

Proposed Solar PV Development

Preliminary Environmental Information Report Appendix 2.4 Draft Outline Environmental Management Plan

Byers Gill Solar

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1. Introduction

1.1. Purpose of the report

- 1.1.1. This document provides a draft Outline Environmental Management Plan (EMP) for Byers Gill Solar Farm (the Proposed Development).
- 1.1.2. An Environmental Impact Assessment (EIA) is being undertaken for the Proposed Development, and an Environmental Statement (ES) will be prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). In accordance with the requirements of the EIA Regulations, the ES will contain the assessment of the likely significant effects on the environment that may be caused during construction, operation and decommissioning of the Proposed Development, and will describe proposed mitigation measures.
- 1.1.3. This draft Outline EMP accompanies a Preliminary Environmental Information Report (PEIR) for the Proposed Development which has been produced to support statutory consultation on draft design proposals. The draft Outline EMP demonstrates how the mitigation measures and monitoring requirements identified in the EIA process will be implemented, and has been prepared with the objective of compliance with the relevant legislation. This draft Outline EMP has been produced at an appropriate level of detail for the PEIR, and it will be updated at the next stage of the Proposed Development design prior to the Development Consent Order (DCO) application and will be submitted with the suite of DCO application documents in the form of an Outline EMP.
- 1.1.4. Prior to commencing construction, a Construction Environmental Management Plan (CEMP) will be produced by the appointed construction contractor for the Proposed Development and this would be secured through an appropriate Requirement in the DCO. The CEMP will be required to be produced in accordance with the Outline EMP, with all measures, commitments and actions carried forward from the Outline EMP, and submitted as part of the DCO Application. The measures proposed within the CEMP will also be agreed prior to commencement of construction works with the relevant stakeholders.
- 1.1.5. In addition, a range of wider management plans for construction, operation and decommissioning phases will also be submitted as part of the DCO Application, as outlined in Table I-1. This draft Outline EMP covers the principal construction activities envisaged at the time of preparing the PEIR. The draft Outline EMP is intended to be a live document, such that modifications and necessary interventions can be made following further information and advice from consultees.

Table 1-1 Management Plans to support the DCO application

Supporting Documents	Construction / Operation / Decommissioning	Production stage
Construction dust assessment	Construction	<ul style="list-style-type: none"> A construction dust assessment is submitted as Annex 1 to this document. The final document will be submitted with the ES, as part of the DCO application.
Outline Construction Traffic Management Plan (CTMP)	Construction	<ul style="list-style-type: none"> The Outline CTMP will be submitted with the ES, as part of the DCO application.
Outline Health and Safety Plan (H&SP)	Construction	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Materials Management Plan (MMP)	Construction	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Pollution Response Plan	Construction	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Site Waste Management Plan (SWMP)	Construction	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Soil Resources Management Plan (SRMP)	Construction	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Spillage Emergency Response Plan (SERP)	Construction	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Battery Safety Management Plan (oBSMP)	Operation	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Outline Decommissioning Environmental Management Plan (DEMP)	Decommissioning	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Landscape and Ecological Management Plan (LEMP)	<ul style="list-style-type: none"> Construction Operation Decommissioning 	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.
Arboricultural Method Statement (AMS)	<ul style="list-style-type: none"> Construction Operation Decommissioning 	<ul style="list-style-type: none"> A draft AMS is included as Appendix 7.6. The final AMS will be submitted with the ES, as part of the DCO application.
Public Rights of Way (PRoW) Management Plan	<ul style="list-style-type: none"> Construction Operation Decommissioning 	<ul style="list-style-type: none"> Submitted with the ES, as part of the DCO application.

1.2. Structure of the draft Outline EMP

1.2.1. The draft Outline EMP is structured as follows:

- Introduction: provides an introduction and overview to the Outline EMP.
- The Proposed Development: this section provides a summary of the Proposed Development.

- Project team roles and responsibilities: This section defines the roles which a contractor will identify within the EMP to deliver the environmental commitments.
- Commitments Register tables: this section identifies the environmental commitments to address the environmental effects of the works, including commitments to certain key items of embedded mitigation and essential mitigation.
- Details of maintenance and EMP monitoring activities: this section provides procedures for monitoring and reviewing compliance with the EMP and procedures for rectification of breaching or failings of EMP measures.
- Induction, training, and briefing procedures for staff: this section provides a description of construction staff training procedures.

2. The Proposed Development

2.1. Description of the Proposed Development

- 2.1.1. The Proposed Development consists of a solar farm capable of generating over 50MW Alternating Current (AC) of electricity with co-located Battery Energy Storage Systems (BESS), located between Darlington and Stockton-on-Tees in north-east England. The Site Area is approximately 563ha and comprises six solar photovoltaic (PV) panel areas (Panel Areas A-F). The solar PV panels would be mounted on a metal frame in groups. The solar PV panels will either be fixed in position or will track the sun throughout the day; this aspect of the Proposed Development remains under consideration by the Applicant and may be confirmed prior to submission of a DCO application. An on-site substation would be located within Panel Area C.
- 2.1.2. The Proposed Development includes up to 21km of 33kilovolt (kV) underground cabling between the Panel Areas and the on-site substation, as well as approximately 10km of 132kV underground cable to connect the Proposed Development to the grid connection at the existing Norton substation (located to the north-west of Stockton-on-Tees). The preferred route for all underground cabling is to be confirmed ahead of the DCO application submission, with both on-road and off-road options under consideration at this stage. A range of supporting infrastructure is required for the Proposed Development, comprising BESS; transformers and inverters for managing the electricity produced; storage containers to hold this equipment; and security measures such as fencing, CCTV and lighting. The Proposed Development includes environmental mitigation and enhancement measures to avoid or reduce adverse impacts on the surrounding environment and nearby communities.
- 2.1.3. The majority of the Proposed Development is located within the administrative boundary of Darlington Borough Council, with a section of the cable route situated within the administrative boundary of Stockton-on-Tees Council. A very small section of the Site Area is within the administrative boundary of Durham County Council.

2.2. The Site and Surroundings

- 2.2.1. The surroundings comprise of agricultural fields, interspersed with individual trees, hedgerows, farm access tracks, woodlands and local farmholdings. There are several local villages located within close proximity to the Proposed Development, including Brafferton, Newton Ketton, Great Stainton, Bishopton and Old Stillington village to the north.
- 2.2.2. The land likely to be required temporarily or permanently for the construction, operation and decommissioning of the Proposed Development is within the DCO Order Limits as shown in Figure 1.1 of PEIR Chapter 1. It is important to note that the land required may reduce due to the design and construction methodology

development. The maximum area of land likely to be required has therefore been assessed in the PEIR and subject to the draft Outline EMP.

2.3. Construction activities

2.3.1. The activities that are likely to be required for the construction of the Proposed Development are outlined below and it is anticipated that these activities would take place over several key phases:

- Enabling / preparatory works. Preparatory works would be the first phase of construction and includes activities to enable and prepare the site for the construction of the Proposed Development.
- Construction works, including solar panel and cable installation.
- Commissioning. The Proposed Development would go through a stage of testing prior to being commissioned and the first electricity generated and supplied to the National Grid. This is likely to involve mechanical and visual inspection of the Proposed Development, as well as electrical and equipment testing.
- Landscape and habitat creation. A programme of landscape and habitat reinstatement and creation will commence during the construction phase.

2.3.2. It is likely that a number of these activities and phases will run in parallel with works being undertaken on all Panel Areas at the same time.

Construction compounds

2.3.3. Temporary construction compounds will be established for the construction phase, with one construction compound established in each Panel Area. Access tracks will be established to facilitate access to all parts of the Panel Area, and these are detailed in Table 2-1. This would mean that construction activities are limited in each Panel Area and temporary land take for the construction compound is reduced and kept to a shorter period of time.

2.3.4. Compounds would typically measure 60m in length and 30m in width. A 'Durabase Mat System' or a similar non-ground penetrating mat system would be used within the compounds.

2.3.5. The temporary construction compounds would contain construction worker welfare facilities, a site office, limited parking, wheel wash area, plant and machinery storage, Heavy Goods Vehicle (HGV) / delivery turning area and waste storage areas.

2.3.6. For security and safety purposes, any live construction areas would be closed to the public throughout the construction phase. Site security staff would patrol the Panel Areas in addition to hazard warning signs and CCTV.

Plant and site access

2.3.7. Principal plant to install the solar PV modules would include:

- Excavator
- Mobile crane
- Crawled Dozer
- Push press piling rig
- Power generator
- Telehandler
- Truck
- Vibrating roller

2.3.8. Access into each of the Panel Areas would be required to facilitate construction, as well as allowing ongoing maintenance access from the local highway network. Access points are proposed from existing accesses wherever possible and summarised in Table 2-1:

Table 2-1 Proposed Access Points

Panel Areas	Access Points
Panel Area A: Brafferton	<ul style="list-style-type: none">▪ High House Lane
Panel Area B: Hauxley Farm	<ul style="list-style-type: none">▪ Salters Lane▪ Unnamed farm tracks off Lodge Lane
Panel Area C: Byers Gill Wood	<ul style="list-style-type: none">▪ Yarm Road / Bishopton Lane / Elstob Lane
Panel Area D: Great Stainton	<ul style="list-style-type: none">▪ Elstob Lane▪ Unnamed road off Green Lane
Panel Area E: West of Bishopton	<ul style="list-style-type: none">▪ Unnamed road off Green Lane
Panel Area F: North of Bishopton	<ul style="list-style-type: none">▪ Unnamed road off Green Lane and existing farm tracks▪ Mill Lane from Bishopton
Norton Substation	<ul style="list-style-type: none">▪ Existing access from Letch Lane
Underground cables	<ul style="list-style-type: none">▪ To be accessed from within Panel Areas and work undertaken along the cable route. Ongoing access would only be required should a problem occur.

