East Midlands Gateway
Phase 2 (EMG2)

Document DCO 6.8/MCO 6.8

ENVIRONMENTAL STATEMENT

Main Statement

Chapter 8

Air Quality

April 2026

08

The East Midlands Gateway Phase 2 and Highway Order 202X and The East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

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The East Midlands Gateway Phase 2 and Highway Order 202X and the East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

CHAPTER 8 – AIR QUALITY

(DOCUMENT DCO 6.8/MCO 6.8)

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0	October 2025	Submission
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8. Air Quality

Contents

8.1. Introduction

8.1.1. This Chapter considers the likely significant environmental effects of the EMG2 Project on local air quality. In particular it considers the potential effects of construction phase dust, and construction and operational phase road traffic emissions at existing and future receptor locations. The assessment is based on the project description set out in **Chapter 3: Project Description** (**Document DCO 6.3/MCO 6.3**), including the development parameters set out in **Table 3.5** of that Chapter.

8.1.2. During site clearance and construction activities, temporary impacts may arise from the emission of air pollutants and dust. During both the construction and occupation phase(s), vehicular traffic and emissions from stationary plant has the potential to lead to changes in the total air quality concentrations at both human and ecological receptors.

8.1.3. The impact assessments of vehicular emissions and dust focuses on air pollutants that are likely to arise from the construction and occupation of the EMG2 Project.

8.1.4. For human receptors, these pollutants are nitrogen dioxide (NO_2), particulate matter in the 10 µm and 2.5 µm size fractions (PM_{10} and $PM_{2.5}$) and dust.

8.1.5. For ecological receptors, these pollutants are oxides of nitrogen (NO_x), Ammonia (NH_3) and dust, as well as nitrogen deposition and acid deposition.

8.1.6. In brief the EMG2 Project comprises three main components as follows:

Table 8.1: The EMG2 Project Components

Main Component	Summary of Component	Works Nos.
DCO Application made by the DCO Applicant for the DCO Scheme		
EMG2 Works	Logistics and advanced manufacturing development located on the EMG2 Main Site south of East Midlands Airport and the A453, and west of the M1 motorway. The development includes HGV parking and a bus interchange. Together with an upgrade to the EMG1 substation and provision of a Community Park.	DCO Works Nos. 1 to 5 including relevant Further Works as described in the draft DCO (**Document DCO 3.1**). DCO Works Nos. 20 and 21 including relevant Further Works as described in the draft DCO (**Document DCO 3.1**).
Highway Works	Works to the highway network: the A453 EMG2 access junction works (referred to as the EMG2 Access Works); significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements), works to the wider highway network including the Active Travel Link, Hyams Lane Works, Works to Long Holden, L57 Footpath Upgrade, A6 Kegworth Bypass/A453	DCO Works Nos. 6 to 19 including relevant Further Works as described in the draft DCO (**Document DCO 3.1**).

Main Component	Summary of Component	Works Nos.
	Junction Improvements and Finger Farm Roundabout Improvements.	
MCO Application made by the MCO Applicant for the MCO Scheme		
EMG1 Works	Additional warehousing development on Plot 16 together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.	MCO Works Nos. 3A, 3B, 5A, 5B, 5C, 6A and 8A in the draft MCO (**Document MCO 3.1**).

8.1.7. In recognition that this chapter forms part of a single ES covering both the DCO Scheme and the MCO Scheme, it makes a clear distinction between the component parts and, consistent with the dual application approach**,** separately assesses the impacts arising from:

i. The DCO Scheme (Section 8.5);

ii. The MCO Scheme (Section 8.6);

iii. The EMG2 Project as a whole, comprising the DCO Scheme and MCO Scheme together (Section 8.7); and

iv. The EMG2 Project as a whole in combination with other planned development (i.e. the cumulative effects) (Section 8.8) using the list of projects identified in **Appendix 21B** to **Chapter 21: Cumulative Impacts (Document DCO 6.21B/MCO 6.21B).**

8.1.8. The following Appendices accompanying this Chapter are:

- **Appendix 8A: Model Verification (Document DCO 6.8A/MCO 6.8A);**
- **Appendix 8B: Dust Risk Assessment Methodology (Document DCO 6.8B/MCO 6.8B)**;
- **Appendix 8C: Modelled Human Receptor Locations (Document DCO 6.8C/MCO 6.8C)**;
- **Appendix 8D: Modelled Ecological Receptor Locations (Document DCO 6.8D/MCO 6.8D)**;
- **Appendix 8E: Diffusion Tube Monitoring Programme (Document DCO 6.8E/MCO 6.8E)**;
- **Appendix 8F: Traffic Data (Document DCO 6.8F/MCO 6.8F)**;
- **Appendix 8G: Human Receptor Concentrations and Impacts (Document DCO 6.8G/MCO 6.8G)**;
- **Appendix 8H: Ecological Receptor Impacts (Document DCO 6.8H/MCO 6.8H)**; and
- **Appendix 8I: Mitigation (Document DCO 6.8I/MCO 6.8I)**

8.2. Scope and Methodology of the Assessments

8.2.1. The Scope and Methodology of the Assessments are common to both the DCO Application and the MCO Application.

Scope

8.2.2. The scope of this Chapter includes the assessments of the air quality for the component parts of the EMG2 Project that are detailed within **Chapter 1: Introduction (Document DCO 6.1/MCO 6.1)** and **Chapter 3: Project Description (Document DCO 6.3/MCO 6.3)**. As previously highlighted the EMG2 Project is broken down into:

- DCO Application/Scheme
    - the EMG2 Works: Logistics and advanced manufacturing development located on the EMG2 Main Site together with the provision of a community park, HGV parking, a bus interchange, and an upgrade to the EMG1 substation;
    - the Highway Works: Works to the highway network: the A453 EMG2 access junction works; significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements) and works to the wider highway network including active travel works.
- MCO Application/Scheme:
    - the EMG1 Works which in summary provide for additional warehousing development within Plot 16 of the EMG1 site together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.

8.2.3. Although the potential effects of the EMG2 Project are to be assessed for both the DCO Scheme and MCO Scheme separately and then together, the traffic associated with the MCO Scheme is negligible as set out in **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6**) and it is not feasible to split out the traffic from the traffic data provided for the EMG2 Project. This is further discussed in the Limitations and Assumption Section of this Chapter.

Scoping Opinion

8.2.4. A Scoping Opinion request was submitted in August 2024. A response was adopted by PINS on 24th September 2024 **(Document DCO 6.1D/ MCO 6.1D)**. The comments relating to air quality highlighted within the Scoping Opinion from PINS are set out in **Table 8.2**.

Table 8.2: Planning Inspectorate and Consultee Comments from EIA Scoping Opinion in Relation to Air Quality (September 2024)

Originator	Details	Response to Matter Raised
PINS ID: 3.4.2	*The extents of the study area has not yet been defined. The ES should include a figure depicting the affected road network and the air study area for construction and operation. The extent of the study area should be discussed and, where possible, agreed with relevant consultation bodies.*	The study area has been defined and screened against the relevant Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) guidance[1] screening criteria.
PINS 3.4.3	*The Scoping Report refers to two Air Quality Management Areas (AQMAs) in North West Leicestershire District. The ES should clearly set out and justify the choice of the selected AQMAs included for assessment. The ES should consider impacts on any AQMAs which are located in different local authority areas where relevant (with reference to the affected road network). This should include consideration of the Coalville AQMA.* *The ES should detail of all of the sensitive receptors identified for inclusion within the assessment and depict these on a plan. All receptors included within the assessment should be agreed with relevant consultation bodies, where possible.*	The study area has been defined and screened against the relevant EPUK & IAQM guidance[2] screening criteria. The modelling receptor locations are shown at **Appendix 8C** and **Appendix 8D**. Receptor locations were scoped with EHOs at each of the relevant local authorities. Where the local authorities responded, there was broad agreement that the receptor locations were deemed appropriate and represented reasonable worst case locations for potential air quality impacts.
PINS 3.4.4	*The Scoping Report refers to modelling sites which are located in the vicinity of the Proposed Development. The ES should explain why these locations are representative of air quality conditions at the site. Details of any additional monitoring data should be included within the ES. These data should be as up to date as possible and represent the area contained within the red line boundary and surrounding affected road network*	Details of the locations of the baseline NO_2 monitoring survey are provided in this Chapter and full details of the annualisation and bias adjustment process for the monitoring are provided in **Diffusion Tube Monitoring Programme (Document DCO 6.8E/MCO 6.8E)**. These locations were agreed with the EHO at NWLDC.
PINS 3.4.5	*The ES should consider the effects from increases in traffic as well as from changes to traffic movements.*	The traffic data to inform this ES chapter will be extracted from the Pan Regional Transit Model (in line with **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6**).

[1] Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017). Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London.

[2] Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017). Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London.

Originator	Details	Response to Matter Raised
		The Pan Regional Transit Model considers the increase in traffic movements and any redistribution of traffic.
PINS 3.4.6	*The ES should also include consideration of the suitability of the site for the development proposed, having regard to air quality impacts of nearby uses.*	The national air quality standards considered for planning are not normally applicable to workplaces or locations where the public does not have regular access. As the EMG2 Project is proposed for commercial use, these standards do not apply to the EMG2 Project. However, consideration has been included within this Chapter.
PINS 3.4.7	*The Inspectorate notes reference to considering the three elements of the Proposed Development separately in the assessment. The ES should set out and justify the approach taken and ensure that a worst-case assessment is provided.*	The traffic assessment scenarios will be in line with **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6**).
PINS 3.4.8	*The ES should include an assessment of air quality effects on ecological receptors, including Lockington Marshes Site of Special Scientific Interest, Attenborough Gravel Pits SSSI, March Covert Ancient Woodland and veteran and ancient trees. Appropriate cross reference should therefore be made with the ES ecology and biodiversity assessment.*	This Chapter considers the potential impacts of the EMG2 Project on identified designated ecological sites where these are located within the identified distances of the affected road network in accordance with DMRB[3] and Natural England[4] guidance and if the Project Ecologist confirms that sensitive features are present within the defined distances. Where required, the assessments will consider nitrogen and acid deposition. The results of the assessments have been passed to the Project Ecologist for consideration and measures to mitigate road traffic emissions will be detailed, where applicable, in **Chapter 9: Ecology (Document DCO 6.9/MCO 6.9)**.
Environment Agency	*Requesting the use of Non-Road Mobile Machinery with a net rating power of 37kW to 560kW.*	Further advice on this is set out in this Chapter and a consideration of this will be made within the Construction

[3] Highways Agency (2024). Design Manual for Roads and Bridges (DMRB), LA 105. Air Quality (Vertical Barriers).

[4] Natural England (2018). Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001), H.M Government, York.

Originator	Details	Response to Matter Raised
		Environmental Management Plan (CEMP).
Leicestershire County Council	*Requesting the cumulative impacts during both construction and operational phases, and also the consideration of the impacts on the more vulnerable population.* *A request has also been made to consider the potential impacts of the NWLDC AQMA's*	These points have been considered in this Chapter. Any impacts on the more vulnerable population will be cross refenced with the Equality Assessment within **Chapter 17: Population and Human Health (Document DCO 17.6/MCO 17.6)**.
National Highways	*General comments on the requirements to consider changes in increases in traffic and movements and the cumulative impacts.*	This is considered within this Chapter.
UK Health Security Agency	*Statement supporting approaches in minimising or mitigating public exposure.*	Upon completion of the traffic impacts assessments measures to mitigate road traffic emissions will be detailed, where applicable.
Natural England	*Requesting the screening of the potential freight and traffic impacts on Lockington Marshes SSSI and Attenborough Gravel Pits SSSI.*	This Chapter considers the potential impacts of the EMG2 Project on identified designated ecological sites where these are located within the identified distances of the affected road network in accordance with DMRB[5] and Natural England[6] guidance and if the Project Ecologist confirms that sensitive features are present within the defined distances. Where required, the assessments will consider nitrogen and acid deposition. The two sites referenced by Natural England were not considered, since neither site was located within 200 m of the affected road network. However, the ecological assessments did consider the impacts on Oakley Wood SSSI, Tonge Gorse Ancient Semi-Natural Woodland, Lount Meadows SSSI, Breedon Cloud Wood and Quarry SSSI, as well as a number of Ancient Trees and Veteran Trees. The results of the assessments have been passed to the Project Ecologist for consideration and

[5] Highways Agency (2024). Design Manual for Roads and Bridges (DMRB), LA 105. Air Quality (Vertical Barriers).

[6] Natural England (2018). Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001), H.M Government, York.

Originator	Details	Response to Matter Raised
		measures to mitigate any impacts (if required) are set out in **Chapter 9: Ecology and Biodiversity (Document DCO 6.9/MCO 6.9)**.

Consultation

8.2.5. A summary of the key issues raised during consultation activities undertaken to date specific to air quality is presented in **Table 8.3** below, together with how these issues have been considered in the production of this Chapter. This includes the relevant comments received from statutory consultees during the statutory consultation process, which was undertaken over a six-week period between Monday 3rd February 2025 and Monday 17th March 2025, as well as the additional consultation over a four-week period between Tuesday 1st July and Tuesday 29th July 2025 and provides a response to the issue raised as required.

Table 8.3: Summary of Consultation Responses

Consultee	Consultee Comments Summary	Project Consultant's Response
Statutory Consultation		
NWLDC	*Raised no comments relating to the assessment approach*	No action required.
Additional Consultation		
NWLDC	*In March 2025 the Council's Environmental Protection Team commented that the contents of the draft ES Chapter were acceptable. This position has not changed.*	No action required.
National Highways	*Additional clarity was requested on the extent of the Affected Road Network (ARN) and associated air quality study area. It was requested that more transparency was provided on potential impacts at relevant sensitive receptors and that this incorporated the magnitude of changes to traffic within the ARN.*	The ARN is set out in Figure 8f.1 to 8f.19 in **Appendix 8F (Document DCO 6.8F/MCO 6.8F)**. No wider figure showing the entire extent of the ARN is included since the scale of this image would not be suitable. In terms of clarity on which roads are affected by changes in traffic (and the magnitude of said changes), due to the quantity of roads outputted by the transport model, it was not deemed appropriate to illustrate this across the wider road network, however **Appendix 8F (Document DCO 6.8F/MCO6.8F)** has been reviewed and improved where necessary to assist in understanding the magnitude of road traffic changes across the ARN.

Consultee	Consultee Comments Summary	Project Consultant's Response
	A request was made to consider variations in road traffic emissions by time of day, splitting traffic data into four different time periods.	Due to the nature of the transport modelling works carried out, it is not possible to derive baseline traffic flows to assist in carrying out this style of assessment. This is therefore highlighted as a potential limitation in the 'Limitations and Assumptions' Section.
	A recommendation of reviewing modelling parameters within the Castle Donington AQMA was made.	Discussion on this point is set out in Section 8.7 of this Chapter.
	A query was raised regarding the use of 2028 as an appropriate year for assessing peak construction traffic.	Following discussion with the project transport consultants, it was confirmed that highly robust assumptions were made in calculating construction traffic flows, and that a 2028 assessment year is deemed appropriate for assessing construction traffic as it is the most likely peak construction year.
	*A recommendation was made to present the receptor results graphically in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)** and **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**. The comment went on to say that matching the results in **Appendix 8G (Document DCO 6.8G/MCO6.8G)** and **Appendix 8H (Document DCO 6.8H/MCO6.8H)** with the locations set out in **Appendix 8C (Document DCO6.8C/MCO6.8C)** and **Appendix 8D (Document DCO 6.8D/MCO6.8D)** was awkward and time consuming.*	It was not entirely clear what "graphically" meant in the circumstances relating to the comment. However it was interpreted as being directed at improving the ease of reading of **Appendix 8G (Document DCO 6.8G/MCO6.8G)** and **Appendix 8H (Document DCO 6.8H/MCO6.8H).** Therefore these appendices have been updated to improve readability.

Consultation with NWLDC

8.2.6. In May 2022, an email was issued to the Environmental Health Officer at North West Leicestershire District Council (NWLDC), setting out the proposed NO_2 diffusion tube monitoring to be carried out for the EMG2 Project (as set out in **Appendix 8E: NO_2 Monitoring Programme (Document DCO 6.8E/MCO 6.8E**), which feeds into the model verification process (as set out in **Appendix 8A: Model Verification (Document DCO 6.8A/MCO 6.8A**). The location of these monitoring locations, as well as the methodology, was agreed on 31st May 2022, and was undertaken. Due to the lapse of time this monitoring programme was updated in 2024.

8.2.7. In light of the Scoping Opinion from PINS, further consultation was undertaken with NWLDC on 22nd October 2024, and the proposed methodologies which have informed this Chapter were agreed.

8.2.8. A further email was sent to NWLDC on 10th June 2025 to understand if their 2024 monitoring data is available, and it has been confirmed (at the time of writing) that the monitoring data has not been verified by the Department for Environment, Food and Rural Affairs (DEFRA).

The Identification of the Study Area

Geographical Scope

Construction Dust Phase Impacts on Human and Ecological Receptors

8.2.9. There is currently no formal assessment criterion for dust, therefore, the approach developed and published by the IAQM, in the Guidance on the Assessment of Dust from Demolition and Construction (2024)[7] document, has been utilised as part of this assessment. The approach consists of a five step process to assess the potential level of risks (Large, Medium, Small or Negligible), regarding the four main phases of development (demolition, earthworks, construction, and trackout). The assessment includes consideration of pre-mitigation, and post-mitigation impacts, based upon the scale and nature of the DCO Scheme and MCO Scheme.

8.2.10. The main air quality impacts that may arise during demolition and construction activities are:

- Dust deposition, resulting in the soiling of surfaces;
- Visible dust plumes, which are evidence of dust emissions;
- Elevated PM_{10} and $PM_{2.5}$ concentrations, as a result of dust generating demolition and construction activities; and
- An increase in concentrations of nitrogen dioxide (NO_2) due to exhaust emissions from vehicles and equipment.

8.2.11. In relation to the most likely impacts, at Section 4 the guidance states the following:

> *"The most common impacts are dust soiling and increased ambient PM_{10} (including $PM_{2.5}$) concentrations due to dust arising from activities on the site.*
>
> *[...]*
>
> *Experience of assessing the exhaust emissions from on-site plant (NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed."*

[7] Institute of Air Quality Management (2024) Guidance on the Assessment of Dust from Demolition and Construction, IAQM, London

8.2.12. The approach states that an assessment will normally be required where there are either:

- A 'human receptor' within:
    - 250 m of the boundary of the site; or
    - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).
- An 'ecological receptor' within:
    - 50 m of the boundary of the site; or
    - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

8.2.13. It is considered that within these distances the impacts of dust soiling and increased particulate matter in the ambient air will be greatest and have the biggest impacts on human and ecological health.

8.2.14. An ecological receptor refers to any sensitive habitat that is susceptible to dust soiling. For locations with a statutory designation, such as Ramsar Conservation Sites, Sites of Specific Scientific Interest (SSSI), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the specific site is sensitive to dust. Some non-statutory sites (such as local nature reserves) may also have to be considered if appropriate.

8.2.15. The degree of risk is then derived from the level of the risk, and the sensitivity of the receptor being considered. To note, not all the criteria for a particular risk class needs to be met for magnitude or significance. It is suggested in the IAQM (2024) guidance that other criteria (such as professional judgement) can be used to justify the assessment.

8.2.16. The full methodology is set out in **Appendix 8B Dust Risk Assessment Methodology (Document DCO 6.8B/MCO 6.8B)** and the full assessments of the DCO Scheme and MCO Scheme dust risk assessments in isolation of any ongoing works or committed developments has been undertaken in Section 8.5 for the DCO Scheme and Section 8.6 for the MCO Scheme with no allowance for mitigation (which is set out within Section 8.5 and Section 8.6 and **Appendix 8I Mitigation (Document DCO 6.8I/MCO 6.8I)**).

Construction / Operational Phase Traffic Impacts on Human Receptors

8.2.17. EPUK & IAQM (2017) Land-Use Planning & Development Control: Planning for Air Quality assessment guidance[8] sets thresholds for the recommended requirements for undertaking a full impact assessment on sensitive human receptors as a result of changes in daily vehicular traffic due to the EMG2 Project. The following criteria, as listed in the guidance, has been considered:

Stage 1:

- If any of the following apply to the development:

[8] Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017). Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London.

- Contains 10 or more residential units or a site area of more than 0.5ha; or
- Contains more than 1,000 m^2 of floor space for all other uses or a site area greater than 1ha.

- Coupled with any of the following:
  - The development has more than 10 parking spaces; or
  - The development will have a centralised energy facility or other centralised combustion process.

If any of the criteria is met at Stage 1, then Stage 2 (as below) should be used to screen against.

- A change of LDV (light duty vehicle) flow of:
  - More than 100 annual average daily traffic (AADT) within or adjacent to an Air Quality Management Area (AQMA); or
  - More than 500 AADT elsewhere.
- A change of HDV (heavy duty vehicles) flow of:
  - More than 25 AADT within or adjacent to an AQMA; or
  - More than 100 AADT elsewhere.

8.2.18. Based upon the above traffic screening exercise the geographical study areas have focused upon the following primary areas:

- The Area immediately surrounding the site
- Kegworth and surrounding area
- Loughborough and Hathern
- Long Eaton, Sandiacre and Risley
- Boulton Moor, South Derbyshire
- Long Whatton
- Derby
- Castle Donington
- Shepshed
- Copt Oak
- Woodhouse Eaves
- Whitwick, Belton, Griffydam and surrounding area
- Breedon on the Hill, Lount and surrounding area

8.2.19. The modelled human receptor locations for both the construction and operational impact assessments are discussed further in this Chapter and also set out in **Appendix 8C: Modelled Human Receptor Locations (Document DCO 6.8C/MCO 6.8C)**. To note, this appendix also considers the impacts of the requested receptors set out in **Chapter 17:**

Population and Human Health (Document DCO 6.17/MCO 6.17). When considering construction phase traffic impacts, fewer receptors were modelled since the increase in vehicular trips was considerably lower and only required a detailed assessment of a lower number of highways.

Compliance with the Air Quality Directive (2008/50/EC) (East Midlands zone)

8.2.20. The EMG2 Project lies within the East Midlands Non-Agglomeration Zone (UK0032) as identified in the DEFRA (2017) Air Quality Plan for Tackling Roadside Nitrogen Dioxide Concentrations in East Midlands document[9] as requiring action to address exceedances of the annual mean nitrogen dioxide (NO_2) objective. While there are no Air Quality Management Areas (AQMAs) immediately adjacent to East Midlands Airport, several designated AQMAs exist within the surrounding local authority areas of the UK0032 Zone. These include AQMAs in North West Leicestershire (e.g., the former Copt Oak AQMA and Castle Donington AQMA) and Derby (Derby NO_2 AQMA No.1 – Ring Roads). Other AQMAs within the UK0032 zone were scoped out of the assessment as they fall outside the study area for the EMG2 Project.

8.2.21. It is noted that it was identified in DEFRA (2023) Air Pollution in the UK 2022 Compliance Assessment Summary document[10] that the East Midlands UK0032 zone complied with the NO_2 air quality standards for 2022.

8.2.22. The EMG2 Project has been assessed for its potential to contribute to or exacerbate existing air quality exceedances, and to determine whether it could delay compliance with relevant air quality standards being maintained. This includes consideration of effects on both local receptors and the wider UK0032 Zone, in line with a larger geographical perspective. The assessment approach is consistent with the requirements of the Planning Act 2008, the National Policy Statements and the NPPF.

Construction / Operational Phase Traffic Impacts on Ecological Receptors

8.2.23. The Design Manual for Roads and Bridges (DMRB) guidance (LA 105)[11] sets out when a full impact assessment on sensitive ecological receptors is to be undertaken due to the changes in the following highway conditions (within 200 m of the centre of the affected highway):

- Horizontal road alignment will change by 5 m or more;
- Daily traffic flows will change by more than 1,000 Annual Average Daily Traffic (AADT);
- Heavy Duty Vehicle flows will change by more than 200 AADT; or
- Change in speed band (as per Table A.1 and A.2 in the DMRB guidance).

