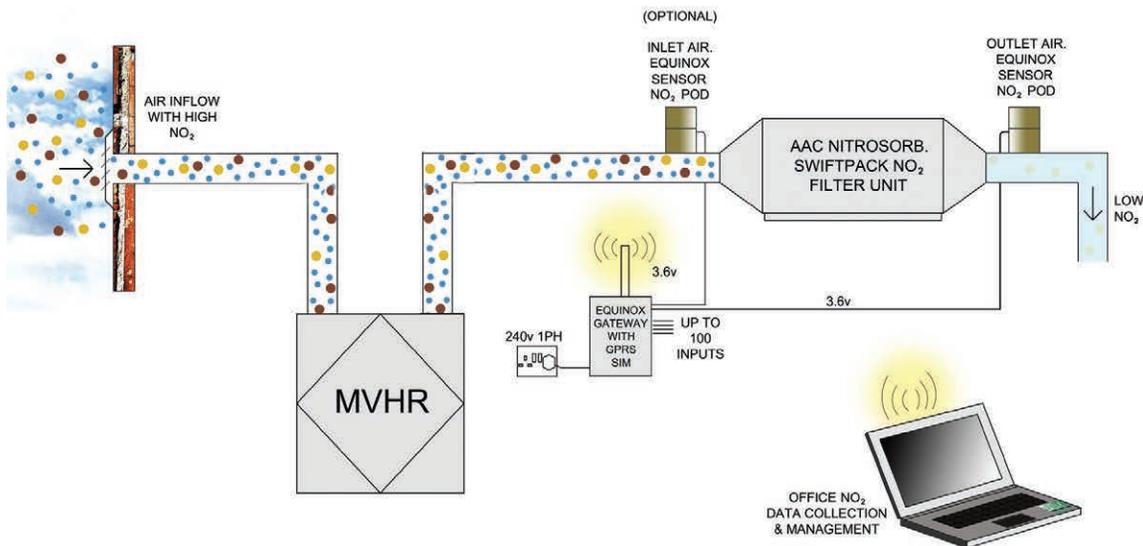
The schematic drawing above illustrates how EQUINOX® is positioned to provide end users with the critical information needed to measure the efficiency and performance of their installed AAC Swiftpack® NITROSORB® filter system.

Why choose the AAC EQUINOX®?

● A high quality, accurate, low cost solution with low maintenance and running costs
● Simple to install and easy to understand
● Remote analysis with set point alarm providing media replacement alerts
● Provides reliable assurance to end users that the filters are performing well and protecting them

AAC EQUINOX® and AAC COLOURCELL®

AAC EQUINOX® is designed for use in conjunction with the AAC COLOURCELL® media filter cell technology, which offers end users an important visual indication of the condition of the installed NITROSORB® media. In practice these changes take place over a 2-5 year period, but by monitoring changes in the appearance of the COLOURCELL® filter media, end users and maintenance personnel are able to easily determine when the NITROSORB® filter media may require to be changed, by way of a transparent viewing panel included in our NIROSORB® filter units.

AAC EQUINOX® is available either for purchase or very affordable low cost hire.

Case Study

Location: Brentford, London, 7th Floor Building, off the A40
AAC EQUINOX® Assessment Period: 3/9/2015 -18/9/2015

The Problem

Continuous poor air quality in this area, with spikes in excess of 200ug/m³.

The Solution

A large AAC Swiftpack® NITROSORB® system was installed on the roof of the property, in conjunction with an AAC EQUINOX® system.

The red line in the graph overleaf represents the inlet/upstream concentration and the blue line shows the downstream concentration after the AAC Swiftpack® NITROSORB® filter unit.

The horizontal line indicates the 40ug/m³ acceptable limit, and the pink line represents exceedance for a short period of time where the AAC Swiftpack® NITROSORB® filter unit passes air above the 40ug/m³ NO_2 level, due to some extraordinarily high spikes in the overall air quality.

The Result

The average inlet concentration is 70.4ug/m³ and the average downstream concentration is 17.3ug/m³ demonstrating a filter efficiency of 75.43%.

AAC EQUINOX® NO$_2$ Monitoring & Data Acquisition

The effectiveness of AAC EQUINOX® in monitoring of the AAC Swiftpack® NITROSORB® filter system is clearly demonstrated in the graph below.

