

# Bramford to Twinstead Reinforcement

Volume 7: Other Documents

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## Version History

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| April 2023    | A     | Final  | For DCO submission  |
| October 2023  | B     | Final  | Update in response to Action Point 20 in Action Points from Issue Specific Hearing 14 September 2023 [EV-018] and other updates identified in responses received at Deadline 1 and 2. |
| December 2023 | C     | Final  | Update in response to comments received at Deadline 4 and 5.  |
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# Contents

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|           |  |           |
|-----------|--|-----------|
| <b>1.</b> | <b>Introduction</b>                            | <b>1</b>  |
| 1.1       | Summary  | 1         |
| 1.2       | Project Overview                               | 1         |
| 1.3       | Purpose of the CEMP                            | 2         |
| 1.4       | Structure of the CEMP                          | 3         |
| <b>2.</b> | <b>Project Description</b>                     | <b>5</b>  |
| 2.1       | Project Commitments                            | 5         |
| 2.2       | Construction Schedule                          | 5         |
| 2.3       | Working Hours                                  | 6         |
| 2.4       | Procedure for Identifying the Final Alignment  | 7         |
| 2.5       | Consents, Licences and Permits                 | 7         |
| <b>3.</b> | <b>Project Team Roles and Responsibilities</b> | <b>10</b> |
| 3.1       | Environmental Management Systems               | 10        |
| 3.2       | Project Responsibilities                       | 10        |
| 3.3       | Information Training and Awareness             | 11        |
| 3.4       | Community Engagement and Public Information    | 11        |
| 3.5       | Emergency Procedures                           | 12        |
| <b>4.</b> | <b>Construction Methodology</b>                | <b>13</b> |
| 4.1       | Introduction                                   | 13        |
| 4.2       | Mobilisation and Site Set Up                   | 13        |
| 4.3       | GSP Substation                                 | 16        |
| 4.4       | Overhead Line Removal                          | 17        |
| 4.5       | New Overhead Transmission Line                 | 18        |
| 4.6       | Underground Cable Installation                 | 18        |
| 4.7       | Reinstatement                                  | 20        |
| <b>5.</b> | <b>Engagement on the CEMP</b>                  | <b>22</b> |
| 5.1       | Introduction                                   | 22        |
| 5.2       | Engagement                                     | 22        |
| 5.3       | Feedback on the CEMP                           | 22        |
| <b>6.</b> | <b>Landscape and Visual</b>                    | <b>28</b> |
| 6.1       | Introduction                                   | 28        |
| 6.2       | Management Measures                            | 28        |
| 6.3       | Implementation of Measures                     | 28        |

|            |                                   |           |
|------------|-----------------------------------|-----------|
| 6.4        | Lighting Planning and Preparation | 28        |
| <b>7.</b>  | <b>Biodiversity</b>               | <b>30</b> |
| 7.1        | Introduction                      | 30        |
| 7.2        | Management Measures               | 30        |
| 7.3        | Implementation of Measures        | 30        |
| <b>8.</b>  | <b>Historic Environment</b>       | <b>31</b> |
| 8.1        | Introduction                      | 31        |
| 8.2        | Management Measures               | 31        |
| 8.3        | Implementation of Measures        | 31        |
| <b>9.</b>  | <b>Water Environment</b>          | <b>32</b> |
| 9.1        | Introduction                      | 32        |
| 9.2        | Management Measures               | 32        |
| 9.3        | Implementation of Measures        | 32        |
| <b>10.</b> | <b>Geology and Hydrogeology</b>   | <b>39</b> |
| 10.1       | Introduction                      | 39        |
| 10.2       | Management Measures               | 39        |
| 10.3       | Implementation of Measures        | 39        |
| <b>11.</b> | <b>Agriculture and Soil</b>       | <b>43</b> |
| 11.1       | Introduction                      | 43        |
| 11.2       | Management Measures               | 43        |
| 11.3       | Implementation of Measures        | 43        |
| <b>12.</b> | <b>Traffic and Transport</b>      | <b>49</b> |
| 12.1       | Introduction                      | 49        |
| 12.2       | Management Measures               | 49        |
| 12.3       | Implementation of Measures        | 49        |
| <b>13.</b> | <b>Air Quality</b>                | <b>50</b> |
| 13.1       | Introduction                      | 50        |
| 13.2       | Management Measures               | 50        |
| 13.3       | Implementation of Measures        | 50        |
| <b>14.</b> | <b>Noise and Vibration</b>        | <b>52</b> |
| 14.1       | Introduction                      | 52        |
| 14.2       | Management Measures               | 52        |
| 14.3       | Implementation of Measures        | 52        |
| 14.4       | Section 61 Consent                | 55        |

|            |                            |           |
|------------|----------------------------|-----------|
| <b>15.</b> | <b>Implementation</b>      | <b>57</b> |
| 15.1       | Implementation of the CEMP | 57        |
| 15.2       | Site Checks and Reporting  | 57        |
| 15.3       | Non-Compliance Procedure   | 59        |
| 15.4       | Complaints Procedure       | 60        |
| 15.5       | Change Process             | 60        |
|            | <b>References</b>          | <b>62</b> |

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|   |    |
|---|----|
| Table 1.1 – Structure of the CEMP                                   | 3  |
| Table 2.1 – Potential Consents, Licences and Permits                | 8  |
| Table 3.1 – Overall Roles and Responsibilities Relevant to the CEMP | 10 |
| Table 4.1 – Temporary Construction Compounds                        | 14 |
| Table 5.1 – Feedback Received on the Draft CEMP                     | 22 |
| Table 5.2 – Feedback Received on the Draft CoCP                     | 26 |
| Table 15.1 – Site Checks Relevant to the CEMP                       | 57 |

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# 1. Introduction

## 1.1 Summary

- 1.1.1 National Grid Electricity Transmission plc (here on referred to as National Grid) has produced an application for an order granting development consent to reinforce the transmission network between the existing Bramford Substation in Suffolk, and Twinstead Tee in Essex ('the project'). This will be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km. The project meets the threshold as a Nationally Significant Infrastructure Project (NSIP), as defined under Part 3 of the Planning Act 2008, hence National Grid requires a development consent order (DCO).
- 1.1.2 This Construction Environmental Management Plan (CEMP) sets out site-specific measures and construction methodologies that are required to help avoid or reduce potential effects of the project on the environment during construction. The CEMP is based on the project detail as submitted with the application for development consent and also takes into account feedback received on a consultation draft of the CEMP issued to relevant organisations in autumn 2022 (see Chapter 5 for details). It is recognised that there may be minor refinements through the examination process as part of the application for development consent.
- 1.1.3 This CEMP should be read alongside the Environmental Statement (ES) (**application document 6.2**), which describes the existing baseline conditions, the environmental impact assessment (EIA) and sets out mitigation measures for the respective ES topics.

