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Sunnica Energy Farm

Environmental Statement
Chapter 14: Air Quality

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14 Air Quality

14.1 Introduction

14.1.1 The purpose of this chapter of the Environmental Statement (ES) is to report on the findings of an assessment of the likely significant effects on local air quality as a result of the Scheme.

14.1.2 The assessment relates to dust generation and additional road traffic and plant/equipment emissions during the construction and decommissioning phases of the Scheme.

14.1.3 A study area comprising the Order limits and the affected traffic network has been assessed, illustrated in Figure 14-1. This comprises sensitive receptors within 350m of the Order limits, within 50m of any roads expected to be affected by the construction phase traffic, and up to 500m from the site access points, in accordance with guidance from the Institute of Air Quality Management (IAQM) (Ref 14-1).

14.1.4 The potential impact of the Scheme on local air quality has been determined at sensitive receptors (human and ecological) which have been identified in the vicinity of the Order limits.

14.1.5 Abbreviations and capitalised terms are defined in the Glossary, **Chapter 0** of this Environmental Statement **[EN010106/APP/6.1]**.

14.2 Assessment Methodology

Introduction

14.2.1 This section details the methods used to assess the potential effects on air quality during the construction and decommissioning phases of the Scheme.

14.2.2 **Chapter 3: Scheme Description** of this Environmental Statement **[EN010106/APP/6.1]** presents a description of the Scheme, against which this chapter has been assessed. The assessment has been based on likely worst-case parameters using the Rochdale Envelope approach; the actual impact may therefore be less than anticipated if the Scheme is built to a lesser scale. In terms of construction, whilst a phased construction is possible, an intensive 24 month construction period is considered the worst case for assessment purposes. The effects of a phased construction period would not be any worse than those set out in this chapter.

14.2.3 For the purposes of assessing the decommissioning period, a worst case of 24 months has been assumed. The decommissioning phase will be similar in nature, duration, and extent to the construction phase, albeit likely to be shorter and of lower magnitude due to the small amount of decommissioning required; it has therefore not been necessary to separately assess this phase and the effects for assessment purposes are assumed on a conservative basis to therefore be the same as the construction phase.

14.2.4 The potential for fugitive emissions of particulate matter from construction-phase activities has been qualitatively assessed via a Dust Risk Assessment (DRA) in accordance with IAQM Guidance (Ref 14-1). Construction-phase road traffic emissions have been quantitatively assessed via a detailed dispersion modelling exercise.

14.2.5 Due to the nature of the Scheme, there are anticipated to be very few trips generated by its operation. It is anticipated that there will be up to 17 permanent staff onsite during the operational phase during a single shift, with staff working on a three shift pattern. There will also be a requirement for additional staff to attend the Sites when required for maintenance and cleaning activities. Based on an occupancy of 1.5 persons per car as outlined in **Chapter 13: Transport and Access** of this Environmental Statement **[EN010106/APP/6.1]**, it is expected that there will be approximately 11 vehicles travelling to the Sites on a daily basis. Therefore a significant change to traffic flows is not anticipated to occur once the Scheme is complete and operational. A detailed assessment of emissions from operational road traffic and the subsequent impact upon local air quality is therefore not required and will not be considered further within this assessment for the operational stage.

Methodology for Assessment of Fugitive Emissions of Particulate Matter during Construction Phase

14.2.6 A qualitative risk-based dust assessment has been undertaken to assess the significance of any effects on sensitive receptors associated with the construction phase. The assessment considers potential sources of emissions on the basis of the four main activity groupings:

a. Demolition (not relevant to this Scheme);
b. Earthworks (e.g. soil stripping, excavation etc.);
c. Construction; and
d. Track-out (movement of mud and soil out of the site by construction vehicles).

14.2.7 The emphasis within the IAQM Guidance is on clarifying the risk of dust impacts from the Order limits, which will allow mitigation measures commensurate with that risk to be identified.

14.2.8 For each activity group the following steps were applied with respect to identifying the potential effects, before coming to an overall conclusion about the significance of the effects predicted:

a. Identification of receptors and their sensitivity;
b. Identification of the nature, duration and the location of activities being carried out;
c. Establishing the risk of significant effects occurring as a result of these activities (taking into magnitude of effect and receptor sensitivity);
d. Reviewing the proposed or embedded mitigation against good practice;

e. Identification of additional mitigation measures, if necessary, to reduce the risk of a significant adverse effect occurring at receptors; and

f. Summarising the overall effect of the works with respect to fugitive emissions of particulate matter and reporting the significance of the effects.

14.2.9 Construction of the Scheme may take place over a number of phases; however, the assessment has taken the whole site into consideration and assumes an intensive period of construction works over two years as a worst-case scenario. As such if the works take place over a longer period of time the potential fugitive emissions released at any one time may be lower than has been predicted in this assessment, as the works will be on a smaller scale than has been assumed by taking the site as a whole. As such the worst case has been assessed.

14.2.10 The findings of this assessment are presented within the 'Dust Risk Assessment' section of this chapter (**Table 14-8**).

14.2.11 The Mitigation measures recommended by the DRA are set out in the Framework Construction Environmental Management Plan (CEMP) presented in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**. With those measures in place, taking the worst potential outcomes and a conservative approach, no significant dust effects resulting from excavation and construction activities are anticipated beyond the Order limits.

14.2.12 The implementation of the CEMP will be secured by a requirement in Schedule 2 of the DCO.

Methodology for Assessment of Construction Phase Non-Road Mobile Machinery Emissions (NRMM)

14.2.13 Emissions from construction NRMM will have the potential to increase local concentrations of key pollutants, namely nitrogen dioxide (NO_2) and particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}). IAQM Guidance states that 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, therefore in the vast majority of cases they will not need to be quantitatively assessed (Ref 14-1).

14.2.14 Emissions from NRMM will be temporary and localised and will be controlled through good-practice mitigation measures secured in the CEMP. These measures are outlined in the Framework CEMP presented in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**. For this reason and given that no unusual plant or machinery will be used, construction phase NRMM emissions will not be significant and, therefore, these emissions have not been modelled nor are they required to be considered any further in this assessment. This approach is consistent with the Planning Inspectorate's Scoping Opinion, in which the Planning Inspectorate agreed that with suitable mitigation secured through a CEMP, air quality as a topic in the ES can be scoped out.

Methodology for Assessment of Construction Phase Road Traffic Emissions

14.2.15 The construction phase of the Scheme will lead to an increase in the number of vehicles on the local highway network for the duration of the construction works. As such, dispersion modelling of the routes taken by the construction traffic has been undertaken, see section 14.6.