AAC Eurovent EQUINOX® Assessment 3/19/15 - 18/9/15

Legend	
Pre-filter	After Filter
Annual Average Legal Limit	Hourly Total Legal Limit
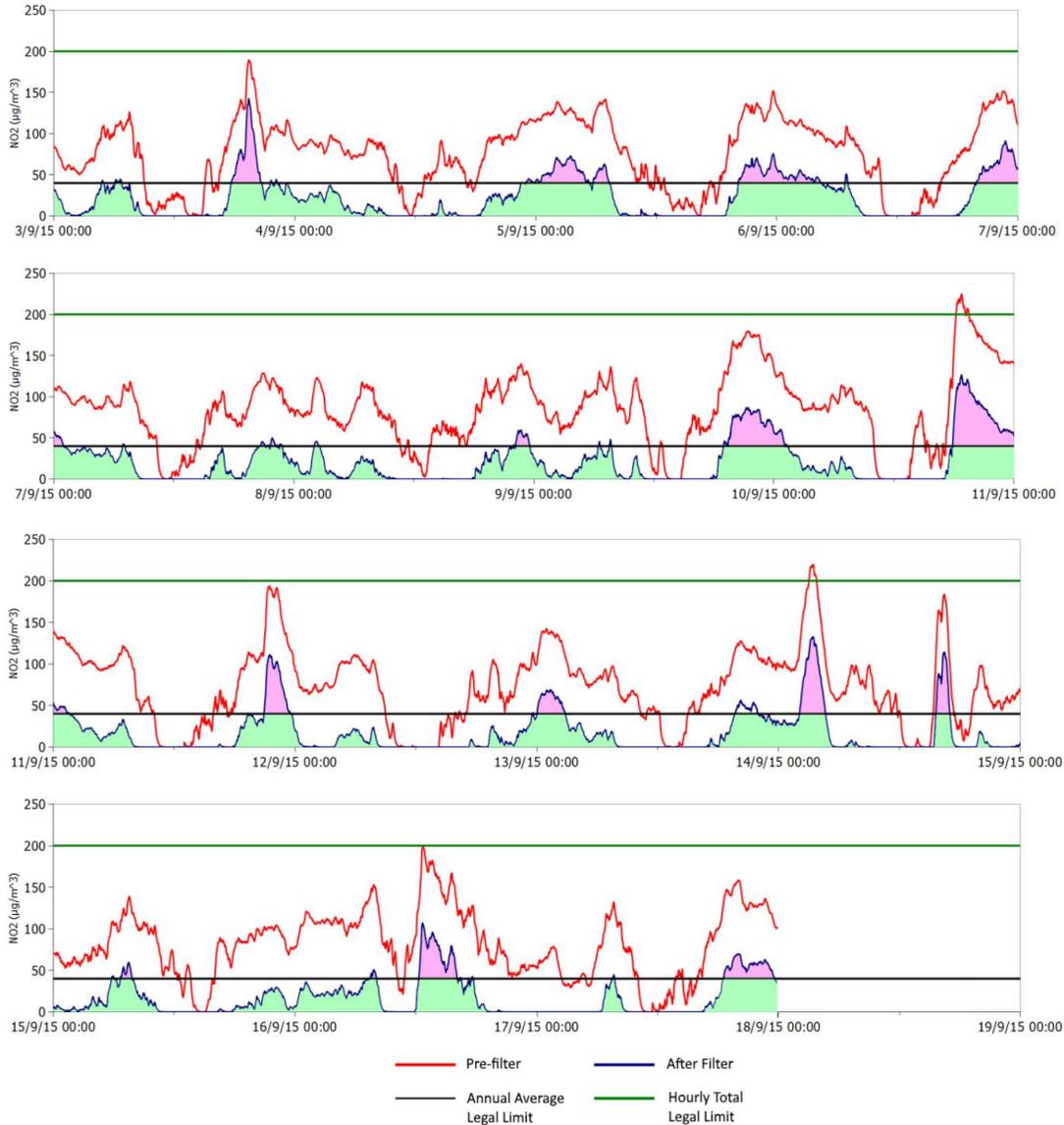
	Before Filter	After Filter
Study Mean Average (µg/m³)	70.4	17.3
Exceedances of 200µg/m³ Hourly Averaged	2	0
Filter Efficiency (%)	75.43	

To find out more about the role of AAC NITROSORB® and AAC EQUINOX® in NO$_2$ mitigation, call: 0800 999 4884
or email: sales@aaceurovent.co.uk