[9] Defra (2017) *Air Quality Plan for Tackling Roadside Nitrogen Dioxide Concentrations in East Midlands (UK0032)*

[10] Defra (2023) *Air Pollution in the UK 2022 Compliance Assessment Summary*

[11] Highways Agency (2024). Design Manual for Roads and Bridges (DMRB), LA 105. Air Quality (Vertical Barriers).

8.2.24. Paragraph 4.29 of the Natural England (2018)[12] document states:

> *"If the predicted change in traffic flow is less than 1000 AADT or the level of emissions is <1% of the critical load / level, the associated emissions are not likely to have a significant effect alone but run the risk of in-combination effects should be considered further."*

8.2.25. Additionally, the JNCC Guidance on Decision-making Thresholds for Air Pollution document[13] advises that if a plan or project would lead to a change in the Annual Average Daily Traffic (AADT) vehicle flow that exceeds 0.15% of the existing-year AADT on that road within 200m of an ecological receptor, the air quality impacts on the ecological receptor should be assessed.

8.2.26. To note when modelling the impacts at ecological receptors, the IAQM (2020) guidance document[14] has been considered, specifically with regards to Paragraph 5.4.1.13, which states:

> *"Concentrations should not, however, be predicted too close to the roadway, since such predictions can be unreliable and may not represent areas of relevance to the assessment. It is recommended, for example, that predictions are not made closer than 2 m from the edge of a road"*

8.2.27. The modelled ecological receptor locations both the construction and operational impact assessments are discussed further in this Chapter and also set out in **Appendix 8D: Modelled Ecological Receptor Locations (Document DCO 6.8D/MCO 6.8D)**.

Temporal Scope

8.2.28. The assessment of air quality effects due to changes in traffic have been considered for both the construction and operational phases of the EMG2 Project.

8.2.29. The construction and operational phases have been modelled in line with the traffic modelling set out in **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6)**.The air quality model utilised to assess the EMG2 Project air quality impacts has been verified against 2023 air quality monitoring data, as set out in **Appendix 8A: Model Verification (Document DCO 6.8A/MCO 6.8A)**.

Assessment Methodology

Methods of Baseline Data Collection

8.2.30. The existing baseline concentrations of nitrogen dioxide (NO_2), Particulate Matter 10 µm and 2.5 µm size fractions (PM_{10} and $PM_{2.5}$), in the vicinity of the EMG2 Project have been assessed using the monitoring data in the local authority air quality review and assessment

[12] Natural England (2018). Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001), H.M Government, York.

[13] JNCC (2021). Guidance on Decision-making Thresholds for Air Pollution.

[14] Institute of Air Quality Management, 2020. *A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*

reports and specific site monitoring. The DEFRA background mapping website[15] has also been utilised to provide background, NO_x, NO_2, PM_{10}, and $PM_{2.5}$ concentrations. The DEFRA website has mapped background concentrations at a resolution of 1x1km for the whole of the UK. Estimated concentrations are available for all years between 2021 and 2040.

8.2.31. To identify any sensitive ecological designated sites, a review of the DEFRA Magic Map website and the UK Air Pollution Information System, (APIS)[16] website has been undertaken, along with consultation with the project ecologist, FPCR.

8.2.32. Due to concerns regarding the verification of the ADMS-Roads dispersion model it was proposed that a short-term diffusion tube monitoring programme was undertaken (in 2022 and updated in 2024) adjacent to the EMG2 Project and surrounding area to feed into the verification process.

8.2.33. Further information on the diffusion tube monitoring exercise is set out in Section 8.5 and further detail is set out in **Appendix 8E: NO_2 Monitoring Programme (Document DCO 6.8E/MCO 6.8E)**.

Air Quality Model

8.2.34. Air quality at specified receptor locations has been predicted using ADMS-Roads, (v5.0.1.3) dispersion modelling software, which is recognised as the leading air pollution modelling package in the UK. The model uses advanced algorithms for the height-dependence of wind speed, turbulence and atmospheric stability to produce improved predictions of air pollutant concentrations. It can predict short and long-term concentrations, including percentile concentrations. The use of the ADMS-Roads model was agreed with the local authority during the consultation exercise.

8.2.35. The model requires the user to provide various input data, including emissions from each section of road and the road characteristics (including road width), and meteorological data.

Diurnal Profile

8.2.36. The hourly specific emission rates can then be used to calculate a 24-hr diurnal emission profile which can be applied to that section of road. In this case an annual average diurnal profile of traffic flow across the study area has been estimated from the latest DfT TRA0307 national statistics[17] for traffic distribution by time of day (in line with the model verification year).

[15] Department for Environment, Food and Rural Affairs (2024). Background Mapping data for local authorities – 2021, UK Air Information Resource, London, https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021

[16] UK Centre for Ecology & Hydrology (UK CEH). UK Air Pollution Information System, (APIS), UK CEH, Lancaster. http://www.apis.ac.uk/

[17] Department for Transport (2023). Road Traffic Statistics (TRA). H.M Government, London.

Meteorological Data

8.2.37. Meteorological data used within the model has been taken from East Midlands Airport Meteorological Site, located adjacent to the EMG2 Project. Historically, TG22 [18] has advised that meteorological sites within 30 km should be used for assessments, which makes East Midlands Airport a suitable choice of meteorological site.

Modelling Junctions

8.2.38. Junctions have been modelled in line with TG22, which states at Paragraph 7.287:

> *"For junctions, common sense, driving experience and local knowledge are helpful to estimate speeds. For example, for a section of road leading up to traffic lights, the aim should be to estimate average speeds over a 50 m section of road:*
>
> *Traffic pulling away from the lights, e.g. 40-50 kph;*
>
> *Traffic approaching the lights when green, e.g. 20-50 kph; and*
>
> *Traffic on the carriageway approaching the lights when red, e.g. 5-20 kph, depending on the time of day and how congested the junction is.*
>
> *It is considered that the combined effect of these three conditions is likely in most instances to be a two-way average speed for all vehicles of 20 to 40 kph. Speeds in similar ranges would also apply at roundabouts, although on sections of large roundabouts, speeds may well average between 40-50 kph."*

Modelling Street Canyons

8.2.39. Due to the nature of some of the roads modelled, it was deemed necessary to include street canyons in the ADMS-Roads model, in order to replicate the effects of the façades near to the diffusion tubes and modelled receptor locations. Therefore the "Advanced Street Canyons" option was selected in ADMS-Roads to ensure the effects of dispersion are considered in the modelling exercise.

8.2.40. To note, at Paragraph 7.450 TG22 states the following, in relation to street canyons:

> *"Although street canyons can generally be defined as narrow streets where the height of buildings on both sides of the road is greater than the road width, there are numerous example whereby broader streets may also be considered as street canyons where buildings result in reduced dispersion and elevated concentrations (which may be demonstrated by monitoring data). Therefore, canyon effects can occur both in small towns or large cities."*

[18] Defra (2025), Local Air Quality Management – Technical Guidance (22) [online]. Available at: https://laqm.defra.gov.uk/wp-content/uploads/2025/05/LAQM-TG22-May-25-v2.0.pdf). (Last accessed 10/06/2025).

8.2.41. Parameters which have been included in the Advanced Street Canyons module are:

- The street canyons width, which is not the road width, but the distance measured as façade to façade of buildings on either side of the highway; and
- The average, minimum and maximum height of buildings on either one or both sides of the highway.

8.2.42. This is especially relevant within the Castle Donington AQMA, as the NWLDC (2021) Air Quality Action Plan[19] states in Section 2.1.1 that:

> *"It is likely that the area of exceedance in Castle Donington is confined to a short section of Bondgate. Site 18N is located on the façade of a property which fronts onto a narrow pavement, with a wall and dense foliage on the opposite side of the road which forms a short street canyon, preventing full dispersion of pollutants. There is also a slight gradient on this section of the road, which will increase acceleration of vehicles on this section, further increasing emissions locally. It is likely to be a combination of these factors which are contributing to the exceedance."*

8.2.43. To note, while the NWLDC (2021) Air Quality Action Plan notes "*the area of exceedance*" within Castle Donington, it is noted that no monitoring location within Castle Donington as a whole has exceeded the NO_2 annual mean objective for the past four years of available data (from 2020 to 2023).

Emissions Factors

8.2.44. Version 13.1 of the emission factor tool kit (EFT)[20], released by DEFRA in March 2025, will be used to predict the traffic related emissions.

8.2.45. It has been widely known for some time that nationally NO_x/NO_2 levels are not reducing as quickly as anticipated, and this was identified by DEFRA in 2011. This was reiterated in an IAQM Interim Position Statement (v1.1)[21] released in July 2018 recognising that emissions from diesel vehicles have not declined as expected by DEFRA. This document has since been formally withdrawn, stating:

> *"There is a growing body of evidence to suggest that the latest COPERT vehicle emission factors, which feed into the EFT (v9 and onwards), reflect the real-world NO_x emissions more accurately.*
>
> *It is judged that an exclusively vehicle emissions-based sensitivity test is no longer necessary.*
>
> *On this basis, the EFT may be used for future year modelling with greater confidence when considering the per vehicle emission, provided that the assessment is verified against measurements made in the year 2016 or later."*

[19] North West Leicestershire District Council (2021) 2021 Air Quality Action Plan

[20] Department for Environment & Rural Affairs (2025). *Emission Factors Toolkit v13.1*. https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/ [Accessed 10/16/2025]

[21] Institute of Air Quality Management (2018). Dealing with Uncertainty in Vehicle NO_x Emissions within Air Quality Assessments, IAQM, London.

8.2.46. On this basis it is anticipated the most up to date EFT that could be used in this assessment (v13.1) can be relied upon to provide a good representation of the air quality concentrations and effects, and no sensitivity test will be undertaken.

NO_X/NO_2 Calculation

8.2.47. The model has been utilised to predict concentrations of NO_x, PM_{10} and $PM_{2.5}$, based upon vehicle flow, composition and speed data. The NO_x concentrations have been post processed to derive NO_2 concentrations using the NO_x to NO_2 calculator (v9.1) available on the DEFRA LAQM air quality website[22].

Model Verification

8.2.48. While the ADMS-Roads model is widely accepted for its use in assessments of this nature, it is still important that a model verification process is undertaken to confirm that the model's performance is within an acceptable margin of error. Therefore, a comparison of modelled results with monitored results has been undertaken in line with TG22, which at Paragraph 7.420 states:

> *"Local authorities are reminded that any detailed dispersion modelling, should be compared against local monitoring data in order to provide confidence in the results and any decisions made based on the outcome of the modelling. However, this should be only possible if the measurements are of good quality, have been measured over a reasonable time period, and are representative of the receptor location assessed."*

8.2.49. The model verification process is set out in **Appendix 8A: Model Verification (Document DCO 6.8A/MCO 6.8A)**.

Short-Term Concentrations

8.2.50. It is widely accepted that air quality dispersion models cannot predict short-term concentrations as reliably as annual mean concentrations. On this basis the following approaches have been undertaken when assessing against the NO_2 1-hour mean objective and the PM_{10} 24-hour mean objective.

NO_2 1-hour mean objective

8.2.51. At Paragraph 7.97 TG22 states:

> *"A study carried out on behalf of Defra and the Devolved Administrations identified that exceedances of the NO_2 1-hour mean are unlikely to occur where the annual mean is below 60µg/m^3. Analysis of data in more recent years has shown local authorities should continue to use this assumption where NO_2 1-hour mean monitoring data are not available"*

[22] Department for Environment, Food and Rural Affairs (2024). NO_x to NO_2 Calculator Air Quality Assessment. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/nox-to-no2-calculator/ [Accessed 25/11/2024]

8.2.52. On this basis an annual mean NO_2 concentration of 60µg/m^3 has been utilised as an indication on whether the NO_2 1-hour mean objective is likely to be breached.

PM_{10} 24-hour mean objective

8.2.53. At Paragraph 7.100-7.101 TG22 states:

> *"As for NO_2, using a dispersion model to predict exceedances of the PM_{10} short term (24-hour mean) objective may be challenging. Therefore, to estimate potential exceedances of the PM_{10} 24-hour mean objective, local authorities should use the following relationship, provided in previous Technical Guidance, but still considered adequate:*
>
> *No. 24-hour mean exceedances = -18.5 + 0.00145 × annual mean^3 + (206/annual mean)*
>
> *The relationship does have limitations in so far that it should not be applied when the annual mean PM_{10} concentration is lower than 14.8µg/m^3."*

8.2.54. On this basis where the annual mean PM_{10} concentration is greater than 14.8µg/m^3 this calculation has been utilised as an indication on whether the PM_{10} 24-hour mean objective is likely to be breached.

Modelling Scenarios

8.2.55. Due to the nature of the traffic data provided, the following definitions are provided to assist in understanding how the modelling scenarios were derived:

- Demand flow refers to the traffic that wishes to travel through the highway network;
- Actual flow refers to the traffic which is realized on the highway network. This may differ from 'demand flow' for reasons such as capacity constraints, for example; and
- Green package refers to the EMG2 Project Mitigation proposals (and the new link from the M1 south to A50 in particular) when considered with the wider Growth Point mitigation aspirations.

8.2.56. To note, the scenarios were provided as 'Actual Flow' unless otherwise stated (see Paragraph 8.2.62 for further details).

8.2.57. The traffic data to inform this Chapter has been extracted from the Pan Regional Transit Model (in line with **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6)** for the following scenarios. Of note, and as explained in **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6)**, these scenarios represent a worst case scenario that 100% of the EMG2 Project is operational by the opening year 2028. In reality, buildings will be built in accordance with market demand and likely to be spread over a greater number of years as per the phasing timescales set out within **Chapter 3: Project Description (Document DCO 6.3/MCO 6.3)**.

Stage 1a modelling

- 2023 baseline (used for model verification)
- 2024 baseline
- 2028 / 2038 forecast year without the EMG2 Project (with all Freeport and Local Plan sites)
- 2028 / 2038 forecast year with the EMG2 Project (with all Freeport and Local Plan sites)
- 2028 forecast year (demand flow) (with all Freeport and Local Plan sites)
- 2028 forecast year (demand flow) with construction traffic (with all Freeport and Local Plan sites)

Stage 1b Modelling

- 2028 / 2038 forecast year without the EMG2 Project (without Local Plan sites)
- 2028 / 2038 forecast year with the EMG2 Project (without Local Plan sites)
- 2028 forecast year (demand flow) (without Local Plan sites)
- 2028 forecast year (demand flow) with construction traffic

Stage 2 modelling

- 2028 sensitivity test (with covid factors)
- 2028 / 2038 forecast year with the EMG2 Project, with mitigation (green package) (without Local Plan sites)
- 2028 / 2038 forecast year with the EMG2 Project, with mitigation (green package) (with Local Plan sites)

8.2.58. The assessment year of 2028 has been selected for the air quality modelling in this Chapter to provide a conservative, robust appraisal of potential impacts associated with the EMG2 Project. While the EMG2 Project may not be fully operational until a later date, modelling emissions and concentrations in 2028 captures a scenario with higher background pollutant levels, a greater proportion of internal combustion engine vehicles in the fleet mix, and less widespread adoption of low-emission technologies and clean construction practices. This ensures that potential air quality effects are not underestimated, particularly in relation to human health and compliance with statutory air quality standards. Using an earlier assessment year also aligns with best practice in environmental assessment by applying a precautionary approach, given the inherent uncertainties in projecting emission trends and regulatory changes over longer timeframes such as 2038.

8.2.59. Furthermore, the assessment year of 2028 was deemed appropriate for the air quality modelling of construction traffic impacts, as a realistic peak year for construction traffic.

8.2.60. Based upon this, in order to assess the impacts associated with the EMG2 Project on human and ecological receptors, the following scenarios have been compared:

- "*Stage 1a 2028 forecast year without the EMG2 Project (with all Freeport and Local Plan sites)*" v "*Stage 2 2028 forecast year with the EMG2 Project, with mitigation (green package) (with Local Plan sites)*"
- "*Stage 1b 2028 forecast year without the EMG2 Project (without Local Plan sites)*" v "*Stage 2 2028 forecast year with the EMG2 Project, with mitigation (green package) (without Local Plan sites)*"

8.2.61. This traffic data is set out in **Appendix 8F: Traffic Data (Document DCO 6.8F/MCO 6.8F)**.

8.2.62. The traffic data issued for the above scenarios was extracted from the Pan Regional Transit Model as "Actual Flow". To note, when considering construction traffic this data was issued as "Demand Flow" and hence there are (minor) discrepancies between the two datasets used. The reason for using "Demand Flow" in order to assess construction traffic impacts is that the construction traffic contribution to the highway network is relatively low, and hence model 'noise' can mask construction traffic impacts. Based on this, in order to assess the impacts associated with the construction phase impacts on human and ecological receptors, the following scenarios have been compared.

- "*Stage 1a 2028 forecast year (demand flow) (with all Freeport and Local Plan sites)*" v "*Stage 1a 2028 forecast year (demand flow) with construction traffic (with all Freeport and Local Plan sites)*"
- "*Stage 1b 2028 forecast year (demand flow) (without Local Plan sites)*" v "*Stage 1b 2028 forecast year (demand flow) with construction traffic (without Local Plan sites)*"

8.2.63. This traffic data is set out in **Appendix 8F: Traffic Data (Document DCO 6.8F/MCO 6.8F)**.

Ecological Receptors Specific Modelling

8.2.64. The Process Contribution (PC) and Predicted Environmental Concentration (PEC) of NO_x, NH_3 and N/acid deposition at these discrete receptors have been modelled and the considerations on the Significance of any impacts on ecological receptors is set out in **Chapter 9: Ecology and Biodiversity (Document DCO 6.9/MCO 6.9)**.

Receptors

Human Receptors

8.2.65. The concentrations of NO_x, NO_2, PM_{10}, and $PM_{2.5}$ have been predicted at receptors adjacent to impacted highway network links, where the traffic data indicates changes in traffic flows which exceed the EPUK & IAQM (2017) guidance screening criterion.

8.2.66. When selecting the receptor locations, careful consideration has been made of junction locations, and where several highway links combine.

8.2.67. Furthermore, discrete indicative receptors have been considered within the EMG2 Project site to understand future exposure, as this was requested in the PINS Scoping Opinion.

8.2.68. To note, according to the TG22 (see Box 1-1), air quality standards should only apply to locations where members of the public may be reasonably likely to be exposed to air pollution for the duration of the relevant air quality standard value. As such, existing residential receptors surrounding the EMG2 Project as well as future commercial receptors have been selected to inform the risk assessment in terms of the relevant annual mean exposure.

8.2.69. Schools and children's playgrounds are also often used as sensitive locations for comparison with annual mean objectives due to the increased sensitivity of young people to the effects of pollution (regardless of whether or not their exposure to pollution could be over an annual period). For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time.

8.2.70. In terms of receptors that will be exposed on a much shorter timescale compared to residential receptors, TG22 states at Paragraph 7.97:

> *"Dispersion models cannot predict short-term concentrations as reliably as annual mean concentrations…...Previous research carried out on behalf of Defra and the Devolved Administrations identified that exceedances of the NO_2 1-hour mean are unlikely to occur where the annual mean is below 60 µg/m^3 This assumption is still considered valid; therefore local authorities should refer to it."*

8.2.71. As previously stated, the modelled human receptor locations are set out in **Appendix 8C: Modelled Human Receptor Locations (Document DCO 6.8C/MCO 6.8C)**.

Ecological Receptors

8.2.72. The air quality impacts associated with the EMG2 Project have the potential to impact sensitive ecological receptors. The IAQM (2020) guidance sets out the type of ecological sites which may require an air quality impact assessment. These are:

- Site of Special Scientific Interest (SSSIs);
- Special Areas of Conservation (SACs);
- Special Protection Areas (SPAs);
- Ramsar Sites;
- Areas of Special Scientific Interest (ASSIs);
- National Nature Reserves (NNRs);
- Local Nature Reserves (LNRs);
- Local Wildlife Sites (LWSs); and,
- Areas of Ancient Woodland (AW).

8.2.73. A review of the Defra Magic Map[23] website and advice from the project ecologist (FPCR) indicates that a number of ecological receptors are located near to the EMG2 Project which will need further consideration, as set out below:

- Oakley Wood SSSI;
- Tonge Gorse Ancient & Semi Natural Woodland;
- Lount Meadows SSSI;
- Breedon Cloud Wood and Quarry SSSI; and
- Ancient and Veteran Trees within 200m of an affected highway.

8.2.74. As previously stated the modelled ecological receptor locations are set out in **Appendix 8D: Modelled Ecological Receptor Locations (Document DCO 6.8D/MCO 6.8D)**.

Significance Criteria

Construction Dust Impacts

8.2.75. The IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, (as set out in this Chapter and **Appendix 8I: Mitigation (Document DCO 6.8I/MCO 6.8I)** the IAQM (2024) guidance is clear that the residual effect will normally be 'not significant'.

Construction & Operational Traffic (Existing Human Receptors)

National Approach

8.2.76. Currently there is no official guidance in the UK on how to describe the nature of air quality impacts, nor how to assess their significance. The approach developed by EPUK & IAQM (2017) will be used. This approach involves a two-stage process:

- A quantitative description of the impacts on local air quality arising from the EMG2 Project; and
- A judgement on the overall significance of the effects of any impact.

8.2.77. The EPUK & IAQM (2017) guidance recommends that the degree of an impact is described by expressing the magnitude of incremental change in pollution concentration as a proportion of the relevant assessment level and examining this change in the context of the new total concentration and its relationship with the assessment criterion, as summarised in **Table 8.4**. The associated relevant air quality standards are set out in **Table 8.5**.

[23] Magic Map Application. Accessible at: Magic Map Application (defra.gov.uk)

Table 8.4: Impact Descriptors for Individual Receptors

Long term average Concentration at Receptor in Assessment Year	% Change in concentration relative to Air Quality Assessment Level (AQAL)				
	< 0.5	1	2-5	6-10	> 10
75% of less of AQAL	Negligible	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Negligible	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Negligible	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Negligible	Moderate	Substantial	Substantial	Substantial

Notes:
Vales are rounded to the nearest whole number.
When defining the concentration as a percentage of the AQAL, use the 'without scheme' concentration where there is a decrease in pollutant concentration and the 'with scheme;' concentration for an increase.
AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)'.

Table 8.5: Air Quality Standards (England)

Pollutant	Air Quality Standards		
	Average Period	Concentration	Percentile
Nitrogen Dioxide (NO_2)	Annual Mean	40 µg/m³ [A]	-
	1-hour Mean	200 µg/m³ not to be exceeded more than 18 times a year. [A]	99.79
Particulate Matter (PM_{10})	Annual Mean	40 µg/m³	-
	24-hour Mean	50 µg/m³ not to be exceeded more than 35 times a year	90.41
$PM_{2.5}$	Annual Mean	25 µg/m³ - Stage 1 limit value pre 2020	-
	Annual Mean	20 µg/m³ - Indicative Stage 2 limit value post 2020. 15% reduction in background to be achieved between 2010 & 2020 at Urban Background sites. [B]	-
	Annual Mean	12 µg/m³ - Interim Target to be achieved by 2028 and 22% reduction in exposure achieved between 2018 & 2028. [C]	-

Notes:
A Annual mean value of 60 µg/m³ used to assess whether the NO_2 1-hour mean objective will be exceeded. A study carried out on behalf of DEFRA and the Devolved Administrations identified that exceedances of the NO_2 1-hour mean are unlikely to occur where the annual mean is below this concentration.
B Current UK limit value.
C As set out in the Environmental Improvement Plan (2023). These targets will help drive reductions in the worst $PM_{2.5}$ hotspots across the country, whilst ensuring nationwide action to improve air quality for everyone.

Construction & Operational Traffic (Existing Receptors) Determining the Level of Effect for EIA Purposes

8.2.78. The level of effect has been informed by the magnitude of change due to the EMG2 Project and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement, current Air Quality Standards and World Health Organisation (WHO) knowledge (which is discussed further in the *Construction & Operational Traffic (Existing Receptors) Determining Significance* section of this Chapter). **Table 8.6** has been a tool which has assisted with this process.

8.2.79. In order to be consistent across the entire EIA, the EIA magnitudes of change (large, medium, small and negligible) have also been used in addition to the EPUK & IAQM (2017) descriptors to describe the air quality impact at all sensitive human receptors. The EPUK & IAQM (2017) impact descriptor of 'substantial' corresponds to a large magnitude of change, a 'moderate' impact corresponds to medium magnitude of change, a 'slight' impact corresponds to a small magnitude of change and a 'negligible' impact corresponds to a negligible magnitude of change.