Construction Programme

2.3.9. The construction of the Proposed Development is proposed to be over a period of approximately 12 months. Subject to the grant of a DCO, construction would commence following the discharge of DCO Requirements.

2.3.10. The installation of solar PV modules does not involve any complex construction process or practices and therefore risk of delay beyond the programme is to be

included within the ES and would largely be driven by adverse weather conditions. Many component parts of the Proposed Development would arrive on-site ready to be installed and it is not anticipated that any Abnormal Indivisible Loads (AILs) would be required to enable construction.

Construction Staff and hours of work

- 2.3.11. Working hours during the construction phase would be between 08:00 – 20:00 Monday – Sunday.

Construction Traffic Management

- 2.3.12. Construction impacts from traffic and transport will be minimised through the use of a CTMP. An Outline CTMP including details on construction logistics and construction worker travel will be submitted in support of the DCO application that will include information to guide the delivery of material, plant, equipment and staff during the construction phase. The CTMP would be submitted to and approved by the relevant planning authority pre-construction. This will be a requirement of the DCO.

Control of noise

- 2.3.13. Measures to control noise as defined in Annex B of BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Part 1: Noise' [1] and measures to control vibration as defined in Section 8 of BS 5228:2009+A1:2014 'Part 2: Vibration' [2] will be adopted where reasonably practicable. These measures represent 'Best Practicable Means' (BPM) (as defined by section 72 of the Control of Pollution Act 1974) to manage noise and vibration emissions from construction activities.

Control of lighting

- 2.3.14. Temporary site lighting, in the form of mobile lighting towers will be required in areas where natural lighting is unable to reach (sheltered/confined areas) and during core working hours within winter months. Artificial lighting would be provided to maintain sufficient security and health and safety for the construction areas, whilst adopting mitigation principles to avoid excessive glare and minimise spill of light to nearby receptors (including ecology and residents).
- 2.3.15. All construction lighting will be deployed in accordance with the following recommendations to prevent or reduce the impact on human and ecological receptors:
- The use of lighting will be minimised to that required for safe site operations. Infrared, movement sensor security lighting would be used at night. Lighting would be available for emergencies.

- Lighting will utilise directional fittings to minimise outward light spill and glare (e.g. via the use of light hoods/cowls which direct light below the horizontal plane, preferably at an angle greater than 20° from horizontal); and
- Lighting will be directed towards the middle of the Construction Area rather than towards the boundaries.

Control of dust

- 2.3.16. Construction impacts from dust generating activities will be minimised through the use of best practise measures, as detailed in this document and Annex 1 Construction Dust Assessment. The Construction Dust Assessment includes a summary of baseline air quality conditions, a summary of likely significant effects and recommendations for mitigation.
- 2.3.17. A Dust Management Plan will be developed and implemented by the Contractor preconstruction and approved by the local authority.

Recycling and disposing of waste

- 2.3.18. The Waste (England and Wales) Regulations 2011 place a duty on all persons who produce, keep or manage waste to apply the 'Waste Hierarchy' in order to minimise waste production at every stage of the development.
- 2.3.19. The Waste Hierarchy is a concept which requires anyone managing waste to consider first waste prevention, preparing for reuse and recycling, followed by waste recovery methods e.g., energy recovery and, lastly, waste disposal.
- 2.3.20. In order to control the waste generated onsite during the construction phase, the appointed contractor will separate the main waste streams onsite, prior to transport to an approved, licensed third party waste facility for recycling and disposal.
- 2.3.21. All reasonable actions will be taken by the contractor to minimise the volume of waste produced as a result of the construction of the Proposed Development. This can be through reducing consumption, reuse, using resources efficiently, and designing for longevity. Waste segregation will be undertaken where possible to maximise the opportunities for reuse and recycling.
- 2.3.22. In order to control the waste generated on-site during site preparation and construction, the contractor will separate the main waste streams on-site, prior to transport to an approved, licensed third party waste facility for recycling or disposal.
- 2.3.23. A SWMP will be prepared by the Contractor, which will specify the waste streams to be estimated and monitored and goals set with regards to the waste produced. The SWMP will be finalised with specific measures to be implemented prior to the start of construction, in accordance with a DCO Requirement.

- 2.3.24. An Outline MMP will be submitted with the DCO application which will set out details of how excavated materials will be managed in accordance with the waste hierarchy and good practice measures for managing waste in construction.
- 2.3.25. All waste to be removed from the DCO Site will be undertaken by fully licensed waste carriers and taken to licensed waste facilities.

Best practice measures

- 2.3.26. The Considerate Constructors Scheme (CSS) will be adopted to assist in reducing pollution and nuisance from the Proposed Development, by employing best practice measures which go beyond statutory compliance.

3. Project team roles and responsibilities

3.1. Site roles and responsibilities

3.1.1. This section will be populated with site specific roles and responsibilities for the Outline EMP, which will be submitted with the DCO Application.

Stakeholders

- 3.1.2. There are several key stakeholders who will be engaged prior to and during construction of the Proposed Development. These include:
- Darlington Borough Council, Stockton-on-Tees Borough Council and Durham County Council;
 - Environment Agency;
 - Historic England; and
 - Natural England.

4. Commitments Register

- 4.1.1. A Commitments Register will identify the environmental commitments proposed to address the potential environmental effects of the preparatory and main works.
- 4.1.2. The Commitments Register will present an initial register, developed using information presented in the EIA. The Commitments Register will be updated by the contractor when preparing the CEMP prior to construction and then 'as required' as the Proposed Development progresses.
- 4.1.3. The Commitments Register will include:
- A clear and specific description of the action.
 - The objective of the action.
 - How the action is to be implemented/achieved.
 - The source of the action, including references for source documentation.
 - Naming of the person responsible for the action.
 - Achievement criteria and reporting requirements.
 - The project stage, date of implementation and achievement.
 - Details of any monitoring required and corrective action.
- 4.1.4. Table 4-1 presents an example of what the Commitments Register will look like, and how actions and commitments will be secured.

Table 4-1 Commitments Register example

Ref.	Environmental action/commitment	Assumptions (on which the action is based)	Objective	How the action/commitment will be implemented/secured	Source ref.	Responsible person (s)	Achievement criteria and reporting requirements (if applicable)	Project stage	Monitoring requirements
e.g. BD1	e.g. Sensitive timing of works such as the removal of vegetation or other suitable nesting habitat between September and February, outside of the core breeding bird season. If vegetation clearance works take place outside of the recommended period, a precautionary method of working will be adopted to include ecological survey for nesting birds immediately prior to vegetation clearance. A check for nesting birds would also be undertaken, with an appropriate buffer to reduce disturbance for works where active nest are found.	e.g. Assumption that birds including ground nesting birds, will nest in suitable habitats on site, and works would affect them	e.g. To ensure that bird nests in the receiving environment are protected from accidental disturbance, damage or destruction during works.	e.g. DCO Requirement Landscape and Ecology Management Plan (LEMP)	e.g. ES Chapter Biodiversity	e.g. Contractor Ecological Clerk of Works	e.g. Implementation of detailed LEMP.	e.g. Construction	e.g. Ecological Clerk of Works to advise contractor / oversee works

4.1.5. A summary of the mitigation and management measures to be included as a minimum within the Commitments Register is included within Table 4-2. It also provides the monitoring requirements for mitigation and/or enhancement measures where required. The measures identified in Table 4-2 below will be reviewed and updated to actions and commitments in the Commitments Register, submitted with the DCO application.

Table 4-2 Summary of construction management, mitigation and monitoring measures

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
Air Quality			
Potential to create construction dust	The dust emitting activities can be greatly reduced or eliminated by applying the site specific measures listed in Annex 1, including development of a Dust Management Plan.	Regular site inspections to monitor compliance with the Dust Management Plan.	Specific responsibilities will be confirmed in the final CEMP which will be secured as a requirement of the DCO.
Waste			
Potential for waste arisings	<ul style="list-style-type: none"> A SWMP will be produced during the design phase and managed by the contractor during the construction phase to direct an effective circular economy approach to the management of resources and waste materials. This would drive the waste management activities up the Waste Hierarchy, to ensure that as much material as possible is reused and/or recycled to reduce the amount of construction waste requiring disposal. The Outline SWMP will be finalised with specific measures to be implemented prior to the start of construction, in accordance with a DCO Requirement. The handling of waste material should be in accordance with the CL:AIRE Definition of Waste: development Industry Code of Practice. PEIR Appendix 2.3 details approach to minimise the quantities of waste requiring disposal. 	To be confirmed in the final CEMP	Specific responsibilities will be confirmed in the final CEMP which will be secured as a requirement of the DCO.
Ground conditions			
Potential for impacts from contaminated land	<ul style="list-style-type: none"> Prior to development, a ground investigation will be carried out to assess any contamination on site, including soil sample collection and testing. 	Pre-commencement preliminary ground investigation to include	Specific responsibilities will be confirmed in the final CEMP which will be

