Yorkshire GREEN Project

Environmental Impact Assessment

Preliminary Environmental Information Report
Volume two: Chapter 13: Air Quality

October 2021

nationalgrid

Contents

13. Air Quality

nationalgrid

13. Air Quality

13.1 Introduction

13.1.1 This chapter presents the preliminary assessment of the likely significant effects of the Project with respect to air quality. The preliminary assessment is based on information obtained to date. There are not expected to be any significant effects on air quality during operation. It should be read in conjunction with the Project description provided in **Chapter 3: Description of the Project** and with respect to relevant parts of the following chapters:

- **Chapter 8: Biodiversity**; and
- **Chapter 12: Traffic and Transport**.

13.1.2 This chapter describes:

- the legislation, policy and technical guidance that has informed the assessment (**Section 13.2**);
- consultation and engagement that has been undertaken and how comments from consultees relating to air quality have been addressed (**Section 13.3**);
- the methods used for baseline data gathering (**Section 13.4**);
- overall baseline (**Section 13.5**);
- embedded measures relevant to air quality (**Section 13.6**);
- the scope of the assessment for air quality (**Section 13.7**);
- the methods used for the assessment (**Section 13.8**);
- the preliminary assessment of air quality effects (**Section 13.9**);
- preliminary assessment of cumulative (inter-project) effects (**Section 13.10**);
- a summary of the preliminary significance conclusions (**Section 13.11**); and
- an outline of further work to be undertaken for the Environmental Statement (ES) (**Section 13.12**).

Project overview

13.1.3 In summary Yorkshire GREEN comprises the following new infrastructure within the draft Order Limits:

- Shipton North and South 400kV cable sealing end compounds (CSECs);
- The YN 400kV overhead line (north of proposed Overton Substation);
- Overton 400/275kV Substation;
- Two new sections of 275kV overhead line south of Overton Substation: the XC 275 kV overhead line to the west and the SP 275kV overhead line to the east;
- Tadcaster Tee West and East 275kV CSECs; and

- Monk Fryston 400kV Substation (adjacent to the existing substation).

13.1.4 Works to existing infrastructure within the draft Order Limits would comprise:

- Replacement of one pylon on the 2TW/YR 400kV overhead line;
- Works to the existing XC/XCP Monk Fryston to Poppleton overhead line comprising a mixture of decommissioning, replacement and realignment east of Moor Monkton and reconductoring works south of Moor Monkton. This overhead line would be reconfigured at its southern end to connect into the new substation at Monk Fryston;
- Replacement of one pylon on the Tadcaster Tee to Knaresborough (XD/PHG) 275kV overhead line route;
- Reconfiguration and removal of a short span of the Monk Fryston to Eggborough 400kV 4YS overhead line to connect this overhead line into the new substation at Monk Fryston; and
- Minor works at Osbaldwick Substation comprising the installation of a new circuit breaker and isolator along with associated cabling, removal and replacement of one gantry and works to one existing pylon. All works would be within existing operational land.

13.1.5 Please refer to **Chapter 3: Description of the Project** and **Figures 1.1** and **1.2** for an overview of the different components of the Project.

Limitations and assumptions

13.1.6 The information provided in this Preliminary Environmental Information Report (PEIR) is preliminary, the final assessment of likely significant effects would be reported in the ES. The PEIR has been produced to fulfil National Grid Electricity Transmission Plc's (National Grid) consultation duties and enable consultees to develop an informed view of the likely significant effects of the Project, and comment on this during statutory consultation before the design of the Project is finalised and taken forward to submission of the application for development consent.

13.1.7 The Project has been based on the principal that measures have been 'embedded' into the Project design to remove potential significant effects (**Section 4.6**). This approach is informed by the iterative design process. Additionally, the Project would ensure that standard good practice construction measures are adopted, through the implementation of an Outline Construction Environmental Management Plan (CEMP). The preliminary appraisal of potential effects therefore assumes that both design mitigation and good practice measures are in place.

13.1.8 There are no limitations relating to air quality that affect the robustness of the preliminary assessment of the potential likely significant effects of the Project.

13.2 Relevant legislation, planning policy and technical guidance

13.2.1 This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to air quality. Further information on policies relevant to the Project is provided in **Chapter 5: Legislation and Policy Overview**.

Legislation

13.2.2 A summary of the relevant legislation is given in **Table 13.1**.

Table 13.1 – Legislation relevant to the air quality assessment

Legislation	Legislative Context
The Environment Act 1995[1]	The Environment Act 1995 relates to a wide range of environmental issues. The Act covers the control of pollution and lays out the responsibility of the governing bodies in the UK responsible for the enforcement of environmental laws. Part IV of the Environment Act 1995 requires that Local Authorities periodically review air quality within their individual areas. This process of Local Air Quality Management (LAQM) is an integral part of delivering the Government's Air Quality Objectives (AQOs).
The Air Quality Regulations 2000[2]	Provides UK AQOs for a range of different pollutants, unlike Air Quality Standards, there is no statutory obligation to meet AQOs; AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.
The 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland[3]	The Environment Act 1995 required the adoption of an Air Quality Strategy containing standards, objectives and measures for improving ambient air quality. The 2007 Air Quality Strategy is designed to meet that requirement and provides a framework for improving air quality at a national and local level and supersedes the previous strategy published in 2000. It imposes a number of obligations on local authorities to manage air quality. Central to the Air Quality Strategy are health-based criteria for certain air pollutants; these criteria are based on medical and scientific reports on how and at what concentration each pollutant affects human health and mirror the AQOs set out in the Air Quality (England) Regulations 2000. The AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.
The Air Quality Standards (England) Regulations 2010 (as amended)[4]	The Air Quality Standards (AQS) Regulations report limit values at differing averaging periods for certain pollutants. There are limits provided for the protection of human health for

[1] UK Government Environment Act 1995. 1995. (Online) Available at: https://www.legislation.gov.uk/ukpga/1995/25/contents (Accessed 10 August 2021)
[2] UK Government. The Air Quality Regulations 2000, UK Statutory Instruments 2000 No. 928. 2002. (Online) Available at: https://www.legislation.gov.uk/uksi/2000/928/contents/made (Accessed 10 August 2021)
[3] Defra. The Air Quality Strategy for England, Scotland Wales and Northern Ireland. 2007. (Online) Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69337/pb12670-air-quality-strategy-vol2-070712.pdf (Accessed 10 August 2021)
[4] UK Government. The Air Quality Standards Regulations 2010, UK Statutory Instruments 2010 No. 1001. 2010. (Online) Available at: https://www.legislation.gov.uk/uksi/2010/1001/contents/made (Accessed 10 August 2021)

Legislation	Legislative Context
	Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Benzene, Carbon Monoxide (CO), Lead (Pb) and particulate matter of an aerodynamic diameter of 10µm (PM_{10}). Target values have been set for the concentration of particulate matter with an aerodynamic diameter of 2.5µm ($PM_{2.5}$). A limit value for the concentration of $PM_{2.5}$ is also provided. All limit values included in these Regulations should not be exceeded.
Environment Protection Act (EPA) 1990 (as amended)[5]	Part III of the EPA 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance. Fractions of dust greater than 10µm (i.e. greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK Air Quality Strategy. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.
The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018[6]	The Non-Road Mobile Machinery (NRMM) Regulations provide the requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery.