8.2.80. Whilst **Table 8.6** provides ranges, the level of effect is confirmed as a single level and not a range. For each effect, it will be concluded whether the effect is '*beneficial*' or '*adverse*'.

Table 8.6: Matrix to Support Determining the Level of Effect

Magnitude of Change		**Sensitivity**			
		High	Medium	Low	Negligible
	Large	**Major***	**Moderate to Major***	Minor to Moderate	Negligible
	Medium	**Moderate to Major***	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Notes:
** Could be Significant depending on the context*
***High Sensitivity Receptors** are deemed as Building façades of residential properties, schools, hospitals, care homes etc*
***Medium Sensitivity Receptors** are deemed as Hotels etc*

8.2.81. The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':

- Major effect: where the EMG2 Project is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- Moderate effect: where the EMG2 Project is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- Minor effect: where the EMG2 Project is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or

recoverability or is of the highest sensitivity; or where the EMG2 Project is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change; and

- Negligible: where the EMG2 Project is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

8.2.82. Both professional judgement and the overall air quality concentrations in relation to the relevant air quality standards are a key consideration when determining the effect, as highlighted in the Determining Significance section below. The judgement of the significance should be made by a competent professional who is suitably qualified. A summary of the professional experience of the staff contributing to this Chapter is provided in **Chapter 1: Introduction (Document DCO 6.1/MCO 6.1) and the associated Appendix 1B (Document DCO 6.1B/MCO 6.1B)**.

Construction & Operational Traffic (Existing Receptors) Determining the Level of Significance for EIA Purposes

8.2.83. For each residual effect, a statement has been made as to whether the level of effect is 'Significant' or 'Not Significant.' This determination has been based on professional judgement and / or relevant guidance/legislation where applicable.

8.2.84. Significance has only been concluded for residual effects (i.e. following the identification of any mitigation).

8.2.85. Paragraph 7.13 of EPUK & IAQM (2017) guidance states:

> *"Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."*

8.2.86. When considering this guidance, careful consideration has been made of the World Health Organisation (WHO) guidelines[24] . The current air quality objectives were set based on NO_2 in particular being a "threshold" pollutant – i.e. that there is a "safe" level of NO_2 in the ambient air that will not damage the health of an average person. In recent years this has been called into question, and the WHO Guidelines, while not statutory, are considerably lower (10 µg/m^3 compared to 40 µg/m^3 for NO_2). While using the current air quality standard is not technically incorrect, there is an argument to be made that any worsening of air quality, particularly within an AQMA and/or Clean Air Zone (CAZ), should not be allowed to occur as the potential to damage health is clear.

8.2.87. Air quality is now the leading environmental risk factor globally, and the issue is rising in prominence all the time. As such, worsening the air quality within an existing AQMA / CAZ, even by a small amount should be carefully considered.

8.2.88. Section 7 of the EPUK & IAQM (2017) guidance believes that the assessment of significance should be based on professional judgement, with the overall air quality impact of the EMG2

[24] World Health Organization, 2021. *WHO global air quality guidelines.*

Project described as either Significant or Not Significant. In drawing this conclusion, the following factors have been taken into account:

- The number of properties/receptors affected by different levels of effects;
- The magnitude of any changes and descriptors;
- Whether a new exceedance of an objective or limit value is predicted to arise or an existing exceedance is removed, or an existing exceedance is substantially increased or reduced;
- The level of uncertainty, including the extent to which worst case assumptions have been made; and
- The extent of any exceedance of an objective or limit value.

Construction & Operational Traffic (Ecological Receptors) Determining the Level of Significance for EIA Purposes

8.2.89. There are no definitive thresholds for determining the significance of changes in ecological receptor impacts. However, the Natural England (2018) guidance sets out an approach for when a further Appropriate Assessment is required.

8.2.90. The considerations of Significance of any impacts on ecological receptors are set out in **Chapter 9: Ecology and Biodiversity (Document DCO 6.9/MCO 6.9)**.

8.2.91. However, **Table 8.7** sets out the air quality standards, objectives, environmental assessment levels, targets, critical loads and levels relevant to this Chapter.

Table 8.7: Annual Mean Critical Level/Load for the Protection of Vegetation and Ecosystems

Pollutant	AQS/EAL/Target	Average Period	Critical Level / Load
Oxides of Nitrogen (NO_x)	AQS	Annual Mean	30 µg/m^3
	AQS	Daily Mean	200 µg/m^3
	EAL*	Daily Mean	75 µg/m^3
Ammonia (NH_3)	Target	Annual Mean	1 µgm/^{3}
Oakley Wood SSSI and Breedon Cloud Wood & Quarry SSSI			
Nutrient Nitrogen deposition	Target	Annual Mean	15 – 20 kg N/ha/yr
Acidity deposition	Target	Annual Mean	MinCLminN: 0.142 – MaxCLminN: 2.731
Tonge Gorse Ancient Semi-Natural Woodland			
Nutrient Nitrogen deposition	Target	Annual Mean	10 - 20 kg N/ha/yr
Acidity deposition	Target	Annual Mean	MinCLminN: 0.214 – MaxCLminN: 4.928.
Lount Meadows SSSI			
Nutrient Nitrogen deposition	Target	Annual Mean	10 - 20 kg N/ha/yr
Acidity deposition	Target	Annual Mean	MinCLminN: 0.856 – MaxCLminN: 4.856.

Pollutant	AQS/EAL/Target	Average Period	Critical Level / Load
March Covert Ancient Woodland			
Nutrient Nitrogen deposition	Target	Annual Mean	10 kg N/ha/yr
Acidity deposition	Target	Annual Mean	MinCLminN: 0.214 – MaxCLminN: 4.928.
Ancient Trees and Veteran Trees within 200 m of an affected highway			
Nutrient Nitrogen deposition	Target	Annual Mean	10 kg N/ha/yr
Acidity deposition	Target	Annual Mean	MinCLminN: 0.214 – MaxCLminN: 4.928.
Notes: ** WHO report states that where SO_2 and O_3 are not present at their respective limits, a 200 µgm^3 daily mean would be more appropriate.*[25]			

East Midlands Airport Emissions

8.2.92. Due to the proximity of the EMG2 Project to East Midlands Airport, a consideration of the potential exposure impacts from airport emissions has been undertaken.

8.2.93. At Paragraph 7.17-7.18 TG22 states:

> *"Aircraft are potentially significant sources of NO_x emissions, especially during take-off, and therefore the main risk is related to potential exceedances of the NO_2 air quality objectives. It is likely that all airports have been subject to a screening assessment in previous rounds of Review and Assessment; however, in case of significant changes (such as increase in airport capacity, or new population exposure near the airport), the local authority should be able to screen aircraft emissions from airports based on the following:*
>
> - *Determine relevant exposure within 1km of the airport boundary;*
> - *If exposure has been identified, determine whether the airport total equivalent passenger throughput is more than 10 million passengers per annum (mppa). Freight should also be considered, and converted to equivalent mppa using 100,000 tonnes = 1 mppa; and*
> - *Identify whether the background annual mean NO_x concentration is above 25µg/m^3 in these areas.*
>
> *If all of the above criteria are matched, then the local authority should conclude that there is a risk of exceedance of the NO_2 annual mean objective:*
>
> *[..]"*

8.2.94. A consideration of this is set out in this Chapter.

[25] World Health Organization, 2021. *WHO global air quality guidelines.*

Rail Freight Emissions

8.2.95. Due to the nature of proximity to East Midlands Rail Freight Interchange a consideration of the potential exposure impacts of rail freight emissions has been undertaken.

8.2.96. At Paragraph 7.21-7.22 TG22 states:

> *"Diesel or coal fired stationary locomotives can give rise to high short-term NO_2 and SO_2 concentrations near railway stations or depots. Additionally, moving locomotives can contribute to elevated short-term NO_2 and SO_2 concentrations close to the track. It is likely that all sources of concern have been assessed in previous rounds of Review and Assessment, given the few number of railway lines not yet electrified. However, in case of new exposure near the lines of concern, local authorities may need to reassess these, based on the following:*
>
> *<u>Stationary diesel or steam locomotives:</u>*
>
> - *Identify locations where diesel or steam locomotives are regularly (at least three times a day) stationary for periods of 15-minutes or more; and*
> - *Determine relevant exposure within 15m of the locomotives*
>
> *<u>Moving diesel locomotives:</u>*
>
> - *Determine relevant exposure within 30m of the relevant railway tracks (Table 7-2 provides information on which lines should be considered); and*
> - *Identify whether the background annual mean NO_2 concentration is above 25µg/m^3 in these areas.*
>
> *If the above criteria are matched, then the local authority should conclude that there is a risk of exceedance of the SO_2 15-minute mean objective (for stationary locomotives) or the NO_2 annual mean objective (for moving locomotives), and carry out a monitoring survey (6-month period minimum) at relevant receptors.*

8.2.97. A consideration of this is set out in this Chapter.

Limitations and Assumptions

Traffic Data

8.2.98. The model is dependent upon the traffic data provided for the project, and should this change, so may the resulting pollution concentrations and assessment of significance.

8.2.99. As previously mentioned in this chapter, it has not been possible to separate the DCO Scheme and the MCO Scheme traffic impacts due to the transport modelling works in line with **Chapter 6: Traffic and Transport (Document DCO 6.6/MCO 6.6)**. However, as is noted at **Chapter 6: Traffic and Transport** (**Document DCO 6.6/MCO 6.6**), traffic from the MCO Scheme alone would be negligible, at circa 53 two-way trips in the morning peak hour

and 67 two-way trips in the evening peak hour. This equates to between 5.7% and 6.3% of the total EMG2 Project traffic and on its own would not result in any adverse or substantial environmental impacts and would not trigger the need for an EIA from a traffic and transport perspective.

8.2.100. When considering the impacts arising from construction traffic, the majority of the receptors assessed for operational impacts were not considered relevant and only human receptors adjacent to highway links which exceeded the EPUK & IAQM (2017) screening criteria as set out previously in this Chapter were assessed. To note, this limited the assessment to receptors within the former Copt Oak AQMA and within Shepshed and Thringstone. Regarding the latter two aforementioned areas, the increase in traffic is largely driven by vehicles rerouting from other routes rather than as a direct result of the construction phase traffic impacts.

8.2.101. The Wealden Judgement[26], handed down in March 2017, introduced additional considerations for the Habitat Regulations Assessment (HRA) process in relation to in-combination and cumulative effects, which is relevant when considering air quality impacts on ecological receptors.

8.2.102. For the purposes of the considerations of the impacts on ecological receptors, the screening of air quality impacts on ecological receptors will consider the change in AADT as a result of the EMG2 Project. The Natural England (2018) guidance states at Paragraph 4.25:

> *"The AADT thresholds do not themselves imply any intrinsic environmental effects and are used solely as a trigger for further investigation. Widely accepted Environmental Benchmarks for imperceptible impacts are set at 1% of the critical load or level, which is considered to be roughly equivalent to the DMRB thresholds for changes in traffic flow of 1000 AADT and for HDV 200 AADT. This has been confirmed by modelling using the DMRB Screening Tool that used average traffic flow and speed figures from Department of Transport data to calculate whether the NOx outputs could result in a change of > 1% of critical/load level on different road types. A change of >1000 AADT on a road was found to equate to a change in traffic flow which might increase emissions by 1% of the Critical Load or Level and might consequentially result in an environmental effect nearby (e.g. within 10 metres of roadside)."*

8.2.103. The guidance does not specifically cover nationally significant sites such as Sites of Special Scientific Interest (SSSIs), which are covered by a different regulatory framework. However, it does state at Paragraph 1.16 that the general principles for air quality assessment outlined for European sites are likely to be equally relevant for this and other designations.

8.2.104. It is noted that an assessment which considers variations in road traffic emissions by time of day, splitting traffic data into four different time periods was requested by National Highways in response to the Additional Consultation (as set out in **Table 8.3**). However, due to the nature of the transport model generated for the project, background traffic flows could not be split by time of day, and only peak hours (08:00 – 09:00 and 17:00 – 18:00) and AADT could be calculated.

[26] Judgment in Wealden District Council v. Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority [2017] EWHC 351 (Admin) DATE: 21 Mar 2017.

8.2.105. Nevertheless, it should be noted that disaggregating emissions by time of day would generally only highlight risks where traffic was significantly worsened and a breach of a short-term objective (NO_2 1-hour mean objective or PM_{10} 24-hour mean objective) is deemed likely. As set out in **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6)** the EMG2 Project is adopting a number of measures to ensure the road network has sufficient capacity for the increase / changes in vehicle movements. Furthermore, the air quality modelling exercise (as set out in Section 8.7) suggests that breaches of either of the short-term objectives are unlikely. Therefore significant effects relating to the short-term objectives are also considered unlikely.

Background Concentrations

8.2.106. The background air quality concentrations have been taken from the Defra background mapping[27]. The Defra website includes estimated background air pollution data for NO_x, NO_2, PM_{10} and $PM_{2.5}$ for each 1km by 1km OS grid square. Background pollutant concentrations are modelled from the base year of 2021 and based on ambient monitoring, meteorological data from 2021 and then includes projections for future years, up to currently 2040. Therefore, background concentrations have been utilised for the 2023 (model verification) and 2028 scenarios.

8.2.107. There is discrepancy between the concentrations mapped by DEFRA and those recorded at local background sites. Therefore, a calibration factor will be derived from the ratio between monitored background concentrations (local authority monitoring) and DEFRA background mapped concentrations. This is supported by TG22, which states at Paragraph 7.564-7.565:

> *"Where a model has been used to predict background concentrations (for example based on an emissions inventory), the modelled background concentrations should also be verified and where necessary adjusted.*
>
> *If national background maps are used, these should first be compared against any local monitoring to check they are representative of the area. In most cases there is good agreement with local monitoring, but some locations may not agree. Local authorities are not expected to verify and adjust the national background maps. Where these estimates do not agree with local monitoring, either local monitoring may be used, or local authorities may consider adjusting the background maps."*

8.2.108. Where possible the background NO_2 concentrations have been calibrated using local background monitoring data. However, where not possible, due to a lack of urban background monitoring the DEFRA background concentrations have been calibrated in line with the methodology set out in the Air Quality Consultants (2025)[28] document. To note, due to the lack of background PM_{10} and $PM_{2.5}$ monitoring background concentrations have been left uncalibrated. This is in line with the Air Quality Consultants (2025) document which states at Paragraph 3.1.1:

[27] Department for Environmental Food and Rural Affairs. Accessible at: Background Mapping data for local authorities - 2021 - Defra, UK (last accessed November 2024)
[28] Air Quality Consultants, 2025. Calibrating Defra's 2021-based Background NO_x and NO_2 Maps against 2022, 2023 & 2024 Measurements.

"Based on analysis of the relationships between Defra's 2021-based mapped concentrations of NO_x, NO_2, PM_{10} and $PM_{2.5}$, it is considered appropriate to apply separate calibration factors to the background mapped concentrations for NO_x and NO_2 for sites within central and inner London, outer London and at locations outside London. It is not considered appropriate to apply calibration to the PM_{10} or $PM_{2.5}$ mapped concentrations."

8.2.109. Background data for ecological receptors, as well as the critical levels and loads used to inform the assessment have been obtained from the APIS website[29]. There is inherent uncertainty within the assumptions used. To note, the APIS website has no critical level / load information for Tonge Gorse woodland or specifically for Ancient and Veteran trees, therefore the project ecologist has provided information to assess these ecological receptors.

Modelling

8.2.110. There are many uncertainties when considering both measured and predicted pollution concentrations.

8.2.111. In order to reduce the uncertainty associated with predicted concentrations, model verification has been carried out following guidance set out in TG22, as set out in **Appendix 8A: Model Verification (Document DCO 6.8A/MCO 6.8A)**. To note, at the time of writing the most recent available monitored data undertaken by NWLDC is 2023 (as 2024 monitoring data has not been verified by DEFRA), so 2023 monitoring data along with the independent monitoring programme undertaken near to the EMG2 Project has been utilised.

8.2.112. As previously highlighted, there are many uncertainties when considering both measured and predicted pollution concentrations, particularly within the Castle Donington AQMA. The ADMS-Roads dispersion model has been verified using 2023 monitoring data and 2023 traffic data. However, due to localised dispersion issues—specifically within a street canyon—and the relatively high monitored NO_2 concentration at site 18N (which recorded an annual mean of 34.1 µg/m³ in 2023, compared with 15.3 µg/m³ in 2022), a significant adjustment factor has been applied to receptors within the Castle Donington AQMA. It should be noted that overall traffic volumes at this location are not anticipated to have changed significantly between 2022 and 2023. As a result, this adjustment may influence the conclusions drawn regarding the EMG2 Project's potential air quality impacts in this area. Additionally, traffic calming measures were introduced in 2024 along High Street, Market Street, and Bondgate in Castle Donington to try and redirect traffic to the Castle Donington Relief Road. At the time of writing, the impact of these measures on NO_2 concentrations within the AQMA remains unknown.

8.2.113. In order to avoid double counting of potential source contributions already contained within the ADMS-Roads dispersion model, 'Motorway in' was removed from each relevant grid square, as recommended in the Defra Background Maps User Guide[30]. As the relationship

[29] Joint Nature Conservation Committee et al. Air Pollution Information System. Site Relevant Critical Loads and Source Attribution | Air Pollution Information System

[30] Department for Environment, Food & Rural Affairs.2024. *Background Concentration Maps User Guide.*

between NO_2 and NO_x is not linear, the NO_2 Adjustment for NO_x Sector Removal Tool[31] has be utilised.

$PM_{2.5}$ Limits/Targets

8.2.114. The Applicants acknowledge that the Council (and by continuation the Inspector) should have regard to the Air Quality Strategy[32] when exercising planning functions that could affect the quality of air, by virtue of s.81A Environment Act 1995.

8.2.115. In Section 3.2, the Air Quality Strategy 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"*. The Strategy references the legally binding targets set out in the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

8.2.116. It is important to understand that the duty to comply with the targets is on the Secretary of State as competent authority, not the Council, see: s.5 Environment Act 2021.

8.2.117. Moreover, it is the case that neither the Air Quality Directive nor the 2010 Regulations constrain the discretion of the Secretary of State when exercising his planning functions see: R(Shirley) v Secretary of State for Communities and Local Government [2019] PTSR 1614[33].

8.2.118. As Lindblom LJ said (see Paragraph 45):

> *"The fact that in England the Secretary of State is given responsibility for all six of those activities as competent authority under regulation 3 does not mean that his statutory powers and duties outside the ambit of article 3, including his planning functions, must be exercised by him as—or as if he were—a competent authority with those other powers and duties. It does not mean that he assumes a general duty to exercise every ministerial function conferred upon him, in all his various departmental roles, to bring about compliance with the regime in the air quality legislation, even though no such duty is contemplated in the Air Quality Directive itself … He can perform his responsibilities as competent authority to the full without having to do that."*

8.2.119. Consistent with that approach, the planning newsletter[34] issued by the Department for Levelling Up, Housing and Communities (DLUHC) to Chief Planning Officers in (3 March 2023) explains that *"legal compliance with the targets will be monitored using the national monitoring network"*. Therefore, compliance should not be modelled, rather monitored, and considered at a national level, rather than at a local level.

8.2.120. This is further supported by the IAQM (2024) Horizon Scanning: Air Quality Policy document[35], which highlights that, despite the ongoing importance of local delivery, gaps remain on guidance for local authorities in delivering clean air in practice, such as on the

[31] Department for Environment, Food & Rural Affairs. 2020. *NO_2 Adjustment for NOx Sector Removal Tool v9.1*

[32] Department for Environment, Food & Rural Affairs 2023. Air Quality Strategy – Framework for Local Authority Delivery

[33] R (Shirley) v Secretary of State for Communities and Local Government [2019] PTSR 1614

[34] Department for Levelling Up, Housing & Communities 3rd March 2023. Planning Newsletter

[35] Institute of Air Quality Management, 2024. Horizon Scanning: Air Quality Policy -Policy Development and Opportunities to Engage.

contribution of local authorities to achieving $PM_{2.5}$ targets following the Air Quality Strategy's framework for local authority delivery.

8.2.121. Therefore, monitoring will be especially important to ensure the implementation of the Government's targets for $PM_{2.5}$ in practice. As the Government expands its monitoring network, particularly automatic monitoring through the Automatic Urban and Rural Network, expertise from air quality science will be needed to validate data.

8.2.122. It is noted in the planning newsletter[36] issued by the Department for Levelling Up, Housing and Communities (DLUHC) to Chief Planning Officers in November 2024 that Defra have released interim guidance[37], with the view of consulting on the full guidance in 2025 (which at the time of writing has not been released) on how the Environment Act 2021 $PM_{2.5}$ targets are considered as part of planning decisions. This interim guidance focuses upon the mitigation by design concept and has been considered within the Chapter.

8.2.123. In regard to the relevant $PM_{2.5}$ limit values for consideration, at paragraph 3.7.6 of the Hinckley National Rail Freight Interchange (2024) Examining Authority's Report of Findings and Conclusions document[38] states:

> *"The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 were made on 30 January 2023 and came into effect on 31 January 2023. This introduces an annual mean concentration target of 10 micrograms per cubic metre (µg/m³) for Particulate Matter with a diameter of 2.5 micrometres or less ($PM_{2.5}$) and a population exposure reduction target of at least 35% to be achieved by the end of 2040. Government policy on how the 2040 target will be achieved is still emerging. Until then the Limit Values in the Air Quality Standards Regulations 2010 remain in force and are the most relevant limit for the purposes of this decision. Relevant annual mean targets are therefore 40µg/m³ for Particulate Matter with a diameter of 10 micrometres or less (PM_{10}) and 25µg/m³ for $PM_{2.5}$."*

8.2.124. Notwithstanding, the post-Stage 2 (2020) $PM_{2.5}$ limit of 20µg/m³ has been deemed more suitable worst case annual limit to assess against and commentary of the 2028 $PM_{2.5}$ interim target has been provided in this Chapter.

[36] Ministry of Housing Communities & Local Government 15th November 2024. Planning Newsletter

[37] Department for Environment Food & Rural Affairs (2024) *$PM_{2.5}$ Targets: Interim Planning Guidance*, available at: https://uk-air.defra.gov.uk/pm25targets/planning

[38] The Planning Inspectorate 2024. Hinckley National Rail Freight Interchange (2024). *Examining Authority's Report of Findings and Conclusions*.

8.3. Policy, Guidance and Legislative Context

8.3.1. The following legislation, policy and guidance is common to both the DCO Application and the MCO Application.

European Legislation

8.3.2. European air quality legislation is consolidated under Directive 2008/50/EC on ambient air quality and cleaner air for Europe (as amended), which came into force on 11th June 2008. This Directive consolidated and replaced earlier air quality directives, which targeted specific pollutants, and introduced new air quality objectives, including for fine particulate matter ($PM_{2.5}$). The consolidated and related directives include:

- Directive 1999/30/EC – the First Air Quality Daughter Directive – set ambient air limit values for nitrogen dioxide (NO_2) and oxides of nitrogen (NO_x), sulphur dioxide (SO_2), lead (Pb), and particulate matter (PM_{10}).
- Directive 2000/69/EC – the Second Daughter Directive – set ambient air limit values for benzene (C_6H_6) and carbon monoxide (CO).
- Directive 2002/3/EC – the Third Daughter Directive – established long-term objectives, target values, and information and alert thresholds for ozone (O_3) in ambient air.
- Directive 2004/107/EC – the Fourth Daughter Directive (as amended) – set target values for certain heavy metals (e.g. arsenic, cadmium, nickel, lead) and polycyclic aromatic hydrocarbons (PAHs) in ambient air.
- Directive 2008/50/EC – the Ambient Air Quality Directive – sets legally binding limit values for concentrations of major air pollutants that affect public health, including PM_{10}, $PM_{2.5}$, and NO_2, and also addresses ozone, SO_2, and CO.