## 1.2 Project Overview

- 1.2.1 The reinforcement will comprise up to approximately 18km of overhead line (consisting of approximately 50 new pylons, and conductors) and 11km of underground cable system (with associated joint bays and above ground link pillars).
- 1.2.2 Four cable sealing end (CSE) compounds will be required to facilitate the transition between the overhead and underground cable technology. The CSE will be within a fenced compound, and contain electrical equipment, support structures, control building and a permanent access track.
- 1.2.3 Approximately 27km of existing overhead line and associated pylons will be removed as part of the proposals (25km of existing 132kV overhead line between Burstall Bridge and Twinstead Tee, and 2km of the existing 400kV overhead line to the south of Twinstead Tee). To facilitate the overhead line removal, a new grid supply point (GSP) substation is required at Butler's Wood, east of Wickham St Paul, in Essex. The GSP substation would include associated works, including replacement pylons, a single circuit sealing end compound and underground cables to tie the substation into the existing 400kV and 132kV networks.
- 1.2.4 Some aspects of the project, such as the underground sections and the GSP substation, constitute 'associated development' under the Planning Act 2008.
- 1.2.5 Other ancillary activities will be required to facilitate construction and operation of the project, including (but not limited to):
- Modifications to, and realignment of sections of the existing overhead lines, including pylons;

- Temporary land to facilitate construction activities including temporary amendments to the public highway, public rights of way (PRoW), working areas for construction equipment and machinery, site offices, welfare, storage and access;
- Temporary infrastructure to facilitate construction activities such as amendments to the highway, pylons and overhead line diversions, scaffolding to safeguard existing crossings and watercourse crossings;
- Diversion of third-party assets and land drainage from the construction and operational footprint; and
- Land required for mitigation, compensation and enhancement of the environment as a result of the environmental assessment process, and National Grid's commitments to Biodiversity Net Gain.

1.2.6 The development authorised by the DCO must be undertaken in accordance with this CEMP, pursuant to Requirement 4 of the draft DCO (**application document 3.1**). This includes any works undertaken pursuant to the DCO whether this is undertaken by National Grid, UK Power Networks (UKPN) and any appointed contractors appointed by these organisations.

1.2.7 This document refers to 'the contractor' when referring to any organisation responsible for constructing components of the project (including removal of the 132kV overhead line).

1.2.8 National Grid and their contractor will carry out all work in accordance with the CEMP during the construction of the project unless otherwise agreed with the relevant planning authority.

## 1.3 Purpose of the CEMP

1.3.1 The purpose of the CEMP is to set out how environmental management will be undertaken on the project during construction. The contractor will be responsible for implementing the measures outlined within the CEMP and associated management plans. The objectives of the CEMP are to:

- Provide a mechanism for the delivery of environmental measures (other than those which will be secured through specific requirements of the DCO), to avoid, reduce or compensate for environmental effects identified in the ES;
- Demonstrate compliance with legislation and identifying where it will be necessary to obtain authorisation from relevant statutory bodies;
- Provide a framework for compliance auditing and inspection of agreed environmental aims to check that the aims are met; and
- Provide a prompt response to any non-compliance with legislative and DCO requirements, including reporting, remediation and any additional mitigation measures required to prevent a recurrence.

1.3.2 The project as submitted with the application for development consent includes environmental commitments under the following categories:

- Good practice measures: standard approaches and actions to be implemented on construction sites, intended to protect the environment. These may be general or topic-specific and are typically applicable across the whole project. The good practice measures are provided in full in CEMP Appendix A: Code of Construction Practice (CoCP) (**application document 7.5.1**);

- Embedded measures: those that are intrinsic to and built into the design of the project, some of which are inherent to the draft DCO (**application document 3.1**) and / or shown on the Works Plans (**application document 2.5**). It also includes measures that have been identified through the environmental assessment as part of the iterative design and have been committed to as part of the application of the mitigation hierarchy, to avoid or reduce likely significant environmental effects to support a proportionate assessment. These are set out in CEMP Appendix B: Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**); and
- Additional mitigation: any additional project-specific measures that have been identified during the EIA process as being necessary to avoid or reduce significant impacts on the environment. These can be found in CEMP Appendix B: REAC (**application document 7.5.2**).

1.3.3 The CEMP (**application document 7.5**) brings together the various commitments and measures identified for the construction phase of the project for the different topics including water environment, soil, noise and air quality. These are brought together into one place to avoid the overlap and duplication of measures created by producing individual and separate management plans. This comprehensive document also makes it easier to track that the different measures are being implemented across the project. For clarity, and in response to feedback from third parties, National Grid has noted at the start of each topic chapter that the contents of the said chapter provide the function of a standalone management plan.

1.3.4 The CEMP (**application document 7.5**) and its appendices provide a securing mechanism for all environmental commitments (refer to paragraph 1.3.2) made on the project. Construction phase measures are also secured by one of the following three management plans which are all secured through Requirement 4 in the draft DCO (**application document 3.1**):

- Construction Traffic Management Plan (CTMP) (**application document 7.6**): measures to manage construction traffic and impacts on the wider traffic network;
- Material and Waste Management Plan (MWMP) (**application document 7.7**): measures to reduce consumption of raw materials and reduce waste; and
- Landscape and Ecological Management Plan (LEMP) (**application document 7.8**): measures to manage effects on landscape and ecology.