Planning policy

13.2.3 A summary of the relevant national and local planning policy is given in **Table 13.2**.

Table 13.2 – Planning policy relevant to the air quality assessment

Policy	Policy Context
National planning policy	
Overarching National Policy Statement for Energy (EN-1)[7]	Section 5.2: Paragraph 5.2.6 establishes that where a project is likely to have adverse effects on air quality, an assessment of such impacts must be considered in the ES. Paragraph 5.2.7 highlights that an ES should describe:

[5] UK Government. Environment Protection Act 1990, Control of dust and particulates associated with construction (Section 79). 1990. (Online) Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents (Accessed 10 August 2021)
[6] UK Government. The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. 2018. (Online) Available at: https://www.legislation.gov.uk/uksi/2018/764/made (Accessed 10 August 2021)
[7] Department of Energy and Climate Change. Overarching National Policy Statement for Energy (EN-1). 2011. (Online) Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf (Accessed 10 August 2021)

Policy	Policy Context
	• "*any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project*; • *the predicted absolute emission levels of the proposed project, after mitigation methods have been applied;* • *existing air quality levels and the relative change in air quality from existing levels;* • *and any potential eutrophication impacts.*"
National Planning Policy Framework (NPPF)[8]	Paragraph 186 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."* There are a number of AQMAs which have been declared by the Local Authorities surrounding the draft Order Limits. As such, the assessment would carefully consider the potential impact of the Project and establish whether it might constitute an obstacle to the achievement of strategic objectives that are set out within the air quality action plans of relevant administrative authorities.
Clean Air Strategy 2019[9]	Defra's Clean Air Strategy outlines the Government's proposed ambitions relating to reducing air pollution in order to protect health and nature, whilst boosting the economy. The strategy sits alongside three other UK government strategies: The Industrial Strategy, the

[8] Ministry of Housing, Communities & Local Government. National Planning Policy Framework. 2021. (Online) Available at: https://www.gov.uk/guidance/national-planning-policy-framework (Accessed 10 August 2021)
[9] Defra. Clean Air Strategy 2019. 2019. (Online) Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf (Accessed 10 August 2021)

Policy	Policy Context
	Clean Growth Strategy[10] and the 25 Year Environment Plan[11]. The Clean Air Strategy proposes to halve the number of people living in locations where concentrations of particulate matter are above the World Health Organization (WHO) guideline limit of 10µg/m^{-3} by 2025 and work in close collaboration with industry to explore further opportunities for industrial emissions reductions by developing a series of sector roadmaps to set standards aimed at making UK industry world leaders in clean technology. According to the Clean Strategy, developments should not conflict with the Government's aims of reducing exposure to $PM_{2.5}$ below the WHO guideline with appropriate mitigation implemented.
Local planning policy	
Hambleton District Council Local Plan - Publication Draft, 2019[12]	Policy RM4: Air Quality Air Quality in the emerging Local Plan outlines the Council's commitment to protecting and improving air quality within the District. Proposals will be categorised based on the potential for adverse impact to air quality, with the requirement for mitigation where necessary.
Saved Policies of the York Local Plan, 2005[13]	Policy GP4b: Air Quality Details that an air quality assessment is necessary where: "*a) there is a cumulative significant impact of traffic generation (an increase of more than 5% traffic flow), or* *b) there is a significant number (300 or more spaces) of additional parking to be provided, or* *c) coach and lorry parking is to be provided, or* *d) there is already a recognised congestion or air quality problem in the area, or* *e) there will potentially be significant emissions to the air from sources other than traffic."*
City of York Local Plan - Publication Draft, 2018[14]	Policy ENV1: Air Quality Air Quality requires all major and minor proposed developments to identify sources of emissions to air and submit an emissions statement.

[10] BEIS (2018) Clean Growth Strategy (Online). Available at: https://www.gov.uk/government/publications/clean-growth-strategy (Accessed 15 October 2021).
[11] Defra (2019) 25 Year Environment Plan (Online). Available at: https://www.gov.uk/government/publications/25-year-environment-plan (Accessed 15 October 2021)
[12] Hambleton District Council. Hambleton District Council Local Plan Publication Draft.2019. (Online) Available at: https://www.hambleton.gov.uk/homepage/12/publication-draft (Accessed 10 August 2021)
[13] City of York Council. City of York Local Plan Publication Draft. 2005. (Online) Available at: https://www.york.gov.uk/downloads/download/820/the-development-control-local-plan-2005-and-proposals-maps (Accessed 10 August 2021)
[14] City of York Council. City of York Local Plan Publication Draft. 2018 (Online) Available at: https://www.york.gov.uk/downloads/download/581/local-plan-publication-draft-2018-consultation (Accessed 10 August 2021)

Policy	Policy Context
Selby Draft Local Plan - Preferred Options, 2021[15]	Preferred Approach NE8:Air Quality Developments must not: 1. result in further significant air quality deterioration, or the need to declare further Air Quality Management Areas (AQMAs); and 2. result in any increase in the number of people exposed to poor air quality; and 3. conflict with elements of an Authority Air Quality Action Plan (AQAP). Developments will only be permitted where the impact to air quality is acceptable, and mechanisms are in place to prevent further exposure.
Leeds Core Strategy , 2019[16]	Policy EN8/P10: There are no policies specifically relating to air quality within the Core Strategy, however air quality is used as a rationale for Policy EN8 regarding electric vehicle charging and Policy P10 ensuring that new development does not adversely impact air quality.

Technical guidance

13.2.4 A summary of the technical guidance for air quality is given in **Table 13.3**.

Table 13.3 – Technical guidance relevant to the air quality assessment

Technical Guidance Document	Context
Defra (2018) Local Air Quality Management (LAQM) Technical Guidance LAQM.TG16[17]	Provides guidance for governmental and private sectors to discharge their obligations under the LAQM regime. It contains guidance on numerous areas including, for example, screening tools and methodologies, air quality monitoring, estimating emissions and dispersion modelling.
Institute of Air Quality Management (IAQM) (2016) Guidance on the Assessment of Dust from Demolition and Construction[18]	Provides a four-step process for evaluating the risk associated with dust emissions from construction and demolition sites on different types of receptors with respect to dust soiling, health effects and ecological effects.