8.3.3. The limit values set out in the European Directives referenced above have been transposed into UK legislation via the Air Quality Standards Regulations 2010 (Statutory Instrument 2010 No. 1001), as amended. Responsibility for meeting ambient air quality limit values in the UK is devolved to the national administrations of Scotland, Wales, and Northern Ireland, with separate air quality strategies and reporting structures in each.

8.3.4. Following the UK's departure from the EU and the end of the Brexit transition period on 31 December 2020, retained EU air quality law remains in force under the European Union (Withdrawal) Act 2018, with modifications introduced through EU Exit legislation. As part of this transition, the Air Quality Standards (Amendment) Regulations 2021 introduced substantive changes, including a revised annual mean limit value for $PM_{2.5}$, reduced from 25 µg/m³ to 20 µg/m³, applicable from 1 January 2021.

Habitats Directive

8.3.5. The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, 1992)[39] requires Member States to implement a range of measures for the conservation of habitats and species of European importance. In England

[39] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

and Wales, the Directive is transposed into domestic legislation through the Conservation of Habitats and Species Regulations 2017 (Statutory Instrument 2017 No. 1012)[40] (the "Habitats Regulations"). Under these Regulations, the Secretary of State is required to submit to the European Commission a list of sites considered important for the habitats or species listed in the Directive. The Commission may then designate these sites as Special Areas of Conservation (SACs). The Habitats Regulations also require the compilation and maintenance of a register of European Sites, which includes SACs and Special Protection Areas (SPAs) — the latter designated under the Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council, 2009). Collectively, SACs and SPAs form part of the Natura 2000 network.

8.3.6. The Habitats Regulations primarily provide protection for European Sites and European Protected Species (EPS). They also place a duty on local planning authorities to encourage the management of landscape features that are of major importance for wild flora and fauna, particularly those that provide migration, dispersal, or genetic exchange corridors.

8.3.7. In addition to SACs and SPAs, certain UK sites of international importance for wetland conservation are designated as Ramsar Sites under the Ramsar Convention (1971)[41]. While the Convention originally focused on the protection of waterfowl habitat, its scope has broadened to include all aspects of wetland conservation. Although Ramsar designations are not underpinned by a specific statutory regime in the UK, national planning policy, specifically the National Planning Policy Framework (NPPF) — requires that Ramsar Sites be afforded the same level of protection as European Sites.

8.3.8. Under the Habitats Directive, as implemented through the Habitats Regulations, the competent authority (typically the relevant planning authority) must undertake a Habitats Regulations Assessment (HRA) of any plan or project that is not directly connected with or necessary to the management of a European Site, but which is likely to have a significant effect on the site, either alone or in combination with other plans or projects. Where such a likelihood is identified, the competent authority must carry out an Appropriate Assessment (AA) to determine whether the plan or project — in this case, the EMG2 Project — would have an adverse effect on the integrity of the European Site.

National Legislation

Air Quality Standards Regulations 2010 (as amended)

8.3.9. The EU Directives referred to above are implemented into domestic law through the Air Quality Standards Regulations 2010 (Statutory Instrument 2010 No. 1001)[42], as amended. These Regulations transpose requirements from Directive 2008/50/EC on ambient air quality and cleaner air for Europe into UK law. The limit values for ambient air quality defined within the Regulations are legally binding and apply across England. These standards are applicable except in the following locations:

[40] The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012), as amended
[41] The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, adopted in Ramsar, Iran, 2 February 1971 (as amended 1982 and 1987)
[42] The Air Quality Standards Regulations 2010 (SI 2010/1001)

- The carriageway and central reservation of roads where the public does not normally have access;
- Industrial premises or other occupational settings where health and safety legislation applies; and
- any locations without public access or fixed habitation.

The Air Quality Strategy

8.3.10. The Air Quality Strategy[43] for England, Scotland, Wales and Northern Ireland provides the overarching policy framework for improving ambient air quality and protecting public health and the environment from the harmful effects of air pollution. It sets out the UK's long-term vision for air quality and guides both local and national measures to manage and reduce emissions from key sources.

8.3.11. For each identified pollutant, the Strategy establishes clear, health-based air quality standards and target dates by which these should be achieved. These combined thresholds are referred to as Air Quality Objectives (AQOs). The objectives have been derived from expert scientific and medical advice and form the basis for statutory requirements under the Air Quality (England) Regulations 2000, as amended[44].

8.3.12. While the Strategy provides strategic direction, the statutory implementation of air quality standards—particularly for nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) is carried out through legislative instruments, including:

- The Air Quality Standards Regulations 2010 (which transposed EU Directive 2008/50/EC into UK law)[45];
- The Environment Act 1995 (as amended by the Environment Act 2021)[46], and
- Locally delivered Air Quality Action Plans under the Local Air Quality Management (LAQM) regime[47].

Environmental Protection Act 1990

8.3.13. Under Part III of the Environmental Protection Act (1990)[48], local authorities have a duty to take such steps as are reasonably practicable to investigate complaints about matters that could constitute a statutory nuisance. Potential causes of statutory nuisance include:

- Any premises in such a state as to be prejudicial to health or a nuisance;
- Smoke emitted from premises so as to be prejudicial to health or a nuisance;
- Fumes or gases emitted from premises so as to be prejudicial to health or a nuisance;

[43] Defra, 2007. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Volume 1 & 2. London: The Stationery Office.

[44] The Air Quality (England) Regulations 2000 (SI 2000/928), as amended by SI 2002/3043

[45] The Air Quality Standards Regulations 2010 (SI 2010/1001)

[46] Environment Act 1995 (c.25), as amended by the Environment Act 2021 (c.30)

[47] Defra, (2023) *Environmental Improvement Plan 2023: Delivering a Better Environment for England*

[48] UK Public General Acts, 1990. *Environmental Protection Act 1990, Chapter 43.*

- Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance; or
- Any accumulation or deposit which is prejudicial to health or a nuisance.

8.3.14. If a local authority is satisfied of the existence, or likely occurrence, of a statutory nuisance, it may serve an abatement notice on the person responsible, or on the owner or occupier of the premises. Failure to comply with an abatement notice can result in prosecution by the local authority and may lead to penalties such as a fine. However, it is a valid defence to demonstrate that the best practicable means were used to prevent or reduce the nuisance.

Environmental Act 1995

8.3.15. Part IV of the Environment Act 1995[49] requires local authorities to review and assess the air quality within their boundaries. As a result, the Air Quality Strategy was adopted in 1997[50], setting out national, health-based standards and objectives for eight key air pollutants: benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide (NO_2), ozone, particulate matter (PM_{10} and later $PM_{2.5}$), and sulphur dioxide (SO_2).

Environmental Act 2021

8.3.16. Part IV of the Environment Act 2021[51] amends both the Environment Act 1995 and the Clean Air Act 1993. It builds on the framework provided by Part IV of the 1995 Act and strengthens the Local Air Quality Management (LAQM) regime. The Act also gives the Secretary of State powers to make provisions relating to the recall of products that do not meet relevant environmental standards.

8.3.17. At the time, the government resisted calls to adopt the updated World Health Organization (WHO) air quality guidelines, particularly those concerning particulate matter (PM). However, the Environment Act 2021 introduced a duty on the government to bring forward at least two air quality targets by October 2022, to be set in secondary legislation—which has since been enacted.

8.3.18. The first target is to reduce the annual average concentration of fine particulate matter ($PM_{2.5}$) in ambient air. The second is a long-term target (to be achieved over a minimum 15-year timeframe), which the government stated, *"will encourage long-term investment and provide certainty for businesses and other stakeholders."*

[49] Parliament of the United Kingdom, 1995. *Environmental Act 1995,* Chapter 25.

[50] Department for Environment Food and Rural Affairs, 1997. *The United Kingdom National Air Quality Strategy*, Cm 3587.

[51] UK Public General Acts, 2021. *Environmental Act 2021*, *Chapter 30.*

National Policy

National Policy Statement National Networks (NPSNN)

8.3.19. The NPSNN[52] recognises that increases in emissions of pollutants during the construction or operation phases of projects on the national networks can result in the worsening of local air quality and could contribute to adverse impacts on human health, on protected species and habitats.

8.3.20. At Paragraph 5.13, the NPSNN sets out how the applicant should assess the air quality impact assessment, which includes:

- *existing air quality emissions and concentrations*
- *forecasts of emissions and concentrations at the time of opening, assuming that the scheme is not built (the future baseline) and taking account of the impact of the scheme*
- *any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of any road traffic generated by the project*
- *the predicted emissions, concentration change and absolute concentrations of the proposed project after mitigation methods have been applied*
- *any potential impacts on nearby designated habitats from air pollutants*
- *the proximity and nature of nearby receptors which could be impacted, including those more sensitive to poor air quality*

8.3.21. At Paragraph 5.14 the NPSNN goes on to state:

> *"In addition, applicants should consider The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 by following available Defra guidance, including interim guidance."*

8.3.22. Regarding mitigation, at Paragraph 5.18, the NPSNN states that:

> *"Where a project is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, the applicant should work with the relevant authorities to secure appropriate mitigation measures."*

8.3.23. At Paragraph 5.22, the NPSNN states that:

> *"In all cases the Secretary of State must take account of any relevant statutory air quality limits, objectives and targets. The Secretary of State should consider whether mitigation measures put forward by the applicant are acceptable. In doing so the Secretary of State should have regard to relevant guidance including within the Air*

[52] Department for Transport. (2024). National Networks National Policy Statement. ISBN 978-1-5286-4733-5. E03086063 03/24

Quality Strategy or any successor to it, Local Air Quality Management guidance and any relevant $PM_{2.5}$ target guidance."

8.3.24. At Paragraph 5.24, the NPSNN states that:

"The Secretary of State should give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to meeting environmental assessment requirements; or where they lead to a deterioration in air quality in a zone/agglomeration."

8.3.25. At Paragraph 5.25, the NPSNN states that:

"The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts resulting from the proposed scheme will either:

• result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Standards Regulations (2010) becoming non-compliant; or

• affect the ability of a non-compliant area to achieve compliance within the most recent published timescales reported to the Examining Authority at the examination"

National Planning Policy Framework (2024)

8.3.26. The National Planning Policy Framework (NPPF)[53] (2024) sets out the planning policy for England, to help achieve sustainable development within the planning sector, and that the planning system has three overarching objectives, one of which (Paragraph 8c) is an environmental objective:

"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

8.3.27. The NPPF also sets out the national planning policy on biodiversity and conservation. This emphasises that the planning system should seek to minimise effects on and provide net gains in biodiversity, wherever possible, as part of the Government's commitment to halting decline and establishing coherent and resilient ecological networks.

8.3.28. Paragraph 110 states:

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

[53] Department for Ministry of Housing, Communities & Local Government, 2024. *National Planning Policy Framework*.

8.3.29. Paragraph 187 states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

[...]

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

[...]"

8.3.30. Paragraph 188 states:

"Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries."

8.3.31. Paragraph 193 states:

"When determining planning applications, local planning authorities should apply the following principles:

a. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c. development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."

8.3.32. Following on from Paragraph 193, Paragraph 194 states:

"The following should be given the same protection as habitats sites:

a. potential Special Protection Areas and possible Special Areas of Conservation;

b. listed or proposed Ramsar sites; and

c. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."

8.3.33. Paragraph 195 states:

"The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

8.3.34. Paragraph 198 states:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

8.3.35. Paragraph 199 states:

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

8.3.36. Paragraph 201 states:

"The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

Planning Practice Guidance (2024)

8.3.37. The NPPF is supported by Planning Practice Guidance (PPG)[54] (DLUHC & MHCLG, 2024), which sets out the principles on how planning can take account of the impacts of new developments on air quality.

8.3.38. Paragraph 001 Reference ID: 32-001-20191101 states:

> *"The 2008 Ambient Air Quality Directive sets legally binding limits for concentrations in outdoor air of major air pollutants that affect public health such as particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2).*
>
> *The UK also has national emission reduction commitments for overall UK emissions of 5 damaging air pollutants:*
>
> - *fine particulate matter ($PM_{2.5}$)*
> - *ammonia (NH_3)*
> - *nitrogen oxides (NO_x)*
> - *sulphur dioxide (SO_2)*
> - *non-methane volatile organic compounds (NMVOCs)*
>
> *As well as having direct effects on public health, habitats and biodiversity, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. Odour and dust can also be a planning concern, for example, because of the effect on local amenity."*

8.3.39. Paragraph: 005 Reference ID: 32-005-20191101 states:

> *"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.*
>
> *Where air quality is a relevant consideration the local planning authority may need to establish:*
>
> - *The 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
> - *whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*

[54] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government. Planning Practice Guidance. Accessible at: http://planningguidance.planningportal.gov.uk/

- *whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."*

Local Policy

North West Leicestershire Local Plan 2011 to 2031 (2021)

8.3.40. The relevant Development Plan policy is currently provided by North West Leicestershire District Council's Local Plan. This was originally adopted in in November 2017, with a partial review undertaken in February 2018 and adopted in 2021[55]. The following policies are pertaining to air quality within the Local Plan.

8.3.41. Policy En6 – Land and air quality states:

> *"Proposals for development on land that is (or is suspected of being) subject to land instability issues or contamination, or is located within the defined Development High Risk Area or within or close to an Air Quality Management Area or close to a known source of noise will be supported where:*
>
> *a. A planning application is accompanied by a detailed investigation and assessment of the issues; and*
>
> b. *Appropriate mitigation measures are identified which avoid any unacceptably adverse impacts upon the site or adjacent areas, including groundwater quality.*
>
> *Development should avoid any unacceptably adverse impact upon soils of high environmental value (for example wetland and other specific soils) and ensure that soil resources are conserved and managed in a sustainable way."*

8.3.42. Policy D2 – Amenity states:

> *"Proposals for development should be designed to minimise their impact on the amenity and quiet enjoyment of both existing and future residents within the development and close to it. As such, development proposals will be supported where:*
>
> *[..]*
>
> *2) They do not generate a level of activity, noise, vibration, pollution or unpleasant odour emission, which cannot be mitigated to an appropriate standard and so, would have an adverse impact on amenity and living conditions."*

Draft North West Leicestershire Local Plan 2020 to 2040

8.3.43. NWLDC consulted on the Regulation 18 draft Local Plan in February and March 2024. The potential effects of pollution from new development are primarily addressed in point b) of Draft Policy AP2 – Amenity, which is similar to Policy D2 in the current Local Plan as detailed above:

[55] North West Leicestershire District Council, 2021. North West Leicestershire Local Plan.

"(1) New development should be designed to minimise its impact on the amenity and quiet enjoyment of both future residents and existing residents in the vicinity of the development. Development proposals will be supported where:

[..]

(b) They do not generate a level of activity, noise, vibration, pollution or unpleasant odour emission, which cannot be mitigated to an appropriate standard and so, would have an adverse impact on amenity and living conditions."

[..]

8.3.44. The draft Local Plan includes a second relevant policy, Draft Policy AP5 – Health and Wellbeing (Strategic Policy), which references air quality at point f):

"(1) Development that maintains and improves the health and wellbeing of our residents, encouraging healthy lifestyles by tackling the causes of ill health and inequalities will be supported. Health considerations will be embedded in decision making and the Council will support the creation of a high quality, accessible and inclusive environment.

[…]

To achieve this, the Council will:

[…]

Prevent negative impacts on residential amenity and wider public safety from noise, ground instability, ground and water contamination, vibration and air quality."

Guidance

National

Local Air Quality Management Review and Assessment Technical Guidance (LAQM.TG22) (2025) [56]

8.3.45. Defra has published technical guidance for use by local authorities in their review and assessment work. This guidance also provides technical guidelines on carrying out modelling and monitoring of air quality. This guidance, referred to in this document as TG22, has been used where appropriate in the assessment.

Guidance on the Assessment of Dust from Demolition and Construction (2024) [57]

8.3.46. The IAQM have published this guidance. The guidance provides a methodology to undertake a qualitative assessment of the potential dust / emission risks during the

[56] Defra (2025), Local Air Quality Management – Technical Guidance (22) [online]. Available at: https://laqm.defra.gov.uk/wp-content/uploads/2025/05/LAQM-TG22-May-25-v2.0.pdf). (Last accessed 10/06/2025).
[57] Institute of Air Quality Management (IAQM), 2024. Guidance on the Assessment of Dust from Demolition and Construction (v2.2).

construction phase of a Scheme. The assessment consists of a five step processes to assess the potential level of risks, (Large, Medium, Small or Negligible), regarding the four main phases of development, (demolition, earthworks, construction, and trackout). The assessment includes consideration of pre-mitigation, and post-mitigation impacts, based upon the scale and nature of the development.

Land-Use Planning & Development Control: Planning for Air Quality (2017) [58]

8.3.47. The EPUK and IAQM have published guidance that offers comprehensive advice on when an air quality assessment may be required, what should be included in an assessment, how to determine the significance of any air quality impacts associated with a development, and the possible mitigation measures that may be implemented to minimise these impacts.

A Guide to The Assessment of Air Quality Impacts on Designated Nature Conservation Sites (2020) [59]

8.3.48. The IAQM have published this guidance. The guidance has been provided to assist its members in the assessment of the air quality impacts of development on designated nature conservation sites.

Design Manual for Roads and Bridges (DMRB) LA105. Air Quality (2024) [60]

8.3.49. The DMRB guidance has been provided by Highways England and has published guidance upon when an impact assessment should be undertaken to quantify the potential impacts of nitrogen deposition upon any identified ecological designated sites.

$PM_{2.5}$ Targets: Interim Planning Guidance

8.3.50. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set two new targets for fine particulate matter ($PM_{2.5}$). These targets are central government targets primarily focussed on tackling emissions, rather than requiring local authorities to assess concentrations against these new $PM_{2.5}$ targets. In March 2023, the Department for Levelling-Up, Housing and Communities (DLUHC) wrote to all Chief Planning Officers[61] in England advising that guidance was progressing on how these new targets should be integrated into the planning system. At the time of writing, interim guidance has been produced by DEFRA[62] which states:

> *"The purpose of the targets is to improve air quality by reducing levels of $PM_{2.5}$ across the country, therefore improving public health. While achievement of the targets will be assessed at relevant monitoring sites, the targets apply to ambient (outdoor) air*

[58] Environmental Protection UK (EPUK) and IAQM, 2017. Land-use Planning & Development Control: Planning for Air Quality.
[59] Institute of Air Quality Management, 2020. *A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*
[60] Highways Agency (2024). *Design Manual for Roads and Bridges (DMRB), LA 105. Air Quality (vertical barriers).*
[61] Department for Levelling Up, Housing & Communities, 2023. *Planning Newsletter – 3rd March 2023*.
[62] Department for Environment Food & Rural Affairs (2024) *$PM_{2.5}$ Targets: Interim Planning Guidance*, available at: https://uk-air.defra.gov.uk/pm25targets/planning

throughout England. Applicants and Local Planning Authorities should therefore consider the impact of developments on air quality in all ambient air, whether a monitor is present or not.

These targets require a different approach to that used by applicants and Local Authorities in response to existing air quality legislation.

The new approach moves away from a requirement to assess solely whether a scheme is likely to lead to an exceedance of a legal limit and instead ensures that appropriate mitigation measures are implemented from the design stage, streamlining the process for planning and ensuring the minimum amount of pollution is emitted and that exposure is minimised.

Pending publication of the new guidance, applicants are advised to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of $PM_{2.5}$ and its precursors as far as is reasonably practicable. If quantitative evidence is not available, a qualitative approach can be taken. This applies to all developments which would normally require an air quality assessment. More detailed assessments are expected for developments which are closer to populations, and those which are likely to have higher emissions. This guidance is separate to how $PM_{2.5}$ should be considered within environmental permitting."

8.3.51. To note, the DEFRA (2024) interim guidance also provides considerations applicants have to make in terms of impacts and exposure (which also aligns with the mitigation hierarchy set out within the Institute of Air Quality Management (IAQM) (2018) Mitigation of Development Air Quality Impacts[63] Statement).

Local

North West Leicestershire Air Quality Supplementary Planning Document[64]

8.3.52. The document sets out guidelines for new development and aids in the application of the NWLDC Local Plan.

8.3.53. The NWLDC SPD details a two-step process for classifying developments. Step 1 determines the scale / type of development while Step 2 determines potential for receptors to be introduced into an area of poor air quality.

Step 1

8.3.54. Figure 2 and Figure 3 in the NWLDC SPD details whether a development would be classed as 'Major' or 'Major+'. The criteria are set out below.

[63] Institute of Air Quality Management, 2018. *Mitigation of Development Air Quality Impacts (v1.1).'*

[64] North West Leicestershire District Council (2023) *North West Leicestershire Air Quality Supplementary Planning Document*

8.3.55. A development is ‘Major’ if:

- For residential development, the number of dwellings is 10 or more; or where the number of dwellings is unknown, the site is 0.5ha or more
- For all other uses, the floorspace is 1000 m^2 or more; or where the floorspace is unknown, the site area is 1 ha or more.

  AND it has either of the following:

- More than 10 parking spaces;
- A centralised combustion process.

8.3.56. Since the development contains over 1,000 m^2 and has plans for over 10 parking spaces, the development meets the ‘Major’ thresholds and therefore should be screened against the ‘Major+’ criteria.

8.3.57. A development is ‘Major+’ if one or more of these criteria are met:

- requires an EIA (Environmental Impact Assessment)
- increases Light Duty Vehicle (LDV) flows of more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA, or more than 500 AADT elsewhere
- increases Heavy Duty Vehicles (HDV) flows of more than 25 AADT within or adjacent to an AQMA, or more than 100 AADT elsewhere
- realigns a road by 5 m or more if the road is within an AQMA (i.e. changes the proximity of receptors to traffic lanes)
- introduces a new junction or removes an existing junction near to relevant receptors
- introduces or changes a bus station (increase bus movements by more than 25 AADT within or adjacent to an AQMA, or more than 100 AADT elsewhere)
- has an underground car park with extraction system (within 20m of a relevant receptor and with more than 100 movements per day, in and out)
- has one or more substantial combustion processes, where there is a risk of impacts at relevant receptors (this includes combustion plant associated with standby emergency generators (typically associated with centralised combustion process)).
- it includes a regulated process under the Environmental Permitting (Amendment) Regulations 2018 with emissions to air.

8.3.58. Since the EMG2 Project will increases LDV flows by > 500 AADT and HDV flows by > 100 AADT, the development can be classified as ‘Major+’.

Step 2

8.3.59. Figure 4 within the NWLDC SPD ascertains whether a development is in a location which exceeds the air quality objectives and where receptors could be subject to environmental nuisance. To note, the criteria in Figure 4 are not met.

Conclusion

8.3.60. Therefore, since the EMG2 Project is 'Major+' and is not located in an area of potential poor air quality, an air quality assessment is required, however this assessment does not need to incorporate an Air Quality Site Suitability Assessment. Nonetheless, since an assessment of future exposure was requested, a site suitability assessment has been undertaken. Table 1 of the NWLDC SPD outlines that the air quality assessment should include:

- Construction dust risk assessments;
- An air quality impact assessment; and
- Mitigation measures which should be determined subsequent to identifying any potential significant effects.

8.4. Approach to Assessment of Applications

8.4.1. In recognition that this chapter forms part of a single ES covering both the DCO Application and the MCO Application (as explained in Section 8.1 and in full within **Chapter 1: Introduction and Scope, Document DCO 6.1/MCO 6.1**) it makes a clear distinction between the component parts and, consistent with the dual application approach, assesses the impacts arising from the DCO Scheme and MCO Scheme separately (where possible) and then together as the EMG2 Project in combination. To note, due to the nature of the traffic data it has only been possible to assess the impacts of the EMG2 Project as a whole.

8.4.2. Accordingly the remaining sections of this Chapter are structured as follows:

- An Assessment of the DCO Scheme within Section 8.5;
- An Assessment of the MCO Scheme within Section 8.6;
- An Assessment of the EMG2 Project as a whole, comprising the DCO Scheme and MCO Scheme together, within Section 8.7;
- An Assessment of the EMG2 Project as a whole in combination with other planned development (i.e. the cumulative effects) within Section 8.8;
- An overall summary and conclusions of the above within Section 8.9.