1.3.5 The above plans are referenced in the CEMP where appropriate.

1.3.6 The CEMP does not duplicate the measures set out within the relevant European Protected Species (EPS) Licences or actions required to comply with any permits or licences applied for on the project.

## 1.4 Structure of the CEMP

1.4.1 The CEMP structure is set out in Table 1.1.

Table 1.1 – Structure of the CEMP

| Chapter/Appendix       | Content  |
|------------------------|--|
| 1. Introduction        | This sets out the purpose of the CEMP and how it is structured.  |
| 2. Project Description | This describes the features of the project, the project commitments from the CoCP and other documents. This also sets out the work that has been done to |



| Chapter/Appendix                           | Content   |
|--|---|
|  | date to inform the CEMP and that will continue to happen during detailed design and pre-construction.   |
| 3. Project Team Roles and Responsibilities | This sets out the roles and responsibilities relevant to the CEMP and the training and awareness that will be completed.  |
| 4. Construction Methodology                | This section describes the general methodology that will be used during construction  |
| 5. Engagement on the CEMP                  | The CEMP was issued to relevant consultees for comment in autumn 2022. This section summarises the comments received and how these were considered when developing the final CEMP.  |
| 6-14. Topic Chapters                       | Chapters 6 to 14 are structured as per the environmental topic chapters of the ES ( <b>application document 6.2</b> ). This is to aid cross reference between the assessment and the management measures listed within the CEMP. Each chapter commences with a succinct summary of where relevant construction-phase measures are contained and then set out any additional information in relation to implementation of identified measures. |
| 15. Implementation                         | This explains procedures in relation to site checks and reporting and how Material or Non-material change would be managed, if change were necessary to implement the project.  |
| Appendix A: CoCP                           | This contains the good practice measures set out on the project.  |
| Appendix B: REAC                           | This contains the embedded measure committed to on the project and also the additional mitigation identified to reduce or avoid significant effects.  |

## 2. Project Description

### 2.1 Project Commitments

2.1.1 The project design is the result of a process of iterative design development that was introduced at project inception. Environmental considerations have had a key influence on the project, with knowledge gained through the EIA process, input from the project team (including the results of site surveys) and discussions with interested parties (such as landowners, relevant planning authorities and regulators).

2.1.2 As explained in Chapter 1, the project incorporates environmental considerations through measures embedded in the design, good practice (general measures and topic-specific) measures and mitigation measures identified in the ES (**application document 6.2**). For ease of reference these have been assigned a reference number:

- Embedded measures are given a prefix of EM then the relevant geographical section e.g. AB: Bramford Substation/Hintlesham, followed by a unique number for example EM-AB01 is the first embedded measure identified in Section AB: Bramford Substation/Hintlesham;
- Good practice measures are given a unique reference number based on the aspect. For example, general good practice measures are identified with a GG prefix, whereas the topic-specific ones are given a prefix based on the topic initials for example landscape and visual measures are referenced as LV01, LV02 etc; and
- Additional mitigation measures are given a prefix of EIA, followed by the topic initials and a unique reference number, for example EIA\_B01 would be a measure identified in the biodiversity assessment to offset a significant effect.

2.1.3 These references are used throughout this CEMP.

### 2.2 Construction Schedule

2.2.1 In common with other NSIP, the eventual detailed construction programme will be subject to change from factors such as procurement, system access requirements (outages), resource and material availability, weather and ground conditions and in the case of the project, whether the GSP substation is constructed pursuant to the separate Town and Country Planning Act (TCPA) application. National Grid obtained planning permission for the GSP substation under the TCPA in October 2022 (planning reference 22/01147/FUL).

2.2.2 Advance works may also take place prior to development consent, where consented under alternative regimes. Any such early works would be controlled under the terms of the relevant planning permission and would not relate to development that can only be carried out under a DCO.

2.2.3 The construction schedule will be included within the Stage Plan submitted to the relevant planning authorities in accordance with Requirement 3 of the draft DCO (**application document 3.1**) prior to commencement.

2.2.4 The CEMP applies to both of the two construction schedule scenarios provided within ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**):

- The baseline construction schedule: This assumes that the GSP substation is constructed in advance of DCO consent, via a separate planning permission under the TCPA. Under this scenario it is assumed that the project would be operational by late 2028.

- The alternative scenario: This assumes that the GSP substation is constructed under the DCO. Under this scenario the project it is assumed that the project would be operational by the end of 2028 (subject to securing appropriate system access to undertake outage-related works).

2.2.5 Construction activities will be sequenced and of a transient nature given the linear construction site. There will be a number of construction work fronts working at the same time during removal of the 132kV overhead line and during construction of the new overhead transmission line and underground cable. This will reduce the overall construction programme and will help with project efficiencies such as delivery of goods to site.

2.2.6 Due to the nature of the works, and as some aspects need to take place during agreed outage windows, there may be periods of time where works do not take place within a particular geographical area. In addition, some temporary access routes and temporary fencing will need to remain on site until after testing has been completed to allow any snagging matters to be addressed before reinstatement takes place. The schedule of works will be communicated with each landowner, and they will be updated with any amendments to the schedule during construction.

2.2.7 The final construction schedule will take into account timings relevant to the EIA, for example vegetation with the potential to support breeding birds will be programmed to be removed outside of breeding bird season (March to August inclusive) where practicable. If any works become necessary during the breeding bird season, works will be checked by an ecologist prior to removal (B02) and other seasonal restrictions set out within the ES or relevant EPS licence.