[15] Selby District Council. Selby District Council Local Plan Preferred Options Consultation. 2021. (Online) Available at: https://www.selby.gov.uk/localplan (Accessed 10 August 2021)
[16] Leeds City Council. Leeds Core Strategy: Leeds Local Plan, 2019. 2019. (Online) Available at: https://www.leeds.gov.uk/planning/planning-policy/adopted-local-plan/core-strategy-introduction (Accessed 10 August 2021)
[17] Defra. Local Air Quality Management Technical Guidance (TG16). 2018. (Online). Available at: https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf (Accessed August 2021).
[18] IAQM. Guidance on the assessment of dust from demolition and construction. Version 1.1. Institute of Air Quality Management, London. 2016. (Online) Available at https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf (Accessed 10 August 2021).

Technical Guidance Document	Context
Environmental Protection UK and IAQM (2017) Land-Use Planning and Development Control: Planning for Air Quality[19]	Provides a procedure for screening potential air quality effects of new development and a procedure for assessing the significance of air quality effects in planning applications.
IAQM (2020) Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites[20]	Provides guidance on the air quality impacts of development on designated nature conservation sites but establishes that the assessment of the effects that air quality impacts may have on habitats and species should be the responsibility of a suitability qualified and experienced ecologist.
National Grid (2019) Environmental Action Plan[21]	This document outlines National Grid's Electricity and Transmission approach and methodology to developing an Environmental Action Plan to reduce the environmental impact of the network. It identifies high opportunity environmental aspects to work towards relating to air quality: • reduction in capital carbon from construction design as much as is feasible and offset the remaining to deliver net zero carbon emissions during construction, and; • alternative fuel construction vehicles to reduce impact on transport and logistics.
Highways England (2019) Design Manual for Roads and Bridges (DMRB) LA 105[22]	Provides a procedure for screening potential air quality effects of new and existing roads and a procedure for assessing the significance of air quality effects associated with traffic emissions.

13.3 Consultation and engagement

Overview

13.3.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Section 4.4** of **Chapter 4: Approach to Preparing the PEIR**.

Scoping Opinion

13.3.2 A Scoping Opinion was adopted by the Secretary of State, administered by the Planning Inspectorate, on 28 April 2021. A summary of the relevant responses received in the

[19] IAQM. Land-Use Planning & Development Control: Planning for Air Quality. Version 1.2. Institute of Air Quality Management, London. 2017. (Online) Available at: http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf (Accessed 10 August 2021).
[20] IAQM. A guide to the assessment of air quality impacts on designated nature conservation sites. Version 1.0. Institute of Air Quality Management, London. 2019 (Online) Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2019.pdf (Accessed 10 August 2021)
[21] National Grid. NGET_A11.05 – Environmental Action Plan and Methodology December 2019. 2019. (Online) Available at: https://www.nationalgrid.com/uk/electricity-transmission/document/131996/download (Accessed 10 August 2021)
[22] Highways England. Transport Scotland, Welsh Government and Department for Infrastructure. Design Manual for Roads and Bridges (DMRB): LA 105 Air quality. 2019. (Online) Available at: https://www.standardsforhighways.co.uk/prod/attachments/10191621-07df-44a3-892e-c1d5c7a28d90?inline=true (Accessed 10 August 2021).

Scoping Opinion in relation to air quality and confirmation of how these have been addressed within the assessment to date is presented in **Table 13.4**.

13.3.3 .

13.3.4 The information provided in the PEIR is preliminary and not all of the Scoping Opinion comments have been addressed at this stage, however all comments will be addressed within the ES.

Table 13.4 – Summary of EIA Scoping Opinion responses for air quality

Consultee	Consideration	How addressed in this PEIR
Planning Inspectorate	Agreement that the effect of construction dust on human health can be scoped out of the assessment.	For completeness, an assessment of construction dust effects on human health has been included as part of the assessment of dust effects (see **Section 13.9**).
Planning Inspectorate	Requirement to provide sufficient information on construction dust effects on amenity.	An assessment of construction dust effects has been included (see **Section 13.9**).
Planning Inspectorate	Agreement that the effect of construction dust on ecological receptors can be scoped out of the assessment.	For completeness an assessment of construction dust effects on ecological receptors has been included as part of the assessment of dust effects (see **Section 13.9**).
Planning Inspectorate	Further information is required to confirm that effects from non-road mobile machinery can be scoped out of the assessment	This information will be provided as part of the ES when further detail about the Project design and type, number and location of such machinery is known in more detail.
Planning Inspectorate	Agreement that pollutant emissions from construction vehicles and operational traffic emissions can be scoped out of the assessment.	These effects have not been assessed and remain scoped-out.
Planning Inspectorate	Study Area to be reviewed as construction routes referenced during scoping were provisional.	The Study Area was updated according to the confirmed construction routes and is presented in **Section 13.4**.
North Yorkshire County Council	It is recognised that air quality effects may arise from the construction and operational phases but are not expected to be significant for assessment in the ES provided that a CEMP is adopted. CEMP mitigation measures during construction are provided in Appendix 13.2, the relevance of which will be considered as more detail emerges.	Noted, an Outline CEMP will be submitted with the DCO application.

Consultee	Consideration	How addressed in this PEIR
Public Health England	Specific consideration (i.e. impacts on AQMAs/Clean Air Zone (CAZ), modelling, meteorology) when considering emissions to air.	Assessment has considered the presence of AQMAs/CAZ within the Study Area. The construction phase assessment follows a qualitative approach, as per applicable guidance, and therefore no modelling has been undertaken.
Public Heath England	We note that the applicant has screened out a number of items relating to operation within their Air Quality section within their scoping documentation. We agree that this development is likely to have a negligible impact on air quality during operation, but Air Quality should still be considered during the construction phase	For completeness an assessment of construction dust effects on ecological receptors has been included as part of the assessment of dust effects (see **Section 13.9**).

Technical engagement

13.3.5 No technical engagement with consultees in relation to air quality has been undertaken to date and no further engagement is anticipated to be needed at this stage of the assessment. This requirement will be reviewed prior to production of the ES and technical engagement meetings will be held if necessary to develop or discuss the assessment.

13.4 Data gathering methodology

Study Area

13.4.1 As the design and consultation processes progress and the Project is refined, the exact geographical scope of Study Areas may continue to evolve, to accommodate any design changes. However substantial changes to the Study Area are not anticipated. If the preliminary Study Areas change, data collection would also be reviewed and updated. The Study Areas are shown on **Figure 13.1**.

13.4.2 The draft Order Limits are shown in **Figure 13.1** and have been used to inform the spatial scope of data gathering. The methodological approach to deciding upon the spatial extent of the Study Area for air quality has been informed by IAQM construction guidance[18].

13.4.3 Construction activities associated with the Project would include construction of the cable sealing end compounds (CSEC) and substations, overhead line infrastructure, trench works associated with underground cabling (to connect CSECs) and construction access routes or haul roads and construction compounds.