14.2.16 Exhaust emissions from road vehicles may affect the concentrations of the principal pollutants of concern (NO_2, PM_{10} and $PM_{2.5}$), at sensitive receptors in the vicinity of the Scheme. Therefore, these pollutants are the focus of the assessment of the significance of construction-phase road traffic impacts.

14.2.17 The assessment has used the dispersion model software 'ADMS-Roads' (version 5.0.0.1) to quantify pollution levels at selected receptors due to road traffic emissions. ADMS-Roads is a modern dispersion model that has an extensive published track record of use in the UK for the assessment of local air quality impacts, including model validation and verification studies.

14.2.18 The model outputs are presented at individual receptor locations rather than across a regular grid to provide a contour plot. This chosen approach provides a better representation of the impact of the Scheme as it will avoid the need to interpolate results between gridded points. Modelled receptors are depicted in Figure 14-1.

14.2.19 The following model conditions have been determined for the study area and will form the basis of the assessment:

a. Surface roughness at source;
b. Minimum Monin-Obukhov length (used to describe the effects of buoyancy on turbulent flows, particularly in the lower tenth of the atmospheric boundary layer.) for stable conditions;
c. Terrain types;
d. Emissions of oxides of nitrogen (NO_X), PM_{10} and $PM_{2.5}$;
e. Emission factors (from the latest version of the Emissions Factor Toolkit (EFT) version 10.1 emission factor dataset);
f. Receptor location (x, y coordinates, determined by GIS; z = various);
g. Meteorological data (ADMS requires one year of hourly sequential meteorological observation data from a station which experiences meteorological conditions that are representative of those experienced within the air quality study area); and
h. Receptors (facades of selected receptors only).

14.2.20 Background pollutant concentrations were sourced from Defra's latest background maps.

14.2.21 Annual Average Daily Traffic (AADT) flows on the affected road network for the baseline, future baseline (without development), and construction

scenarios have been provided by the transport consultants. Baseline data was limited due to the COVID-19 pandemic (see Section 6 of **Chapter 13: Transport and Access**, of this Environmental Statement **[EN010106/APP/6.1]**), but the road links most likely to be affected have been assessed, and it is considered that the assessment is suitable to understand if there would be likely significant effects.

14.2.22 There is no local monitoring data suitable for model verification, which is used to adjust the model outputs to local conditions. This is due to no Local Authority monitoring being required due to the good air quality in the area. Dispersion models commonly under-estimate concentrations when compared to monitored data, so are generally adjusted upwards. Due to the good air quality in the area a generic adjustment factor of 2 has been used based on professional experience and judgement. This is likely to overestimate the assessment of the impacts.

Information Sources

14.2.23 The following sources of information that define the Scheme have been reviewed and form the basis of the assessment of likely significant effects on air quality:

a. Site Layout and Site Location Plans;
b. Review of Defra air quality background concentration maps;
c. Examination of Local Authority 'LAQM Review and Assessment Reports';
d. Baseline traffic flows and anticipated construction phase traffic generation on the local road network.

Methodology for Determining Sensitive Receptors

14.2.24 Receptors of interest for the air quality assessment are those which represent locations where people are likely to be present, as the assessment is most concerned with human health. The national air quality objective values for pollutants (Ref 14-13) have been set at concentrations that provide protection to all members of society, including more vulnerable groups such as the very young, elderly or unwell. As such the sensitivity of receptors was accounted for in the definition of the air quality objective values and therefore all receptors that represent exposure of the public are of equal sensitivity as any member of the public could be present at those locations.

14.2.25 Receptors considered against the annual mean objective included public present in areas affected by regular exposure. This included, for example, building facades of residential properties, schools, hospitals and care homes (see **Table 14-1**).

14.2.26 There are a number of ecological receptors in the area: Snailwell Meadows Site of Special Scientific Interest (SSSI), Breckland Rough SSSI, Chippenham Fen and Snailwell Poor's Fen (SSSI / Ramsar / Special Area of Conservation (SAC)) and Red Lodge Heath SSSI. All have been

considered in the air quality assessment, although some have been scoped out or assessed qualitatively.

14.2.27 Sensitive receptors that have the potential to be affected by the Scheme have been considered for the construction phase. Receptors for the Dust Risk Assessment (DRA) (see **Table 14-8**) and construction traffic emissions assessment are different due to the large site area and controlled heavy duty vehicle (HDV) route from the Sites.

14.2.28 For the purposes of the DRA, potentially affected air quality sensitive receptors have been identified for the assessment through a review of Ordnance Survey (OS) mapping and aerial photography. The presence of sensitive ecological receptors holding a National or European designation within a 350m "buffer area" around the Order limits, or within 50m from a route used by construction vehicles on the public highway (up to 500m from the Site access points) has also been established (see paragraph 14.2.31).

14.2.29 Based upon guidance for qualitatively assessing the risk of dust impacts from demolition and construction (Ref 14-1) a number of highly sensitive residential properties were assessed with regards to construction phase dust soiling and PM_{10} receptors.

14.2.30 The Order limits have two primary access points, one in Sunnica East Site B and another in Sunnica West Site A, in addition to a number of secondary access points. Site construction traffic is therefore anticipated to use the existing road network within 500m of the Site entrances to access the Site.

14.2.31 For the DRA the following ecological sites are within the assessment distance: Snailwell Meadows SSSI, Brackland Rough SSSI, Chippenham Fen and Snailwell Poor's Fen (SSSI / Ramsar / SAC). Red Lodge Heath SSSI is outside of the assessment buffer area and is therefore not considered to be at risk from construction dust.

14.2.32 For the purposes of the detailed dispersion modelling exercise, discrete receptors on the affected road network have been identified from OS mapping and aerial photography. The surrounding receptors are predominantly residential. Ecological sites assessed for the DRA are further than 200m from the HDV routes and supplied traffic network. As such they are not considered to be at risk from emissions from road traffic, as experience of air quality modelling shows that contributions from road sources drop to background levels by this distance. Red Lodge Heath is further than 200m from the HDV route (the A11), however it is adjacent to Turnpike Road. Staff will be directed to use the Strategic Road Network in the vicinity of the Site such as the A11, A14 and A142 to travel to/from the Site where appropriate to minimise the amount of construction traffic using local roads through the nearby villages. Staff will also be assigned to the most appropriate of the two centralised car parks to minimise traffic on sensitivity links to minimise any impact on air quality concentrations at Red Lodge Heath. This measure will be secured through the Framework CEMP, which is presented in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**. While it is not considered that Red Lodge Heath is at

risk from construction traffic emissions, it should be noted that three residential receptors (R04, R11 and R12) are within Red Lodge and provide a screening assessment for impacts on the SSSI (see paragraph 14.6.6).