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<ul style="list-style-type: none"> Please refer to the Hydrology and Flood Risk section of this table for the measures employed to avoid pollution events with respect to water quality. 	borehole sampling and trial pits to establish ground conditions.	secured as a requirement of the DCO.
Biodiversity			
Potential to spread invasive non-native species within (Himalayan Balsam)	<ul style="list-style-type: none"> An Invasive Non-Native Plant Species (INNPS) method statement will set out measures to minimise the risk of spreading Himalayan Balsam. An invasive species walkover of the high risk areas of the cable route should take place at a suitable time of the year (May – August). If further invasive species are found, there would also need to be added to the INNPS method statement. 	The Ecological Clerk of Works will carry out monitoring	Specific responsibilities will be confirmed in the final CEMP which will be secured as a requirement of the DCO.
Disturbance to breeding birds and protected species	<ul style="list-style-type: none"> The LEMP will set out the measures proposed to mitigate the potential impacts and effects on biodiversity (and landscape) features, and to enhance the landscape and biodiversity value of the Site Area. Relaxation of cutting (flailing) along existing hedgerows to benefit nesting birds and invertebrate; Provision of land and in Panel Area F: North of Bishopton C to be managed for curlew. Provision of c. 2-3ha of land in Panel Area C: Byers Gill Wood which is close to Newton Ketton Meadow SSSI to be sown with lowland meadow seed mix providing additional flower rich meadow habitat as well as habitat for ground nesting birds such as skylark and meadow pipit. Provision of land in Panel Area D: Great Stainton to be sown with lowland meadow seed mix providing suitable nesting habitat for skylark and potentially lapwing; and Clearance of vegetation of potential value to nesting birds (i.e. to facilitate access) will be completed outside of the bird-breeding season (considered to be between mid-February and August inclusive). However, should it not be possible to avoid this season, vegetation will be inspected/surveyed by the project ecologist immediately before clearance (i.e., within 24 hours of clearance works). An active nest will be given an appropriate disturbance buffer for that species with work 	<ul style="list-style-type: none"> Pre-commencement species surveys as appropriate to be carried out with a Species Protection Plan (SPP) to be implemented to reconfirm the ecological baseline conditions, identify any new ecological risks, and to inform mitigation requirements. Post-construction monitoring to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support. 	Specific responsibilities will be confirmed in the final CEMP which will be secured as a requirement of the DCO.

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<p>only allowed to take place within this buffer once the project ecologist has confirmed any young have fully fledged and left the nest.</p> <ul style="list-style-type: none"> ▪ The loss of ground nesting bird breeding and foraging habitat to be mitigated through the provision of discrete areas with no panels within the Proposed Development application boundary and managed to deliver the nesting conditions required by curlew, skylark and lapwing. ▪ Follow up surveys will be required to check the status of the badger setts identified and to locate any new active setts that would need to be protected. ▪ Any exposed trenches or holes are to be covered up when contractors are off site (i.e. at night time) or a slope provided to allow any trapped badgers a safe exit. ▪ Security fencing around the Site Area will be permeable to badgers and allow for larger mammals such as deer to move through. ▪ An application for a Natural England District Level Licence for great Crested Newts (GCN) will be made to further enhancement of GCN in the region. ▪ Should small-scale clearance of potential reptile habitat or potential hibernacula features be necessary, this should be carried out during the reptile active season (i.e. late March/April - October inclusive, dependent on local weather conditions). For clearance of vegetation this should be done in a staged approach allowing any reptiles to move out of the way into adjacent retained habitat with vegetation cut to approximately knee height, then after 24 hours vegetation will be cut to ground-level. ▪ No works within 8m of all waterbodies/watercourses would occur and no night time working is envisaged (the period when otters are most active). ▪ Consideration will be given to provision of boxes to increase the opportunities for roosting bats and birds such as barn owl. 	<ul style="list-style-type: none"> ▪ The Ecological Clerk of Works will carry out monitoring 	
<p>Accidental damage or temporary loss to retained ecological features such as trees and hedgerows</p>	<ul style="list-style-type: none"> ▪ An Arboricultural Impact Assessment and Arboricultural method Statement (AMS) has been undertaken and is provided as Appendix 7.6 to the PEIR. The AMS identifies the specification for tree protection measures and the methodology for sensitive works in proximity to retained trees during construction. 	<ul style="list-style-type: none"> ▪ Pre-commencement species surveys as appropriate to be carried out with a SPP to be implemented to reconfirm the ecological baseline conditions, 	<p>Specific responsibilities will be confirmed in the final CEMP which will be secured as a requirement of the DCO.</p>

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<ul style="list-style-type: none"> ▪ Root Protection Areas (RPAs) for hedgerows, tree lines, ditches and trees are to be protected during construction through the use of suitable buffers and fencing. ▪ Although no trees are anticipated to require felling, any tree to be felled will be subject to a pre-construction check to determine its current bat roost potential and will be subject to suitable surveys, as described in good practice survey guidelines. ▪ All boundary features and other features such as larger hedgerows with trees and woodland edge that are of value to foraging bats will be retained with it predicated that only small sections of poor-quality hedgerow will be removed to accommodate the grid connection cables and access routes. Where possible and practical construction access and cabling will use existing field entrances and horizontal directional drilling (HDD) will install the cables under hedgerows. ▪ Small sections of hedgerow that will need to be temporarily removed to facilitate the underground cable will be replanted with native species, after works are completed. ▪ Field margins between the boundary hedgerows and the security fencing will be enhanced in line with three options and managed accordingly: provision of winter wild bird food and (sowing with specific wild bird winter food), provision of rough grass margins (sowing with tussock forming grass species), and provision of flower rich margins (sowing with a wildflower seed). ▪ Land under and between Panel Areas will be enhanced in line with three options and managed accordingly: wildflower mix, legume rich mix and low maintenance grass. Sowing of wildflower meadow would be best targeted at fields with the lowest Agricultural Land Classification (ALC). 	<p>identify any new ecological risks, and to inform mitigation requirements.</p> <ul style="list-style-type: none"> ▪ Post-construction monitoring to ensure that the new habitat creation provided as mitigation for effects (both those of an ecological nature and those associated with other technical disciplines) is established and then maintained successfully. This will focus on the botanical component, on the basis that the successful implementation of this will have associated benefits for the animal species that they support. ▪ The Ecological Clerk of Works will carry out monitoring 	
<p>Potential for spillages to enter watercourses and impact ecological receptors</p>	<ul style="list-style-type: none"> ▪ Measures to prevent pollution, silting and erosion will be adopted throughout construction. ▪ Please refer to the Hydrology and Flood Risk section of this table for the measures employed to avoid pollution events with respect to water quality. 	<p>The Ecological Clerk of Works will carry out monitoring</p>	<p>Specific responsibilities will be confirmed in the final CEMP which will be secured as a requirement of the DCO.</p>
<p>Landscape and Visual</p>			

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
<p>Loss of existing landscape features e.g. vegetation</p> <p>Disruption to users of Public Rights of way</p>	<ul style="list-style-type: none"> ▪ The LEMP will set out the measures proposed to mitigate the potential impacts and effects on landscape (and biodiversity) features, and to enhance the landscape and biodiversity value of the Site Area. ▪ Proposed tree and hedgerow planting would enhance the existing landscape fabric and character and contribute to the ‘landscape condition/quality’ aspect of landscape value. ▪ Permissive footpaths are proposed through the Panel Areas where they would provide improved access by way of connecting disjointed areas of the network of Public Rights of Way; reduce the need to walk along roads without pavements or through areas where there may be difficulties in managing the different requirements of recreation and livestock; or provide improved options for circular walks. These access improvements would contribute to the ‘Amenity and recreation’ aspect of landscape value. ▪ Interpretation would be provided at points of interest along the PRoW network and permissive routes through the Panel Areas. These would identify information of local landscape, biodiversity and heritage interest. In addition, some interpretation would describe aspects of the solar farm itself – primarily in areas where the Proposed Development would be more openly visible. This interpretation would contribute to the ‘Cultural heritage’ and/or ‘Cultural associations’ aspects of landscape value. ▪ Measures would be taken to improve access and wayfinding within the Site Area – which would include mapped and waymarked routes and improvements to stiles, gates and bridges as required, and parking areas. These access improvements would contribute to the ‘Amenity and recreation’ aspect of landscape value. ▪ Biodiversity enhancements would contribute to the ‘Natural Heritage’ aspect of landscape value. 	<p>The Ecological Clerk of Works will carry out monitoring.</p>	<p>The LEMP and Outline CEMP will set out roles and Responsibilities for implementation, which will be secured as a requirement of the DCO</p>
Cultural Heritage and Archaeology			
<p>Potential impacts to subsurface archaeological remains</p>	<ul style="list-style-type: none"> ▪ The Outline Archaeological Strategy Written Scheme of Investigation will set out the measures proposed to mitigate the potential impacts and effects on buried archaeological remains. 	<p>None</p>	<p>Specific responsibilities will be confirmed in the CEMP which will be</p>

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<ul style="list-style-type: none"> Implementation of an appropriate programme of archaeological works which will permit any remains to be investigated and recorded (leading to preservation by record). 		secured as a requirement of the DCO.
Land use and Socio-economics			
Long term damage to soil structure and loss of valuable soil	<ul style="list-style-type: none"> A SRMP will set out rainfall criteria and a series of field tests which are used to determine the suitability of soil conditions prior to them being handled or tracked over. In areas where the stripping and stockpiling of topsoil is necessary, best practice guidance should be adhered to. 	None	Specific responsibilities will be confirmed in the CEMP which will be secured as a requirement of the DCO.
Restrictions to access (PRoW, local communities)	<ul style="list-style-type: none"> The Outline CTMP will set out the measures proposed to ensure continuation of access to recreational or community facilities. Please refer to the Traffic and Transport section of this table for the further details around access arrangements. The PRoW Management Plan will describe where PRoWs would be crossed by the Proposed Development and how PRoWs would be managed to ensure they remain safe to use, and disruption to users of the PRoW is minimised. It is proposed that PRoW are managed through the following hierarchy of measures for the construction phase: <ul style="list-style-type: none"> Use of signage where PRoW can remain open but users need to be warned of the presence of construction vehicles (local management) Implementation of short, temporary closures where local works might affect safety of users (local closures) Closure / extinguishment of a PRoW following early implementation of an alternative / new route (early re-provision) 	To be confirmed in the final CEMP	Specific responsibilities will be confirmed in the CEMP which will be secured as a requirement of the DCO.
Hydrology and Flood Risk			
Potential impacts on the water quality of the sub-catchments through erosion	<ul style="list-style-type: none"> Sediment control measures (silt fences, settlement/attenuation ponds etc.) would be used in the vicinity of watercourses, springs or drains where natural features (e.g., hollows) do not provide adequate protection; 	To be confirmed in the final CEMP	Specific responsibilities will be confirmed in the CEMP which will be secured as a requirement of the DCO.