8.5. Assessment of DCO Application

8.5.1. As set out in Section 1 of this Chapter, and at **Table 8.1**, the DCO Scheme comprises of the following component parts:

- The EMG2 Works: Logistics and advanced manufacturing development located on the EMG2 Main Site together with the provision of a community park, HGV parking, a bus interchange, and an upgrade to the EMG1 substation;
- The Highway Works: Works to the highway network: the A453 EMG2 access junction works; significant improvements at Junction 24 of the M1 (referred to as the J24 Improvements) and works to the wider highway network including active travel works.

8.5.2. Within this Section, reference to EMG2 Works excludes the upgrades to the EMG1 Substation except where these works are specifically referenced.

Baseline Conditions

8.5.3. This section is common to both the DCO Scheme and the MCO Scheme.

Measured Concentrations

Local Air Quality Management

8.5.4. Under the Air Quality Strategy there is a duty on all Local Authorities to consider the air quality within their boundaries and to report annually to DEFRA. Local Air Quality Management in the North West Leicestershire area has been assessed by NWLDC, through the national Review and Assessment process and, in fulfilment of Part IV of the Environment Act 1995.

8.5.5. NWLDC have two AQMAs within the jurisdiction, both declared for exceedances of the NO_2 annual mean objective. To note, NWLDC previously had five AQMAs, however, three of these have since been revoked. It should be noted that the EMG2 Project is not located within either of the extant AQMAs.

8.5.6. NWLDC carried out automatic monitoring at four locations in 2023, measuring concentrations of NO_2, O_3 and particulate matter (PM_{10}, $PM_{2.5}$ and PM_1). To note, this monitoring was undertaken using Zephyr monitors, which only have MCERTs classification (the Environment Agency's Monitoring Certification Scheme, used to approve air quality monitoring instruments) for particulate matter.

8.5.7. NWLDC also have a number of non-automatic NO_2 diffusion tube monitoring locations across the district. The local monitored data is set out in **Table 8.8**.

Table 8.8: Monitored NWLDC Annual Mean NO_2 Concentrations

ID	Type	Annual Mean (µg/m^3)				
		2019	2020	2021	2022	2023
Castle Donington						
12N	O	18.86	13.4	13.0	24.0	13.9
14N	R	20.68	16.1	14.8	16.7	13.7
16N	R	31.51	21.5	22.8	29.5	21.9
17N	R	30.88	20.7	21.3	17.5	24.1
18N	R	**42.05**	29.8	34.2	15.3	34.1
19N	R	27.29	19.7	19.4	23.8	19.1
40N	R	22.94	14.8	15.3	20.4	15.2
41N	R	36.16	24.1	24.1	20.5	24.1
54N	R	23.29	18.1	18.0	22.4	16.8
Kegworth						
23N	R	20.49	16.0	15.2	25.3	13.1
47N	R	24.5	18.5	17.6	15.7	16.8
48N	R	26.29	18.0	17.5	13.4	17.6
51N	R	22.4	18.3	18.3	14.8	17.1
53N	R	19.79	16.1	15.6	27.3	13.4

Notes:
R – Roadside
O – Other
***Bold** indicates exceedances of the NO_2 annual mean objective (40 µg/m^3). **Bold and underlined** indicates exceedances of 60 µg/m^3 (which is an indication that the hourly mean objective could be being breached).*

8.5.8. The air quality monitoring carried out by NWLDC closest to the EMG2 Project shows a compliance of the NO_2 annual mean objective in 2023, the most recent representative year.

8.5.9. Notably, several monitoring locations in 2022 showed results that were drastically different from other monitoring years at the same site, possibly due to poor data capture. Therefore, these sites will be treated with caution when forming the evidence base.

8.5.10. To note, due to the impact of the COVID-19 pandemic on traffic, 2020 and 2021 concentrations are not considered to be representative of 'typical' air quality concentrations. Whilst it is expected that as a result of the COVID-19 pandemic that behavioural changes have occurred (such as hybrid working patterns), data on the impact of this on air quality long-term is currently limited to monitoring data collected in 2022 and 2023 (as 2024 data is not available at the time of writing), therefore long-term conclusions cannot be drawn, but early evidence is showing a general reduction across the country.

East Midlands Airport Air Quality Monitoring

8.5.11. East Midlands Airport (EMA) operate an automatic air quality monitoring location. **Table 8.9** sets out the NO_2, PM_{10}, and $PM_{2.5}$ monitoring data collected for the last year of available data (2023).

Table 8.9: EMA NO_2 PM_{10} & $PM_{2.5}$ Annual Mean Air Quality Monitoring (2023)

ID	Type	Pollutants (µg/m^3)
NO_2		
EMA	Other	10.4
PM_{10}		
EMA	Other	11.2
$PM_{2.5}$		
EMA	Other	6.9

Notes:
Bold *indicates exceedances of the relevant annual mean objective / limit (40 µg/m^3 for NO_2 and PM_{10} and 20 µg/m^3 for $PM_{2.5}$). For NO_2,* ***Bold and underlined*** *indicates exceedances of 60 µg/m^3 (which is an indication that the hourly mean objective could be being breached).*

8.5.12. The air quality monitoring carried out at EMA shows compliance of the relevant air quality standards in 2023.

Diffusion Tube Monitoring Survey

8.5.13. The results of the annualised 6-month diffusion tube survey are set out in **Table 8.10**. Further details on the monitoring programme are set out in **Appendix 8E: NO_2 Monitoring Programme (Document DCO 6.8E).**

Table 8.10: Monitored NO_2 Concentrations (µg/m^3)

ID	Location	Bias Adjusted Annualised Results
EMG1	A453 Grimes Gate Junction	20.9
EMG2	A453 Viscount Road Junction	19.3
EMG3	A453 Beverley Road Junction	26.9
EMG4	A453 Donington Park Services Roundabout	37.4
EMG5	Grimes Gate – Outside Diseworth C of E Primary School	10.1

Notes:
Bold *indicates exceedances of the NO_2 annual mean objective (40 µg/m^3).* ***Bold and underlined*** *indicates exceedances of 60 µg/m^3 (which is an indication that the hourly mean objective could be being breached).*

8.5.14. The results from the diffusion tube survey indicated that typical NO_2 concentrations at various strategic locations near to the EMG2 Project ranged from 10.1 to 37.4 µg/m^3. This indicated there were no exceedances of the NO_2 annual mean objective (40 µg/m^3).

Background Concentrations

Mapped Background Concentrations

8.5.15. The calibrated background pollutant concentrations for each identified receptor modelling location, for both the verification year (2023) and the assessment year of 2028 were obtained from the closest 1km x 1km grid to each receptor location, as provided by the Defra background mapping. The background concentrations are presented in **Table 8.11**.

Table 8.11: Background Air Quality Concentrations (µg/m^3) – Human Receptors

Pollutant	2023	2028
NO_2	9.2 – 23.5	6.6 – 21.8
PM_{10}	-	11.5 – 16.1
$PM_{2.5}$	-	6.2 – 9.3
NO_x	12.4 – 20.1	9.8 – 14.0
Notes: ***Bold*** *indicates exceedances of the relevant annual mean objective / limit (40 µg/m^3 for NO_2 and PM_{10} and 20 µg/m^3 for $PM_{2.5}$).For NO_2,* ***Bold and underlined*** *indicates exceedances of 60 µg/m^3 (which is an indication that the hourly mean objective could be being breached).*		

Mapped Background Concentrations / Deposition Rates (Ecological Receptors)

8.5.16. Background concentrations relevant to Nitrogen and Acid Deposition rates at chosen ecological receptor are set out in **Table 8.12**. These have been obtained from both the DEFRA Background Mapping website, and the APIS Website.

Table 8.12: Background Concentrations / Deposition Rates (Ecological Receptors)

Pollutant	Concentration (µg/m^3) (unless stated otherwise)
Oakley Wood SSSI	
NO_2	7.6
NO_x	8.9
NH_3	**1.6**
Nitrogen Deposition (kgN/ha/yr)	**28.2**
Acid Deposition (keq/ha/yr	**2.1**
Breedon Cloud Wood & Quarry SSSI	
NO_2	7.1
NO_x	7.9
NH_3	**1.7**
Nitrogen Deposition (kgN/ha/yr)	**28.4**
Acid Deposition (keq/ha/yr	**2.1**
Tonge Gorse Ancient & Semi Natural Woodland	
NO_2	8.0
NO_x	8.9
NH_3	**1.7**
Nitrogen Deposition (kgN/ha/yr)	**28.2**
Acid Deposition (keq/ha/yr	**2.1**
Lount Meadows SSSI (Western Pocket)	
NO_2	7.5
NO_x	8.3

Pollutant	Concentration (µg/m^3) (unless stated otherwise)
NH_3	**1.9**
Nitrogen Deposition (kgN/ha/yr)	**29.6**
Acid Deposition (keq/ha/yr	**2.1**
March Covert Ancient Woodland	
NO_2	12.3
NO_x	14.0
NH_3	**1.7**
Nitrogen Deposition (kgN/ha/yr)	**28.2**
Acid Deposition (keq/ha/yr	**2.1**
Ancient Trees and Veteran Trees within 200 m of an affected highway	
NO_2	9.7 – 10.4
NO_x	10.9 – 11.7
NH_3	**1.7**
Nitrogen Deposition (kgN/ha/yr)	**28.2**

Notes: The relevant Critical Levels / Loads for each pollutant listed above are set out in **Table 8.7**. **Bold** indicates exceedances of the relevant Critical Level / Load. Where a range of values are listed in **Table 8.7**, the comparison has been undertaken against the lower value to provide a worst-case assessment.

Potential Impacts

Embedded Mitigation

8.5.17. There is no embedded mitigation with regard to managing dust and air quality impacts. The following impacts therefore are assessed as arising prior to any mitigation.

Construction Phase

Construction Dust

Introduction

8.5.18. A preliminary assessment of the potential risk of dust effects occurring at nearby sensitive receptors is set out below and is based on professional judgement and the IAQM (2024) guidance (as per **Appendix 8B: Dust Risk Assessment Methodology (Document DCO 6.8B)**).

8.5.19. In line with the approach to assessing the DCO Scheme and MCO Scheme separately, where possible the construction dust risk assessments have also been carried out separately for the two elements of the DCO Scheme, being the EMG2 Works and the Highway Works.

8.5.20. The main air quality impacts associated with construction activities relate to the potential release of particulate matter of both PM size fractions. There is also the potential for the evolution of other air quality pollutants (known as secondary pollutants). The sources of

potential construction impacts specifically associated with the EMG2 Works and the Highway Works are set out below:

- Potential for generation of airborne dusts from exposure and movement of soils and construction materials;
- Generation of fumes on-site by construction plant and tools throughout the construction phase;
- Increase in vehicle emissions (smoke/fumes) from vehicles (and potentially as a result of slow-moving traffic, should local congestion ensue); and
- Re-suspension of dust as a result of vehicle tyres travelling over dusty surfaces.

EMG2 Works Dust Risk Assessment

Potential Dust Risk Magnitude

Demolition

8.5.21. A review of the EMG2 Works indicates that there are no existing structures that will require demolition. Therefore, on this basis, demolition can be scoped out of this assessment as it is not applicable.

Earthworks

8.5.22. The total area where earthworks will occur is greater than 110,000m^2 and topsoil resource comprises a mixture of sandy loams and clay loams as set out in **Appendix 15A (Document DCO 6.15A)**. Therefore, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document DCO 6.8B)**, the magnitude of potential dust emissions from earthworks activities is classified as Large.

Construction

8.5.23. During construction, activities which may have the potential to cause significant dust emissions may include concrete batching, sandblasting and piling, in addition to the general handling of construction materials and windblow from stockpiles of friable materials, particularly during higher wind speeds.

8.5.24. The primary construction materials will be concrete, steel framework and metal cladding to roof and walls. These materials and methods of construction are of relatively low dust generating potential.

8.5.25. However, due to total building volume to be constructed is predicted to be greater than 75,000m^3. Therefore, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document DCO 6.8B)** and professional judgement, the magnitude of potential dust emissions from construction activities is classified as Large.

Trackout

8.5.26. Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and also to soil the local road network. During dry weather, unsurfaced and

soiled roads can lead to dust being emitted due to pick-up by vehicle wheels. The potential for roads to be soiled is dependent on the length of the on-site unpaved roads.

8.5.27. The average number of one-way daily HDV vehicles movements which may trackout dust and dirt is expected to be greater than 50. Therefore, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document DCO 6.8B)**, the magnitude of potential dust emissions from trackout activities is classified as Large.

Summary

8.5.28. **Table 8.13** summarises the dust emission magnitude for the EMG2 Works.

Table 8.13: Emission Magnitude Risk for EMG2 Works

Source	Dust Emission Magnitude
Demolition	Scoped Out
Earthworks	Large
Construction	Large
Trackout	Large

Sensitivity of Area

8.5.29. Step 2B (as set out on **Appendix 8B (Document DCO 6.8B)**) combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the EMG2 Works. It also considers additional site-specific factors such as topography and screening and in the case of sensitivity to human health effects, the baseline PM_{10} concentrations. Buffer zones are set out in Figure 8b.1 and Figure 8b.2 in **Appendix 8B (Document DCO 6.8B)** to illustrate the number of receptors in proximity to the EMG2 Works that could be impacted by dust as a result of the construction activities.

Effects of Dust Soiling

8.5.30. The presence of between 10 – 100 'High' sensitive human receptors (Residential) within approximately 50 m of the EMG2 Works indicates that the area for construction activities would be of a 'Medium' sensitivity (based upon Table 8c.3 in **Appendix 8C (Document DCO 6.8C)**).

8.5.31. The routing of construction vehicles is anticipated to be along the A453 towards the M1. Therefore, receptors have been considered along this road with consideration that the impact declines with distance from the EMG2 Works, in line with the prior IAQM Guidance on the Assessment of Dust from Demolition and Construction (2016)[65] which suggested that trackout may occur along the public highway up to 500 m from large sites. There is a presence of 1 – 10 'High' sensitive human receptor (Long Term Car Park associated with Workspace) within 50 m of highway (up to 500 m of the access). This indicates that the area

[65] Institute of Air Quality Management, 2016. *Guidance on the Assessment of Dust from Demolition and Construction.'*

for trackout would be of a 'Low' sensitivity, (based upon Table 8b.3 in **Appendix 8B (Document DCO 6.8B)**).

Effects on Human Health

8.5.32. The presence of between 10 - 100 'High' sensitive human receptors (Residential) within approximately 50 m of the EMG2 Works and considering the background PM_{10} concentrations are below 24 µg/m^3, it would indicate that the area around the construction area has a 'Low' sensitivity, (Based upon Table 8b.4 in **Appendix 8B (Document DCO 6.8B)**), to impacts upon human health for the construction activities.

8.5.33. The routing of construction vehicles is anticipated to be along the A453 towards the M1. There is a presence of 1 – 10 'High' sensitive human receptors (Long Term Car Park associated with Workspace) within 50 m of highway (up to 500 m of the access). When considered in conjunction with the background PM_{10} concentrations being below 24 µg/m^3, it indicates that the area for the trackout activities would be of a 'Low' sensitivity, (based upon Table 8b.4 in **Appendix 8B (Document DCO 6.8B)**).

Effects on Ecological Sites

8.5.34. A review of the DEFRA Magic website[66] indicates that there are no statutory ecological sites within the immediate surrounding area. As per box 1 of the IAQM (2024) guidance, as no statutory ecological sites sit within 50 m of the boundary of the site, no further assessment of dust risk impacts on ecological receptors has been carried out.

Risk and Significance

8.5.35. The dust emission magnitude described above is combined with the sensitivity of the area and compared with the assessment matrix set out in Table 8b.6 of **Appendix 8B (Document DCO 6.8B)**. The resulting risk categories for the demolition and construction activities, without mitigation, are set out in **Table 8.14**.

Table 8.14: Summary of Dust Risk to Define Specific Mitigation - EMG2 Works

Activity	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Medium Risk	Medium Risk	Low Risk
Human Health	N/A	Low Risk	Low Risk	Low Risk

8.5.36. The IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, (as set out in this Chapter and further general mitigation measures in **Appendix 8I (Document DCO 6.8I)**), the IAQM (2024) guidance is clear that the residual effect will normally be 'not significant'.

[66] Natural England. MAGIC. Accessible at: https://magic.defra.gov.uk/

Highway Works Dust Risk Assessment

Potential Dust Risk Magnitude

Demolition

8.5.37. A review of the Highway Works indicates that there are no existing structures that will require demolition, other than removal of some gantry cranes. In addition, in order to undertake the Highway Works it is anticipated it will require some breakup of existing road surfaces.

8.5.38. Overall, the dust emission magnitude for the demolition stage, based upon professional judgment is considered to be Small.

Earthworks

8.5.39. The total area of earthworks is unknown, but the process which will be required to be undertaken for the Highway Works will be digging, grading and moving of soil and the topsoil resource comprises a mixture of sandy loams and clay loams [67]. Based upon the criteria outlined in Table 8b.1 in **Appendix 8B (Document DCO 6.8B)** and professional judgement, the magnitude of potential dust emissions from earthworks activities is classified as Large.

Construction

8.5.40. During construction, activities such as the laying of new road surfaces or structures, including piling, may have the potential to cause significant dust emissions, in addition to the general handling of construction materials and windblow from stockpiles of friable materials, particularly during higher wind speeds.

8.5.41. The primary construction materials will be Fresh hot asphalt (bituminous material) which has relatively low dust generating potential.

8.5.42. Based upon the criteria outlined in Table 8b.1 in **Appendix 8B (Document DCO 6.8B)** and professional judgement, the magnitude of potential dust emissions from earthworks activities is classified as Small.

Trackout

8.5.43. Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and also to soil the local road network. During dry weather, unsurfaced and soiled roads can lead to dust being emitted due to pick-up by vehicle wheels. The potential for roads to be soiled is dependent on the length of the on-site unpaved roads.

8.5.44. The average number of one-way daily HDV vehicles movements which may trackout dust and dirt could be greater than 50. Therefore, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document DCO 6.8B)**, the magnitude of potential dust emissions from trackout activities has been assumed as worst case and is classified as Large.

[67] Land Research Associates (2023) Soils and Agricultural Quality of Land at Diseworth Derbyshire

Summary

8.5.45. **Table 8.15** summarises the dust emission magnitude for the Highway Works.

Table 8.15: Emission Magnitude Risk for Highway Works

Source	Dust Emission Magnitude
Demolition	Small
Earthworks	Large
Construction	Small
Trackout	Large

Sensitivity of Area

8.5.46. Step 2B (as set out on **Appendix 8B (Document DCO 6.8B)**) combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the Highway Works. It also considers additional site-specific factors such as topography and screening and in the case of sensitivity to human health effects, the baseline PM_{10} concentrations. Buffer zones are set out in Figure 8b.3 and Figure 8b.4 in **Appendix 8B (Document DCO 6.8B)** to illustrate the number of receptors in proximity to the Highway Works that could be impacted by dust as a result of the construction activities.

Effects of Dust Soiling

8.5.47. The presence of between 10 – 100 'High' sensitive human receptors (Residential and Long Term Car Park associated with Workspace) within approximately 50 m of the Highway Works indicates that the area for construction activities would be of a 'Medium' sensitivity (based upon Table 8b.3 in **Appendix 8B (Document DCO 6.8B)**).

8.5.48. The routing of construction vehicles is anticipated to be along the following roads: Eastway, the A453, the M1, the A50, and Remembrance Way. Therefore, receptors have been considered along these roads with consideration that the impact declines with distance from the Highway Works, in line with the prior IAQM Guidance on the Assessment of Dust from Demolition and Construction (2016)[68] which suggested that trackout may occur along the public highway up to 500 m from large sites. There is a presence of 10 – 100 'High' sensitive human receptors (Residential and Long Term Car Park associated with Workspace) within 50 m of highway (up to 500 m of the access). This indicates that the area for construction activities would be of a 'Medium' sensitivity, (based upon Table 8b.3 in **Appendix 8B (Document DCO 6.8B)**).

Effects on Human Health

8.5.49. The presence of between 10 – 100 'High' sensitive human receptors (Residential and Long Term Car Park associated with Workspace) within approximately 50 m of the Highway Works and considering the background PM_{10} concentrations are below 24 µg/m^3, it would indicate that the area around the construction area has a 'Low' sensitivity, (Based upon Table 8c.4

[68] Institute of Air Quality Management, 2016. *Guidance on the Assessment of Dust from Demolition and Construction.'*

in **Appendix 8C (Document DCO 6.8C)**), to impacts upon human health for the construction activities.

8.5.50. The routing of construction vehicles is anticipated to be along the following roads: Eastway, the A453, the M1, the A50, and Remembrance Way. There is a presence of more than 10 – 100 'High' sensitive human receptors (Residential and Long Term Car Park associated with Workspace) within 50 m of highway (up to 500 m of the access). When considered in conjunction with the background PM_{10} concentrations being below 24 µg/m^3, it indicates that the area for the trackout activities would be of a 'Low' sensitivity, (based upon Table 8c.4 in **Appendix 8C (Document DCO 6.8C**).

Effects on Ecological Sites

8.5.51. A review of the DEFRA Magic website indicates that there are no statutory ecological sites within the immediate surrounding area. As per box 1 of the IAQM (2024) guidance, as no statutory ecological sites sit within 50 m of the boundary of the site, no further assessment of dust risk impacts on ecological receptors has been carried out.

Risk and Significance

8.5.52. The dust emission magnitude described above is combined with the sensitivity of the area and compared with the assessment matrix set out in Table 8b.6 of **Appendix 8B (Document DCO 6.8B)**. The resulting risk categories for the demolition and construction activities, without mitigation, are set out in **Table 8.16**.

Table 8.16: Summary of Dust Risk to Define Specific Mitigation - Highway Works

Activity	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Medium Risk	Low Risk	Medium Risk
Human Health	Negligible	Low Risk	Negligible	Low Risk

8.5.53. The IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, (as set out in this Chapter and further general mitigation measures in **Appendix 8I (Document DCO 6.8I)**), the IAQM (2024) guidance is clear that the residual effect will normally be 'not significant'.

Construction Traffic Impact Assessment

8.5.54. As set out previously in the 'Limitations and Assumptions' section, the construction phase traffic impacts have not been separated into the components relevant specifically to the DCO Scheme. While the majority of construction phase traffic growth is attributable to the DCO Scheme, the impacts have been assessed for the EMG2 Project as a whole, therefore please refer to Section 8.7 for the construction phase traffic assessment.

Operational Phase

As set out previously in the 'Limitations and Assumptions' section, the operational phase traffic impacts have not been separated into the components relevant specifically to the DCO Scheme. While the majority of operational phase traffic growth is attributable to the DCO Scheme, the impacts have been assessed for the EMG2 Project as a whole, therefore please refer to Section 8.7 for the operational phase traffic assessment.

Mitigation Measures

Construction

Dust and Human Health

8.5.55. Construction dust assessments have been undertaken for the DCO Scheme and are presented earlier in this Section of the Chapter. The assessments have been used to identify the need for standard and best practice mitigation measures to be implemented during the construction phases. For the DCO Application these measures will be controlled and implemented through a p-CEMP, drafted in accordance with the principles set out in the Construction Environmental Management Plan (CEMP) provided as **Appendix 3A (Document DCO 6.3A)**, which will be secured via draft DCO Requirement.

8.5.56. A range of measures are suggested and summarised below, which would typically be utilised during the construction phases, further detail is provided in the CEMP.

8.5.57. The following potential mitigation measures are anticipated (but are not limited to):

- Cutting, grinding and sawing will not be conducted on-site and pre-fabricated material and modules will be brought in where possible;
- Where cutting, grinding and sawing takes place, water suppression will be used to reduce the amount of dust generated;
- Skips, chutes and conveyors will be completely covered and, if necessary enclosed to ensure that dust does not escape;
- No burning of any materials will be permitted on site;
- Any excess material will be reused or recycled on-site where practicable in accordance with appropriate legislation;
- The Principal Contractor will produce a waste or recycling plan;
- Following earthworks, exposed areas and soil stockpiles will be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- Stockpiles will be stored in enclosed or bunded containers or silos and kept damp where necessary;
- Hard surfaces will be used for haul routes where possible;
- Haul routes will be swept/washed regularly;
- Vehicle wheels will be washed on leaving the site;

- All vehicles carrying dusty materials will be securely covered; and
- Delivery areas, stockpiles and particularly dusty items of construction plant will be kept as far away from neighbouring properties as possible.