14.2.33 The IAQM (Ref 14-1) states: *"Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or 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. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur."* As such, while Snailwell Meadows and Chippenham Fen and Snailwell Poor's Fen are adjacent to the Order limits it is not considered that emissions from NRMM will cause adverse impacts as there is no unusual or excessive use of NRMM planned on site. However, the receptors will continue to be considered in the CEMP to ensure no changes to site layout lead to effects on these receptors In particular, plant with emissions should not be located directly adjacent to the ecological sites. Measures such as no idling engines on site will be strictly enforced. These measures are included in the Framework CEMP in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**.

14.2.34 The locations of the receptors considered within the detailed modelling assessment are presented in Figure 14-1. Full details of the receptors are provided in **Table 14-1**.

Table 14-1: Modelled Human Health Receptors

Model ID	X	Y	Height (m)	Location	Type
R01	569429	270556	1.5	Acacia Close	Residential
R02	569738	270730	1.5	Wintergreen Road	Residential
R03	569880	270622	1.5	Turnpike Road (1)	Residential
R04*	569706	270379	1.5	Turnpike Road (2)	Residential
R05	568803	268353	1.5	Dane Hill Cottages	Residential
R06	568917	268161	1.5	Dane Hill Farm	Residential
R07	567973	267919	1.5	La Hogue Farm	Residential
R08	567675	267963	1.5	La Hogue Cottages	Residential
R09	567534	269135	1.5	Stannel Wood House	Residential
R10	567878	267282	1.5	Walterhall Farm	Residential
R11*	569535	269747	1.5	Greenhays Nursery School	Education
R12*	569363	269852	1.5	Turnpike Road (3)	Residential

Model ID	X	Y	Height (m)	Location	Type
R13	564847	266042	1.5	British Racing School	Commercial / Residential
R14	564613	266127	1.5	Newmarket Road	Residential
R15	569113	270296	1.5	Heath Farm Road	Residential
* Closest sites to Red Lodge Heath SSSI					

Methodology for Assessment of Significance

14.2.35 With regard to road traffic emissions, the change in pollutant concentrations relative to future baseline concentrations is described at receptors that are representative of exposure to impacts on local air quality within the study area. The absolute magnitude of pollutant concentrations in the 'future baseline' and 'construction' scenario is also described. This is used to consider the risk of the air quality objective values being exceeded in each scenario (see section 14.6).

14.2.36 For consideration of a change in annual mean concentration of a given magnitude, Environmental Protection UK (EPUK) and IAQM have published recommendations for describing the effects of such impacts at individual receptors as set out in **Table 14-2** and **Table 14-3** below.

Table 14-2: Assessment of Significance for NO_2 and PM_{10}

Long Term Average Concentration at Receptor in Assessment Year (µg/m^3)	Change in Concentration Relative to Air Quality Assessment Level (AQAL) – NO_2 and PM_{10} (µg/m^3)				
	<0.2 (Imperceptible)	0.2 - <0.6 (Very Small)	0.6 - <2.2 (Small)	2.2 -<4.0 (Medium)	>4.0 (Large)
<30.2	Negligible	Negligible	Negligible	Minor	Moderate
30.2 - <37.8	Negligible	Negligible	Minor	Moderate	Moderate
37.8 - <41.0	Negligible	Minor	Moderate	Moderate	Substantial
41.0 - <43.8	Negligible	Moderate	Moderate	Substantial	Substantial
≥43.8	Negligible	Moderate	Substantial	Substantial	Substantial

Source: EPUK & IAQM (Ref 14-25)

Table 14-3: Assessment of Significance for $PM_{2.5}$

Long Term Average Concentration at Receptor in Assessment Year (µg/m³)	Change in Concentration Relative to Air Quality Assessment Level (AQAL) – $PM_{2.5}$ (µg/m³)				
	<0.1 (Imperceptible)	0.1 - <0.4 (Very Small)	0.4 - <1.4 (Small)	1.4 -<=2.5 (Medium)	>2.5 (Large)
<18.9	Negligible	Negligible	Negligible	Minor	Moderate
18.9 - <23.6	Negligible	Negligible	Minor	Moderate	Moderate
23.6 - <25.6	Negligible	Minor	Moderate	Moderate	Substantial
25.6 - <27.4	Negligible	Moderate	Moderate	Substantial	Substantial
≥27.4	Negligible	Moderate	Substantial	Substantial	Substantial

Source: EPUK & IAQM (Ref 14-25)

14.2.37 A change in predicted annual mean concentrations of NO_2 or PM_{10} of less than 0.2 micrograms per cubic metre of air (µg/m³) is considered to be so small as to be imperceptible. For short-term objectives, the guidance states that where the concentrations range from 11% - 20% of the relevant objective, the magnitude of impacts is small. Concentrations that are 21% - 50% and greater than 50% of the objectives have moderate or large impact respectively. A change (impact) that is imperceptible, given normal bounds of variation, would not be capable of having a direct effect on local air quality that could be considered to be significant.

14.2.38 The significance of the reported effects has been considered for the Scheme in overall terms. The potential for the development to contribute to or interfere with the successful implementation of policies and strategies for the management of local air quality has been considered if relevant, but the principal focus was any change to the likelihood of future achievement of the air quality objective values, as set out in **Appendix 14A** of this Environmental Statement **[EN010106/APP/6.2]**.

14.2.39 The achievement of local authority goals for local air quality management are directly linked to the achievement of the air quality objective values described above, and as such the assessment has focussed on the likelihood of achievement of the air quality objective values as a result of the Scheme.

14.2.40 In terms of the significance of any adverse impacts, an effect is reported as being either ‘not significant’ or as being ‘significant’. If the overall effect of the Scheme on local air quality or on amenity was found to be ‘moderate’ or ‘substantial’ this was deemed to be ‘significant’. Effects found to be ‘minor’ are considered to be ‘not significant’, although they may be a matter of local concern. ‘Negligible’ effects are considered to be ‘not significant’.

14.3 Stakeholder Engagement

14.3.1 Comments received from the consultation process relevant to air quality are summarised in **Table 14-4**, along with a response. No comments directly relevant to air quality were received at Statutory Consultation.