13.4.4 The following criteria, included in IAQM construction guidance, has been taken into account to determine the air quality Study Area:

- A human receptor within:

- 350m of the boundary of the construction working area considered; or
- 50m of the route(s) used by construction vehicles on construction haulage routes, including the public highway, up to 500m from where the public highway meets the entrance(s) to the construction working area(s).

- An ecological receptor within:
  - 50m of the boundary of the site considered; or
  - 50m of the route(s) used by construction vehicles on construction haulage routes, including the public highway, up to 500m from where the public highway meets the entrance(s) to the construction working area(s).

13.4.5 The draft Order Limits (see **Figure 13.1**) incorporate the Limits of Deviation (see **Section 3.3**) and land required to facilitate the works, including construction access routes and the preferred option for the alignment of the new overhead lines and underground cables as well as locations for CSEC's and new substations and construction compounds.

13.4.6 The Study Area for data gathering and assessment has focused on those geographical areas of the Project within the draft Order Limits where there could be substantial construction activities. These comprise the following (see **Figure 13.1**):

- North West of York Area: Works within this area would comprise the construction of new overhead lines and pylons, proposed Overton Substation, and Shipton North and South CSECs, including the installation of underground cables work to connect the CSECs. In addition, within this area the existing 275kV Poppleton to Monk Fryston (XC/XCP) overhead line would be largely dismantled with some sections completely replaced (section between Moor Monkton and Skelton).
- Tadcaster Area: Works within this area would comprise the construction of Tadcaster Tee East and Tee West CSECs, including underground cabling to connect two existing overhead lines.
- Monk Fryston Area: Works within this area would comprise the construction a new substation (proposed Monk Fryston Substation) and amendments to existing overhead lines which currently connect into the adjacent existing substation.

13.4.7 The areas within the draft Order Limits which fall outside the three areas listed above do not form part of the Study Area for air quality as the proposed construction works would be limited and comprise refurbishment works (existing 275kV Poppleton to Monk Fryston XC overhead line) or minor works within operational land (Osbaldwick Substation). It is worth noting that all construction compounds are included within the air quality Study Areas. Further justification for scoping out these areas out of the assessment is provided in **Section 13.7**.

Desk study

13.4.8 A summary of the data sources, together with the nature of that data is outlined in **Table 13.5**. The desk study did not identify any relevant monitoring data to this assessment, which only covers dust deposition and ambient concentrations of PM_{10}, recorded by the relevant local authorities.

Table 13.5 – Data sources used to inform the air quality assessment

Organisation	Data source	Data provided
Hambleton District Council	2019 Air Quality Annual Status Report (ASR)[23]	Monitoring data.
Harrogate Borough Council	2020 Annual Status Report (ASR)[24]	Monitoring data.
Selby District Council	2020 Annual Status Report (ASR)[25]	Monitoring data.
City of York Council	2020 Air Quality Annual Status Report (ASR)[26];	Monitoring data.
Wakefield Metropolitan District Council	2020 Air Quality Annual Status Report (ASR)[27]	Monitoring data.
Ryedale District Council	2019 Air Quality Annual Status Report (ASR)[28]	Monitoring data.
Leeds City Council	2018 Annual Status Report (ASR)[29]	Monitoring data.
Defra, UK Air Information Resource (UK-air)	Mapped estimates of background concentrations[30];	Monitoring data.
Defra's UK Air Information Resource (UK-Air)	Air Quality Management Area boundaries[31];	Monitoring data.
Defra's MAGIC maps	Designated ecological sites[32]	Mapping.

Survey work

13.4.9 No survey work has been completed for the purposes of the assessment.

[23] Hambleton District Council. 2019 Air Quality Annual Status Report. 2019. (Online) Available at: https://www.hambleton.gov.uk/downloads/download/111/air-quality-annual-status-reports (Accessed 10 August 2021).
[24] Harrogate Borough Council. 2020 Air Quality Annual Status Report. 2020 (Online) Available at: https://www.harrogate.gov.uk/downloads/file/2830/air-quality-annual-status-report-2020 (Accessed 10 August 2021).
[25] Selby District Council. 2020 Air Quality Annual Status Report. 2020. (Online) Available at: https://www.selby.gov.uk/sites/default/files/Selby%20District%20Council%202020%20ASR%20final%207_5_2020.pdf (Accessed 10 August 2021).
[26] City of York Council. 2020 Air Quality Annual Status Report. 2020 (Online) Available at: https://democracy.york.gov.uk/documents/s142126/City%20of%20York%20Council%202020%20Annual%20Status%20Report.pdf (Accessed 10 August 2021).
[27] Wakefield Metropolitan District Council. 2020 Air Quality Annual Status Report. 2020. (Online) Available at: https://www.wakefield.gov.uk/Documents/bins-environment/environmental-health/pollution/air-quality-management-annual-status-report.pdf (Accessed 10 August 2021).
[28] Ryedale District Council. 2019 Air Quality Annual Status Report. 2019. (Online) Available at: https://www.ryedale.gov.uk/content/uploads/2021/08/Annual_status_report_2019.pdf (Accessed 10 August 2021).
[29] Leeds City Council 2018 Air Quality Annual Status Report. 2018. (Online) Available at: https://www.whatdotheyknow.com/cy/request/507514/response/1213615/attach/4/Leeds%20ASR%202018.pdf?cookie_passthrough=1 (Accessed 10 August 2021).
[30] Defra. Background mapping data for local authorities. 2021. (Online) Available at: https://uk-air.defra.gov.uk/data/laqm-background-home (Accessed 11 February 2021).
[31] Defra. Air Quality Management Areas interactive map. 2021. (Online) Available at: https://uk-air.defra.gov.uk/aqma/maps/?t=635888318453327355 (Accessed 11 February 2021).
[32] Defra. MAGIC. 2021. (Online) Available at: https://magic.defra.gov.uk/MagicMap.aspx (Accessed on 11 February 2021).

13.5 Overall baseline

Current baseline

Dust deposition

13.5.1 Ambient dust deposition rates are not monitored extensively in the UK. Monitoring that is undertaken is usually connected with specific activities such as mining and mineral extraction operations or specific large-scale construction programmes. Dust monitoring may also be undertaken to investigate specific complaints received by local authorities, who are then required to investigate dust nuisance under the EPA 1990 (see **Table 13.1**).

Pollutant concentrations

13.5.2 The Study Areas for the Project fall within the jurisdictional areas of Hambleton District Council, Selby District Council, City of York Council, Harrogate Borough Council, and Leeds City Council. The AQMAs declared by these Local Authorities relate to NO_2. As the assessment relates to construction dust effects, NO_2 monitoring is not considered relevant to this assessment.