## 2.3 Working Hours

2.3.1 Working hours will be in accordance with Requirement 7 in the draft DCO (**application document 3.1**):

*(1) Subject to sub-paragraphs (2) and (3), work may only take place between 0700 and 1900 Monday to Friday and between 0800 and 1700 on Saturdays, Sundays and Bank Holidays (the core working hours), unless otherwise approved by the relevant planning authority.*

*(2) The following operations may take place outside the core working hours referred to in sub-paragraph (1)—*

- (a) trenchless crossing operations including beneath highways, railway lines, woodlands or watercourses;*
- (b) the installation and removal of conductors, pilot wires and associated protective netting across highways, railway lines or watercourses;*
- (c) the jointing of underground cables (save for the cutting of underground cables);*
- (d) the completion of operations commenced during the core working hours which cannot safely be stopped;*
- (e) any highway works requested by the highway authority to be undertaken on a Saturday, Sunday or a Bank Holiday or outside the core working hours;*
- (f) the testing or commissioning of any electrical plant installed as part of the authorised development;*
- (g) the completion of works delayed or held up by severe weather conditions which disrupted or interrupted normal construction activities;*

- (h) activity necessary in the instance of an emergency where there is a risk to persons or property;
- (i) security monitoring; and
- (j) surveys.

(3) The core working hours referred to in sub-paragraph (1) exclude start up and close down activities up to 1 hour either side of the core working hours.

2.3.2 A period of one hour may be used either side of the core construction working hours at the start and end of each day to include activities such as job start meetings, toolbox talks, safety briefings, training, refuelling plant and equipment, setting up of material and equipment, installation of traffic management systems, and general housekeeping measures. These start-up and shut-down activities will not involve the operation of construction plant and equipment to limit the amount of noise and light emissions.

## 2.4 Procedure for Identifying the Final Alignment

2.4.1 The Order Limits delineate the extent of the project for which development consent is being sought; and encompass the land required temporarily to build the project and permanently to operate the project. The Order Limits include the Limits of Deviation (LoD), which represent the maximum deviation for permanent infrastructure. The LoD allow for adjustment to the final positioning of project features to avoid localised constraints or unknown or unforeseeable issues that may arise.

2.4.2 Subject to the grant of the DCO, the designs will continue to evolve and be refined within the parameters set by the LoD, as shown on the Works Plans (**application document 2.5**). National Grid will employ environmental specialists (including but not limited to ecologists, archaeologists and landscape architects) to advise on the design refinements and the micro-siting of project components within the LoD. The Final Alignment will also be informed by the results of pre-construction surveys and consultation with the landowners.

2.4.3 The CEMP is based on the Proposed Alignment shown on the General Arrangement Plans (**application document 2.10**) and potential changes that could be anticipated through application of the LoD. If the Final Alignment requires changes to the CEMP, these would be addressed through the change process documented in Section 15.5.

## 2.5 Consents, Licences and Permits

2.5.1 The project will be run in compliance with all relevant legislation, consents and permits in accordance with good practice measure GG01. The licences and consents currently identified as being relevant to the project are listed in Table 2.1.

2.5.2 In addition to the consents, licences and permits in Table 2.1, National Grid will also notify the Environment Agency at least one month prior to activities that affect the 'Navigation Envelope' of the River Stour and that the notification will contain sufficient information to enable the Environment Agency to understand the necessity of the closure and will include details regarding the nature of the works, duration and positioning of equipment structures within the river channel such as safety boats and buoys.

Table 2.1 – Potential Consents, Licences and Permits

| Consent Type   | Consenting Agency                   | Expected Locations   |
|--|-------------------------------------|--|
| Conservation of Habitats and Species Regulations 2017<br>EPS Licence for bats and dormouse | Natural England                     | Where protected species have been identified in the pre-construction surveys. Further licences may be required should additional protected species be identified prior to or during construction.  |
| Protection of Badgers Act 1992 Badger Licence  | Natural England                     | Where badgers have been identified in the pre-construction surveys.  |
| Environmental Permitting Regulations 2016 Flood Risk Activities                            | Environment Agency                  | National Grid will apply for Flood Risk Activity Permits (FRAP) for works to main rivers. Applications will be submitted to the Environment Agency for all activities in, over, under or within 8m of a main river.  |
| Flood and Water Management Act 2010  | Lead Local Flood Authorities (LLFA) | National Grid will apply for Ordinary Watercourse Consents from the LLFA at Suffolk and Essex County Councils for works to ordinary watercourses where works have the potential to impede flow.  |
| Land Drainage Act 1991   | Internal Drainage Board (IDB)       | Assume none, as no works anticipated to the IDB network. However, National Grid will apply for any permits required in accordance with good practice measure GG01 in the CoCP ( <b>application document 7.5.1</b> ).   |
| Environmental Permitting Regulations - Discharge to controlled waters                      | Environment Agency                  | <p>Permits relating to dewatering (abstraction) may be required on the project. If the abstracted groundwater is discharged immediately to soakaway, the abstraction will be exempt from an abstraction license. If the water is not immediately discharged to a soakaway, it will be exempt when the abstraction is less than 100 m<sup>3</sup>/d and located more than 500m from a designated site or 250m from a spring, well or borehole or when the abstraction is less than 50 m<sup>3</sup>/d and located less than 500m from a designated site or 250m from a spring, well or borehole. In all other cases, a license will be required.</p> <p>The discharge will be exempt from a discharge permit if it is a groundwater discharge where the water quality meets the Drinking Water Standards and is of less than 30 days duration. It will also be exempt if it is a surface water discharge of clean water, without suspended solids, and is for a duration of less than three months. Removing rainwater from excavations does not require a permit. At the present time, a permit is only anticipated for the River Stour and River Box crossing.</p> <p>No discharges or abstractions are anticipated during operation. However, National Grid will apply for any permits required in accordance with good practice measure GG01 in the CoCP (<b>application document 7.5.1</b>).</p> |

| Consent Type                                 | Consenting Agency             | Expected Locations  |
|--|-------------------------------|---|
| Water Industry Act 1991 – Discharge to sewer | Statutory Undertaker          | Assume none. The Water Industry Act 1991 regulates the water and sewerage industry. One of the provisions of the act is that no discharge of trade effluent through a large pipe (more than 229mm in diameter) shall be made into a watercourse without the consent of the appropriate agency and any navigation authority. No such discharges will be generated by the project during construction or operation. The Act also requires the consent of the sewerage undertaker to be secured before discharging any trade effluent into the public sewers. The main site compound and satellite compounds foul water will be treated using suitable technology, for example, biodigesters, and/or taken away by tankers as waste. |
| Control of Pollution Act (CoPA) 1974         | Relevant planning authorities | Initial locations where additional noise measures may be required have been identified in ES Chapter 14: Noise and Vibration ( <b>application document 6.2.14</b> ). The contractor would apply for Section 61 consents where required under CoPA 1974.   |