Table 14-4 Key consultation responses to main matters on Air Quality

Topic	Consultee	Matter raised	Response
CEMP	Planning Inspectorate	The Planning Inspectorate agrees that with suitable mitigation secured through a CEMP, air quality as a topic in the ES can be scoped out. The Planning Inspectorate would, however, expect to see mitigation secured in a draft/ framework CEMP and that effort is made to agree with the relevant consultation bodies and submitted with the application. The CEMP should include measures explicitly, but not limited to, address impacts from dust during construction.	While air quality was initially scoped out, updates to the construction traffic modelling took the expected trips on the road network above what was presented in the Scoping Report and above the IAQM screening criteria. As such this Chapter has been produced to ensure that potential impacts have been assessed and to demonstrate that there are no adverse impacts on air quality. Mitigation measures proposed following completion of the DRA have been incorporated into the Framework CEMP submitted with the application in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2].** Generic mitigation measures for a high-risk site are presented in **Table 14-7**. Specific mitigation measures for each construction phase activity are outlined in **Table 14-8.**

Topic	Consultee	Matter raised	Response
Traffic	West Suffolk Council, East Cambridgeshire District Council, Suffolk County Council and Cambridgeshire County Council	It should be noted that the traffic flows for a monitoring survey starting in September 2020 may not reflect the long-term traffic flows and therefore levels of air pollution in the area and this should be considered during any subsequent assessment.	The traffic flows identified in **Chapter 13: Transport and Access [EN010106/APP/6.1]** and Transport Assessment included as **Appendix 13A** of this Environmental Statement **[EN010106/APP/6.2]** are based on traffic surveys carried out pre-pandemic. Baseline traffic flows were obtained for the strategic road network from WebTRIS fixed traffic counters maintained by Highways England. Data was obtained for September 2019 as it is a neutral month before the Covid-19 pandemic began. In addition, it is considered that 2020 traffic flow data would be unreliable due to the impact of the Covid-19 pandemic and the resultant national and local lockdowns reducing traffic flows.
Construction Dust	Various	Local residents and landowners have expressed concern about dust deposition from the construction phase.	A dust risk assessment following best practice guidance and a worst case scenario has been undertaken. Appropriate mitigation has been identified and has been incorporated in the Framework CEMP in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2**].
Health effects of construction dust	Various	Local residents and landowners have expressed concern about the health impacts of dust from the construction phase, particularly on vulnerable people (COPD, asthma etc).	The risk of dust and particulate matter impacts during construction have been assessed in this chapter**.** Mitigation measures to reduce potential impacts during the construction phase have been incorporated into **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2].**

Topic	Consultee	Matter raised	Response
Fire Risk	Various	Concern about the effects of a fire in the battery storage and potential toxic fumes.	The Applicant takes the fire risk posed by the Battery Energy Storage System (BESS) element of the Scheme very seriously and has prepared an Outline Battery Fire Safety Management Plan **[EN010106/APP/7.6]** and Unplanned Atmospheric Emissions from Battery Energy Storage Systems presented in **Appendix 16D** of this Environmental Statement **[EN010106/APP/6.2]**. This strategy has been developed in consultation with the Health and Safety Executive (HSE) and the local fire authorities. Subject to the Scheme receiving development consent, the Applicant will update this strategy following detailed design and prior to the beginning of operations.
Odour	Various	Concerns have been raised about smells from the construction site.	The Scheme is not anticipated to have any impact on odour; therefore odour was scoped out of the Environmental Impact Assessment (EIA) at the scoping stage undertaken in 2019.

14.4 Baseline Conditions

14.4.1 The air quality in the study area is generally good. There are no Air Quality Management Areas (AQMAs) in this region, and the Local Authorities do not monitor the air quality around the Order limits as there are no concerns about air quality.

Background Pollutant Concentrations

14.4.2 The total concentration of a pollutant comprises those contributions from explicit local emission sources such as roads and chimney-stacks, and those that are transported into an area from indeterminate sources (e.g. by wind from further away). If all the explicit local sources were removed, all that would remain is that which comes from indeterminate sources; it is this component that is called ‘background’. A good understanding of background concentrations is important when completing air quality assessments as it allows for a good understanding of local pollutant sources.

14.4.3 Background data for the relevant 1km x 1m grid squares (related to the study area) have been sourced from Defra Background Maps for the assessment years (to match the traffic data), which will include the worst

case year construction year of 2023 (in terms of highest emission factors and background concentrations, as air quality is predicted by Defra to improve slightly year on year into the future). 2023 background concentrations have therefore been used as the baseline for assessing peak construction flows against. In-square contributions from trunk roads have been omitted from the background data as these trunk roads have been included in the dispersion model, to avoid double counting traffic emissions.

Baseline Dust Climate

14.4.4 A background level of dust exists in all urban and rural locations in the UK. Dust can be generated on a local scale from vehicle movements and from the action of wind on exposed soils and surfaces. Dust levels can be affected by long range transport of dust from distant sources into the local vicinity. This baseline rate of soiling is considered normal (based on professional judgement) and varies dependent on prevailing climatic conditions. The tolerance of individuals to deposited dust is therefore shaped by their experience of baseline conditions.

14.4.5 In the study area, existing local sources of particulate matter include wind-blown dust from exhaust emissions from energy plant and road vehicles, brake and tyre wear from road vehicles, agricultural dust and the long-range transport of material from outside the study area.

Predicted Baseline Pollutant Concentrations

14.4.6 **Table 14-5** presents the results of the modelling using ADMS-Roads and identifies predicted annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ at the selected receptors for the baseline (2019) scenario. Air Quality Objectives (AQO) are set out in full in **Appendix 14A Table 3-1**.