13.5.3 Under LAQM duties, Local Authorities are required to monitor air quality concentrations. There are no monitoring locations of PM_{10} within the Study Area. Therefore, background concentrations for PM_{10} have been sourced from UK-AIR. The background concentrations represent 1km^2 grid squares**. Table 13.6** shows the estimated range of PM_{10} levels across the Study Area.

Table 13.6 – Defra mapped annual mean background concentrations for 2021

Pollutant	Concentration Range within the Study Area (µg m^{-3})
PM_{10}	14.0 – 14.3

Future baseline

13.5.4 A gradual decline in pollutants, as a result of expected improvements in air quality concentrations, in future years is anticipated. However, any improvements in air quality are not likely to be realised during the construction phase of the Project. These improvements are expected to result from measures such as the implementation of the Government's Clean Air Strategy objectives, improvements in real world emissions performance of road vehicles, and more stringent emission limits for industrial sources. It is therefore proposed that a conservative approach is employed for this assessment and hence any anticipated reductions are not accounted for.

13.5.5 With regard to the potential effects of climate change on the future air quality baseline, the 2007 report produced by the Air Quality Expert Group (AQEG)[33] indicated that the winter season may become windier with fewer less stable weather conditions by the end of the century, whilst summer seasons are anticipated to become hotter and sunnier, with an increase in unstable weather conditions by the 2040s. The net effect of these anticipated changes on the baseline air quality is difficult to establish but is unlikely to

[33] Air Quality Expert Group (AQEG). Air Quality and Climate Change: A UK Perspective. 2007. (Online) Available at: https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/fullreport.pdf (Accessed 10 August 2021)..

significantly alter the baseline air quality to an extent that it would affect the outcome of any assessment. Other factors such as changes in technology and the move away from combusting fossil fuels, driven by climate change abatement would potentially lead to decreases in emissions of the key pollutants considered in this assessment and a corresponding decrease in background concentrations of air pollutants into the future.

13.6 Embedded measures

13.6.1 A range of environmental measures have been embedded into the Project as outlined in **Chapter 3: Description of the Project**. **Table 13.7** outlines the embedded measures which have been taken into account in the air quality assessment.

Table 13.6 – Summary of the embedded environmental measures

Receptor	Potential changes and effects without embedded measures	Embedded measures	Compliance mechanism
Construction			
Human receptors within 350m and ecological receptors within 50m of the draft Order Limits	Increase in dust emissions and adverse effects on human receptors.	Outline Construction Environmental Management Plan (CEMP) would include standard dust management measures (see **Table 13.19**).	Outline CEMP, secured via DCO requirement.

13.6.2 **Table 13.19** provides further detail on the required dust management measures in line with the IAQM's Guidance[34].

13.7 Scope of the assessment

Spatial scope

13.7.1 The spatial scope of the assessment covers North West of York Area, Tadcaster Area and Monk Fryston Area (see **Figure 13.1**) of the Project contained within the draft Order Limits together with any receptors within 50m (ecological receptors) and 350m (human receptors) of the draft Order Limits or such receptors within 50m of any construction routes which would be needed to access these areas, as described in **Section 13.4**.

13.7.2 As outlined in **Section 13.4**, the proposed works falling outside the above areas comprise refurbishment activities on the section of the existing 275kV Poppleton to Monk Fryston XC overhead line. Such activities would involve replacing conductors and fittings, strengthening pylon steelwork, work on the foundations of some pylons and installation of temporary access roads. At Osbaldwick Substation, minor works (replacement of a gantry, minor works to an existing pylon and installation of a circuit breaker and associated cabling) are proposed within operational land. As no substantial

34 IAQM. Guidance on the assessment of dust from demolition and construction. Version 1.1. Institute of Air Quality Management, London. 2016. (Online) Available at https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf (Accessed 10 August 2021).

construction and earthwork activities are required, taking into account the proposed dust management measures which would be incorporated into the Outline CEMP, dust effects from these elements of the Project have been scoped out of the assessment.

Temporal scope

13.7.3 The temporal scope of the assessment of air quality is consistent with the period over which the Project would be carried out and therefore covers the period, 2024-2028 for the construction phase.

13.7.4 No significant emissions to air are likely from the operational phase. Vehicle movements during the operational phase of the Project would be limited to occasional maintenance vehicles. At this stage of the Project the proposed new Substations are not expected to be manned on a permanent basis and therefore the vehicles accessing these locations would also be limited. Therefore, operational traffic effects are scoped out of the assessment.

13.7.5 The Project is expected to have a life span of more than 80 years. If decommissioning is required at this point in time, then activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase works, albeit with a lesser duration of two years. Therefore, the likely significance of effects relating to the construction phase assessment would be applicable to the decommissioning phase and decommissioning effects are not discussed further in this chapter.

Potential receptors

13.7.6 The principal air quality receptors that have been identified as being potentially subject to effects are summarised in **Table 13.8**.

Table 13.7 – Air quality receptors subject to potential effects

Receptor	Reason for consideration
Overton Wood Ancient Woodland	The woodland may be impacted by construction activities from the deposition of dust.
Individual properties and villages within and around the North West of York Area, such as receptors around Corban Lane (North Hall Farm, Newlands Farm, Woodstock Lodge, Hall Moor), Overton Grange, New Farm, Thickpenny Farm and the villages of Skelton, Overton and Moor Monkton	Receptors may be impacted by construction activities from the deposition of dust and an increase in ground level concentrations of PM_{10}.
Individual properties located close to the works at Tadcaster, such as Brick House Farm and Lawnwith House as well as receptors within 50m of local roads which will be used to access this area (High Moor Grange Farm)	
Receptors close to Monk Fryston such as Pollums House Farm and Monk Fryston Lodge	

Likely significant effects

13.7.7 Dust generated during the construction phase of the Project is assessed using the IAQM Guidance (see **Table 13.3**) to assess the dust risk and determine the appropriate dust management measures to be included in an Outline CEMP. The construction phase dust assessment considers construction activities associated with the Project.

13.7.8 The effects scoped out from further assessment because the potential effects are not considered likely to be significant are:

- Effects of pollutant emissions from construction vehicles on both human and ecological receptors based on the review of the construction traffic flows. **Chapter 12: Traffic and Transport** identifies 23 road links on the highway with anticipated increases in traffic flows as a result of construction traffic. For most of these road links, peak construction 24hr traffic flows are below the screening criteria provided by IAQM (see **Table 13.9**)**.** There were six road links that exceeded the Heavy Duty Vehicle (HDV) screening criteria (100 Annual Average Daily Traffic (AADT) flows outside of AQMAs). A review of the location of these six roads, including the presence of receptors, confirmed that there are no ecological receptors within 200m from the road links and a limited number of residential receptors are present within 200m. The increase in HDV flows from construction traffic would be temporary and the predicted exceedances relate to peak traffic flows, which would occur for less than six months, whereas IAQM criteria refer to average traffic flows. Therefore, it is concluded that impacts would be negligible, and no detailed assessment of construction traffic is proposed.
- Effects of pollutant emissions from operational vehicles: As outlined above day-to-day operational vehicle movements are expected to be minimal and therefore effects from vehicle emissions are scoped out of the assessment. During the estimated 80 year life span of the Project, there may be a requirement to refurbish the new overhead lines constructed as part of the Project. For the purposes of the assessment, it is assumed that vehicle movements associated with these works would be 25% of the flows estimated for the construction phase and therefore, as it is concluded that construction traffic flows are not likely to result in significant air quality effects the same is concluded regarding any traffic movements associated with refurbishment works during the life span of the Project.