# 3. Project Team Roles and Responsibilities

## 3.1 Environmental Management Systems

- 3.1.1 National Grid will implement management processes and briefings so that the works are carried out in accordance with current legislation and guidance. This will be achieved by application of well-established work processes that apply the recognised British Standard (BS) EN ISO 14001:2015 or equivalent.
- 3.1.2 The contractor will have an Environmental Policy that meets the requirements of ISO 14001 or equivalent, through their internal Business Management System procedures. The policy statement will be displayed on the site notice boards, publicised to all site staff and operatives, and made available to interested parties upon request.

## 3.2 Project Responsibilities

- 3.2.1 The contractor will undertake the construction works in accordance with the DCO and its associated documents including this CEMP and its appendices. The relevant aspects of this CEMP will be notified to the workforce at commencement of works to highlight the relevant commitments and responsibilities to those undertaking the work.
- 3.2.2 Overall roles and responsibilities relevant to the CEMP are presented in Table 3.1. These roles may be delivered by multiple people across the project, who are designated with that specific responsibility, e.g. Environmental Clerk of Works (EnvCoW). The EnvCoW will also draw on the experience of the technical specialists, who will advise in specific areas, for example the arboriculturist will advise on working near trees.

Table 3.1 – Overall Roles and Responsibilities Relevant to the CEMP

| Role                         | Organisation  | Responsibilities  |
|------------------------------|---------------|---|
| Environmental Manager        | Contractor    | The Environmental Manager will be responsible for the maintenance of all environmental plans and registers, including monitoring that the environmental measures and mitigations are implemented on site and as recorded within the CEMP. They will be the main point of contact for all environmental matters on the project. They will oversee ecological pre-construction surveys. They will also develop good working relationships with external stakeholders such as the Environment Agency, Natural England and the relevant planning authorities. |
| EnvCoW                       | National Grid | The EnvCoW will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required mitigation measures. The EnvCoW will be supported by appropriate technical specialist advisors depending on the location and potential impacts.  |
| Permits and Consents Manager | Contractor    | The Permits and Consents Manager will work with the Environmental Manager to draft and submit permits and consents on behalf of the project, track the progress, provide updates and communicate approvals.   |
| Works Supervisor             | Contractor    | The Works Supervisor will be responsible for delivering the site works in accordance with the requirements of the CEMP and implementing good environmental practices required by the Environmental Manager. They are responsible for managing operatives, plant and their areas of work in accordance with the principles of good environmental practice.   |

| <b>Role</b>                   | <b>Organisation</b>        | <b>Responsibilities</b>   |
|-------------------------------|----------------------------|---|
| Land Officer                  | Contractor                 | The Land Officer will have an agricultural background and experience of working with utility companies. They will provide a single point of contact for both the Contractor and the landowner/occupier of the land. They will be responsible for delivering site access in line with pre-agreed timescales, help facilitate the dialogue between the Contractor and the landowner/occupier as necessary and will be the first point of contact for any issues escalated by the landowner/occupier or the Contractor. They will be responsible for witnessing and agreeing all land condition surveys carried out by the Contractor. |
| Technical specialist advisors | Contractor / National Grid | These will have the relevant experience to supervise the relevant aspects of the works, which might include an arboriculturist, land contamination specialist, soil specialist, ecologist, archaeologist.   |

### 3.3 Information Training and Awareness

3.3.1 In accordance with good practice measure GG05, all staff and operatives working on the project will undergo a site-specific induction, which will include the following environmental topics:

- Ecology: working in or adjacent to protected sites and priority habitats, protected species, management, mitigation and controls;
- Water management: legislation, agreed buffer zones, control mechanisms. Flood risks and emergency response procedures;
- Waste management: legislation, segregation, contamination, best practice;
- Nuisance: dust, behaviour, noise, vibration, management and controls;
- Working around trees: tree and root protection;
- Contaminated land: recognising and dealing with contaminated material; Spill and emergency response; and
- Vigilance to identifying security concerns and risks.

3.3.2 Regular environmental toolbox talks will be provided by the contractor for all staff. These will give targeted information about site-specific issues or activities taking place at that time.

### 3.4 Community Engagement and Public Information

3.4.1 The contractor will implement a system for the provision of information to local residents and occupiers about the works. A community relations team will be appointed to provide dedicated community relations and external communication support during construction. The information to be provided to local residents will be specific to the works to be carried out, describing the nature of the works, the location and extent of the works, the duration of works and the hours to be worked.

3.4.2 Local residents will be informed of the commencement and likely duration of the construction work activities through a letter drop. The letter(s) will be tailored to a specific area and reflects the works to be carried out and the duration of works. The letter will include a contact telephone number for public information. In addition, good practice measure GG09 states that an emergency number will also be displayed at the entrance to the compounds.



- 3.4.3 The name and contact details for the project will be displayed at the entrance to the main site compound. This will include an emergency telephone number. In addition, details of the works, including contact details, will be provided to the relevant community groups, such as the local parish councils and landowners before work commences.
- 3.4.4 A free telephone project helpline and project website will be maintained and managed by the National Grid community relations team. The project helpline and website information will be visible on boards placed in appropriate locations where they will be visible to the public, including the main site compound. The telephone number and project website details will be provided to the local authorities and other relevant parties.
- 3.4.5 The community relations team will record the details of any complaints and how these are to be investigated and appropriately managed. Further details about the complaints procedure can be found in Section 15.4 of the CEMP.