Table 14-5: Predicted Baseline 2019 Pollutant Concentrations at Sensitive Receptors

Model ID	Annual Mean NO_2 Concentration ($\mu g/m^3$)	Annual Mean PM_{10} Concentration ($\mu g/m^3$)	Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)	No. of Days 24-hour mean PM_{10} >50 $\mu g/m^3$
Air Quality Objectives (AQO)	***40***	***40***	***25***	***35***
R01	20.3	17.8	10.9	1
R02	19.8	17.7	10.9	1
R03	14.6	17.0	10.5	1
R04	13.8	16.9	10.4	0
R05	17.9	18.8	11.0	2

Model ID	Annual Mean NO_2 Concentration ($\mu g/m^3$)	Annual Mean PM_{10} Concentration ($\mu g/m^3$)	Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)	No. of Days 24-hour mean PM_{10} >50 $\mu g/m^3$
Air Quality Objectives (AQO)	***40***	***40***	***25***	***35***
R06	11.9	17.9	10.5	1
R07	12.6	18.2	10.5	1
R08	12.2	18.2	10.5	1
R09	8.5	15.6	9.5	0
R10	26.7	20.2	11.7	3
R11	11.2	16.1	9.8	0
R12	14.1	16.5	10.0	0
R13	22.0	18.7	11.6	2
R14	33.9	20.6	12.8	4
R15	27.6	18.8	11.6	2

*Note: concentrations have been rounded to the nearest 0.1 µg/m³. Exceedances of AQOs would be depicted in **bold**.*

14.4.7 In the 2019 baseline scenario, annual mean NO_2 concentrations at all modelled receptor locations are predicted to be below the air quality objective. A maximum annual mean NO_2 concentration of 33.9 $\mu g/m^3$ has been predicted at R14 (Newmarket Road), which is only 85% of the air quality objective.

14.4.8 Annual mean concentrations of PM_{10} and $PM_{2.5}$ are predicted to be well below their respective air quality objectives at all receptors, with maximum annual mean concentrations of 20.6 $\mu g/m^3$ and 12.8 $\mu g/m^3$, respectively, anticipated at R14 (Newmarket Road).

14.4.9 With regard to short-term PM_{10} concentrations, it is expected that there will be a maximum of 4 days (R14, Newmarket Road) on which the 24-hour mean PM_{10} concentration will exceed 50 $\mu g/m^3$. This is well below the allowable 35 days.

14.4.10 The predicted baseline in 2023 has also been modelled, in order to compare the construction scenario, and allow an assessment of the significance of impact, which relies on the change from the baseline. It is expected that emissions from the vehicle fleet will be lower in future years

due to the increasing number of newer lower emission vehicles. In addition, background concentrations are anticipated to reduce over time. The 2023 baseline ("Do Minimum") is presented in the results section below (section 14.6).

14.5 Embedded Mitigation

14.5.1 Mitigation measures appropriate to the assessed level of risk of dust nuisance will be implemented as set out below (**Table 14-8**). These are considered to be embedded mitigation, as they are required in order to ensure there are no off-site impacts from dust and represent good industry practice that is part of the Scheme design. These measures will be secured via the CEMP, the implementation of which is secured by a Requirement in Schedule 2 of the DCO. A Framework CEMP has been included in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2]**.

14.6 Assessment of Likely Impacts and Effects

Construction Phase Road Traffic Assessment

14.6.1 **Table 14-6** presents the modelled predicted annual mean pollutant concentrations and associated impacts at modelled sensitive receptors during the construction of the Scheme for NO_2, PM_{10} and $PM_{2.5}$. **Table 14-7** shows the predicted concentrations for NOx at Red Lodge Heath during construction. These are the residential receptors representative of the Red Lodge Heath SSSI and provide a screening assessment for the SSSI.

Table 14-6: Predicted Pollutant Concentrations and Impacts at Sensitive Receptors during the Construction Phase

Notes: PB: Projected Baseline (2023); CP: Construction Phase (2023); MoC: Magnitude of Change; ED: Effect Descriptor

Pollutant	Annual Mean NO_2 Concentration ($\mu g/m^3$)				Annual Mean PM_{10} Concentration ($\mu g/m^3$)				Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)				No. of Days 24-hour mean PM_{10} >50 $\mu g/m^3$			
AQO	*40*				*40*				*25*				*35*			
Model ID	PB	CP	MoC	ED	PB	CP	MoC	ED	PB	CP	MoC	ED	PB	CP	MoC	ED
R01	15.3	15.5	0.2	Negligible	17.0	17.0	0.1	Negligible	10.2	10.3	<0.1	Negligible	0	1	1	Negligible
R02	15.0	15.2	0.2	Negligible	16.9	17.0	0.1	Negligible	10.2	10.2	<0.1	Negligible	0	0	<1	Negligible
R03	11.6	11.7	0.1	Negligible	16.3	16.3	<0.1	Negligible	9.8	9.8	<0.1	Negligible	0	0	<1	Negligible
R04	11.1	11.2	0.1	Negligible	16.2	16.2	<0.1	Negligible	9.8	9.8	<0.1	Negligible	0	0	<1	Negligible
R05	14.5	14.7	0.2	Negligible	18.2	18.2	<0.1	Negligible	10.4	10.4	<0.1	Negligible	1	1	<1	Negligible
R06	9.5	9.6	0.1	Negligible	17.2	17.2	<0.1	Negligible	9.8	9.8	<0.1	Negligible	1	1	<1	Negligible
R07	9.9	10.0	0.1	Negligible	17.4	17.4	<0.1	Negligible	9.8	9.8	<0.1	Negligible	1	1	<1	Negligible
R08	9.7	9.8	0.1	Negligible	17.4	17.4	<0.1	Negligible	9.8	9.8	<0.1	Negligible	1	1	<1	Negligible
R09	7.1	7.1	<0.1	Negligible	14.8	14.8	<0.1	Negligible	8.8	8.8	<0.1	Negligible	0	0	<1	Negligible
R10	19.8	20.1	0.3	Negligible	19.4	19.4	0.1	Negligible	11.0	11.0	<0.1	Negligible	2	2	<1	Negligible
R11	9.0	9.0	0.1	Negligible	15.3	15.3	<0.1	Negligible	9.1	9.1	<0.1	Negligible	0	0	<1	Negligible

Pollutant	Annual Mean NO_2 Concentration ($\mu g/m^3$)				Annual Mean PM_{10} Concentration ($\mu g/m^3$)				Annual Mean $PM_{2.5}$ Concentration ($\mu g/m^3$)				No. of Days 24-hour mean PM_{10} >50 $\mu g/m^3$			
AQO	*40*				*40*				*25*				*35*			
Model ID	PB	CP	MoC	ED	PB	CP	MoC	ED	PB	CP	MoC	ED	PB	CP	MoC	ED
R12	11.3	11.3	0.1	Negligible	15.7	15.8	<0.1	Negligible	9.4	9.4	<0.1	Negligible	0	0	<1	Negligible
R13	16.3	16.5	0.2	Negligible	17.9	17.9	<0.1	Negligible	10.9	10.9	<0.1	Negligible	1	1	<1	Negligible
R14	24.5	24.8	0.3	Negligible	19.8	19.9	0.1	Negligible	12.0	12.1	<0.1	Negligible	3	3	<1	Negligible
R15	20.5	20.8	0.3	Negligible	18.0	18.1	0.1	Negligible	10.8	10.9	<0.1	Negligible	1	1	<1	Negligible