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<ul style="list-style-type: none"> ▪ Trenching or excavation activities in open land would cease during periods of intense rainfall and temporary bunding would be provided as required, to reduce the risk of sediment transport to the natural drainage system; ▪ Permanent relocation or longer term storage of soils would be re-instated with vegetation as soon as practicable; ▪ The movement of construction traffic would be controlled to minimise soil compaction and disturbance. Vehicle movements (to include HGVs and plant machinery) outside the defined tracks and hardstanding areas would be avoided where possible; ▪ Areas of temporary tracks would be completed as soon as possible and surfaced appropriately to protect soils from runoff. Temporary fences or markers should be used to ensure minimal disturbance of the surrounding land; ▪ Wheel washing would be undertaken in designated areas only and sediment control measures would be used to ensure runoff from these areas would not enter directly into water courses; ▪ Tracks would be completed as soon as possible and surfaced appropriately to protect soils from runoff. Temporary fences or markers should be used to ensure minimal disturbance of the surrounding land; and ▪ No construction activities will take place within the watercourse buffer zones. 		
<p>Potential impact on the water quality of the sub catchments draining the site through chemical pollution</p>	<ul style="list-style-type: none"> ▪ A Flood Risk Assessment (FRA) has been undertaken and is provided as Appendix 10.1 to the PEIR. An Outline Surface Water Drainage Strategy is included as part of the FRA to manage any increase in surface water runoff, from landscaping or solar PV modules. The document includes sections dealing with pollution prevention measures, water quality monitoring and procedures in the event of a spill. ▪ The following pollution control measures will be deployed within all sub catchments: <ul style="list-style-type: none"> • Equipment would be provided to contain and clean up any spills to minimise the risk of pollutants entering the watercourses or surface water features; 	<p>To be confirmed in the final CEMP</p>	<p>Specific responsibilities will be confirmed in the CEMP which will be secured as a requirement of the DCO.</p>

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<ul style="list-style-type: none"> • Trenching or excavation activities in open land would cease during periods of intense rainfall; • Refuelling of vehicles and plant machinery (if required) would be confined to the designated fuelling areas and would be carefully controlled and placed away from areas with high groundwater dependency and outside watercourse buffers; • Vehicles, plant machinery and equipment would be cleaned at designated washout areas located conveniently and within a controlled area of the Proposed Development; • All fuel and chemicals would be stored within appropriately specified containers and within specifically designed stores / storage areas and would include appropriate measures to avoid spillages in line with the relevant legislation; • Drip trays would be placed under standing machinery; • All solid and liquid waste materials would be properly disposed of in controlled landfill sites away from the site; • Routine mechanical maintenance of vehicles would be carried out off-site or in a suitable designated area of the Proposed Development; and • There would be no unapproved discharge of foul or contaminated drainage from the Site Area either to groundwater or any surface waters, whether direct or via soakaway. 		
Increased flood risk	<ul style="list-style-type: none"> ▪ The FRA and Outline Surface Water Drainage Strategy describes the design standards and drainage to be adopted on site. ▪ Temporary land take areas (construction compound with car parking, temporary storage area, temporary laydown areas, welfare facilities etc.) within the Site Area will be fully reinstated following construction to reduce areas of semi-impermeable surfaces. Temporary land take areas will be cleared of hardcore, re-graded with soil to a natural profile and re-vegetated. 	To be confirmed in the final CEMP	Specific responsibilities will be confirmed in the CEMP which will be secured as a requirement of the DCO.

Potential impact	Mitigation and/or Enhancement Measure	Requirement for Monitoring	Responsibility
	<ul style="list-style-type: none"> Runoff and sediment management control measures will be implemented in line with a sustainable approach to drainage (SuDS). 		
Noise and Vibration			
Increased noise and vibration from construction traffic and construction activities	<ul style="list-style-type: none"> Measures to control noise as defined in Annex B of BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites - Part 1: Noise' and measures to control vibration as defined in Section 8 of BS 5228:2009+A1:2014 'Part 2: Vibration' will be adopted where reasonably practicable. These measures represent 'BPM' (as defined by section 72 of the Control of Pollution Act 1974) to manage noise and vibration emissions from construction activities. 	To be confirmed in the final CEMP	Responsibilities to be confirmed in the final CEMP which will be secured as a requirement of the DCO.
Traffic and Transport			
Increased traffic flows, including HGVs on the roads leading to the Site Area. Severance and intimidation associated with increased construction traffic and abnormal loads	<ul style="list-style-type: none"> The Outline CTMP will detail the mitigation measures required to reduce the impacts of increased traffic flows including HGVs on the roads and severance and intimidation associated with increased traffic. The CTMP will be produced and approved prior to construction. 	<p>The appointed contractor will undertake such monitoring as is necessary.</p> <p>Further details to be confirmed in the Outline CTMP.</p>	Responsibilities to be confirmed in the final CEMP which will be secured as a requirement of the DCO.

5. Maintenance and monitoring activities

5.1. Environmental records inspection

- 5.1.1. The Outline EMP submitted with the DCO application will describe systems of recording and inspections that will be required to maintain an audit trail of the environmental obligations. This will be managed through the Quality and Safety Management Systems (QMS) and the Environmental Management System (EMS) of the contractor which will be certified in line with the ISO 14001 standards.
- 5.1.2. The system would include methods for monitoring, recording, and implementing environmental management on site, and for responding to any noted areas of non-compliance. This will ensure that a high standard of environmental control is maintained through the lifetime of the scheme through the corrective action system managed by the contractor.
- 5.1.3. The contractor's Project Quality Administrator will ensure there is a central filing system in place for any checklists, reports and monitoring consistent with the Project QMS and EMS. Records of compliance with the requirements of the EMP, derived from audits and other inspection by representatives of any internal or external audit teams.
- 5.1.4. Further details of maintenance and monitoring will be included in the Outline EMP submitted with the DCO application.

Bibliography

- [1] BSI Standards Publication, *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1: Noise*, 2014.
- [2] BSI Standards Publication, *BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part2: Vibration*, 2014.

Annex 1 - Air Quality Construction Dust Assessment

Proposed Solar PV Development

Annex 1 Construction Dust Assessment

Byers Gill Solar

Reference: EN010139

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1 Introduction

- 1.1.1 This document has been prepared by Ove Arup & Partners Ltd (Arup) and details the Air Quality Construction Dust Assessment for the Byers Gill Solar (the Proposed Development). Powers to construct, operate and maintain the Proposed Development are being sought by JBM Solar (the Applicant) through the application for a Development Consent Order (DCO).
- 1.1.2 This document is provided as Annex 1 of Appendix 2.4 Draft Outline Environmental Management Plan (EMP). This document will be updated at the next stage of the Proposed Development design prior to the DCO application.
- 1.1.3 The aspects considered within this Air Quality Construction Dust Assessment for the Proposed Development include:
- a summary of relevant air quality policies and legislation;
 - a description of the existing air quality conditions in the vicinity of the Proposed Development;
 - the methods used to consider and assess the potential impacts; and
 - a summary of any likely significant effects and, where necessary, recommendations for mitigation.
- 1.1.4 Following this, the design, mitigation, and residual effects of the Proposed Development are discussed, along with the limitations of the assessment.