## **3.5 Emergency Procedures**

- 3.5.1 National Grid has the following processes in relation to an emergency incident during construction. The primary objectives in responding to any incident are as follows:
- Preserve and protect life;
  - Prevent or mitigate damage to the environment; and
  - Prevent or mitigate losses to property.
- 3.5.2 The contractor will also work with emergency services during construction planning.
- 3.5.3 In accordance with good practice measure GG22, the contractor will develop an Emergency Action Plan that will set out the specific incident response procedures. This will detail the roles and responsibilities aligned with the delivery strategy for construction. Details and close out actions of incidents that have been reported to the relevant planning authorities will be provided as soon as practicable.
- 3.5.4 Relevant organisations will be contacted as part of the incident response, these include but are not limited to the Environment Agency, relevant planning authorities, Natural England, gas/water/electricity providers and the relevant emergency services. Any incident will be notified to the relevant planning authority as soon as practicable.
- 3.5.5 Further details relating to flood and pollution incidents are outlined in Chapter 9: Water Environment of the CEMP.

# 4. Construction Methodology

## 4.1 Introduction

- 4.1.1 This section describes the general methodology that is anticipated to be used during construction. The text that follows is provided to give a general description of the proposed construction activities and assumed phasing. As set out in Requirement 3 of the draft DCO (**application document 3.1**), *‘the authorised development may not commence until a written scheme setting out all stages of the authorised development has been submitted to the relevant planning authority’*.
- 4.1.2 This section is split into the project components comprising:
- Mobilisation and site set up;
  - GSP Substation;
  - Overhead line removal;
  - New overhead transmission line;
  - Underground cable installation; and
  - Reinstatement.
- 4.1.3 Details about vegetation retention and removal are set out within the LEMP (**application document 7.8**).

## 4.2 Mobilisation and Site Set Up

### General Principles

- 4.2.1 In accordance with good practice measure GG06, a full record of condition will be carried out (photographic and descriptive) prior to the commencement of construction. This will include the site and surrounding areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to demonstrate that the standard of reinstatement at least meets that recorded in the pre-condition survey or as set out in the LEMP (**application document 7.8**).
- 4.2.2 All necessary early environmental and ecological mitigation works will be carried out in accordance with the commitments laid out in this CEMP, the CoCP (**application document 7.5.1**), the LEMP (**application document 7.8**) and the relevant EPS licences, unless agreed with the relevant authority otherwise.
- 4.2.3 Vegetation will need to be removed during construction to facilitate the works. In accordance with LV01, the contractor will retain vegetation where practicable and in accordance with LEMP Appendix A Vegetation Retention and Removal Plan (**application document 7.8.1**). Where protected species licences are required, they will be applied for and approved by Natural England before construction activities commence.
- 4.2.4 In accordance with good practice measure B02, vegetation with the potential to support breeding birds will be programmed to be removed outside of breeding bird season (March to August inclusive) where practicable. If any vegetation clearance is required during the breeding bird season, vegetation will be checked by an ecologist for nesting birds prior to removal. Appropriate protection measures will be put in place should active nests be

found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ecologist.

- 4.2.5 Where required, working areas will be appropriately fenced to reduce the risk of site staff from unintentionally exiting the site boundary (GG24). The choice of fencing would be decided following a risk assessment, relevant to the work location. Specific areas such as the main site compound, may require additional security measures such as lighting, security guards or closed-circuit television depending on risk. For some locations, the fence used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Provision of additional fencing on a site-by-site basis will be used to reduce the potential for impacts on wildlife and trees. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified.

## Construction Compounds

- 4.2.6 There will be a main site compound adjacent to the A134, near Leavenheath. This will include the site offices, welfare facilities for construction site workers, parking for cars (including electric vehicles charging points), unloading and storage areas and cycle storage.
- 4.2.7 There will also be smaller satellite compounds, which will serve specific working areas, provide local welfare facilities for staff and provide points for delivery of materials to the working areas.
- 4.2.8 The locations of the temporary construction compounds are shown on the General Arrangement Plans (**application document 2.10**) and are detailed in Table 4.1.

**Table 4.1 – Temporary Construction Compounds**

| Ref | Location  | Grid Reference | Approx. Area | Purpose  |
|-----|---|----------------|--------------|--|
| 1   | Adjacent to Bramford Substation   | TM095457       | 0.5ha        | Serving the construction of overhead line works around Bramford Substation.  |
| 2   | Adjacent to Millwood Road   | TM001396       | 0.4ha        | Serving the construction of Dedham Vale East CSE compound. Assumed as part of the EIA that mains power connection will be required as this is required for the operational phase of the project. |
| 3   | South-west of River Box   | TL975382       | 0.4ha        | Serving the construction of the River Box trenchless crossing. Containing equipment and laydown areas for trenchless crossing methods.   |
| 4   | North-east of A134  | TL956379       | 0.4ha        | Serving the construction of Dedham Vale West CSE compound. Assumed mains power connection will be required as this is required for the operational phase of the project.                         |
| 5   | Adjacent to the A134  | TL948377       | 4.0ha        | Main site compound serving the construction of the whole project. Assumed mains power and mains potable water will be required.  |
| 6   | Adjacent to the Stour Valley East CSE compound (to the south-east of Workhouse Green) | TL905367       | 0.4ha        | Serving the construction of Stour Valley East CSE compound. Assumed mains power connection will be required as this is required for the operational phase of the project.                        |

| Ref | Location  | Grid Reference | Approx. Area | Purpose   |
|-----|---|----------------|--------------|---|
| 7   | Adjacent to B1508   | TL898368       | 0.7ha        | Serving the construction of the east side of the River Stour trenchless crossing. Containing equipment and laydown areas for trenchless crossing methods.                 |
| 8   | Adjacent to Henny Road  | TL887363       | 0.6ha        | Serving the construction of the west side of the Sudbury Branch Railway Line trenchless crossing. Containing equipment and laydown areas for trenchless crossing methods. |
| 9   | Adjacent to the Stour Valley West CSE compound (to the west of Alphasstone) | TL869351       | 0.4ha        | Serving the construction of Stour Valley West CSE compound. Assumed mains power connection is required as this is required for the operational phase of the project.      |
| 10  | GSP substation  | TL844371       | 3.1ha        | Serving the construction of the GSP substation work. Assumed mains power connection is required as this is required for the operational phase of the project.             |
| 11  | West of A131  | TL842365       | 0.1ha        | Serving the construction of the new underground cable connection from the GSP substation into the 132kV line.   |
| 12  | Off the temporary access route from the A131                                | TL862352       | 1.2ha        | Serving the construction of Stour Valley West CSE compound and the temporary access route from the A131.  |

4.2.9 In accordance with good practice measure GG10, any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or designated ecological sites where practicable.