8.5.58. In addition, the IAQM (2024) guidance lists recommended mitigation measures for low, medium and high Dust Impact Risks. The highly recommended measures, based on the Construction Phase dust assessments are included in **Appendix 8I: Mitigation (Document DCO 6.8I).**

8.5.59. Consideration has been given to the interim DEFRA planning guidance on $PM_{2.5}$. This guidance emphasises the importance of reducing both emissions and public exposure from fine particulate matter throughout the construction phase, including from combustion-related activities and secondary dust formation. The DCO Scheme will incorporate these principles by adopting a combination of proactive design and operational controls, aligned with the hierarchy of mitigation recommended in national guidance.

8.5.60. These measures include:

- Strategic site layout decisions, such as locating high-emission activities (e.g. generators, heavy material handling) away from sensitive receptors, where feasible;
- Buffer zones and screening, including vegetation and temporary hoarding, particularly within any designated Priority Dust Mitigation Zones;
- Enhanced vehicle and machinery controls, such as limiting Non-Road Mobile Machinery (NNRM) usage near receptors and prioritising electric or ultra-low emission alternatives; and
- Integration of exposure-reduction strategies in line with the “reasonably practicable” principle, including monitoring, timed activity windows, and targeted risk-based controls near any schools, residential areas, or healthcare facilities.

8.5.61. The highest risk activities will be avoided in the areas of the Main Site closest to sensitive receptors. Where dust generation cannot be avoided in areas close to neighbouring receptors, additional mitigation measures will be put in place, such as: windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of potentially dust- generating activities.

8.5.62. The measures listed above and in **Appendix 8I: Mitigation (DCO 6.8I)** have been used to contribute to part of the CEMP as **Appendix 3A (Document DCO 6.3A)**, which is submitted as part of the application, and which provides a framework for future p-CEMPs. After the implementation of the CEMP and p-CEMPs, the significance of effects from each phase of the construction programme will be reduced.

NRMM

8.5.63. It has been requested within the EIA Scoping Opinion by the Environment Agency that all NNRM has a power rating between 37 kW and 560 kW. While the NRMM Low Emission Zone (LEZ) is primarily a London-based initiative, it does influence construction sites and machinery usage in other areas due to voluntary adoption of similar emission standards. The request by the Environment Agency is consistent with the London’s NRMM

requirements that all engines have a power rating between 37 kW and 560 kW to meet an emission standard based on the engine emission "stage".

8.5.64. On this basis all NRMM should comply with the following guidance as set out in the Cleaner Construction for London (CCfL) and Mayor of London (2024) Non-Road Mobile Machinery (NRMM) Practical Guide v.6[69] (or superseded guidance at the time of construction).

8.5.65. In certain circumstances the supply of compliant equipment can be limited and retrofit solutions are not available for all types and sizes of machine. Retrofits listed on the Energy Saving Trust Website[70] could be considered.

8.5.66. Use of NRMM will be minimised as much as possible and electric or battery powered alternatives will be used as a preference. If NRMM under 37kW is to be used, use of the equipment will be minimised and kept as far away from sensitive receptors as is practicable. NRMM where the power output is less than 37kW will be fitted with an after-treatment device (DPF) stated on the approved list managed by the Energy Saving Trust; the ongoing conformity of plant retrofitted with suitable after treatment devices, to a defined performance standard, should be ensured through a programme of on-site checks.

8.5.67. The DCO Scheme will record the plant details on a spreadsheet, or similar. The project team will co-operate with local authority inspections and provide the requisite information as required.

Construction Traffic

8.5.68. While it is noted that, as previously set out in this Section, the full impact assessment of construction traffic has not been undertaken specifically in relation to the DCO Scheme, certain mitigation measures are specific to this element to the application and are therefore outlined below.

8.5.69. To aid in mitigating potential air quality impacts arising from construction-related traffic, a Construction Traffic Management Plan (CTMP) has been prepared and is provided as part of the CEMP (**Document DCO 6.3A**). The DCO Scheme will also be supported by a phase-specific CTMP (pCTMP), which will detail routing and traffic control measures specific to that stage of work.

8.5.70. A key mitigation measure within the CTMP is the designation of pre-agreed vehicular routes that prioritise use of the Strategic Road Network (SRN), including the M1 (North and South), A42 North, A50 South, and A453 South. These routes will connect with the A453 West for final access to the EMG2 Works, thereby minimising travel on local roads with lower capacity and greater sensitivity to air pollution.

8.5.71. Construction traffic will be explicitly prohibited from routing through local communities such as Diseworth village, Hyams Lane, and Long Holden. This restriction reduces the risk of

[69] Cleaner Construction for London (CCfL) and Mayor of London (2024). Non-Road Mobile Machinery (NRMM) Practical Guide v.6

[70] Energy Saving Trust. Non-road mobile machinery certification. Accessible at: https://energysavingtrust.org.uk/service/non-road-mobile-machinery-certification/

pollutant exposure to residents in these areas and prevents traffic congestion that could elevate vehicle emissions.

8.5.72. By concentrating vehicle movements on higher-capacity roads and avoiding sensitive areas, the CTMP significantly reduces the potential for construction traffic to degrade local air quality. These measures will be enforced by the Principal Contractor in coordination with relevant authorities and will form a key part of the project's environmental mitigation strategy.

Operation

Operational Traffic

8.5.73. Since the Operational Phase traffic impacts are not quantifiable solely for the DCO Scheme, it is not deemed appropriate to set out mitigation measures in this section. The mitigation measures relevant to the DCO Scheme are set out in Section 8.7 as they are applicable to the EMG2 Project as a whole.

Residual Effects

Construction

Construction Dust

8.5.74. The construction of the DCO Scheme has the potential to pose a nuisance. However, by adopting the recommend appropriate mitigation measures in the CEMP and P-CEMP's to reduce any such emissions and their potential effect on the surrounding area, there are expected to be no significant nuisance effects.

Construction Traffic

8.5.75. The residual effects remain unchanged because the effects without mitigation have been assessed as 'not significant' for all human receptors.

Operation

Operational Traffic

8.5.76. Since the Operational Phase traffic impacts are not quantifiable solely for the DCO Scheme, it is not deemed appropriate to set out any residual effects in this section. The residual effects relevant to the DCO Scheme are set out in Section 8.7 as they are applicable to the EMG2 Project as a whole.

8.6. Assessment of MCO Application

8.6.1. As set out in Section 1 of this Chapter, and at **Table 8.1**, the MCO Scheme comprises of the EMG1 Works which in summary provide for additional warehousing development within Plot 16 of the EMG1 site together with works to increase the permitted height of the cranes at the EMG1 rail-freight terminal, improvements to the public transport interchange, site management building and the EMG1 Pedestrian Crossing.

Baseline Conditions

8.6.2. Please see Section 8.5 above for details in regards to the baseline conditions. That section of the chapter is common to both the DCO Scheme and the MCO Scheme and therefore is not duplicated here.

Potential Impacts

Embedded Mitigation

8.6.3. There is no embedded mitigation with regard to managing dust and air quality impacts. The following impacts therefore are assessed as arising prior to any mitigation.

Construction Phase

Construction Dust

Introduction

8.6.4. A preliminary assessment of the potential risk of dust effects occurring at nearby sensitive receptors is set out below and is based on professional judgement and the IAQM (2024) guidance (as per **Appendix 8B: Dust Risk Assessment Methodology (Document MCO 6.8B)**).

8.6.5. For the MCO Scheme a construction dust risk assessment has been carried out.

8.6.6. The main air quality impacts associated with construction activities relate to the potential release of particulate matter of both PM size fractions. There is also the potential for the evolution of other air quality pollutants (known as secondary pollutants). The sources of potential construction impacts specifically associated with the MCO Scheme are set out below:

- Potential for generation of airborne dusts from exposure and movement of soils and construction materials;
- Generation of fumes on-site by construction plant and tools throughout the construction phase;
- Increase in vehicle emissions (smoke/fumes) from vehicles (and potentially as a result of slow-moving traffic, should local congestion ensue); and
- Re-suspension of dust as a result of vehicle tyres travelling over dusty surfaces.

MCO Scheme Dust Risk Assessment

Potential Dust Risk Magnitude

Demolition

8.6.7. A review of the MCO Scheme indicates that there are no existing structures that will require demolition. Therefore, on this basis demolition can be scoped out of this assessment as it is not applicable.

Earthworks

8.6.8. The total area where earthworks will occur could be greater than 110,000m^2 and topsoil resource comprises of sandy loams and clay loams as set out in **Appendix 15A (Document MCO 6.15A)**. It is noted that the Earthworks Strategy (as set out in Figure 8 in **Appendix 14M (Document MCO 6.14M)**) references a total earthworks area lower than the 110,000m^2 threshold, but to provide a robust, worst-case assessment, it has been assumed that, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document MCO 6.8B)**, the magnitude of potential dust emissions from earthworks activities is classified as Large.

Construction

8.6.9. During construction, activities which may have the potential to cause significant dust emissions may include concrete batching and sandblasting, in addition to the general handling of construction materials and windblow from stockpiles of friable materials, particularly during higher wind speeds.

8.6.10. The primary construction materials will be concrete, steel framework and metal cladding to roof and walls. These materials and methods of construction are of relatively low dust generating potential.

8.6.11. However, due to total building volume to be constructed is predicted to be greater than 75,000m^3. Therefore, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document MCO 6.8B)** and professional judgement, the magnitude of potential dust emissions from construction activities is classified as Large.

Trackout

8.6.12. Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and also to soil the local road network. During dry weather, unsurfaced and soiled roads can lead to dust being emitted due to pick-up by vehicle wheels. The potential for roads to be soiled is dependent on the length of the on-site unpaved roads.

8.6.13. The average number of one-way daily HDV vehicles movements which may trackout dust and dirt could be greater than 50. Therefore, in accordance with the criteria outlined in Table 8b.1 in **Appendix 8B (Document MCO 6.8B)**, the magnitude of potential dust emissions from trackout activities has been assumed as worst case and is classified as Large.

Summary

8.6.14. **Table 8.17** summarises the dust emission magnitude for the MCO Scheme.

Table 8.17: Emission Magnitude for MCO Scheme

Source	Dust Emission Magnitude
Demolition	Scoped Out
Earthworks	Large
Construction	Large
Trackout	Large

Sensitivity of Area

8.6.15. Step 2B (as set out on **Appendix 8B (Document MCO 6.8B)**) combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the MCO Scheme. It also considers additional site-specific factors such as topography and screening and in the case of sensitivity to human health effects, the baseline PM_{10} concentrations. Buffer zones are set out in Figure 8b.5 and Figure 8b.6 in **Appendix 8B (Document MCO 6.8B)** illustrate the number of receptors in proximity to the MCO Scheme that could be impacted by dust as a result of the construction activities.

Effects of Dust Soiling

8.6.16. The presence of > 1 'Medium' sensitive human receptors (Office) within approximately 100 m of the MCO Scheme indicates that the area for construction activities would be of a 'Low' sensitivity (based upon Table 8b.3 in **Appendix 8B (Document MCO 6.8B)**).

8.6.17. The routing of construction vehicles is anticipated to be south towards Wilders Way, where vehicles will then head southeast towards the M1. Therefore, receptors have been considered along this road with consideration that the impact declines with distance from the MCO Scheme, in line with the prior IAQM Guidance on the Assessment of Dust from Demolition and Construction (2016)[71] which suggested that trackout may occur along the public highway up to 500 m from large sites. There is a presence of 1 – 10 'High' sensitive human receptors (Long Term Car Park associated with Workspace) within 50 m of highway (up to 500 m of the access). This indicates that the area for construction activities would be of a 'Low' sensitivity, (based upon Table 8b.3 in **Appendix 8B (Document MCO 6.8B)**).

Effects of Human Health

8.6.18. The presence of > 1 – 10 'Medium' sensitive human receptors (Office) within approximately 100 m of the MCO Scheme and considering the background PM_{10} concentrations are below 24 $\mu g/m^3$, it would indicate that the area around the construction area has a 'Low' sensitivity, (Based upon Table 8b.4 in **Appendix 8B (Document MCO 6.8B)**), to impacts upon human health for the construction activities.

8.6.19. The routing of construction vehicles is anticipated to be south towards Wilders Way, where vehicles will then head southeast towards the M1. There is a presence of more than 1 – 10

[71] Institute of Air Quality Management, 2016. *Guidance on the Assessment of Dust from Demolition and Construction.'*

'High' sensitive human receptors (Long Term Car Park associated with Workspace) within 50 m of highway (up to 500 m of the access). When considered in conjunction with the background PM_{10} concentrations being below 24 µg/m^3, it indicates that the area for the trackout activities would be of a 'Low' sensitivity, (based upon Table 8b.4 in **Appendix 8B (Document MCO 6.8B)**).

Effects of Ecological Sites

8.6.20. A review of the DEFRA Magic website indicates that there are no statutory ecological sites within the immediate surrounding area. As per box 1 of the IAQM (2024) guidance, as no statutory ecological sites sit within 50 m of the boundary of the site, no further assessment of dust risk impacts on ecological receptors has been carried out.

Risk and Significance

8.6.21. The dust emission magnitude described above is combined with the sensitivity of the area and compared with the assessment matrix set out in Table 8b.6 of **Appendix 8B (Document MCO 6.8B)**. The resulting risk categories for the demolition and construction activities, without mitigation, are set out in **Table 8.18**.

Table 8.18: Summary of Dust Risk to Define Specific Mitigation – MCO Scheme

Activity	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Low Risk	Low Risk	Low Risk
Human Health	N/A	Low Risk	Low Risk	Low Risk

8.6.22. The IAQM (2024) guidance does not provide a method for assessing the significance of effects before mitigation and advises that pre-mitigation significance should not be determined. With appropriate mitigation is in place, (as set out in this Chapter and further general mitigation measures in **Appendix 8I (Document MCO 6.8I)**), the IAQM (2024) guidance is clear that the residual effect will normally be 'not significant'.

Construction Traffic Impact Assessment

8.6.23. As set out previously in the 'Limitations and Assumptions' in Section 8.2, the construction phase traffic impacts have not been separated into the components relevant specifically to the MCO Scheme. Although due to the size of the MCO Scheme the impacts from construction traffic associated with the MCO Scheme alone would likely be negligible, the impacts have been assessed for the EMG2 Project as a whole, therefore please refer to Section 8.7 for the construction phase traffic assessment.

Operational Phase

Scheme Operational Impact Assessment of Rail Freight Movements

8.6.24. A review of the proposed changes to the rail-freight terminal indicates that no increases in rail freight movements above and beyond what has already been consented.

8.6.25. On this basis this has been screened out of this Chapter and any impacts would be deemed 'Not Significant.'

Operational Traffic

8.6.26. Since the Operational Phase traffic impacts are not quantifiable solely for the MCO Scheme, it is not deemed appropriate to set out any residual effects in this section. The residual effects relevant to the DCO Scheme are set out in Section 8.7 as they are applicable to the EMG2 Project as a whole.

Mitigation Measures

Construction

Dust and Human Health

8.6.27. A construction dust assessment has been undertaken for the MCO Scheme and is presented earlier in this Chapter. The assessment has been used to identify the need for standard and best practice mitigation measures to be implemented during the construction phases of the MCO Scheme. For the MCO Application they will be controlled though the EMG1 DCO construction management framework plan (which applies to the MCO Scheme) and phase-specific CEMP thereafter.

8.6.28. A range of measures are suggested and summarised below, which would typically be utilised during the construction phases, further detail will be provided in the phase specific CEMP.

8.6.29. The following potential mitigation measures are anticipated (but are not limited to):

- Cutting, grinding and sawing will not be conducted on-site and pre-fabricated material and modules will be brought in where possible;
- Where cutting, grinding and sawing takes place, water suppression will be used to reduce the amount of dust generated;
- Skips, chutes and conveyors will be completely covered and, if necessary enclosed to ensure that dust does not escape;
- No burning of any materials will be permitted on site;
- Any excess material will be reused or recycled on-site where practicable in accordance with appropriate legislation;
- The Principal Contractor will produce a waste or recycling plan;
- Following earthworks, exposed areas and soil stockpiles will be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- Stockpiles will be stored in enclosed or bunded containers or silos and kept damp where necessary;
- Hard surfaces will be used for haul routes where possible;
- Haul routes will be swept/washed regularly;
- Vehicle wheels will be washed on leaving the site;

- All vehicles carrying dusty materials will be securely covered; and
- Delivery areas, stockpiles and particularly dusty items of construction plant will be kept as far away from neighbouring properties as possible.

8.6.30. In addition, the IAQM (2024) guidance lists recommended mitigation measures for low, medium and high Dust Impact Risks. The highly recommended measures, based on the Construction Phase dust assessment are included in **Appendix 8I: Mitigation (Document MCO 6.8I).**

8.6.31. Consideration has been given to the interim DEFRA planning guidance on $PM_{2.5}$. This guidance emphasises the importance of reducing both emissions and public exposure from fine particulate matter throughout the construction phase, including from combustion-related activities and secondary dust formation. The MCO Scheme will incorporate these principles by adopting a combination of proactive design and operational controls, aligned with the hierarchy of mitigation recommended in national guidance.

8.6.32. These measures include:

- Strategic site layout decisions, such as locating high-emission activities (e.g. generators, heavy material handling) away from sensitive receptors, where feasible;
- Buffer zones and screening, including vegetation and temporary hoarding, particularly within any designated Priority Dust Mitigation Zones;
- Enhanced vehicle and machinery controls, such as limiting Non-Road Mobile Machinery (NNRM) usage near receptors and prioritising electric or ultra-low emission alternatives; and
- Integration of exposure-reduction strategies in line with the “reasonably practicable” principle, including monitoring, timed activity windows, and targeted risk-based controls near any schools, residential areas, or healthcare facilities.

8.6.33. The highest risk activities will be avoided in the areas of site closest to sensitive receptors. Where dust generation cannot be avoided in areas close to neighbouring receptors, additional mitigation measures will be put in place, such as: windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of potentially dust-generating activities.

8.6.34. After the adherence to the Construction Framework Management Plan and subsequent p-CEMPs, the significance of effects from each phase of the construction programme will be reduced.

NRMM

8.6.35. The mitigation measures outlined relating to NRMM are common to both the DCO Scheme and MCO Scheme and therefore is not duplicated here. Please see Section 8.5 above for details in regards to mitigation measures relating to NRMM.

Construction Traffic

8.6.36. While it is noted that, as previously set out in this Section, the full impact assessment of construction traffic has not been undertaken specifically in relation to the MCO Scheme, certain mitigation measures are specific to this element and are therefore outlined below.

8.6.37. To aid in mitigating potential air quality impacts arising from construction-related traffic, a Construction Traffic Management Plan (CTMP) will be prepared as part of the submitted pCEMP under Requirement 11 of the EMG1 DCO for the MCO Scheme. The pCEMP will detail routing and traffic control measures specific to that stage of work.

8.6.38. A key mitigation measure within the CTMP is the designation of pre-agreed vehicular routes that prioritise use of the Strategic Road Network (SRN), including the M1 (North and South), A42 North, A50 South, and A453 South. These routes will thereby minimise travel on local roads with lower capacity and greater sensitivity to air pollution.

8.6.39. Construction traffic will be explicitly prohibited from routing through local communities. This restriction reduces the risk of pollutant exposure to residents in these areas and prevents traffic congestion that could elevate vehicle emissions.

8.6.40. By concentrating vehicle movements on higher-capacity roads and avoiding sensitive areas, the CTMP significantly reduces the potential for construction traffic to degrade local air quality. These measures will be enforced by the Principal Contractor in coordination with relevant authorities and will form a key part of the project's environmental mitigation strategy.

Operation

Operational Traffic

8.6.41. Since the Operational Phase traffic impacts are not quantifiable solely for the MCO Scheme, it is not deemed appropriate to set out mitigation measures in this section. The mitigation measures relevant to the MCO Scheme are set out in Section 8.7 as they are applicable to the EMG2 Project as a whole.

Residual Effects

Construction

Construction Dust

8.6.42. The construction of the MCO Scheme has the potential to pose a nuisance. However, by adopting the recommend appropriate mitigation measures in the CEMP and pCEMP to reduce any such emissions and their potential effect on the surrounding area, there are expected to be no significant nuisance effects.

Construction Traffic

8.6.43. The residual effects remain unchanged as the effect without mitigation, which are likely to be 'not significant' for all human receptors.

Operational

Operational Traffic

8.6.44. Since the Operational Phase traffic impacts are not quantifiable solely for the MCO Scheme, it is not deemed appropriate to set out any residual effects in this section. Resultantly, the residual effects relevant to the MCO Scheme are set out in Section 8.7 as they are applicable to the EMG2 Project as a whole.

8.7. Assessment of EMG2 Project

8.7.1. As set out in Section 1 of this Chapter, and at **Table 8.1**, the EMG2 Project as a whole is the combination of the DCO Scheme and the MCO Scheme which have been assessed in Sections 8.5 and 8.6 of this Chapter.

Baseline Conditions

8.7.2. Please see Section 8.5 above for details in regard to the baseline conditions for the EMG2 Project. That section of this chapter is common to both the DCO Scheme, the MCO Scheme and therefore the EMG2 Project. Consequently it is not duplicated here.

Potential Impacts

Construction

Construction Dust

8.7.3. Section 5.4 of the IAQM (2024) guidance states:

> *"The potential for significant cumulative effects should also be considered. These are more likely to occur where the dust generating activities from separate developments projects are in close proximity and likely to occur at the same time. Ideally reference should be made to a dust assessment prepared by third parties for other relevant developments or it may be necessary to use professional judgement if such assessments are not publicly available.*
>
> *For example:*
>
> - *multiple construction sites contributing to the risk of track out onto the same section of a public highway; or*
> - *receptors located within 250m of multiple development sites.*

8.7.4. The proposals have been split out into the DCO Scheme and MCO Scheme. It is likely all elements will progress / overlap during the construction phases, and as such there would be potential for cumulative effects.

8.7.5. Where timing overlaps with the EMG2 Project construction programme, there is the potential for cumulative dust impacts, particularly via trackout on shared road links and deposition at receptors located between sites. As required by Requirement 11 of the draft DCO, appropriate mitigation will be as outlined in the site-specific Dust Management Plans, which would reduce the risk of significant cumulative effects.

8.7.6. Through liaison and coordination of each element of the DCO Scheme and MCO Scheme in developing the site-specific Dust Management Plans it is anticipated the cumulative effects will be Not Significant.

EMG2 Project Construction Traffic Impact Assessment on Human Receptors

NO_2 – 2028 Scenario 1a vs 1a With Construction Traffic

8.7.7. As set out in Table 8g.37 to Table 8g.39 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in NO_2 annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest NO_2 annual mean concentrations increase will be experienced at receptor VW.R24 which will see an increase of 0.7 µg/m^3 (overall concentration of 23.9 µg/m^3). The impact at this receptor is considered Negligible.

8.7.8. The highest predicted annual mean NO_2 concentration when considering the construction traffic is predicted to also be at receptor VW.R24, which will be exposed to a concentration of 23.9 µg/m^3. To note, this concentration is below the NO_2 annual mean air quality standard (40 µg/m^3).

8.7.9. All annual mean concentrations are below the indicative threshold of 60 µg/m^3 for exceedance of the 1-hour mean NO_2 standard (200 µg/m^3, not to be exceeded more than 18 times a year).

8.7.10. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, short-term, temporary adverse effect which is considered to be Negligible (adverse).

PM_{10} – 2028 Scenario 1a vs 1a With Construction Traffic

8.7.11. As set out in Table 8g.40 to Table 8g.42 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in PM_{10} annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest PM_{10} annual mean concentrations increase will be experienced at receptor VW.R24 which will see an increase of 0.4 µg/m^3 (overall concentration of 20.5 µg/m^3).

8.7.12. The highest predicted annual mean PM_{10} concentration when considering the construction traffic is predicted to also be at receptor VW.R24, which will be exposed to a concentration of 20.5 µg/m^3. To note, this concentration is below the PM_{10} annual mean air quality standard (40 µg/m^3).