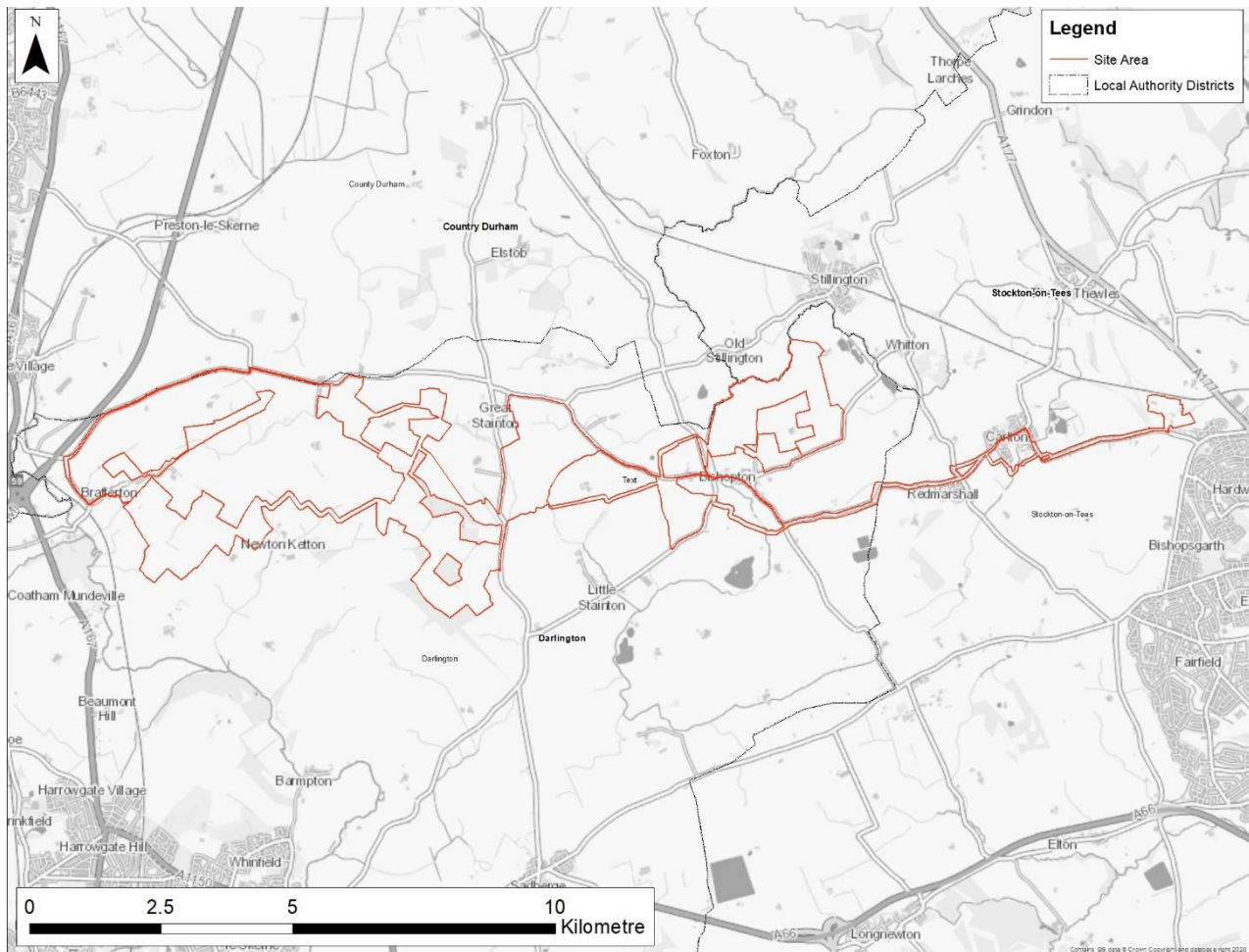
1.2 The Proposed Development

- 1.2.1 The Proposed Development consists of a solar farm capable of generating over 50 Megawatts (MW) Alternating Current (AC) of electricity with co-located Battery Energy Storage Systems (BESS), located between Darlington and Stockton-on-Tees in north-east England. The Site Area is approximately 563ha and comprises six solar photovoltaic (PV) panel areas (Panel Areas A-F). The solar PV panels would be mounted on a metal frame in groups. The solar PV panels will either be fixed in position or will track the sun throughout the day; this aspect of the Proposed Development remains under consideration by the Applicant and may be confirmed prior to submission of a DCO application. An on-site substation would be located within Panel Area C.

1.2.2 The Proposed Development includes up to 21km of 33kilovolt (kV) underground cabling between the Panel Areas and the on-site substation, as well as approximately 10km of 132kV underground cable to connect the Proposed Development to the grid connection at the existing Norton substation (located to the north-west of Stockton-on-Tees). The preferred route for all underground cabling is to be confirmed ahead of the DCO application submission, with both on-road and off-road options under consideration at this stage. A range of supporting infrastructure is required for the Proposed Development, comprising BESS; transformers and inverters for managing the electricity produced; storage containers to hold this equipment; and security measures such as fencing, CCTV and lighting. The Proposed Development includes environmental mitigation and enhancement measures to avoid or reduce adverse impacts on the surrounding environment and nearby communities.

1.2.3 The majority of the Proposed Development is located within the administrative boundary of Darlington Borough Council, with a section of the cable route situated within the administrative boundary of Stockton-on-Tees Council. A very small section of the Site Area is within the administrative boundary of Durham County Council.

Plate 1 Proposed Development location plan



The Proposed Development and surroundings

- 1.2.4** The surroundings comprise of agricultural fields, interspersed with individual trees, hedgerows, farm access tracks, woodlands and local farmholdings. There are several local villages located within close proximity to the Proposed Development, including Brafferton, Newton Ketton, Great Stainton, Bishopton and Old Stillington village to the north.
- 1.2.5** The land likely to be required for the construction, operation and decommissioning of the Proposed Development is within the Site Area shown in Plate 1. It is important to note that the land required may reduce due to the design and construction methodology development. The maximum area of land likely to be required has therefore been assessed in the EIA and subject to the Outline Environmental Management Plan (EMP).

2 Air Quality Legislation

2.1 Environment Act 2021

- 2.1.1 The Environment Bill became an Act [1] in November 2021. The Environment Act 2021 amends the following legislation: Environment Act 1995 [2], the Clean Air Act 1993 [3] to give local authorities more power at reducing local pollution, particularly that from domestic burning; and it also amends the Environmental Protection Act 1990 [4] to reduce smoke from residential chimneys by extending the system of statutory nuisance to private dwellings.
- 2.1.2 The following sections of the Environment Act 1995 [2] have been transposed into the Environment Act 2021 [1].
- 2.1.3 For the Secretary of State to develop, implement and maintain an Air Quality Strategy. This includes the statutory duty, also under Part IV of the Environment Act 1995, for local authorities to undergo a process of local air quality management and declare an Air Quality Management Area (AQMA) where pollutant concentrations exceed the national air quality objectives. Where an AQMA is declared, the local authority needs to produce an Air Quality Action Plan (AQAP) which outlines the strategy for improving air quality in these areas.
- 2.1.4 The Act will implement key parts of the government's Clean Air Strategy and include targets for tackling air pollution in the UK. The requirements relevant to air quality are:
- for the Secretary of State to set long-term legally binding targets on air quality with at least 15 years duration;
 - for the Secretary of State to publish a report reviewing the air quality strategy every five years;
 - for the government to set two targets by October 2022: the first on the amount of PM_{2.5} pollutant in the ambient air (the figure and deadline for compliance remain unspecified) and a second long-term target set at least 15 years ahead to encourage stakeholder investment;
 - for the office for environmental protection [1] to be established to substitute the watchdog function previously exercised by the European Commission;
 - for Local Authorities' powers to be extended under the current local air quality management framework, including responsibilities to improve local air quality and to reduce public exposure to excessive levels of air pollution;
 - for "air quality partners" to have a duty to share responsibility for dealing with local air pollution among public bodies; and
 - for the introduction of a new power for the government to compel vehicle manufacturers to recall vehicles and non-road mobile machinery (NRMM) if they are found not to comply with the environmental standards that they are legally required to meet.

2.2 Air Quality Standards Regulations 2010

- 2.2.1 The Air Quality Standards Regulations 2010 [5] (amended in 2016 [6]) defines the policy framework for 12 air pollutants known to have harmful effects on human health or the natural environment. The Secretary of State for the Environment has the duty of ensuring compliance with the air quality limit values (pollutant concentrations not to be exceeded by a certain date).
- 2.2.2 Following the UK's withdrawal from the European Union, the Air Quality Standards Regulations (EU-derived domestic legislation) were retained under S.2 of the European Union (Withdrawal) Act 2018, and updated to replace references to EU authorities with domestic equivalents in the Air Quality (Miscellaneous Amendment and Revocation of Retained Direct EU Legislation) (EU Exit) Regulations [7].
- 2.2.3 Some pollutants have standards expressed as annual average concentrations due to the chronic way in which they affect health or the natural environment, i.e., effects occur after a prolonged period of exposure to elevated concentrations. Other pollutants have standards expressed as 24-hour, 1-hour or 15-minute average concentrations due to the acute way in which they affect health or the natural environment, i.e., after a relatively short period of exposure. Some pollutants have standards expressed in terms of both long and short-term concentrations. Air quality limit values and objectives are quality standards for clean air. Therefore, in this assessment, the term 'air quality standard' has been used to refer to the national limit values.
- 2.2.4 The standards for nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) have been provided in Table 2-1 and used in the assessment. Other pollutants have been screened out of this air quality assessment, since they are not considered likely to cause exceedances of their respective standards.

Table 2-1 Air quality standards

Pollutant	Averaging period	Limit value / objective
Human Health		
Nitrogen Dioxide (NO₂)	▪ Annual mean	▪ 40µg/m ³
	▪ 1-hour mean	▪ 200µg/m ³ ^[1]
Fine Particulate Matter (PM₁₀)	▪ Annual mean	▪ 40µg/m ³
	▪ 24-hour mean	▪ 50µg/m ³ ^[2]
Very Fine Particulate Matter (PM_{2.5})	▪ Annual mean	▪ 20µg/m ³ ^[3]
^[1] not to be exceeded more than 18 times a year (99.79th percentile)		
^[2] not to be exceeded more than 35 times a year (90.41st percentile)		
^[3] updated on 1 January 2020 ¹		

2.3 Dust nuisance

- 2.3.1 Dust is the generic term used in the British Standard document BS 6069 (Part Two) to describe particulate matter in the size range 1–75µm in diameter. Dust nuisance is the result of the perception of the soiling of surfaces by excessive rates of dust deposition. Under provisions in the Environmental Protection Act 1990 [4], dust nuisance is defined as a statutory nuisance.
- 2.3.2 There are currently no standards or guidelines for dust nuisance in the UK, nor are formal dust deposition standards specified. This reflects the uncertainties in dust monitoring technology and the highly subjective relationship between deposition events, surface soiling and the perception of such events as a nuisance. In law, complaints about excessive dust deposition would have to be investigated by the local authority and any complaint upheld for a statutory nuisance to occur. However, dust deposition is generally managed by suitable on-site practices and mitigation rather than by the determination of statutory nuisance and/or prosecution or enforcement notice(s).