4.2.10 In accordance with good practice measure GG11, the following site layout and housekeeping measures will be implemented by the contractor during the set-up of the temporary compounds:

- Preventing pests and vermin control, and treating any infestation promptly, including arrangements for the proper storage and disposal of waste produced on site;
- Inspecting and collecting any waste or litter found on site;
- Locating or designing site offices and welfare facilities to limit the overlooking of residential properties;
- Locating designated smoking/vaping areas to avoid nuisance to neighbours;
- Managing staff/vehicles entering or leaving site, especially at the beginning and end of the working day; and
- Managing potential off-site contractor and visitor parking.

4.2.11 Specific areas will be identified for the storage of materials and waste. These will be designed appropriate to what is being stored, for example flammable liquids such as diesel will be protected either by double-walled tanks or stored in a bunded area with a capacity of 110% of the maximum stored volume (GG14). Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Spill kits will be located nearby (GG14). Further details on waste management can be found in the MWMP (**application document 7.7**).

## Construction Routes, Access Points and Temporary Access Routes

4.2.12 Details regarding construction routes, access points and temporary access routes are set out within the CTMP (**application document 7.6**). These are not duplicated in this document.

### 4.3 GSP Substation

4.3.1 The GSP substation will be one of the first activities to commence, as it is required before the 132kV overhead line can be removed. The GSP substation includes two super grid transformers (SGT) to convert the voltage from 400kV to 132kV, for onward transmission and distribution to the local distribution network.

4.3.2 A single circuit sealing end compound will be required to the west of Waldegrave Wood. This will house a small number of high voltage plant equipment items in addition to a steel gantry to receive downloads from the replacement 400kV pylon. The GSP substation includes associated works, including replacement pylons and underground cables to tie the substation into the existing 400kV and 132kV networks.

4.3.3 Construction activity will begin with site preparation including setting up the temporary accommodation, parking and laydown area. The site will be made secure to prevent unauthorised access. The permanent access point (bellmouth) will be installed early during the construction to connect the GSP substation to the A131. This will include a gated entrance to secure the site during construction.

4.3.4 The initial preparatory works will require the temporary removal of the top layers of soil and laying a temporary stone capping to provide a clean and stable working platform. The topsoil and a layer of subsoil will be excavated within the footprint and this will be replaced with suitable imported granular fill to form the surface of the compound. A series of copper earth tapes will be installed below the ground to create an earth mat to distribute any electrical charge transferred to the ground by earthed equipment and infrastructure in the GSP substation.

4.3.5 Permanent foul, oily water, including below ground oil separator, and surface water drainage systems will be also installed. In addition, shallow concrete pad foundations and steel supports will be installed for the electrical equipment.

4.3.6 Reinforced concrete bunds will be installed for each SGT and will comprise a perimeter concrete wall, a base slab continuous with the wall and a central plinth for supporting the SGT. The bunds act as a secondary oil containment measure. The two SGT will be transported to site as Abnormal Indivisible Loads and installed within the bunds.

4.3.7 Once the equipment is installed, commissioning tests will be undertaken to check that the individual items of plant and the system as a whole works as required. Following successful testing, the substation will be connected to the electricity transmission system ready for operation.

4.3.8 A number of associated works will be required to facilitate operation of the proposed GSP substation. The construction of these works will involve the following:

- An existing 400kV pylon to the south-west of the proposed GSP substation will be removed and replaced by a new 400kV pylon to the west of the existing pylon. Downloads would be installed on the replacement pylon to connect it to the proposed 400kV single circuit sealing end compound. These works will require a temporary overhead line diversion to be installed on the 400kV overhead line during

construction, requiring the building of temporary foundations and pylons to the north of the existing overhead line. A crane will be used to build the new pylon, which will be built in sections on new foundations. Once the work is completed, the temporary works will be removed;

- A proposed 400kV underground cable will be installed connecting the overhead line works to the 400kV single circuit sealing end compound;
- An existing 132kV pylon needs to be replaced with a CSE platform pylon in the same location, which will be bulkier and larger and will include downloads. This will be constructed similar to the 400kV pylon above, with a temporary overhead line diversion in place during the works. Replacing the pylon will require a temporary overhead line diversion to be installed on the 132kV overhead line during construction, requiring the building of temporary foundations and pylons next to the existing overhead line;
- Two new 132kV underground cables are required to connect the proposed GSP substation with the existing 132kV overhead line to the south and a new 400kV underground cable will connect the CSE platform pylon with the proposed GSP substation; and
- The fibre optic wire carried by the pylons will require a temporary diversion during the works.

4.3.9 The arcing horns will be replaced on existing pylons on the existing 400kV overhead line for approximately 2km east and west of the proposed GSP substation. The arcing horns are on the pylons and are used to help protect the line from lightning or electrical faults. The replacement will be undertaken using ropes, with new arcing horns winched up and fixed into place by the linesmen and vehicular access will use existing access tracks where available.

## 4.4 Overhead Line Removal

4.4.1 The existing 132kV overhead line will be removed between the CSE platform pylon south-east of Burstall Bridge (approximately 2.5km south of Bramford Substation) and the 132kV diamond crossing south of the existing 400kV overhead line to the south of Twinstead, a distance of approximately 25km. In addition, five spans and five pylons of the existing 400kV overhead line will be removed between Twinstead Tee and the proposed CSE compound at Stour Valley West, a distance of approximately 2km.

4.4.2 Construction activities for the removal of the overhead lines will begin with the preparation and installation of temporary access tracks to each existing pylon site. The working area around each pylon will be cleared and, where appropriate based on a risk assessment, fenced to keep the public and any livestock away from the construction work.