8.7.13. For receptors with an annual mean concentration above 14.8 µg/m³, the formula provided in **Section 8.2** can be used to estimate the number of 24-hour mean objective exceedances. Applying this calculation to the highest modelled concentration receptor VW.R24 would indicate ~4.1 exceedances day per year, which is well below the 35-day annual limit.

8.7.14. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, short-term, temporary adverse effect which is considered to be Negligible (adverse).

$PM_{2.5}$ – 2028 Scenario 1a vs 1a With Construction Traffic

8.7.15. As set out in Table 8g.43 to Table 8g.45 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in $PM_{2.5}$ annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest $PM_{2.5}$ annual mean concentrations increase will be experienced at receptor VW.R24 which will see an increase of 0.2 µg/m^3 (overall concentration of 11.4 µg/m^3). The impact at this receptor is considered Negligible.

8.7.16. The highest predicted annual mean $PM_{2.5}$ concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor VW.R24, which will be exposed to a concentration of 11.4 µg/m^3. To note, this concentration is below the $PM_{2.5}$ Stage 2 Post 2020 annual mean limit (20 µg/m^3) air quality standard.

8.7.17. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, short-term, temporary adverse effect which is considered to be Negligible (adverse).

$PM_{2.5}$ Targets/Limits

8.7.18. With regard to the interim annual mean $PM_{2.5}$ target of 12µg/m^3 to be achieved in 2028, predicted annual mean $PM_{2.5}$ concentrations in the 2028 scenarios were all below this interim target.

2028 Impacts on AQMA's 1a vs 1a With Construction Traffic

8.7.19. One AQMA has been considered within the UK0032 Zone when considering construction traffic impacts arising from the EMG2 Project. During the process of this ES, this AQMA was revoked, but has still been considered a sensitive area. This is the former Copt Oak AQMA.

8.7.20. The impacts on the receptors associated with the construction traffic are anticipated to be Negligible (adverse) at all existing specified receptor locations for NO_2, PM_{10}, and $PM_{2.5}$ within the former Copt Oak AQMA and within the relevant air quality standards. Based on this, and in accordance with the EPUK & IAQM (2017) guidance and professional judgement, the impacts can be considered 'not significant.'

8.7.21. The construction traffic will not result in the non-compliance of the East Midlands Non-Agglomeration Zone (UK0032).

NO_2 – 2028 Scenario 1b vs 1b With Construction Traffic

8.7.22. As set out in Table 8g.46 to Table 8g.48 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in NO_2 annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest NO_2 annual mean concentrations increase will be experienced at receptor VW.R24 which will see an increase of 0.7 µg/m^3 (overall concentration of 23.6 µg/m^3). The impact at this receptor is considered Negligible.

8.7.23. The highest predicted annual mean NO_2 concentration when considering the construction traffic is predicted to also be at receptor VW.R24, which will be exposed to a concentration of 23.6 µg/m^3. To note, this concentration is below the NO_2 annual mean air quality standard (40 µg/m^3).

8.7.24. All annual mean concentrations are below the indicative threshold of 60 µg/m^3 for exceedance of the 1-hour mean NO_2 standard (200 µg/m^3, not to be exceeded more than 18 times a year).

8.7.25. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, short-term, temporary adverse effect which is considered to be Negligible (adverse).

PM_{10} – 2028 Scenario 1b vs 1b With Construction Traffic

8.7.26. As set out in Table 8g.49 to Table 8g.51 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in PM_{10} annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest PM_{10} annual mean concentrations increase will be experienced at receptor VW.R24 which will see an increase of 0.4 µg/m^3 (overall concentration of 20.3 µg/m^3).

8.7.27. The highest predicted annual mean PM_{10} concentration when considering the construction traffic is predicted to also be at receptor VW.R24, which will be exposed to a concentration of 20.3 µg/m^3. To note, this concentration is below the PM_{10} annual mean air quality standard (40 µg/m^3).

8.7.28. For receptors with an annual mean concentration above 14.8 µg/m³, the formula provided in Section 8.2 can be used to estimate the number of 24-hour mean objective exceedances. Applying this calculation to the highest modelled concentration receptor VW.R24 would indicate ~3.8 exceedances day per year, which is well below the 35-day annual limit.

8.7.29. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, short-term, temporary adverse effect which is considered to be Negligible (adverse).

$PM_{2.5}$ – 2028 Scenario 1b vs 1b With Construction Traffic

8.7.30. As set out in Table 8g.43 to Table 8g.45 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in $PM_{2.5}$ annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest $PM_{2.5}$ annual mean concentrations increase will be experienced at receptor VW.R24 which will see an increase of 0.2 µg/m^3 (overall concentration of 11.3 µg/m^3). The impact at this receptor is considered Negligible.

8.7.31. The highest predicted annual mean $PM_{2.5}$ concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor VW.R24, which will be

exposed to a concentration of 11.3 µg/m^3. To note, this concentration is below the $PM_{2.5}$ Stage 2 Post 2020 annual mean limit (20 µg/m^3) air quality standard.

8.7.32. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, short-term, temporary adverse effect which is considered to be Negligible (adverse).

$PM_{2.5}$ Targets/Limits

8.7.33. With regard to the interim annual mean $PM_{2.5}$ target of 12µg/m^3 to be achieved in 2028, predicted annual mean $PM_{2.5}$ concentrations in the 2028 scenarios were all below this interim target.

2028 Impacts on AQMA's 1b vs 1b With Construction Traffic

8.7.34. One AQMA has been considered within the UK0032 Zone when considering construction traffic impacts arising from the EMG2 Project. This is the former Copt Oak AQMA.

8.7.35. The impacts on the receptors associated with the construction traffic are anticipated to be Negligible (adverse) at all existing specified receptor locations for NO_2, PM_{10}, and $PM_{2.5}$ within the former Copt Oak AQMA and within the relevant air quality standards. Based on this, and in accordance with the EPUK & IAQM (2017) guidance and professional judgement, the impacts can be considered 'not significant.'

8.7.36. The construction traffic will not result in the non-compliance of the East Midlands Non-Agglomeration Zone (UK0032).

EMG2 Project Construction Traffic Impact Assessment on Ecological Receptors

Introduction

8.7.37. The relevant critical levels / loads are set out in **Table 8.7**, with background concentrations / deposition rates set out in **Table 8.12**. To note, worst case critical levels / loads have been used to inform the assessment.

8.7.38. The EMG2 Project construction phase traffic contributions have been assessed as a percentage of the critical level/load. The modelled transect points, in line with the IAQM (2020) guidance (transects perpendicular to the road up to 200m) are set out in **Appendix 8D (Document DCO 6.8D/MCO 6.8D)**. The modelled NO_x (annual mean and 24-hour mean), NH_3 concentrations, and Acid and Nitrogen Deposition values are set out in **Appendix 8H** (**Document DCO 6.8H/MCO 6.8H**).

8.7.39. Where it is deemed necessary within this section that certain aspects require evaluation by a qualified ecologist, this, together with the significance of any impacts, is set out in **Chapter 9: Ecology and Biodiversity** (**Document DCO 6.9/MCO 6.9**).

Oakley Wood SSSI – 2028 1a vs 1a With Construction Traffic

Critical Levels

8.7.40. As set out in Table 8h.61 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.16 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.41. As set out in Table 8h.62 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.10 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.42. As set out in Table 8h.63 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~2m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.43. As set out in Table 8h.64 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

8.7.44. As set out in Table 8h.65 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

Tonge Gorse Ancient & Semi Natural Woodland – 2028 1a vs 1a With Construction Traffic

Critical Levels

8.7.45. As set out in Table 8h.66 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.10 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.46. As set out in Table 8h.67 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.02 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.47. As set out in Table 8h.68 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.48. As set out in Table 8h.69 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

8.7.49. As set out in Table 8h.70 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

Lount Meadows SSSI – 2028 1a vs 1a With Construction Traffic

Critical Levels

8.7.50. As set out in Table 8h.71 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.04 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.51. As set out in Table 8h.72 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.52. As set out in Table 8h.73 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.53. As set out in Table 8h.74 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is not above the 1% threshold at any point within the modelled transect. This indicates these areas do not require evaluation by a qualified ecologist.

8.7.54. As set out in Table 8h.75 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

Breedon Cloud Wood and Quarry SSSI – 2028 1a vs 1a With Construction Traffic

Critical Levels

8.7.55. As set out in Table 8h.76 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.23 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.56. As set out in Table 8h.77 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.06 µg/m^3, predicted at 0m within the modelled transect.

The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.57. As set out in Table 8h.78 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.00 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.58. As set out in Table 8h.79 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~20 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.59. As set out in Table 8h.80 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

March Covert Ancient Woodland – 2028 1a vs 1a With Construction Traffic

8.7.60. There was no projected increase in traffic past March Covert Ancient Woodland, therefore this sensitive site is not considered further.

Ancient and Veteran Trees – 2028 1a vs 1a With Construction Traffic

8.7.61. There was no projected increase in traffic past any specified ancient trees, therefore none were considered further. This assessment therefore only considers the on-site veteran tree (Receptor ID 20002) in regards to the EMG2 Works.

Critical Levels

8.7.62. As set out in Table 8h.81 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the annual mean NO_x PC increase is 0.09 µg/m^3 predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.63. As set out in Table 8h.82 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the 24-hour mean NO_x PC increase is 0.02 µg/m^3 predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.64. As set out in Table 8h.83 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the annual mean NH_3 PC increase is 0.00 µg/m^3 predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.65. As set out in Table 8h.84 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is not above the 1% threshold at the modelled point. This indicates this modelled point does not require evaluation by a qualified ecologist.

8.7.66. As set out in Table 8h.85 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is not above the 1% threshold at the modelled point. This indicates this modelled point does not require evaluation by a qualified ecologist.

Oakley Wood SSSI – 2028 1b vs 1b With Construction Traffic

Critical Levels

8.7.67. As set out in Table 8h.86 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.06 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.68. As set out in Table 8h.87 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.04 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.69. As set out in Table 8h.88 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~2m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.70. As set out in Table 8h.89 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

8.7.71. As set out in Table 8h.90 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

Tonge Gorse Ancient & Semi Natural Woodland – 2028 1b vs 1b With Construction Traffic

Critical Levels

8.7.72. As set out in Table 8h.91 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.13 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.73. As set out in Table 8h.92 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.03 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.74. As set out in Table 8h.93 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect.

The increase at the modelled transect points does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.75. As set out in Table 8h.94 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

8.7.76. As set out in Table 8h.95 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

Lount Meadows SSSI – 2028 1b vs 1b With Construction Traffic

Critical Levels

8.7.77. As set out in Table 8h.96 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.07 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.78. As set out in Table 8h.97 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.02 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.79. As set out in Table 8h.98 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.80. As set out in Table 8h.99 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is not above the 1% threshold at any point within the modelled transect. This indicates these areas do not require evaluation by a qualified ecologist.

8.7.81. As set out in Table 8h.100 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

Breedon Cloud Wood and Quarry SSSI – 2028 1b vs 1b With Construction Traffic

Critical Levels

8.7.82. As set out in Table 8h.101 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.27 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.83. As set out in Table 8h.102 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.07 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.84. As set out in Table 8h.103 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.85. As set out in Table 8h.104 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~30 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.86. As set out in Table 8h.105 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition does not exceed the 1% threshold, therefore a further detailed assessment is not required.

March Covert Ancient Woodland – 2028 1b vs 1b With Construction Traffic

8.7.87. There was no projected increase in traffic past March Covert Ancient Woodland, therefore this sensitive site is not considered further.

Ancient and Veteran Trees – 2028 1b vs 1b With Construction Traffic

8.7.88. There was no projected increase in traffic past any specified ancient trees, therefore none were considered further. This assessment therefore only considers the on-site veteran tree (Receptor ID 20002) in relation to the EMG2 Works.

Critical Levels

8.7.89. As set out in Table 8h.106 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the annual mean NO_x PC increase is 0.10 µg/m^3 predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 1% PC increase criteria, therefore a further detailed assessment is not required.

8.7.90. As set out in Table 8h.107 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the 24-hour mean NO_x PC increase is 0.03 µg/m^3 predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.91. As set out in Table 8h.108 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the annual mean NH_3 PC increase is 0.00 µg/m^3 predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 1% PC increase criteria of the critical level therefore a further detailed assessment is not required.

Critical Loads

8.7.92. As set out in Table 8h.109 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is not above the 1% threshold at the modelled point. This indicates this modelled point does not require evaluation by a qualified ecologist.

8.7.93. As set out in Table 8h.110 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is not above the 1% threshold at the modelled point. This indicates this modelled point does not require evaluation by a qualified ecologist.

Operational Phase

8.7.94. As referenced earlier, this section relates to the EMG2 Project as a whole.

EMG2 Project Operational Traffic Impact Assessment on Human Receptors

NO_2 – 2028 Scenario 1a vs 2a

8.7.95. As set out in Table 8g.1 to Table 8g.5 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in NO_2 annual mean concentrations will be Moderate to Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest NO_2 annual mean concentrations increase will be experienced at receptor QR.22 which will see an increase of 2.3 µg/m^3 (overall concentration of 36.3 µg/m^3). The impact at this receptor is considered Moderate.

8.7.96. The highest predicted annual mean NO_2 concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor QR.R22, which will be exposed to a concentration of 36.3 µg/m^3. To note, this concentration is below the NO_2 annual mean air quality standard (40 µg/m^3).

8.7.97. All annual mean concentrations are below the indicative threshold of 60 µg/m^3 for exceedance of the 1-hour mean NO_2 standard (200 µg/m^3, not to be exceeded more than 18 times a year).

8.7.98. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Medium to Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, long-term, permanent adverse effect which is considered to be Negligible to Moderate (adverse).

PM_{10} – 2028 Scenario 1a vs 2a

8.7.99. As set out in Table 8g.6 to Table 8g.10 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in PM_{10} annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest PM_{10} annual mean concentrations increase will be experienced at receptor QR.R22 which will see an increase of 1.7 µg/m^3 (overall concentration of 27.9 µg/m^3).

8.7.100. The highest predicted annual mean PM_{10} concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor QR.R22, which will be exposed to a concentration of 27.9 µg/m^3. To note, this concentration is below the PM_{10} annual mean air quality standard (40 µg/m^3).

8.7.101. For receptors with an annual mean concentration above 14.8 µg/m³, the formula provided in **Section 8.2** can be used to estimate the number of 24-hour mean objective exceedances. Applying this calculation to the highest modelled concentration receptor QR.R22 would indicate ~20.4 exceedances day per year, which is well below the 35-day annual limit.

8.7.102. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, long-term, permanent adverse effect which is considered to be Negligible (adverse).

$PM_{2.5}$ – 2028 Scenario 1a vs 2a

8.7.103. As set out in Table 8g.11 to Table 8g.15 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in $PM_{2.5}$ annual mean concentrations will be Slight to Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest $PM_{2.5}$ annual mean concentrations increase will be experienced at receptor QR.22 which will see an increase of 0.9 µg/m^3 (overall concentration of 15.5 µg/m^3). The impact at this receptor is considered Slight.

8.7.104. The highest predicted annual mean $PM_{2.5}$ concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor QR.R22, which will be exposed to a concentration of 15.5 µg/m^3. To note, this concentration is below the $PM_{2.5}$ Stage 2 Post 2020 annual mean limit (20 µg/m^3) air quality standard.

8.7.105. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Small to Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, long-term, permanent adverse effect which is considered to be Negligible to Minor (adverse).

$PM_{2.5}$ Targets/Limits

8.7.106. With regard to the interim annual mean $PM_{2.5}$ target of 12µg/m^3 to be achieved in 2028, predicted annual mean $PM_{2.5}$ concentrations in the 2028 scenarios were generally below this interim target, but several receptors within Castle Donington were above the interim target both without and with the EMG2 Project in place. To note, as previously stated in this Chapter the $PM_{2.5}$ targets are based upon a nation wide average and therefore caution needs to made upon making any conclusions on the alignment of the EMG2 Project against the 2028 $PM_{2.5}$ interim target.

2028 Impacts on AQMA's 1a vs 2a

8.7.107. Three AQMAs have been considered within the UK0032 Zone when considering operational traffic impacts arising from the EMG2 Project. These are the former Copt Oak AQMA, Castle Donington AQMA and Derby NO_2 AQMA No.1 – Ring Roads.

8.7.108. The impacts on the receptors associated with the EMG2 Project are anticipated to be Negligible (adverse) at all existing specified receptor locations for NO_2, PM_{10}, and $PM_{2.5}$ within the former Copt Oak AQMA and Derby NO_2 AQMA No.1 – Ring Roads and within the relevant air quality standards. Based on this, and in accordance with the EPUK & IAQM (2017) guidance and professional judgement, the impacts can be considered 'not significant.'

8.7.109. Further discussion of the impacts within the Castle Donington AQMA is set out in the *Discussion of 2028 Scenario 1a vs 2a Impacts* Section set out below.

8.7.110. The EMG2 Project will not result in the non-compliance of the East Midlands Non-Agglomeration Zone (UK0032).

Discussion of 2028 Scenario 1a vs 2a Impacts

8.7.111. The impacts on the receptors associated with the EMG2 Project are anticipated to primarily be Negligible (adverse) at all existing specified receptor locations for NO_2, PM_{10}, and $PM_{2.5}$.

8.7.112. It is noted that with some isolated potential Moderate (adverse) impacts are predicted within the Castle Donington AQMA for NO_2 at receptors QR.R21 and QR.R22, with Minor (adverse) impacts for NO_2 at receptors QR.R8, QR.R10, QR.R15, QR.R20, QR.R23 and QR.R24. Furthermore, a Minor (adverse) impact is also predicted for $PM_{2.5}$ at receptor QR.R22.

8.7.113. To note, paragraph 7.6 of the EPUK & IAQM (2017) guidance states:

> *"Often, it is possible to be very clear when an impact is sufficiently slight that it has no effect on receptors and can therefore be described unequivocally as 'not significant.' In the opposite case, when an impact is clearly substantial, it will be obvious that there is potential for a significant effect. The problem lies in the intermediate region where there is likely to be uncertainty on the transition from insignificant to significant. In those circumstances where a single development can be judged in isolation, it is likely that a 'moderate' or 'substantial' impact will give rise to a significant effect and a 'negligible' or 'slight' impact will not have a significant effect, but such judgements are always more likely to be valid at the two extremes of impact severity."*

8.7.114. To note, paragraph 7.8 of the EPUK & IAQM (2017) guidance goes on to state:

> *"The population exposure in many assessments will be evaluated by describing the impacts at individual receptors. Often, these will be chosen to represent groups of residential properties, for example, and the assessor will need to consider the approximate number of people exposed to impacts in the various different categories of severity, in order to reach a conclusion on the significance of effect. 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. Such judgements will need to be made taking into account multiple factors and this guidance avoids the use of prescriptive approaches."*

8.7.115. The likely cause of the Minor / Moderate (adverse) impacts at these receptors within the Castle Donington AQMA is due to the street canyon effect on Bondgate (which is also highlighted in the NWLDC (2021) Air Quality Plan[72]) near these isolated receptors.

8.7.116. The concentrations do not exceed the relevant national objectives / limit as set out in **Table 8.5** and is not contrary to the aspirations of the NWLDC 2021 Air Quality Action Plan[73] of achieving the air quality standards under Part IV of the Environment Act 1995.

8.7.117. As highlighted above, only two residential receptor locations out of the 300 modelled are predicted to experience a moderate (adverse) impact as a result of the EMG2 Project, therefore this impact is only representative of two receptor locations, and not receptors modelled as a whole. Based on this, and in accordance with the IAQM (2017) guidance and professional judgement, the impacts can be considered 'not significant.'

2028 Site Suitability 2a

8.7.118. As set out in Table 8g.16 to Table 8g.18 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, the modelled discrete future receptors indicated no exceedances of the annual mean objectives for NO_2 and PM_{10} (40 µg/m^3), and the post-Stage 2 (2020) $PM_{2.5}$ limit (20µg/m^3).

8.7.119. With regard to the interim annual mean $PM_{2.5}$ target of 12µg/m^3 to be achieved in 2028, predicted annual mean $PM_{2.5}$ concentrations at all discrete receptors locations in the 2028 scenarios were below this interim target.

NO_2 – 2028 Scenario 1b vs 2b

8.7.120. As set out in Table 8g.19 to Table 8g.23 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in NO_2 annual mean concentrations will be Moderate to Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest NO_2 annual mean concentrations increase will be experienced at receptor QR.22 which will see an increase of 2.6 µg/m^3 (overall concentration of 35.4 µg/m^3). The impact at this receptor is considered Moderate.

8.7.121. The highest predicted annual mean PM_{10} concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor QR.R22, which will be exposed to a concentration of 35.4 µg/m^3. To note, this concentration is below the NO_2 annual mean air quality standard (40 µg/m^3).

8.7.122. All annual mean concentrations are below the indicative threshold of 60 µg/m^3 for exceedance of the 1-hour mean NO_2 standard (200 µg/m^3, not to be exceeded more than 18 times a year).

8.7.123. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Medium to Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct,

[72] North West Leicestershire District Council (2021) 2021 Air Quality Action Plan

[73] North West Leicestershire District Council (2021) 2021 Air Quality Action Plan

long-term, permanent adverse effect which is considered to be Negligible to Moderate (adverse).

PM_{10} – 2028 Scenario 1b vs 2b

8.7.124. As set out in Table 8g.24 to Table 8g.28 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in PM_{10} annual mean concentrations will be Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest PM_{10} annual mean concentrations increase will be experienced at receptor QR.R22 which will see an increase of 1.9 µg/m^3 (overall concentration of 27.2 µg/m^3).

8.7.125. The highest predicted annual mean PM_{10} concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor QR.R22, which will be exposed to a concentration of 26.4 µg/m^3. To note, this concentration is below the PM_{10} annual mean air quality standard (40 µg/m^3).

8.7.126. For receptors with an annual mean concentration above 14.8 µg/m³, the formula provided in Section 8.2 can be used to estimate the number of 24-hour mean objective exceedances. Applying this calculation to the highest modelled concentration receptor QR.R22 would indicate ~18.2 exceedances day per year, which is well below the 35-day annual limit.

8.7.127. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, long-term, permanent adverse effect which is considered to be Negligible (adverse).

$PM_{2.5}$ – 2028 Scenario 1b vs 2b

8.7.128. As set out in Table 8g.29 to Table 8g.33 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for all receptors, the predicted increase in $PM_{2.5}$ annual mean concentrations will be Slight to Negligible adverse (when considered against the EPUK & IAQM (2017) assessment matrix set out in **Table 8.4**). The greatest $PM_{2.5}$ annual mean concentrations increase will be experienced at receptor QR.22 which will see an increase of 1.0 µg/m^3 (overall concentration of 15.1 µg/m^3). The impact at this receptor is considered Slight.

8.7.129. The highest predicted annual mean $PM_{2.5}$ concentration when considering the additional EMG2 Project operational traffic is predicted to also be at receptor QR.R22, which will be exposed to a concentration of 15.1 µg/m^3. To note, this concentration is below the $PM_{2.5}$ Stage 2 Post 2020 annual mean limit (20 µg/m^3) air quality standard.

8.7.130. The sensitivity of all human receptors is considered to be High. The magnitudes of all changes are considered to be Small to Negligible adverse. Therefore, when considering against the EIA assessment matrix (as set out in **Table 8.6**) there is likely to be a direct, long-term, permanent adverse effect which is considered to be Negligible to Minor (adverse).

$PM_{2.5}$ Targets/Limits

8.7.131. With regard to the interim annual mean $PM_{2.5}$ target of 12µg/m^3 to be achieved in 2028, predicted annual mean $PM_{2.5}$ concentrations in the 2028 scenarios were generally below

this interim target, but several receptors within the Castle Donington receptors were above the interim target both without and with the EMG2 Project in place. To note, as previously stated in this Chapter the $PM_{2.5}$ targets are based upon a nation wide average and therefore caution needs to made upon making any conclusions on the alignment of the EMG2 Project against the 2028 $PM_{2.5}$ interim target.

2028 Impacts on AQMA's 1b vs 2b

8.7.132. Three AQMAs have been considered within the UK0032 Zone when considering operational traffic impacts arising from the EMG2 Project. These are the former Copt Oak AQMA, Castle Donington AQMA and Derby NO_2 AQMA No.1 – Ring Roads.