3 Policy and Guidance

3.1 National Planning Policy and Guidance

National Policy Statements

- 3.1.1 National Policy Statements (NPS) are produced by the government and give reasons for the policy set out in the statement, including an explanation of how the policy considers government policy relating the mitigation of, and adaption to, climate change. There are 12 designated NPS which set out the types of national infrastructure development. The NPS which are of relevance to Proposed Development pertain to Energy, which include:
- NPS for Overarching Energy (EN-1) [8] including the Draft Overarching National Policy Statement for Energy (draft EN-1) [9];
 - NPS for Renewable Energy (EN-3) [9] including the draft NPS for Renewable Energy Infrastructure (draft EN-3) [10]; and
 - NPS for Electricity Networks (EN-5) [12] including the Draft National Policy Statement for Electricity Network Infrastructure (draft EN-5) [13]
- 3.1.2 NPS EN-1 [8] and the Draft EN-1 [9] are supported by NPS EN-5 [12] alongside the Draft NPS EN-5 [12]. NPS EN-3 [9] further supports NPS EN-1 [8] (Section 5.2) and Draft NPS EN-1 [9] through going beyond the generic air emission impacts (other than CO₂) and provide specific considerations which apply to biomass/waste combustion plant.
- 3.1.3 The NPS EN-1 [8] states that energy projects have the potential to have adverse effects on Air Quality which has been considered in this report. Paragraph 5.2.7 of EN-1 [8] states that:
- *“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.”*
- 3.1.4 The policy set out in the revised draft NPS EN-1 [9] follows that of the existing NPS but also refers to air quality at paragraph 5.2.11 as *“the Secretary of State should have regard to the Air Quality Strategy or any successor to it and should consider relevant advice within Local Air Quality Management guidance.”*
- 3.1.5 NPS EN-5 [12] and the revised draft NPS EN-5 [14] make no specific reference to air quality.

National Planning Policy Framework

- 3.1.6 The National Planning Policy Framework (NPPF) [15] was updated in July 2021 with the purpose of planning to achieve sustainable development. Paragraph 186 of the NPPF on air quality states that:
- 3.1.7 “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.”
- 3.1.8 In addition, paragraph 105 states that:
- 3.1.9 “The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.”
- 3.1.10 Paragraph 174 discusses how planning policies and decisions should contribute to and enhance the natural and local environment. In relation to air quality, NPPF notes that this can be achieved by:
- 3.1.11 “e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.”

Planning Practice Guidance

3.1.12 National Planning Practice Guidance (NPPG) [16] on various topics, including air quality was developed in order to support the NPPF. The guidance provides a concise outline as to how air quality should be considered in order to comply with the NPPF and states when air quality is considered relevant to a planning application. This includes factors such as changes in traffic volumes, vehicle speeds, congestion or traffic composition, the introduction of new point sources of air pollution, exposure of people to existing sources of air pollutants, and the potential to give rise to air quality impacts at nearby sensitive receptors.

Clean Air Strategy

3.1.13 The Department for Environment, Food and Rural Affairs' (Defra) Clean Air Strategy [17] was published in 2019 and sets targets for improving air quality across the country. It includes actions for reducing emissions from various sources, such as transport, domestic activities, farming and industry. There is also a long-term target for reducing population exposure to PM_{2.5} concentrations to meet the World Health Organisation's (WHO) target of 10µg/m³ as an annual mean. In particular, the Clean Air Strategy [17] states:

3.1.14 “New legislation will create a stronger and a more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanism.”

Local Air Quality Management Policy Guidance

3.1.15 The policy guidance note, LAQM.PG [18] is for local authorities in England. It provides local authority-led action to improve local air quality using available levers, including planning, public health and transport responsibilities. This guidance is also relevant to Mayoral Combined Authorities, and external organisations who may need to engage with the local authority to assist in the delivery of their statutory duties on managing air quality. There are several updates detailed in the LAQM.PG [18], as follows:

- local AQAP are required to demonstrate that local air quality objectives are met and achieved;
- an AQMA is required to be declared within 12 months of identifying an exceedance of the air quality objectives;
- local authorities are required to produce an AQAP within 18 months of declaring an AQMA; and
- the introduction of a system of reminder and warning letters to increase transparency and accountability on local air quality.

- 3.1.16 The technical guidance, LAQM.TG(22) [18] is designed to support local authorities across the UK in carrying out their duties to review and assess and take action to improve air quality under the Environment Act 1995 [2] as amended by the Environment Act 2021 [1]. It provides detailed guidance on how to assess the impact of measures using existing air quality tools. Where relevant, this guidance has been taken into account in this air quality assessment.

3.2 Local planning policy and guidance

- 3.2.1 The Proposed Development lies within the administrative boundaries of Darlington Borough Council, Stockton-on-Tees Borough Council and Durham County Council. Planning policy of relevance to the assessment which would be considered is detailed in the following.

Darlington Borough Council

- 3.2.2 The Darlington Local Plan 2016 – 2036 [20] sets out the vision and the strategic objectives for the Borough, with the overarching aim of delivering ‘*sustainable development to meet the Borough’s needs through a cohesive plan which makes the best use of land and resources*’.

Stockton-on-Tees Borough Council

- 3.2.3 The Stockton-on-Tees Borough Council Local Plan [21]. Policy ENV7 – Ground, Air, Water, Noise and Light Pollution pertains to the Borough’s air quality objectives, and states the council’s commitment to improving air quality as part of their role in protecting and enhancing the environment as well as improving public health [21]. It states that:
- 3.2.4 “All development proposals that may cause groundwater, surface water, air (including odour) noise or light pollution either individually or cumulatively will be required to incorporate measures as appropriate to prevent or reduce their pollution so as to now cause unacceptable impacts on the living conditions of all existing and potential future occupants of the land and buildings, the character and appearance of the surrounding area and the environment.”

Durham County Council

- 3.2.5 The County Durham Plan was adopted in 2020 [22] and has the spatial vision to have the county comprise of “*sustainable, balanced and regenerated communities, with key development being located to achieve sustainable patterns of development, to ensure the effective use of land and reduce our contribution to climate change*”. As part of this, policy 22 in the plan called ‘Durham City Sustainable Transport’ is aimed at improving air quality through promoting active transport, reducing congestion, improving public transport, which works in conjunction with the aims of the Durham City Air Quality Management Action Plan [23], which seeks to reduce air pollution in the city centre.

Tees Valley Combined Authority

3.2.6 The Tees Valley Combined Authority (TVCA) is the local transport authority for Tees Valley, which comprises five constituent Local Authorities: Darlington, Hartepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees. The Strategic Transport Plan [19] for the period up to 2030 was developed by the TVCA in collaboration with their constituent Local Authorities, including Darlington and Stockton-on-Tees, where the Proposed Development is located. The Strategic Transport Plan lists their current investment priorities, and reducing “*carbon emissions and deliver[ing] measures to improve local air quality*” is stated as a key reasoning for the investment to deliver “*social equity and protecting the environment*” [19].

3.3 Other relevant policy and guidance

Institute of Air Quality Management Dust Guidance

3.3.1 The Institute of Air Quality Management (IAQM) [24] guidance provides guidance to development consultants and environmental health officers on how to assess air quality impacts from construction. The IAQM guidance [24] provides a method for classifying the significance of effect from construction activities based on the ‘dust magnitude’ (high, medium or low) and proximity of the Proposed Development to the closest receptors. The guidance recommends that once the significance of effect from construction is identified, the appropriate mitigation measures are implemented. Experience has shown that once the appropriate mitigation measures are applied, in most cases the resulting dust impacts can be reduced to negligible levels.

4 Methodology

4.1 Methodology of Baseline Assessment

- 4.1.1 Existing or baseline ambient air quality refers to the concentration of relevant substances that are already present in the environment. These are present from various sources, such as industrial processes, commercial and domestic activities, traffic and natural sources.
- 4.1.2 A desk-based review of the following data sources has been undertaken to determine the baseline air quality conditions in this assessment:
- Darlington Borough Council Annual Status Report (ASR) [20]
 - Durham County Council Air Quality Status Report [25]
 - Stockton-on-Tees Borough Council website [26]
 - the Environment Agency website [27], and
 - the UK Air Information Resource [28] website.

4.2 Methodology of Construction Dust Assessment

- 4.2.1 The effects from demolition and construction of the Proposed Development have been assessed using the qualitative approach described in the latest guidance by the IAQM. The guidance considers the potential for dust emissions arising from activities such as demolition, earthworks, construction and trackout, and the effects these may have on human health, dust soiling and ecological harm.
- 4.2.2 An 'impact' is described as a change in pollutant concentrations or dust deposition, while an 'effect' is described as the consequence of an impact. The main impacts that may arise during construction of the Proposed Development are:
- dust deposition, resulting in the soiling of surfaces;
 - visible dust plumes;
 - elevated PM₁₀ concentrations as a result of dust generating activities on the Proposed Development; and
 - an increase in NO₂ and PM₁₀ concentrations due to exhaust emissions from NRMM and vehicles accessing the Proposed Development.