Table 13.8 -Screening criteria for detailed air quality assessment of road traffic emissions

Nature of Impact	Screening criteria for Detailed Air Quality Assessment
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: • more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA; or • more than 500 AADT elsewhere.
Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: • more than 25 AADT within or adjacent to an AQMA; or • more than 100 AADT elsewhere.
Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors.	The introduction of a new junction or removal of a junction will lead to a detailed air quality assessment when this addition or removal causes traffic to significantly change vehicle acceleration or deceleration, for example, traffic lights, or roundabouts.
Introduce or change a bus station.	Where bus flows will change by: • more than 25 AADT within or adjacent to an AQMA; or • more than 100 AADT elsewhere.

Note: Taken from IAQM guidance Land-Use Planning and Development Control: Planning for Air Quality (2017)[19].

13.8 Assessment methodology

13.8.1 The generic project-wide approach to the assessment methodology is set out in **Chapter 4: Approach to Preparing the PEIR**, and specifically **Section 4.7** to **4.10**.. However, for the purpose of this assessment the IAQM construction guidance[18] methodology has been applied.

13.8.2 The significance of dust effects is based on professional judgement after establishing the dust risk for the Project using the IAQM construction guidance[18]. The IAQM dust assessment methodology starts with the assumption that there would be no dust mitigation measures. It should be noted that this approach is used for dust assessment only in this PEIR in line with the IAQM Guidance. The resulting level of risk is then used to determine the level of environmental measures required to ensure that actual effects are not significant.

13.8.3 The guidance provides a four-step process for evaluating the risk associated with dust emissions from construction and demolition sites on different types of receptors to dust soiling, health effects (from emissions of PM_{10}) and ecological effects. After screening to

determine if a detailed assessment is required (step 1), this level of risk is determined separately for each of the four construction activities (demolition[35]; earthworks; construction; and trackout) defined in the guidance.

13.8.4 Step 2 takes account of the scale and nature of the works, which determines the potential dust emission magnitude (classified as large, medium or small), and the sensitivity of the area (classified as high, medium or low) which is determined by how many receptors there are, and how sensitive the receptors are, at various distances from the source. The risk of impacts in the absence of mitigation (classified as high risk, medium risk, low risk or negligible risk) is determined by combining the dust emission magnitude with the sensitivity of the area.

13.8.5 Step 3 determines the site-specific mitigation for each of the activities using the recommended measures in the guidance. Step 4 is to examine the residual effects and determine the overall significance of dust effects. In respect to the latter, the guidance states:

> *"For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant'.*
>
> *There may be cases where, for example, there is inadequate access to water for dust suppression to be effective, and even with other mitigation measures in place there may be a significant effect. Therefore, it is important to consider the specific characteristics of the site and the surrounding area to ensure that the conclusion of no significant effect is robust."*

13.8.6 Further information is provided in **Appendix 13A**.

13.9 Preliminary assessment of construction dust effects

North West of York Area

Magnitude of impacts

13.9.1 In relation to the four activity types, the magnitude of effects is as follows.

- Demolition works: The volume of material from the overhead line dismantling works is estimated to be below 20,000m^3 (small magnitude of effect), however the pylons to be dismantled exceed 20m in height (large magnitude of effect). As a result, it is considered that the magnitude of effect would be **medium**.
- Earthworks: The working area for the North West of York Area would exceed 10,000 m^2 (large magnitude of effect). It is expected that earthworks would generate in excess of 100,000 tonnes of material in this area. As a result, it is considered that the magnitude of dust emissions would be **large**.
- Construction: The total volume of materials at the construction and reinstatement phases is estimated to be between of 25,000 – 100,000m^3. It is therefore considered that there would be a **medium** dust emission magnitude for construction activities.
- Trackout: Dust emissions may occur on the public road network as a result of Project related HGVs depositing material which is subsequently re-suspended by

[35] For the purposes of this assessment works involving the dismantling of existing pylons has been considered in the category of demolition activities

other vehicles. The total number of daily HGV movements is estimated, on average, to be between 10 and 50 HGVs for each of the access points (the locations where traffic would enter the works within the draft Order Limits from the public highway) within the North West of York Area during peak construction period (see **Chapter 12: Traffic and Transport**). It is therefore considered that, taking into account the distribution of the access points across the North West of York Area, the magnitude of dust emissions would be **medium**.

13.9.2 The magnitude of impacts from the above four activities is summarised in **Table 13.10**.

Table 13.9 – Dust emission magnitude: North West of York Area

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

Sensitivity of receptors

13.9.3 There are 10 residential properties within 350m of the North West of York Area which are classified as high sensitivity receptors. There are no residential receptors within 20m of the North West of York Area. The sensitivity of the area (using Table 2 of the IAQM construction guidance, see **Table 13.3**) with respect to dust soiling effects on people and property in relation to demolition, earthworks and construction activities, is therefore considered to be **low**.

13.9.4 Access to the North West of York Area would be via temporary access points: the A19; Overton Road and Corban Lane. Each of these accesses has a number of properties which are located within 20m of the road and 500m of the temporary access point, as follows:

- A19: 4 properties;
- Overton Road: 6 properties; and
- Corban Lane: 1 property.

13.9.5 Hence, the sensitivity of the area with respect to dust soiling effects on people and property in relation to trackout is considered to be **high**.

13.9.6 The estimated maximum background PM_{10} concentration at Area 1 is below 24 μgm^{-3}. Given that there are less than 100 residential properties located within 20m of North West of York Area, the sensitivity of the area assessed using Table 3 of IAQM construction guidance (see **Table 13.3**) with respect to human health impact, is **low**.

13.9.7 The Overton Wood is adjacent to the North West of York Area. As the woodland is considered a low sensitivity receptor, according to the IAQM construction guidance[18], the sensitivity of the area assessed using Table 4 of IAQM construction guidance with respect to ecological impact is low.