8.7.133. The impacts on the receptors associated with the EMG2 Project are anticipated to be Negligible (adverse) at all existing specified receptor locations for NO_2, PM_{10}, and $PM_{2.5}$ within the former Copt Oak AQMA and Derby NO_2 AQMA No.1 – Ring Roads and within the relevant air quality standards. Based on this, and in accordance with the IAQM (2017) guidance and professional judgement, the impacts can be considered 'not significant.'

8.7.134. The EMG2 Project will not result in the non-compliance, of the East Midlands Non-Agglomeration Zone (UK0032).

8.7.135. Further discussion of the impacts within the Castle Donington AQMA is set out in the *Discussion of 2028 Scenario 1b vs 2b Impacts* Section set out below.

Discussion of 2028 Scenario 1b vs 2b Impacts

8.7.136. The impacts on the receptors associated with the EMG2 Project are anticipated to primarily be Negligible (adverse) at all existing specified receptor locations for NO_2, PM_{10}, and $PM_{2.5}$.

8.7.137. It is noted that with some isolated potential moderate (adverse) impacts are predicted within the Castle Donington AQMA for NO_2 at receptors QR.R8, QR.R10, QR.R15 and QR.R20 - QR.R24 inclusive. Furthermore, a Minor (adverse) impact is also predicted for $PM_{2.5}$ at receptor QR.R22.

8.7.138. To note, paragraph 7.6 of the EPUK & IAQM (2017) guidance states:

> *"Often, it is possible to be very clear when an impact is sufficiently slight that it has no effect on receptors and can therefore be described unequivocally as 'not significant.' In the opposite case, when an impact is clearly substantial, it will be obvious that there is potential for a significant effect. The problem lies in the intermediate region where there is likely to be uncertainty on the transition from insignificant to significant. In those circumstances where a single development can be judged in isolation, it is likely that a 'moderate' or 'substantial' impact will give rise to a significant effect and a 'negligible' or 'slight' impact will not have a significant effect, but such judgements are always more likely to be valid at the two extremes of impact severity."*

8.7.139. To note, paragraph 7.8 of the EPUK & IAQM (2017) guidance goes on to state:

> *"The population exposure in many assessments will be evaluated by describing the impacts at individual receptors. Often, these will be chosen to represent groups of*

residential properties, for example, and the assessor will need to consider the approximate number of people exposed to impacts in the various different categories of severity, in order to reach a conclusion on the significance of effect. 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. Such judgements will need to be made taking into account multiple factors and this guidance avoids the use of prescriptive approaches."

8.7.140. The likely cause of the moderate (adverse) impacts at these receptors within the Castle Donington AQMA is due to the street canyon effect on Bondgate (which is also highlighted in the NWLDC (2021) Air Quality Plan[74]) near these isolated receptors.

8.7.141. The concentrations do not exceed the relevant national objectives / limit as set out in **Table 8.5** and is not contrary to the aspirations of the NWLDC 2021 Air Quality Action Plan[75] of achieving the air quality standards under Part IV of the Environment Act 1995.

8.7.142. As highlighted above, only eight residential receptor locations out of the 225 modelled are predicted to experience a moderate (adverse) impact as a result of the EMG2 Project, therefore this impact is only representative of eight receptor locations, and not receptors modelled as a whole. Based on this, and in accordance with the IAQM (2017) guidance and professional judgement, the impacts can be considered 'not significant.'

2028 Site Suitability 1b vs 2b

8.7.143. As set out in Table 8g.34 to Table 8g.36 in **Appendix 8G (Document DCO 6.8G/MCO 6.8G)**, for the modelled discrete future receptors indicates no exceedances of the annual mean objectives for NO_2 and PM_{10} (40 µg/m^3), and the post-Stage 2 (2020) $PM_{2.5}$ limit (20µg/m^3).

8.7.144. With regard to the interim annual mean $PM_{2.5}$ target of 12µg/m^3 to be achieved in 2028, predicted annual mean $PM_{2.5}$ concentrations at all discrete receptors locations in the 2028 scenarios were below this interim target.

EMG2 Project Operational Traffic Impact Assessment on Ecological Receptors

Introduction

8.7.145. The relevant critical levels / loads are set out in **Table 8.7**, with background concentrations / deposition rates set out in **Table 8.12**. To note, worst case critical levels / loads have been used to inform the assessment.

8.7.146. The EMG2 Project contributions have been assessed as a percentage of the critical level/load. The modelled transect points, in line with the IAQM (2020) guidance (transects perpendicular to the road up to 200m) are set out in **Appendix 8D (Document DCO 6.8D/MCO 6.8D)**. The modelled NO_x (annual mean and 24-hour mean), NH_3 concentrations,

[74] North West Leicestershire District Council (2021) 2021 Air Quality Action Plan

[75] North West Leicestershire District Council (2021) 2021 Air Quality Action Plan

and Acid and Nitrogen Deposition values are set out in **Appendix 8H** (**Document DCO 6.8H/MCO 6.8H**).

8.7.147. The significance of any impacts is set out in **Chapter 9: Ecology and Biodiversity** (**Document DCO 6.9/MCO 6.9**).

Oakley Wood SSSI – 2028 1a vs 2a

Critical Levels

8.7.148. As set out in Table 8h.1 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.44 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~20m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.149. As set out in Table 8h.2 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.29 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.150. As set out in Table 8h.3 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.06 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~180m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.151. As set out in Table 8h.4 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~70 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.152. As set out in Table 8h.5 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~100 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Tonge Gorse Ancient & Semi Natural Woodland – 2028 1a vs 2a

Critical Levels

8.7.153. As set out in Table 8h.6 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 1.91 µg/m^3, predicted at 0m within the Transect E2. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level for the whole length of Transect E2 and at up to ~120m from the start of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

8.7.154. As set out in Table 8h.7 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.49 µg/m^3, predicted at 0m within Transect E2. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.155. As set out in Table 8h.8 in Appendix 8H **(Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.08 µg/m^3, predicted at 0m within Transect E2. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level for the whole length of Transect E2 and up to ~130 m from the start of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.156. As set out in Table 8h.9 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for the whole length of Transect E2 and up to ~200m of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

8.7.157. As set out in Table 8h.10 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for the whole length of Transect E2 and up to ~170m of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

Lount Meadows SSSI – 2028 1a vs 2a

Critical Levels

8.7.158. As set out in Table 8h.11 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 1.11 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~110m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.159. As set out in Table 8h.12 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.28 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.160. As set out in Table 8h.13 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.04 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~10m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.161. As set out in Table 8h.14 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is not above the 1% threshold at any point within the modelled transect. This indicates these areas do not require evaluation by a qualified ecologist.

8.7.162. As set out in Table 8h.15 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~60 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Breedon Cloud Wood and Quarry SSSI – 2028 1a vs 2a

Critical Levels

8.7.163. As set out in Table 8h.16 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.84 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~30m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.164. As set out in Table 8h.17 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.21 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.165. As set out in Table 8h.18 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.03 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~40m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.166. As set out in Table 8h.19 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~100 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.167. As set out in Table 8h.20 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~30 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

March Covert Ancient Woodland

Critical Levels

8.7.168. As set out in Table 8h.21 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.29 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~2m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.169. As set out in Table 8h.22 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.08 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.170. As set out in Table 8h.23 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.01 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the

critical level at up to ~10m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.171. As set out in Table 8h.24 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~20 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.172. As set out in Table 8h.25 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~20 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Ancient and Veteran Trees – 2028 1a vs 2a

Critical Levels

8.7.173. As set out in Table 8h.26 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 2.22 µg/m^3, predicted at Receptor ID 20002. The increase at this tree exceeds the 1% PC increase criteria of the critical level. This indicates this tree requires evaluation by a qualified ecologist. The impacts at all remaining trees did not exceed the 1% PC increase criteria of the critical level, therefore a further detailed assessment of these trees is not required.

8.7.174. As set out in Table 8h.27 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.58 µg/m^3, predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.175. As set out in Table 8h.28 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.09 µg/m^3, predicted at Receptor ID 20002. The increase at the modelled point exceeds the 1% PC increase criteria of the critical level. This indicates this tree requires evaluation by a qualified ecologist. The impacts at all remaining trees did not exceed the 1% PC increase criteria of the critical level, therefore a further detailed assessment of these trees is not required.

Critical Loads

8.7.176. As set out in Table 8h.29 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold at Receptor ID 20002. This indicates this tree requires evaluation by a qualified ecologist.

8.7.177. As set out in Table 8h.30 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold at Receptor ID 20002. This indicates this tree requires evaluation by a qualified ecologist.

Oakley Wood SSSI – 2028 1b vs 2b

Critical Levels

8.7.178. As set out in Table 8h.31 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.44 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~20m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.179. As set out in Table 8h.32 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.29 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.180. As set out in Table 8h.33 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.06 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~190m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.181. As set out in Table 8h.34 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~80 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.182. As set out in Table 8h.35 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~100 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Tonge Gorse Ancient & Semi Natural Woodland – 2028 1b vs 2b

Critical Levels

8.7.183. As set out in Table 8h.36 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 1.48 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level for the whole length of Transect E2 and up to ~90m from the start of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

8.7.184. As set out in Table 8h.37 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.41 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.185. As set out in Table 8h.38 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.07 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the

critical level for the whole length of Transect E2 and up to ~ 120m from the start of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.186. As set out in Table 8h.39 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for the whole length of Transect E2 and up to ~160m from the start of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

8.7.187. As set out in Table 8h.40 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for the whole length of Transect E2 and for a distance up to ~ 150 m from the start of Transect E3. This indicates these areas require evaluation by a qualified ecologist.

Lount Meadows SSSI – 2028 1b vs 2b

Critical Levels

8.7.188. As set out in Table 8h.41 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.75 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~60m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.189. As set out in Table 8h.42 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.19 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.190. As set out in Table 8h.43 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.04 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~ 10m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.191. As set out in Table 8h.44 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is not above the 1% threshold at any point within the modelled transect. This indicates these areas do not require evaluation by a qualified ecologist.

8.7.192. As set out in Table 8h.45 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~ 60 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Breedon Cloud Wood and Quarry SSSI – 2028 1b vs 2b

Critical Levels

8.7.193. As set out in Table 8h.46 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.97 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~40m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.194. As set out in Table 8h.47 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.25 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.195. As set out in Table 8h.48 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.04 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~ 50m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Critical Loads

8.7.196. As set out in Table 8h.49 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~ 110 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.197. As set out in Table 8h.50 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~ 40 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

March Covert Ancient Woodland

Critical Levels

8.7.198. As set out in Table 8h.51 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 0.64 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the critical level at up to ~30m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.199. As set out in Table 8h.52 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.18 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.200. As set out in Table 8h.53 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.02 µg/m^3, predicted at 0m within the modelled transect. The increase at the modelled transect points exceeds the 1% PC increase criteria of the

critical level at up to ~20m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist. An assessment is included in Chapter 9 (Ecology and Biodiversity) (Document DCO 6.9/MCO 6.9) at paragraphs 9.7.19 and 9.7.20 which concludes the potential impacts are considered negligible.

Critical Loads

8.7.201. As set out in Table 8h.54 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold for a distance up to ~50 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

8.7.202. As set out in Table 8h.55 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold for a distance up to ~30 m from the start of the modelled transect. This indicates these areas require evaluation by a qualified ecologist.

Ancient and Veteran Trees – 2028 1b vs 2b

Critical Levels

8.7.203. As set out in Table 8h.56 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NO_x PC increase is 2.23 µg/m^3, predicted at Receptor ID 20002. The increase at this tree exceeds the 1% PC increase criteria of the critical level. This indicates this tree requires evaluation by a qualified ecologist. The impacts at all remaining trees did not exceed the 1% PC increase criteria of the critical level, therefore a further detailed assessment of these trees is not required.

8.7.204. As set out in Table 8h.57 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest 24-hour mean NO_x PC increase is 0.57 µg/m^3, predicted at Receptor ID 20002. The increase at the modelled point does not exceed the 10% increase criteria of the short-term critical level, therefore a further detailed assessment is not required.

8.7.205. As set out in Table 8h.58 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the highest annual mean NH_3 PC increase is 0.09 µg/m^3, predicted at Receptor ID 20002. The increase at the modelled point exceeds the 1% PC increase criteria of the critical level. This indicates this tree requires evaluation by a qualified ecologist. The impacts at Receptor ID 20008, 20009, 2000A, 2000B, 2000C, 2000D and 20012 also exceeded the 1% PC increase criteria of the critical level, indicating these trees require evaluation by a qualified ecologist.

Critical Loads

8.7.206. As set out in Table 8h.59 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in acid deposition is above the 1% threshold at Receptor ID 20002 and 2000A. This indicates these trees require evaluation by a qualified ecologist.

8.7.207. As set out in Table 8h.60 in **Appendix 8H (Document DCO 6.8H/MCO 6.8H)**, the change in nitrogen deposition is above the 1% threshold at Receptor ID 20002, 20008, 20009, 2000A, 2000C, 2000D and 20012. This indicates these trees require evaluation by a qualified ecologist.

EMG2 Project Operational Impact Assessment of East Midlands Airport on Future Receptors

8.7.208. The EMG2 Project is within 1 km of East Midlands Airport, but a review of the national statistics indicates the airport total equivalent passenger throughput is fewer than 10 million passengers per annum and based upon the background NO_x concentrations, as set in **Table 8.10** indicates levels below 25µg/m^3.

8.7.209. Based upon the above, emissions associated with East Midlands Airport are not deemed to be of concern and any impacts would be considered 'Not Significant.'

Mitigation Measures

Construction

Dust and Human Health

8.7.210. Construction dust assessments have been undertaken for the DCO Scheme and MCO Scheme and are presented earlier in this Chapter. The mitigation measures outlined relating to the DCO Scheme and MCO Scheme are relevant to the EMG2 Project as a whole and therefore are not duplicated here. Please see Section 8.5 and Section 8.6 above for details in regards to mitigation measures.

NRMM

8.7.211. The mitigation measures outlined relating to NRMM are common to the DCO Scheme and MCO Scheme and to the EMG2 Project as a whole and therefore are not duplicated here. Please see Section 8.5 above for details in regards to mitigation measures relating to NRMM.

Construction Traffic

8.7.212. The mitigation measures outlined relating to construction traffic are common to the DCO Scheme and MCO Scheme and to the EMG2 Project as a whole and therefore are not duplicated here. Please see Section 8.5 and Section 8.6 above for details in regards to mitigation measures relating to Construction Traffic.

Operational

Human Receptors

8.7.213. The NWLDC (2023) guidance document sets out the following hierarchy, with preference given to measures which prevent emissions rather than reduce in respect to emission reduction measures for Major Schemes (Major and Major+ Schemes):

- Prevent:
    - measures that reduce number of vehicle movements, for example by encouraging modal shift to active travel; and

- the use of heating systems with no emissions; avoiding the use of onsite combustion plant or backup emergency diesel generators.

- Reduce:
  - measures that reduce vehicle emissions, for example by encouraging low emission vehicles;
  - measures to support improved public transport;
  - measures to support the development of alternative technologies; and
  - measures to reduce emissions from energy plant through the use of Low NO_x plant.
- Protect:
  - Protect receptors from existing poor air quality; and
  - flue design to maximise dispersion and distance to sensitive receptors.

8.7.214. To note, this document also makes reference to the principles of good practice outlined within the EPUK & IAQM (2017) guidance in reference to design and operational measures.

8.7.215. The EPUK & IAQM (2017) guidance, which reiterates the PPG, states at Paragraph 4.8:

> *"Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact."*

8.7.216. Therefore, on the basis that the traffic impacts are 'not significant,' no mitigation measures are deemed necessary.

8.7.217. However, a Sustainable Transport Strategy (**Document DCO 6.6B**) and Framework Travel Plan **(Document DCO 6.6C)** has been produced for the DCO Scheme, and include a number of measures to encourage travel by a range of modes other than the private car, which aligns with the NWLDC (2023) guidance and EPUK & IAQM (2017) guidance documents.

Residual Impacts

Construction

Construction Dust

8.7.218. The construction of the EMG2 Project has the potential to pose a nuisance. However, by adopting the recommend appropriate mitigation measures in the CEMP and P-CEMPs (for each phase) and to reduce any such emissions and their potential effect on the surrounding area, there are expected to be no significant nuisance effects.

Construction Traffic

8.7.219. The residual effects remain unchanged as the effect without mitigation, which are likely to be 'not significant' for all human receptors.

Operational

Human Receptors

8.7.220. The residual effects remain unchanged as the effect without mitigation, which are likely to be ‘not significant’ for all human receptors.

Ecological Receptors

8.7.221. The residual effects have been considered in **Chapter 9: Ecology and Biodiversity (Document DCO 6.9/MCO 6.9)**.

8.8. Cumulative Effects

Introduction

8.8.1. It is commonplace that EIAs now consider the cross discipline impacts likely to affect the same receptors. This approach enables the wider EIA to identify, describe and assess the interaction between effects on population; health; biodiversity; climate and material assets from all relevant developments.

Intra Project Effects

8.8.1. As set out throughout the Chapter, the traffic data provided by the project's traffic consultants and as set out within **Chapter 6: Traffic and Transportation (Document DCO 6.6/MCO 6.6)** is integral to the assessment of air quality impacts within this Chapter, and the intra-project effects in combination with traffic are inherently considered in this assessment.

8.8.2. There is potential for adverse impacts on nearby designated ecological sites to occur due to increased emissions resulting from changes in road traffic. The air quality modelling assessment on these ecological sites is set out in Section 8.7, with the significance of these impacts considered in **Chapter 9: Ecology and Biodiversity (Document DCO 6.9/MCO 6.9)**.

Construction Dust

8.8.3. At Section 5.4, the IAQM (2024) guidance states:

> *"The potential for significant cumulative effects should also be considered. These are more likely to occur where the dust generating activities from separate developments projects are in close proximity and likely to occur at the same time. Ideally reference should be made to a dust assessment prepared by third parties for other relevant developments or it may be necessary to use professional judgement if such assessments are not publicly available.*
>
> *For example:*
>
> - *multiple construction sites contributing to the risk of track out onto the same section of a public highway; or*
> - *receptors located within 250m of multiple development sites.*

8.8.4. The proposals have been split out into the EMG2 Works, Highway Works, and MCO Scheme. It is likely all elements will progress / overlap during the construction phases, and as such there would be potential for cumulative effects.

8.8.5. Where timing overlaps with the EMG2 Project or other wider schemes construction programme, there is the potential for cumulative dust impacts, particularly via trackout on shared road links and deposition at receptors located between sites. Appropriate mitigation will be as outlined in the site-specific Dust Management Plans, which would reduce the risk of significant cumulative effects.

8.8.6. Through liaison and the coordinated delivery of each element of the EMG2 Works, Highway Works, and MCO Scheme and the use of site-specific Dust Management Plans, it is anticipated the cumulative effects will be Not Significant.

Inter Project Effects

Construction

Construction Traffic

8.8.7. The Transport Model used to prepare the traffic data which forms the basis of the air quality assessments considers scenarios with and without Freeport and Local Plan sites. Therefore, in using the projected future traffic levels from the model, this assessment has already considered the cumulative effects of the construction phase traffic and other developments likely to come forward.

Operational

8.8.8. The Transport Model used to prepare the traffic data which forms the basis of the air quality assessments considers scenarios with and without Freeport and Local Plan sites. Therefore, in using the projected future traffic levels from the model, this assessment has already considered the cumulative effects of the EMG2 Project and other developments likely to come forward.

8.9. Summary of Effects and Conclusions

Introduction

8.9.1. This Chapter contains information about the assessment of the likely dust and air quality impacts of the EMG2 Project, and a summary of the outcomes of the assessment works is set out below.

Baseline Conditions

8.9.2. The EMG2 Project is not within an AQMA, but there are three AQMAs within the study area. Existing monitored air quality data undertaken by the local authorities has been used to help establish a baseline position, with additional monitoring data also collected to validate and further advance the evidence base regarding local air quality in the vicinity of the EMG2 Project site.

8.9.3. The monitored existing air quality within the vicinity of EMG2 Works of the EMG2 Project has been shown to be within the NO_2 annual mean objective.

Construction

Construction Dust

8.9.4. A construction dust assessment has been undertaken for the construction phases associated with the DCO Scheme, and for the MCO Scheme and in accordance with IAQM (2024) guidance.

8.9.5. Following the successful implementation of the suggested mitigation measures, the impacts of the EMG2 Works and the Highway Works, and for the MCO Scheme, construction dust and emissions from construction activities upon the local area and sensitive receptors although adverse, will be temporary, and 'Not Significant'.

Construction Traffic

8.9.6. The likely impacts on AQMAs and other receptors have been assessed using the Transport modelling data for the construction phase of the EMG2 Project as a whole. Future impacts have been assessed assuming that calibrated background air quality concentrations and emissions fall in line with the predictions made by Defra.

8.9.7. The air quality modelling has not identified any exceedances of the relevant annual mean air quality standards for NO_2 (40 µg/m^3), PM_{10} (40 µg/m^3) and $PM_{2.5}$ (20 µg/m^3).

8.9.8. The NO_2, PM_{10} and $PM_{2.5}$ impacts were Negligible, and the overall impacts have been deemed as 'Not Significant'.

8.9.9. The construction phase EMG2 Project will not result in the non-compliance of the East Midlands Non-Agglomeration Zone (UK0032).

Operational

Operational Traffic

8.9.10. The likely impacts on AQMAs and other receptors have been assessed using the Transport modelling data for the EMG2 Project as a whole. Future impacts have been assessed assuming that calibrated background air quality concentrations and emissions fall in line with the predictions made by Defra.

8.9.11. The modelling works has not identified any exceedances of the relevant annual mean air quality standards for NO_2 (40 µg/m^3), PM_{10} (40 µg/m^3) and $PM_{2.5}$ (20 µg/m^3).

8.9.12. The NO_2 impacts has identified potential isolated Moderate adverse impacts within the Castle Donington AQMA. However, as set out in the Limitations and Assumptions Section, caution should be made upon drawing conclusions on the results of the modelling process due to the localised dispersion / previous monitored NO_2 concentrations at receptors within this location. Generally, across the board the impacts were Negligible, and the overall NO_2 impacts have been deemed as 'Not Significant'.

8.9.13. The PM_{10} and $PM_{2.5}$ impacts range from Minor to Negligible and the overall PM_{10} and $PM_{2.5}$ impacts have been deemed as 'Not Significant'.

8.9.14. The EMG2 Project will not result in the non-compliance of the East Midlands Non-Agglomeration Zone (UK0032).

Site Suitability

8.9.15. The modelled NO_2, PM_{10} and $PM_{2.5}$ concentrations at all discrete modelled receptor locations within the EMG2 Project are within the relevant air quality standards.

Rail Emissions

8.9.16. A screening assessment of the potential effects of rail emissions arising from the EMG2 Project has been undertaken in this Chapter and the impacts are deemed as 'Not Significant.'

Likely Significant Effects

8.9.17. The overall residual effects with the mitigation in place are summarised in **Table 8.19.** To note, this table is applicable to both the cumulative effects of the EMG2 Project and other proposals as well as the EMG2 Project in isolation.

Table 8.19: Overall Residual Effects

Development Phase			Summary of effects		
			DCO Application	**MCO Application**	**EMG2 Project**
Construction	Construction Dust		Not Significant	Not Significant	Not Significant
	Construction Traffic	Human Receptors	-	-	Negligible and Not Significant
		Ecological Receptors	-	-	Significance to be determined by qualified ecologist
Operation	Operational Traffic	Human Receptors	-	-	Negligible – Moderate and Not Significant
		Ecological Receptors	-	-	Significance to be determined by qualified ecologist
	Rail Emissions		-	Not Significant	Not Significant

8.9.18. As can be seen in the above table, the effects of the two applications on air quality, both individually and collectively, are assessed as no greater than Moderate throughout. Where significance has been determined within this Chapter, the effects are assessed as being 'Not Significant'.

Conclusion

8.9.19. Considering the above, the EMG2 Project will meet the requirements of the NPSNN and as such, air quality effects do not result in a significant effect arising from the DCO Scheme, the MCO Scheme, or the EMG2 Project.