- 4.2.3 The IAQM guidance considers the potential for dust emissions from activities such as demolition of existing structures, earthworks, construction of new structures and trackout. Earthworks refer to the processes of soil stripping, ground levelling, excavation and land capping, while trackout is the transport of dust and dirt from the Proposed Development onto the public road network where it may be deposited and then re-suspended by vehicles using the network. This arises when vehicles leave the Proposed Development with dust materials, which may then spill onto the road, or when they travel over muddy ground on site and then transfer dust and dirt onto the road network.
- 4.2.4 For each of these dust-generating activities, the guidance considers three separate effects:
- annoyance due to dust soiling;
 - harm to ecological receptors; and
 - the risk of health effects due to a significant increase in PM₁₀ exposure.
- 4.2.5 The receptors can be human or ecological and are chosen based on their sensitivity to dust soiling and PM₁₀ exposure.
- 4.2.6 The methodology takes into account the scale to which the above effects are predicted to be generated (classified as small, medium or large), as well as the levels of background PM₁₀ concentrations and the distance to the closest receptor, in order to determine the sensitivity of the area. This is then taken into consideration when deriving the overall risk for the Proposed Development. Suitable mitigation measures are also proposed to reduce the risk of the Proposed Development.
- 4.2.7 There are five steps in the assessment process described in the IAQM guidance [24]. These are summarised as:

Step 1: Need for assessment

- 4.2.8 The first step is the initial screening for the need for a detailed assessment. According to the IAQM guidance [24], an assessment is required where there are sensitive receptors within 350m of the Site Area (for ecological receptors that is 50m) and/or within 50m of the route(s) used by the construction vehicles on the public highway and up to 500m from the Proposed Development entrance(s).

Step 2: Assess the risk of dust impacts

- 4.2.9 This step is split into three sections as follows:
- 2A: Define the potential dust emission magnitude
 - 2B: Define the sensitivity of the area; and
 - 2C: Define the risk of impacts.

4.2.10 Each of the dust generating activities is given a dust emission magnitude depending on the scale and nature of the works (step 2A) based on the criteria presented in Table 4-1.

Table 4-1 Dust emission magnitude

Small	Medium	Large
Demolition		
<ul style="list-style-type: none"> total building volume <20,000m³ construction material with low potential for dust release (e.g. metal cladding or timber) demolition activities <10m above ground demolition during wetter months 	<ul style="list-style-type: none"> total building volume 20,000 - 50,000m³ potentially dusty construction material demolition activities 10 – 20m above ground level 	<ul style="list-style-type: none"> total building volume >50,000m³ potentially dusty construction material (e.g. concrete) on-site crushing and screening demolition activities >20m above ground level
Earthworks		
<ul style="list-style-type: none"> total site area <2,500m² soil type with large grain size (e.g. sand) <5 heavy earth moving vehicles active at any one time formation of bunds <4m in height total material moved <10,000 tonnes earthworks during wetter months 	<ul style="list-style-type: none"> total site area 2,500m² - 10,000m² moderately dusty soil type (e.g. silt) 5 – 10 heavy earth moving vehicles active at any one time formation of bunds 4 - 8m in height total material moved 20,000 - 100,000 tonnes 	<ul style="list-style-type: none"> total site area >10,000m² potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) >10 heavy earth moving vehicles active at any one time formation of bunds >8m in height total material moved >100,000 tonnes
Construction		
<ul style="list-style-type: none"> total building volume <25,000m³ construction material with low potential for dust release (e.g. metal cladding or timber) 	<ul style="list-style-type: none"> total building volume 25,000 – 100,000m³ potentially dusty construction material (e.g. concrete) on-site concrete batching 	<ul style="list-style-type: none"> total building volume >100,000m³ on-site concrete batching sandblasting
Trackout		
<ul style="list-style-type: none"> <10 HDV (>3.5t) outward movement in any one day Surface material with low potential for dust release Unpaved road length <50m 	<ul style="list-style-type: none"> 10 – 50 HDV (>3.5t) outward movement in any one day Moderately dusty surface material (e.g. high clay content) Unpaved road length 50 – 100m 	<ul style="list-style-type: none"> >50 HDV (>3.5t) outward movement in any one day Potentially dusty surface material (e.g. high clay content) Unpaved road length >100m

4.2.11 The sensitivity of the surrounding area is then determined (step 2B) for each dust effect from the above dust generating activities, based on the proximity and number of receptors, their sensitivity to dust, the local PM₁₀ background concentrations and any other site-specific factors. Table 4-2 to Table 4-3 show the criteria for defining the sensitivity of the area to different dust effects.

Table 4-2 Sensitivity of the area to dust soiling effects

Receptor Sensitivity	Number of receptors	Distance from the source (m)			
		< 20	< 50	< 100	< 350
High	>100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	<10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 4-3 Sensitivity of the area to human health impacts

Background PM ₁₀ concentrations (annual mean)	Number of receptors	Distance from the source (m)				
		<20	<50	<100	<200	<350
<i>High receptor sensitivity</i>						
>32µg/m ³	>100	High	High	High	Medium	Low
	10 - 100			Medium	Low	
	<10		Medium	Low		
28 - 32µg/m ³	>100	High	High	Medium	Low	Low
	10 - 100			Medium		
	<10					
24 - 28µg/m ³	>100	High	Medium	Low	Low	Low
	10 - 100					
	<10	Medium	Low			
<24µg/m ³	>100	Medium	Low	Low	Low	Low
	10 - 100	Low				
	<10					
<i>Medium receptor sensitivity</i>						
>32µg/m ³	>10	High	Medium	Low	Low	Low
	<10	Medium	Low			
28 - 32µg/m ³	>10	Medium	Low	Low	Low	Low
	1 - 10	Low				
24 - 28µg/m ³	>10	Low	Low	Low	Low	Low
	1 - 10					
<24µg/m ³	>10	Low	Low	Low	Low	Low
	1 - 10					
<i>aqLow receptor sensitivity</i>						
-	>1	Low	Low	Low	Low	Low

4.2.12 Overall risk of the impacts of each activity is then determined (step 2C) prior to the application of any mitigation measures (Table 4-4) and an overall risk for the Proposed Development derived.

Table 4-4 Sensitivity of the area to ecological impacts

Receptor Sensitivity	Distance from the source (m)	
	< 20	< 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 3: Determine the site-specific mitigation

4.2.13 Once each of the activities is assigned a risk rating, appropriate mitigation measures are identified. Where the risk is negligible, no mitigation measures beyond those required by legislation are necessary.

Step 4: Determine any residual effects

4.2.14 Once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are any residual significant effects. The IAQM guidance [24] notes that it is anticipated that with the implementation of effective site-specific mitigation measures, the environmental effect will not be significant in most cases.

Step 5: Prepare a dust assessment report

4.2.15 The last step of the assessment is the preparation of a Dust Assessment Report, i.e., this document.

5 Baseline Assessment

5.1.1 The baseline conditions for the Proposed Development at the time of the PEIR are presented below.

5.2 Sources of Air Pollution

Industrial Processes

5.2.1 Industrial air pollution sources are regulated through a system of operating permits or authorisations, requiring stringent emission limits to be met and ensuring that any releases to the environment are minimised or rendered harmless. Regulated (or prescribed) industrial processes are classified as Part A(1), A(2), Part B or Medium Combustion Plant (MCP) processes, and are regulated through the Pollution Prevention and Control (PPC) system [29, 30]. The larger more polluting processes are regulated by the Environment Agency (EA), and the smaller, less polluting ones by the local authorities. Local authorities regulate only for emissions to air, whereas the EA regulates emissions to air, water and land.

5.2.2 According to the EA website [27], there are no regulated industrial installations within 1km of the Proposed Development.

5.3 Road Traffic

5.3.1 In recent decades, atmospheric emissions from transport on a national basis have grown to match or exceed other sources in respect of many pollutants, particularly in urban areas. The local air quality close to the Proposed Development is mainly influenced by the A1, A167 and Lodge Lane.

5.4 Local Air Quality

5.4.1 The Environment Act 2021 [1] requires local authorities to review and assess air quality with respect to the objectives for pollutants specified in the National Air Quality Strategy. Where objectives are not predicted to be met, local authorities must declare the area as an AQMA. In addition, local authorities are required to produce an AQAP which outlines measures to improve air quality within the AQMA.

5.4.2 The Proposed Development is situated within the administrative boundaries of Darlington Borough Council, Stockton-on-Tees Borough Council and a small section within Durham County Council. There are no declared AQMAs within the Darlington area [31], or for Stockton-on-Tees.

5.4.3 Durham County Council declared an AQMA in Durham City due to elevated concentrations of NO₂ near to major roads, in excess of the annual mean air quality objective, and published the AQAP [23]. However, the effects of the Proposed Development upon the AQMA are unlikely to occur due to the distance (~20km north) from the Proposed Developed.

5.5 Local monitoring

5.5.1 There are no monitoring sites within 1 – 2km of the Proposed Development from Darlington and Durham, and the data from Stockton-on-Tees is unavailable at the time of writing.

5.6 Background concentrations

5.6.1 Background concentrations refer to the existing levels of pollution in the atmosphere, produced by a variety of stationary and non-stationary sources, such as roads and industrial processes. The Defra website [28] includes estimated background pollutant concentrations for NO₂, PM₁₀, and PM_{2.5} for each 1km by 1km OS grid square in the UK.

5.6.2 The current and future background pollutant concentrations are shown in Table 5-1. The values represent the average concentrations across the full area covered by the Proposed Development.

Table 5-1 Estimated background annual mean pollutant concentrations for the Proposed Development.

Year	Annual mean concentration (µg/m ³)			
	NO ₂	NO _x	PM ₁₀	PM _{2.5}
2023	▪ 6.5	▪ 8.3	▪ 11.3	▪ 6.4
2030	▪ 5.6	▪ 7.0	▪ 11.0	▪ 6.2

6 Construction Assessment

6.1 Construction dust

6.1.1 This section provides the results of the assessment of potential impacts from construction activities on air quality. The Proposed Development will require construction, earthworks and associated trackout (no demolition will take place for the Proposed Development).

Sensitive receptors

6.1.2 Sensitive receptors considered are defined in IAQM guidance [24], high sensitivity receptors include residential properties/schools/hospitals that are likely to experience a change in pollutant concentrations and/or dust nuisance due to the construction of a Proposed Development.