13.9.8 The sensitivity of the surrounding area is summarised in **Table 13.11**.

Table 13.10 – Sensitivity of the North West of York Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	Low	Low	Low	High
Human Health	Low	Low	Low	Low
Ecological	Low	Low	Low	Low

Risk categorisation of dust impacts

13.9.9 The risk of dust impacts is defined using Tables 7, 8 and 9 in the IAQM construction guidance[18] for earthworks, construction and removal of materials trackout, respectively. The dust emission magnitude classes combined with the sensitivity of surrounding area classes, result in the risk categories shown in **Table 13.12**.

Table 13.11 – North West of York Area construction dust assessment summary

Potential impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Low Risk	Low Risk	Medium Risk
Human Health	Low Risk	Low Risk	Low Risk	Low Risk
Ecological	Low Risk	Low Risk	Low Risk	Low Risk

Significance of effects

13.9.10 The finding that without dust controls, there would be a medium risk of impact has informed the dust management measures that would be implemented as part of the Project (see **Table 13.19**). Such measures are expected to ensure that the risk of impact is reduced to negligible. Therefore, the effect of dust emissions during the construction phase would be negligible and **Not Significant**.

13.9.11 There are no predicted permanent or long-term impacts, so the effect would remain as negligible in the long-term.

Tadcaster Area

Magnitude of impacts

13.9.12 In relation to the four activity types, the magnitude of effects is as follows.

- Demolition: The volume of material from the dismantling works is estimated to be less than 20,000 m^3 (small magnitude of effect), however the pylon to be removed exceeds 20m in height (large magnitude of effect). Therefore, it is considered that the magnitude of effect overall would be **medium**.

- Earthworks: The working area for construction and reinstatement would exceed 10,000 m^2. In addition, the total volume of earthworks material that would need to be moved in this area would be above 100,000 tonnes. As a result, it is considered that the magnitude of dust emissions would be **large**.
- Construction: The total volume of construction materials at the construction and reinstatement stage is estimated to be between 25,000 – 100,000 m^3. It is therefore considered that the magnitude of dust emissions would be **medium**.
- Trackout: Dust emissions may occur from the transport of dust and dirt from the construction site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. The total number of daily HGV movements is estimated to be within the IAQM criteria of 10-50 HGV for each of the access points within the Tadcaster Area during peak construction periods. It is therefore considered that, taking into account the distribution of the access points across the Tadcaster Area, the magnitude of dust emissions associated with trackout would be **medium**.

13.9.13 The magnitude of impacts from the above activities is summarised in **Table 13.15**.

Table 13.12 – Dust emission magnitude in the Tadcaster Area

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

Sensitivity of receptors

13.9.14 There is one residential property within 50m of the draft Order Limits at Tadcaster, which is classed as a high sensitivity receptor. The sensitivity of the area is therefore considered to be **low**.

13.9.15 There are two residential properties within 50m of Garnet Lane which would be used by construction traffic. The sensitivity of the area with respect to dust soiling effects on people and property in relation to trackout using the temporary access is therefore considered to be **low**.

13.9.16 The estimated maximum background PM_{10} concentration (see **Table 13.9**) at the Tadcaster site is below 24 μgm^{-3}. Given that there are less than 100 residential properties located within 20m of the draft Order Limits, the sensitivity of the area with respect to human health impact is low.

13.9.17 There are also no ecological sites located within 350m of the Tadcaster Site. There are also no ecological sites within 50m of construction traffic routes, up to 500m from where the temporary access joins the public highway. The sensitivity of the area with respect to dust soiling effects on ecological receptors has not been considered further.

13.9.18 The sensitivity of the surrounding area is summarised in **Table 13.16**.

Table 13.13 – Sensitivity of the area at Tadcaster site

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

Risk categorisation of dust impacts

13.9.19 The risk of dust impacts is defined using Tables 7, 8 and 9 in the IAQM construction guidance for earthworks, construction and removal of materials trackout[18], respectively. The dust emission magnitude classes combined with the sensitivity of surrounding area classes, result in the risk categories reported in **Table 13.15**.

Table 13.14 – Tadcaster area construction dust assessment summary

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Low Risk	Low Risk	Low Risk	Low Risk
Human Health	Low Risk	Low Risk	Low Risk	Low Risk

Significance of effects

13.9.20 The finding that without dust controls there would be a low risk of impact has informed the dust management measures that would be implemented as part of the Project (**Table 13.19**) and these measures[18] are expected to ensure that the risk of impact is reduced to negligible. The effect of dust emissions during the construction phase would be negligible with applied site-specific mitigations and the impact is considered to be **Not Significant**.

13.9.21 There are no predicted permanent or long-term impacts, so the effect would remain as negligible in the long-term.

Monk Fryston Area

Magnitude of impacts

13.9.22 In relation to the four activity types, the magnitude of effects is as follows.

- Demolition: The volume of material from the overhead line dismantling works is estimated to be less 20,000 m^3, (small magnitude of effect), however pylons to be removed exceed 20m in height (high magnitude of effect). Therefore, it is considered that the magnitude of effect would be **medium**.
- Earthworks: The working area for construction and reinstatement would exceed 10,000 m^2 (large magnitude of effect). In addition, it is expected that the earthworks required to construct the proposed Monk Fryston Substation would generate in excess of 100,000 tonnes of material (large magnitude of effect). As a result, it is considered that the magnitude of dust emissions would be **large**.

- Construction: The total volume of construction materials during the construction and reinstatement phases is estimated to be between 25,000 – 100,000 m^3. It is therefore considered that the magnitude of effect would be **medium**.
- Trackout: Dust emissions may occur on the public road network as a result of Project related HGVs depositing material which is subsequently re-suspended by other vehicles. The total number of daily HGV movements is estimated to fall within the IAQM criteria of greater than 50 HGVs during the peak construction period for each of the access points within the draft Order Limits within the Monk Fryston Area (see **Chapter 12: Traffic and Transport**). It is therefore considered that the magnitude of dust emissions associated with trackout would be **large**.

13.9.23 The magnitude of impacts from the above activities is summarised in **Table 13.16**.

Table 13.15 – Dust emission magnitude at Monk Fryston site

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

Sensitivity of receptors

13.9.24 There are ten residential properties within 20m of the Monk Fryston Area and one property within between 50m and 100m. The sensitivity of the area assessed using Table 2 of the IAQM guidance (see **Table 13.3**) with respect to dust soiling effects on people and property in relation to demolition, earthworks and construction activities is therefore considered to be **medium**.

13.9.25 There are two residential properties within 50m of the site haul route that would be used by construction traffic to access the proposed works at Monk Fryston. The sensitivity of the area with respect to dust soiling effects on people and property in relation to trackout using the construction access is therefore considered to be **medium**.

13.9.26 The estimated maximum background PM_{10} concentration (see **Table 13.9**) at the existing Monk Fryston Substation is below 24 μgm^{-39}. Given that there are less than 100 residential properties located within 20m from the Area, the sensitivity of the area with respect to human health impact is **low**.