*Notes: Exceedances of AQO's would be depicted in **bold**. Concentrations have been rounded to the nearest 0.1 µg/m³*

Table 14-7: Predicted NO_x Concentrations Sensitive Receptors close to Red Lodge Heath during the Construction Phase

Model ID	NO_x Background (2023) ($\mu g/m^3$)	Total NO_x *Projected Baseline* ($\mu g/m^3$)	Total NO_x during Construction Phase($\mu g/m^3$)	Change in NO_x ($\mu g/m^3$)
AQO		***30***	***30***	
R04	8.1	16.6	16.8	0.2
R11	8.4	12.7	12.7	<0.1
R12	8.4	16.8	17.0	0.2

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14.6.2 During construction of the Scheme, traffic generation is not anticipated to induce significant changes in annual mean pollutant concentrations at nearby sensitive receptors.

14.6.3 Construction of the Scheme is not predicted to generate exceedances of the annual mean air quality objective for NO_2, with modelled concentrations well below the AQOat all modelled receptors in 2023, both without the Scheme, and during Scheme construction. Construction of the Scheme is expected to induce a maximum increase in annual mean NO_2 concentration of 0.3 µg/m^3 across the study area. This change has been deemed 'Negligible' in accordance with EPUK and IAQM criteria (Ref 14-25). Effects of this magnitude are not considered to be significant.

14.6.4 Modelled annual mean concentrations of particulate matter (PM_{10} and $PM_{2.5}$) are expected to remain below their respective air quality objectives in 2023, both in the projected baseline scenario, and during Scheme construction. A maximum increase in annual mean PM_{10} concentration of 0.1 µg/m^3 is expected at modelled sensitive receptors across the study area. Modelled receptors are not anticipated to experience changes in annual mean concentrations of $PM_{2.5}$ that exceed 0.1 µg/m^3. The impacts of Scheme construction on annual mean particulate matter concentrations across the study area have been deemed 'Negligible' at all modelled receptor locations, and are therefore not considered to be significant (Ref 14-25).

14.6.5 With regard to short-term PM_{10} concentrations, it is expected that there will be a maximum of 3 days (R14, Newmarket Road) on which the 24-hour mean PM_{10} concentration will exceed 50 µg/m^3. This is well below the allowable 35 days and lower than the 4 days currently experienced in the present day baseline, because the predicted improvement in air quality year on year by cleaner vehicles is expected to more than offset any increase attributed to the Scheme. A maximum change of 1 day is anticipated at R01 (Acacia Close) during the construction phase. This change is considered 'Negligible' in accordance with EPUK and IAQM criteria and is therefore not considered to be significant.

14.6.6 R04, R11 and R12 represent a worst case assessment of the air quality at Red Lodge Heath SSSI. The traffic impacts on NOx at Red Lodge Heath have been scoped out, however it was decided to take a precautionary approach and use the nearby residential receptors as a screening assessment of NOx concentration. The concentrations of NO_2 are a maximum of 11.2 µg/m^3 with negligible change. **Table 14-7** shows the NOx concentrations at these receptors. It is noted that a formal ecosystem assessment would be modelled at ground level, rather than the 1.5m above ground level modelled for human health (as noted above, the ecosystem assessment was scoped out for the Scheme). In any event, the results clearly show that there will be no adverse impact on NOx, with concentrations well below the objective of 30 µg/m^3 and changes of 0.1 µg/m^3, which is not significant. While concentrations at ground level would be slightly higher, there are a number of worse-case assumptions in the human-health modelling, and it is considered that the small increase due to

modelling at ground level would not outweigh the very small changes in NOx. Therefore there is no adverse impact on NOx concentrations at Red Lodge Heath, which is consistent with the scoping out of impacts upon the SSSI.

Dust Risk Assessment

14.6.7 The DRA considers the potential dust emissions magnitude for each "phase" or dust generating activity (demolition, earthworks, construction, and trackout) at each stage of construction works in conjunction with the sensitivity of the surrounding area. Based on these parameters, the site is classified as low, medium or high risk, and mitigation measures corresponding to the perceived level of risk are then proposed.

14.6.8 The assessment considers the potential dust risk across a set of pre-defined zones, up to 350m from the Order limits and within 50m of the roads expected to be affected by the construction phase traffic, up to 500m from the site access points. These zones are presented in Figure 14-2.

14.6.9 The DRA is provided in **Table 14-8**. Responses are written in italics.

Table 14-8 Dust Risk Assessment (DRA)

STEP 1 – SCREENING		
1a.	Is a human receptor site within:	
	350m of the Order limits	Y
	50m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s)	Y
1b.	Is an ecological receptor site within:	
	350m of the Order limits	Y
	50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s)	Y
IF ANSWERS TO 1A OR 1B ARE 'YES' COMPLETE 1C AND COMPLETE THE ASSESSMENT		
1c.	Provide a description of the proposed demolition and construction activities, their location and duration and any phasing of the development, including: • The proximity and number of receptors; • The specific sensitivity of the receptor(s), e.g. a primary school or hospital; • The duration for which the sources of dust emissions may be close to the sensitive receptors; and • In the case of PM_{10} the local background concentration.	

	It is currently anticipated that (subject to the necessary consents being granted) construction work will commence, at the earliest, in Summer 2023 and will run for 24 months (please see Chapter 3 for more information). This assumes the Scheme is built in a single phase, which is considered to give rise to the worst case scenario for the purpose of the assessment. Constructing over a single phase, rather than multiple phases spaced over longer timescales, would result in higher peak traffic volumes and a greater number of construction activities being undertaken concurrently (generating noise, dust, etc).; The greatest potential for dust effects is likely to occur during the excavation and earthworks phases towards the start of the construction programme, so for the purposes of the dust risk assessment 2023 has been assumed to be the worst case for dust generation. Any changes to the start or length of works will not affect the conclusions of this assessment. *The Order limits are located in a sparsely populated rural area and consequently there are a limited number of receptors in proximity to the Order limits that may be affected by the works. This includes high sensitivity receptors such as residential properties, as well as medium sensitivity receptors such as commercial, office and warehouse units (see Plate 14-1)* *Defra background maps indicate an average background PM_{10} concentration of 16.5 µg/m^3 across the study area in 2019. This is well below the annual average objective value (40 µg/m^3). Background concentrations are anticipated to fall slightly by 2023, so 2019 background concentrations have been used as a worst case.*	
STEP 2 – ASSESS THE RISK OF DUST IMPACTS		
STEP 2A – Define the Potential Dust Emission Magnitude		
DEMOLITION PHASE – Not applicable		
EARTHWORKS PHASE		
2a(ii)	Is the scale of the earthworks:	
	Large • Total site area >10,000m^2; or • Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size); or • >10 heavy earth moving vehicles active at any one time on-site; or • Formation of stockpile enclosures >8m in height; or • Total material moved >100,000 tonnes (where known).	*Y*
	Medium • Total site area 2,500m^2-10,000m^2; or • Moderately dusty soil type (e.g. silt); or • 5-10 heavy earth moving vehicles active at any one time on-site; or • Formation of stockpile enclosures 4-8m in height; or • Total material moved 20,000-100,000 tonnes (where known).	*N/A*
	Small • Total site area <2,500m^2; or	*N/A*