6.1.3 There are between 10 and 100 residential receptors within 20m of the Proposed Development. There are more than 100 residential receptors within 50m of the Proposed Development. Residential properties are considered ‘high sensitivity’ receptors in accordance with IAQM guidance. The full site area has been considered in the assessment with distances to receptors being taken from the site boundary rather than where works could occur as a conservative estimate.

6.1.4 Sensitive ecological receptors are defined as those sites whose features have been designated as sensitive to pollutants, either directly or indirectly. There are no ecological receptors within 50m of the Proposed Development. The nearest ecological receptor to the Proposed Development is a Site of Special Scientific Interest (SSSI) called Newton Ketton Meadow which is 200m south of the Proposed Development. Following the IAQM guidance [24], impacts on ecological receptors have therefore not been considered for this assessment due to their distance from the Proposed Development.

Dust emission magnitude

6.1.5 Each dust-generating activity has been assigned a dust emission magnitude. The dust emission magnitudes associated with construction of the Proposed Development are outlined in Table 6-1.

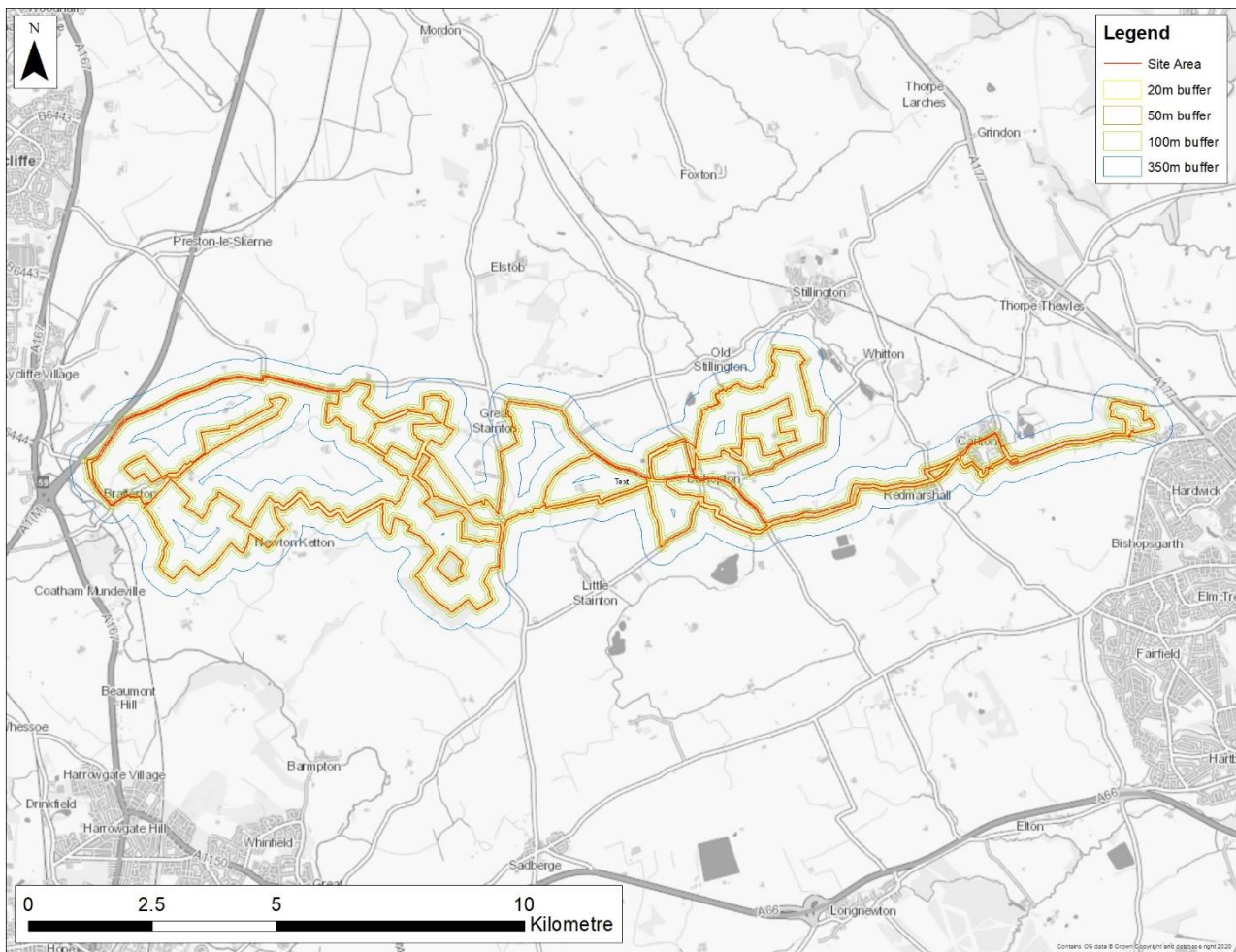
Table 6-1 Dust emission magnitude for construction activities at the Proposed Development

Activity	Dust emission magnitude	Reasoning Response
Demolition	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> No demolition works are taking place.
Earthworks	<ul style="list-style-type: none"> Large 	<ul style="list-style-type: none"> Total site area >10,000m², involving access roads, inverters / battery containers, substation, cable trenches. Soil type is unknown. Total volume of material to be moved estimated as 20,000 – 100,000 tonnes. The number of heavy-earth moving vehicles active at any one time is not yet known, but will be updated at a later project stage. No bunds will be created.
Construction	<ul style="list-style-type: none"> Medium 	<ul style="list-style-type: none"> No buildings will be constructed. The nature of construction activity will include piling, and the potentially dusty construction material of concrete batching (which will be low volume, to create pads for containers and substations).
Trackout	<ul style="list-style-type: none"> Large 	<ul style="list-style-type: none"> Estimated daily Heavy Goods Vehicles (HGV) trips to/from the Proposed Development is 6 movements for 50MW, 44 to and from movements a day for 180MW Potentially dusty surface The access track for construction length is type 1 aggregate compacted.

Sensitivity of the Area

- 6.1.6 There are between 10 – 100 high sensitivity receptors within 20m of the Proposed Development. As such, the areas sensitivity to dust soiling has been classified as *high* in accordance to the IAQM guidance.
- 6.1.7 The Proposed Development is located where the average Defra PM₁₀ background concentration is 11.3µg/m³.
- 6.1.8 The construction dust buffers are presented in Plate 2.

Plate 2 Construction dust buffers



Risk of Impacts

6.1.9 Taking into consideration the dust emission magnitude and the sensitivity of the area, the risk of impacts has been classified and presented on Table 6-2. The risk of potential dust soiling impacts ranges from medium to high, while the risk to human health impacts is predicted to be low risk.

Table 6-2 Summary dust risk table prior to mitigation for the Proposed Development

Activity	Dust soiling	Human health
Demolition	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> No demolition works are taking place.
Earthworks	<ul style="list-style-type: none"> High risk 	<ul style="list-style-type: none"> Low risk
Construction	<ul style="list-style-type: none"> Medium risk 	<ul style="list-style-type: none"> Low risk
Trackout	<ul style="list-style-type: none"> High risk 	<ul style="list-style-type: none"> Low risk

6.1.10 Specific mitigation to minimise the risk of dust soiling and human health impacts from the Proposed Development is described in section 7.

6.1.11 Following the implementation of appropriate mitigation, the potential impacts of dust soiling and potential impacts on human health should be negligible and therefore no significant effects are considered to be likely.

7 Mitigation

7.1 Construction dust

7.1.1 The dust emitting activities can be greatly reduced or eliminated by applying the site-specific mitigation measures. As a *high risk* has been determined for construction and trackout activities, the relevant high risk measures have been provided for this construction activity according to the IAQM guidance [24].

General

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on the Proposed Development.
- Display the name and contact details of the 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, which will measure to control other emissions, approved by the local authority.

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, both on- or off-site and the action(s) taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high risk construction sites within 500 m of the Site Area, to ensure all 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 on-site and off-site inspection, where receptors (including rads) 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 window sills within 100 m of the Proposed Development, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the Dust Management Plan, 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 PM₁₀ continuous monitoring locations, if necessary, 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.

Site maintenance

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as practical or possible.
- Erect solid screens or barriers around dusty activities or the Site Area that are at least as high as any stockpiles on the Proposed Development.
- 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.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all on-road vehicles comply with the requirements of London Low Emission Zone and the London NRMM standards, where applicable.
- 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.
- Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on un-surfaced 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).

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction.
- 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 the 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.

Waste management

- Avoid bonfires and burning of waste materials.

7.2 Measures specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers 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.

7.3 Measures specific to Construction

- Ensure sand and other aggregates 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.

7.4 Measures specific to 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 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 log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowses and regularly cleaned.
- Implement a wheel washing system.

- Ensure there is adequate area of hard surfaced road between the wheel wash facility and the Proposed Development exit, wherever the Proposed Development size and layout permits.
- Access gates to be located at least 10m from receptors where possible.

8 Conclusions

- 8.1.1 This report presents the construction dust assessment for the Proposed Development as part of the PEIR.
- 8.1.2 A review of the current legislation, planning policy and a baseline assessment describing the current air quality conditions in the vicinity of the Proposed Development has been carried out. The Proposed Development is not considered to contradict policy or legislation relating to air quality.
- 8.1.3 A baseline assessment has been carried out to review the air quality conditions in the vicinity of the Proposed Development.
- 8.1.4 Construction dust impacts have been considered and assessed using the qualitative approach described in the latest IAQM guidance [24]. It has been concluded that with the appropriate best practice mitigation measures suitable for medium risk sites in place, there is likely to be a negligible effect on existing receptors from the dust-generating activities on the Proposed Development.
- 8.1.5 Overall, it is considered that air quality and construction dust should not be a material consideration in relation to the Proposed Development.

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