13.9.27 There are no ecological sites located within 350m of the existing Monk Fryston Substation. In addition, there are no ecological sites within 50m of construction traffic routes up to 500m from where the access points join the public highway. Therefore, the sensitivity of the area with respect to dust soiling effects on ecological receptors has not been considered further.

13.9.28 The sensitivity of the surrounding area is summarised in **Table 13.17**.

Table 13.16 – Sensitivity of the Area at the existing Monk Fryston Substation

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Medium	Medium	Medium
Human Health	Low	Low	Low	Low

Risk categorisation of dust impacts

13.9.29 The risk of dust impacts is defined using Tables 7, 8 and 9 in the guidance for earthworks, construction and removal of materials trackout, respectively[18]. The dust emission magnitude classes combined with the sensitivity of surrounding area classes, result in the risk categories shown in **Table 13.18**.

Table 13.17 – Monk Fryston Area construction dust assessment summary

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Medium Risk	Medium Risk	Medium Risk
Human Health	Low Risk	Low Risk	Low Risk	Low Risk

Significance of effects

13.9.30 The finding that without dust controls there would be a medium risk of impact has informed the dust management measures that would be implemented as part of the Project (**Table 13.19**) and these measures are expected to ensure that the risk of impact is reduced to negligible levels. The effect of the construction phase through dust emissions would be negligible with applied site-specific mitigations and the impact is considered to be **Not Significant** in terms of the EIA Regulations.

13.9.31 There are no predicted permanent or long-term impacts, so the effect would be negligible in the long-term.

Required dust management measures

13.9.32 **Table 13.19** lists the IAQM measures (see **Table 13.3**) for dust effects that will be implemented as part of the Project. These measures will form part of the Outline CEMP which will cover all works within the draft Order Limits and provide further information on the locations where the measures listed in **Table 13.19** are required. A Outline CEMP will be submitted in support of the DCO application.

Table 13.18 – Required management measures

Measures
Communications
Develop and implement a Stakeholder Communications Plan that includes community engagement before work commences on site.

Measures
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
Display the head or regional office contact information.
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the relevant Local Authority. The level of detail would depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.
Monitoring
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked.
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Undertake daily on-site and off-site inspection in areas where works are taking place only, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills, with cleaning to be provided if necessary.
Operating Vehicle/Machinery and Sustainable Travel
Ensure all vehicles switch off engines when stationary - no idling vehicles.
Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Produce a Construction Logistics Plan or similar that could form part of the Traffic Management Plan to manage the sustainable delivery of goods and materials.
Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of site management and with the agreement of the local authority, where appropriate).
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
Operation
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, for example, suitable local exhaust ventilation systems.

Measures
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
Use enclosed chutes and conveyors and covered skips.
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
Avoid site runoff of water or mud.
Keep site fencing, barriers and scaffolding clean using wet methods.
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
Cover, seed or fence stockpiles to prevent wind whipping as soon as it is practical.
Site Management
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
Make the complaints log available to the local authority when asked.
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
Waste Management
Avoid bonfires and burning of waste materials.
Measures specific to Demolition
Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
Avoid explosive blasting, using appropriate manual or mechanical alternatives.
Bag and remove any biological debris or damp down such material before demolition.

Measures
Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
Measures specific for Earthwork
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
Only remove the cover in small areas during work and not all at once.
Measures specific for Construction
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Avoid scabbling (roughening of concrete surfaces) if possible.
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
Measures specific for Trackout
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper to be in use where necessary.
Avoid dry sweeping of large areas.
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
Record all inspections of haul routes and any subsequent action in a site logbook.
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) at appropriate locations and where reasonably practicable.
Ensure there is an adequate area of hard surfaced road within construction compounds between the wheel wash facility and the site exit, wherever site size and layout permits.
Access gates to be located at least 10m from receptors where possible.

13.10 Preliminary assessment of cumulative (inter-project) effects

13.10.1 In accordance with Planning Inspectorate Advice Note 17[36] a long list of 'other development', including allocations, has been reviewed and screened to establish those other developments which could result in significant effects in cumulation with the Project. The process followed is described in **Section 4.9** and a long list of developments considered is provided in **Appendix 4C** of the PEIR. **Table 4.5** lists all the short listed developments identified to date, which will be kept under review as the Project progresses.

13.10.2 A detailed assessment of the likely significant cumulative effects will be provided in the ES. At this stage of the Project the other developments which have the potential for significant effects in cumulation with the Project in relation to dust effects comprise various developments close to the existing Monk Fryston Substation (proposed motorway services on the A1(M) near Lumby (2019/0547/EIA), potential minerals development (NY/2020/0204/SCO), a gas peaking plant (2020/0594/FULM) and energy storage projects (2021/0633/FULM, 2021/0789/FULM).

13.11 Preliminary significance conclusions

13.11.1 A summary of the results of the preliminary air quality assessment is provided in **Table 13.20**.

[36] Planning Inspectorate (2019) Advice Note 17: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects [online]. Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/ (Accessed 13 October 2021).

Table 13.19 – Preliminary summary of significance of effects

Receptor and Summary of Predicted Effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary Rationale
Residential receptors (within 350m of North West of York Area, Tadcaster Area and the existing Monk Fryston Substation draft Order Limits/50m from construction routes within 500m of North West of York Area,	H i g h	Medium – Large	Not significant (Low risk prior to embedded mitigation).	Implementation of a Outline CEMP including the required management measures detailed in **Table 13.19**.

Receptor and Summary of Predicted Effects	Sensitivity / importance of receptor / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary Rationale
Tadcaster Area and the existing Monk Fryston Substation entrance) Predicted effect: Increased dust emissions during the construction phase.				
Biodiversity sites (within 50m of North West of York Area, Tadcaster Area and	L c v	Negligible	Not significant	Implementation of a Outline CEMP including the required

Receptor and Summary of Predicted Effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary Rationale
the existing Monk Fryston Substation boundary/50m from construction routes within 500m of North West of York Area, Tadcaster Area and the existing Monk Fryston Substation entrance) Predicted effect: Increased dust				management measures detailed in **Table 13.19**.

Receptor and Summary of Predicted Effects	Sensitivity/importance/value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary Rationale
emissions during the construction period.				

1. The sensitivity/importance/value of a receptor is defined using the criteria set out in IAQM construction guidance and is defined as low, medium, high.
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in the IAQM construction guidance and is defined negligible, small, medium and large and are presented in **Appendix 13A**.
3. The significance of the environmental effects is based on the combination of the sensitivity/importance/value of a receptor and the magnitude of change and is expressed as major (significant), moderate (potentially significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in the IAQM construction guidance and are presented in **Appendix 13A**.

13.12 Further work to be undertaken

13.12.1 The ES will provide further information on Non-Road Mobile Machinery including information on the type, number, location or operational hours of such machinery and likely emissions associated with such machinery.

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com