	• Soil type with large grain size (e.g. sand); or • <5 heavy earth moving vehicles active at any one time onsite; • Formation of stockpile enclosures <4m in height; or • Total material moved <10,000 tonnes (where known), or earthworks during wetter months.	
CONSTRUCTION PHASE		
2a(iii)	Is the scale of the works:	
	Large • Total building volume >100,000m^2; or • Piling; or • On-site concrete batching; or • Sandblasting.	*Y – site area exceeds 100,000 m^2*
	Medium • Total building volume 25,000m^3-100,000m^3; or • Potentially dusty construction material (e.g. concrete); or • On-site concrete batching.	*N/A*
	Small • Total building volume <25,000m^3; or • Construction material with low potential for dust release (e.g. metal cladding or timber).	*N/A*
TRACKOUT		
2a(iii)	Only receptors within 50m of the route(s) used by vehicles on the public highway and up to 500m from the site entrance(s) are considered to be at risk from the effects of dust. Will the trackout be:	
	Large • >50 Heavy Duty Vehicle (HDV; >3,5t) outward movements in one day; • Potentially dusty surface material (e.g. high clay/silt content); or • Unpaved road length >100m.	*Y*
	Medium • 10-50 HDV (>3,5t) outward movements in any one day; • Moderately dusty surface material (e.g. high clay content); or • Unpaved road length 50-100m (high clay content)	*N/A*
	Small • <10 HDV (>3.5t) trips in any one day; • Surface material with low potential for dust release; or	*N/A*

	• Unpaved road length <50m.	
STEP 2B – Define the Sensitivity of the Area		
Define the Receptor Sensitivity		
2b(i)	Sensitivity of People to Dust Soiling Effects	
	Is the location a:	
	• High sensitivity receptor	*Y*
	• Medium sensitivity receptor	*N/A*
	• Low sensitivity receptor	*N/A*
2b(ii)	Sensitivity of People to Health Effects of PM_{10}	
	Is the location a:	
	• High sensitivity receptor	*Y*
	• Medium sensitivity receptor	*N/A*
	• Low sensitivity receptor	*N/A*
2b(iii)	Sensitivity of Receptors to Ecological Effects – *The following designated ecological sites have been identified within 50m of the Order limits and within 500m from the site entrance on routes expected to be used by HDVs:* • *Snailwell Meadows SSSI; and* • *Chippenham Fen and Snailwell Poor's Fen (SSSI / Ramsar / SAC).* An 'ecological receptor' refers to any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats). For locations with a statutory designation, e.g. SACs and SSSIs, consideration should be given as to whether the particular site is sensitive to dust and this will depend on why it has been designated. Some non-statutory sites (i.e. local wildlife sites) and/or locations with very specific sensitivities may also be considered if appropriate. *Therefore, the risk of dust effects at Nationally or European designated ecological sites has been considered further in this assessment.*	
Estimate the number of receptors and the distance from the Order limits in the closest buffer with receptors: *There are between 5-10 residential dwellings within 20m of the Order limits, with additional receptors within the full 350m buffer.*		
Combined Sensitivity of the area for Dust Soiling Effects = *MEDIUM. The presence of 1-10 high sensitivity receptors (i.e. residential dwellings) within 20m of the Order limits results in a combined MEDIUM sensitivity for Dust Soiling Effects.*		

Combined Sensitivity of the area to Human Health Impacts = *LOW. Annual mean PM_{10} concentrations of <24 across the study area in conjunction with the presence of <100 sensitive receptors within 20m of the Order limits result in a combined LOW sensitivity for Human Health Impacts.*

Combined Sensitivity of the area to Ecological Impacts = *HIGH. Nationally designated, potentially sensitive ecosystems are situated within 20m of the Order limits, thus a combined HIGH sensitivity of the study area to Ecological Impacts.*

Demolition

14.6.10 The development of the Order limits will not require any demolition. Demolition has therefore been scoped out and is not considered further within this assessment.

Earthworks

14.6.11 The Scheme site area is greater than 10,000m^2, and therefore the potential dust emissions magnitude associated with earthworks is considered to be ‘large’.

14.6.12 The sensitivity of the area to dust soiling during the Earthworks phase is high due to the proximity of sensitive receptors, therefore, the risk of dust impact for earthworks activities is classified as ‘medium’ risk to dust soiling.

14.6.13 The sensitivity of the area is low for human health impacts due to low background particulate matter concentrations. Therefore, the risk of dust impact for earthworks activities is classified as a ‘low’ risk to human health.

14.6.14 Sensitivity of ecological sites within the study area to dust-related impacts is high due to their proximity to the Order limits, and therefore a ‘high’ risk to ecology has been predicted without adequate mitigation in place.

Construction

14.6.15 The site area within the Order limits exceeds 100,000m^2 and therefore the potential dust emissions magnitude for construction activities is expected to be ‘large’.

14.6.16 The sensitivity of the area to dust soiling is high due to the proximity of sensitive receptors, therefore the risk of dust soiling is ‘medium’.

14.6.17 The sensitivity of the area to human health impacts is 'low. Therefore, the risk of impacts on human health is ‘low’.

14.6.18 The sensitivity of ecological sites within the area is high. Therefore, the risk of dust impact for construction activities is classified as ‘high’ risk to ecology without adequate mitigation in place.

Trackout

14.6.19 The number of construction-related HDV movements generated by the Scheme is estimated to exceed the 50 vehicles per day threshold during the

peak of the construction. Considering the size of the Order limits, and the soil type, the potential dust emissions magnitude for trackout is assumed to be 'large'.