Appendix C – Emerging Doncaster Air Quality Action Plan

City of Doncaster Council

Air Quality Action Plan

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

30th June (2023)

Table 5.1 – Air Quality Action Plan Measures

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
1	Clean Air Feasibility Study	Promoting Low Emission Transport	Low Emission Zone (LEZ) or Clean Air Zone (CAZ)	2023	2023 - 2024	Doncaster Council – Pollution Control	Doncaster Council	No	Not funded	£10k - £50k	Planning	High	TBC	Study carried out in AQMA 7, required for AQMA 2	Funding allocation required
2	Investigate Roadvent	Transport Planning and Infrastructure	Other	2023	2023 - 2024	Doncaster Council – Pollution Control	Doncaster Council	No	Not funded	<£10k	Planning	High	TBC	Discussions taking place with supplier to assess feasibility	New product with no current installs on running highway
3	Investigate Removing Receptors	Public Information	Other	2023	2023 - 2032	Doncaster Council	Doncaster Council	No	Not funded	£1 million - £10 million	Planning	None	None	None	Public perception.
4	Cycling strategy	Promoting Travel Alternatives	Promotion of Cycling	Adopted 2013	2023 / Ongoing	Doncaster Council - Transportation	Transforming Cities Fund – DfT Sustrans - DfT	No	Funded	>£10 million	Implementation	Low	1. Increase the number of people cycling and the number of journeys by cycle 2. Improve health and reduce health inequalities by introducing cycling into everyday life	Delivered £430k improvement to 1.6km of Trans Pennine trail in past 12 months.	
5	Enhanced Bus Partnership	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low	2016	2026	Doncaster Council – Transportation SYMCA Bus Operators	Doncaster Council – Transportation SYMCA Bus Operators	No	Funded	£380k - £5m	Implementation	Low	•Reduce and limit traffic congestion and thereby air pollution	Introduction of £2 flat fare. Electric bus scheme across South Yorkshire which will see one or two buses	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
			emission vehicles			South Yorkshire Local Authorities	South Yorkshire Local Authorities						through investment in higher Euro Engine specifications •Providing a high quality choice for those with use of a car •Reducing environmental impact.	running between Doncaster and Rotherham currently on order at the moment. Marketing Campaign to increase bus patronage. Bus priority measures to reduce bus journey times and improve reliability	
6	Walking strategy	Alternatives to private vehicle use	Other	2019 / 2023	2023 / ongoing	Doncaster Council - Transportation	Doncaster Council	No	Funded	£10k - £50k	Implemented	Low	To improve the quality of where people walk People feel safer walking Walking is an enjoyable way to discover Doncaster Make walking the first choice for short journeys	Refresh of the strategy going to tender 2023 Walking groups have continued with new ones set up for people to gain confidence. Travel planning is offered free of charge via the Active Travel Hub for people who wish to move from car travel to walking to work	

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
7	Alternative fuelled infrastructure	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	Ongoing	Doncaster Council	Community Renewal Fund	No	Funded	£150k investment to date. Further £50k allocated.	Planning	High	None	https://www.betatechnology.co.uk/doncaster-hydrogen-hub	
8	Council Fleet Improvements	Vehicle Fleet Efficiency	Other	2018	2030	Doncaster Council	Doncaster Council	No	Funded	£1 million - £10 million	Implementation	Low	% Fleet Diesel %Fleet Petrol % Fleet ULEV %Fleet Hybrid	47 Electric vehicles acquired replacing diesel vehicles. 3 additional vehicles on order. 42 charging bays currently in operation for Council fleet, with 24 being installed/awaiting installation.	Fleet renewal plan in place aiming to replace at least 600 vehicles with electric alternative before 2030
9	Taxi licensing regime policies to encourage cleaner taxi fleets	Promoting Low Emission Transport	Taxi Licensing conditions	2023	Ongoing	Doncaster Council - Licensing	Doncaster Council	No	Unfunded	<£10k	Planning	Low	% increase in Euro VI and ULEV taxis licensed by Doncaster Council.	None	
10	Hickleton/Marr Bypass	Transport Planning and Infrastructure	Other	2020	Ongoing	Doncaster Council SYMCA	SYMCA	No	Unfunded	>£10 million	Planning	High	Reduction in traffic through AQMA	Initial investigations have been completed.	Funding required