14.6.20 The sensitivity of the area to dust soiling is high, therefore the risk of dust soiling is 'high'.

14.6.21 The sensitivity of the area to human health is low. Therefore, the risk of dust impacts on human health is 'low'.

14.6.22 Sensitivity of ecological sites within the area is high. The risk of dust impact for trackout activities is classified as 'high' risk to ecology without adequate mitigation in place.

14.6.23 A summary of the magnitude of emissions, sensitivity of receptor and the significance of effect is provided in **Table 14-9, Table 14-10**, and **Table 14-11** below.

Table 14-9: Summary of Potential Dust Emission Magnitudes for Construction Phase Activities

Activity	Potential Dust Emission Magnitude
Demolition	N/A
Earthworks	Large
Construction	Large
Trackout	Large

Table 14-10: Summary of Area Sensitivity to Construction Phase Activities

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Medium	Medium	Medium
Human Health (PM_{10} effects)	N/A	Low	Low	Low
Ecology	N/A	High	High	High

Table 14-11: Summary of Risk of Dust Effects for Construction Phase Activities on Human Receptors without Mitigation

Potential Impact	Summary of Dust Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	N/A	Medium Risk	Medium Risk	Medium Risk

Potential Impact	Summary of Dust Risk			
	Demolition	Earthworks	Construction	Trackout
Human Health (PM_{10} effects)	N/A	Low Risk	Low Risk	Low Risk
Ecology	N/A	High Risk	High Risk	High Risk

14.6.24 The DRA has identified the Order limits as being 'low to medium' risk for amenity and human health receptors, and 'high risk' for ecological receptors. The assessment outlines the appropriate level of mitigation required at the Order limits to either avoid or to reduce potential effects to neighbouring sensitive receptors (property and amenity; human health; and designated ecological sites). IAQM Guidance (Ref 14-1) states that the highest risk rating should be used for recommending mitigation measures, and as such those for a 'high risk' site will be implemented for the Scheme. These are presented in the 'Mitigation Measures' section below (Section 14.8). With the implementation of these measures the significance of effect has been assessed as negligible.

14.7 Decommissioning

14.7.1 Decommissioning is assumed to generate similar effects (and no higher) to those anticipated during the construction phase, and therefore the mitigation measures proposed for implementation during the construction phase will be appropriate for application to decommissioning. A Decommissioning Environmental Management Plan (DEMP) will be prepared for the Scheme and its implementation secured by a requirement in Schedule 2 of the DCO. A Framework DEMP is submitted with the application in **Appendix 16E** of this Environmental Statement **[EN010106/APP/6.2]**.

14.8 Mitigation Measures

14.8.1 The adoption of good site practices will be implemented through measures to control dust as outlined within the IAQM's 'Guidance on the assessment of Dust from Demolition and Construction' document (Ref 14-1) that are appropriate for the level of risk identified in the assessment and the construction phase activities.

14.8.2 The mitigation measures to be incorporated into the CEMP for the Scheme are summarised in **Table 14-12** and **Table 14-13**, taken from the IAQM Guidance for a 'high risk' site. These are included in the Framework CEMP presented in **Appendix 16C** of this Environmental Statement **[EN010106/APP/6.2].**

Table 14-12: Air Quality Mitigation Measures

Activity	Mitigation Measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on-site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the Order limits. 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 Local Authority. The level of detail will 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.
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.
	Hold regular liaison meetings with other high-risk construction sites within 500m of the Order limits (if applicable), to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.
Monitoring	Undertake daily inspection, 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 within publicly available land within 100m of Order limits, with cleaning to be provided if necessary.
	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.
	Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the local authority. Where possible commence baseline monitoring at least three months before work commences on-site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Activity	Mitigation Measure
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 that are at least as high as any stockpiles on-site where stockpiles are within 100m of receptors.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period where operations are within 100m of receptors.
	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 the Order limits 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.
Operating vehicle/machinery and sustainable travel*	Require all vehicles to 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.
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph 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 the nominated undertaker and with the agreement of the local authority, where appropriate).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). Staff will be directed to use the Strategic Road Network in the vicinity of the Site such as the A11, A14 and A142 to travel to/from the Site where appropriate to minimise the amount of construction traffic using local roads through the nearby villages. Staff will also be assigned to the most appropriate of the two centralised car parks to minimise traffic on sensitivity links.
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and 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.

Activity	Mitigation Measure
Waste Management	Avoid bonfires and burning of waste materials.

Table 14-13: Activity-Specific Mitigation Measures

Activity	Mitigation Measure
Earthworks	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 where possible.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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.
	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.
Track-out	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 being continuously in use.
	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.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Activity	Mitigation Measure
	Ensure there is an adequate area of hard surfaced road 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.

14.9 Residual Effects

14.9.1 The DRA has identified the potential for high risk of adverse effects on ecology (nationally significant ecological sites within 20m of the Order limits - Snailwell Meadows SSSI and Chippenham Fen and Snailwell Poor's Fen SSSI / Ramsar / SAC), medium risk associated with dust deposition, and low risk to human health. The high risk to the ecological site is a worst-case assuming that the sites are sensitive to dust deposition. Following implementation of the CEMP, which will incorporate the mitigation measures outlined above, the effect on ecology, dust deposition, and human health is anticipated to be negligible and not significant.

14.9.2 The assessment of the effect of road traffic emissions on local air quality during the construction phase shows that there is negligible (not significant) impact on air quality during construction.

14.9.3 The effects during decommissioning, following implementation of the DEMP, will likely be less than, but no worse than, outlined for construction, given the nature of works and expected shorter duration.

14.9.4 As such, the effects on air quality are anticipated to be negligible and not significant.

14.10 Cumulative Effects

14.10.1 This section of the chapter assesses the potential effects of the Scheme in combination with the potential impacts of other development schemes (referred to as 'cumulative developments') within the surrounding area, as listed within **Chapter 5: EIA Methodology** of this Environmental Statement **[EN010106/APP/6.1]**.

14.10.2 There are no residual effects on air quality from the Scheme greater than negligible significance. Any development occurring at the same time as the Scheme will be required to undertake its own DRA and implement mitigation to ensure that there are no off-site impacts. In addition, the CEMP requires regular liaison meetings with other high risk construction sites within 500m of the Order limits which will assist in avoiding cumulative effects.

14.10.3 Therefore, there is no potential for cumulative effects to occur when considering the Scheme along with other nearby projects. Any significant effects would be due to these other projects on their own, and not together.

14.11 References

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