4.4.3 Fittings, such as dampers and spacers, will be removed and the conductors will be lowered to the ground and winched onto drums. The fittings will be removed from the pylons and lowered to the ground.

4.4.4 Where practicable, the legs of the pylons will be cut and the pylon pulled to the ground using a tractor. If there is limited space, the pylons may be dismantled by crane, with sections cut and lowered to the ground for further dismantling or removed from site. Unless there is a compelling need for removal of the foundations in a particular area, these will be removed to approximately 1.5m below ground level, and subsoil and topsoil reinstated.

## 4.5 New Overhead Transmission Line

- 4.5.1 The reinforcement will comprise of up to approximately 18km of overhead line, consisting of new steel-lattice pylons (typically 54m tall) and aluminium conductors (the line part).
- 4.5.2 A working area around each new pylon will be cleared of vegetation and fenced appropriately according to the risk. A typical working area is 40x40m for a suspension (line) pylon and 80x80m for an angle (or tension) pylon. Percussive piling may be required at some pylon locations, subject to the ground conditions. Where piling is required, a temporary stone pad will be required adjacent to each new pylon location, on which to place plant such as cranes and piling rigs (GG23). It is anticipated that the crane pad and the pylon base will be stripped of the topsoil and subsoil to protect the soil during construction.
- 4.5.3 A Foundation Works Risk Assessment will be undertaken by the contractor where piled foundations are proposed. The Foundation Works Risk Assessment will assess the risk of the piling creating new contamination pathways and will identify any additional measures required (GH06).
- 4.5.4 Pre-mixed concrete will be poured to form the foundations, with the steelwork protruding from the concrete as stubs, which the pylon legs are then attached to. Once the concrete has cured the timber struts and shuttering are anticipated to be removed. The excavation is then backfilled with subsoil, where suitable, and the sheet piles are assumed to be removed before replacing the topsoil.
- 4.5.5 It is anticipated that the steelwork would be bolted together on the ground and each pylon assembled in sections beginning with each leg being fastened to the stubs. The pylon is assumed to be erected using a mobile crane to lift the assembled steelwork into position. Linesmen help guide the sections into place and bolt the pylon together.
- 4.5.6 A risk assessment will be used to determine where scaffolding is placed at crossings along the alignment including at road crossings and watercourses. Each scaffold will be designed for the individual crossing that it protects. The scaffold will be capable of withstanding a conductor being dropped on it in the unlikely event that this were to occur.
- 4.5.7 The insulators will be fastened to the pylons in preparation for installing the aluminium conductors. The conductors are usually installed in sections between angle pylons, where the line changes direction. A pulling site will be established at one end of the section with the conductors running out from a tensioning site at the other end of the section, to keep the wires off the ground.
- 4.5.8 Pilot wires will be used to pull conductors between pylons during installation. The conductors are usually installed using a tractor winch and spreader bar, which pulls each bond out in turn. When the conductor is fully 'run out', it will be fastened at its finished tension and height above ground by linesmen working from platforms on the pylons and suspended from the conductors. Additional fittings, such as spacers (to prevent the conductors from touching each other) and dampers (to prevent oscillations in the overhead line), will be fitted to the conductors. Earth wires will run along the top of the pylons and contains optical fibres to allow transmission of data around the system. The conductors are expected to be strung in sections between angle pylons.

## 4.6 Underground Cable Installation

- 4.6.1 There will be approximately 11km of underground cable system and associated joint bays and above ground link pillars. CSE compounds will be required to facilitate the transition between the overhead and underground cable technology. There will be four CSE

compound, one at the end of each underground cable section. Each CSE compound will sit within a fenced compound, and contain electrical equipment, support structures, a small control building and a permanent access track.

- 4.6.2 The working area for the underground cables will typically be 80m wide comprising 60m for the cable layout and 20m for the temporary access route and soil storage. The working area will be demarcated and secured by temporary fencing appropriate to the location, for example, provision of stockproof fencing in grazing areas. Gated entrances will be installed at the entrance to the working area, where required to secure the site. Once secured, the working area in site compounds and along cable sections will generally be stripped of the upper layers of soil, including separation of topsoil and subsoil to maintain soil quality during storage.
- 4.6.3 The proposed cable trenches are expected to be marked using geographical positioning systems before the trenches are open-cut and the ducts installed. The cables will be laid in groups. The trench surrounding the ducts will be filled with cement-based sand (or other suitable material) and a polymeric cable protection will cover the width of the trench. Topsoil and subsoil will be replaced over the top of the polymeric cable protection.
- 4.6.4 The underground cables will be delivered to the working area using specialist low loading articulated lorries. The cable will be wrapped around cable drums and a crane is assumed to be used to offload these from the construction vehicles. The underground cables will be pulled off the drums onto rollers in the trenches using winches. The cables will be pulled through the ducts and will need to be jointed together at joint bays. Depending on the cable manufacturer, joint bays will be required approximately every 500m–1km. These will be constructed on-site and the finished joints will be protected by a glass fibre box filled with resin, bitumen or other suitable material.

## Trenchless Method

- 4.6.5 Four trenchless crossings are proposed on the project, where the underground cable will be installed using a drilling or boring method to avoid sensitive features:
- River Box (EM-E08): A temporary access route will still be required over the river and will be in the form of a temporary clear span bridge;
  - River Stour (EM-G04): A temporary access route will still be required over the river, and will be in the form of a temporary clear span bridge, which will be of sufficient size and design to allow existing navigation of the river by non-motorised vessels to continue during construction;
  - Sudbury Branch Railway Line (EM-G04): The temporary access route will use the existing level crossing, which is located to the south of the trenchless crossing point; and
  - South of Ansell's Grove (EM-G08): Existing routes through the woods will be used where practicable by light good vehicles or tracked vehicles. Otherwise, pedestrian access will be maintained over the top of the trenchless crossing. There will be no temporary access route along the trenchless crossing (EM-G11).
- 4.6.6 There are different trenchless methods that could be used and each method will have a different construction footprint required for the drill launching/receiving sites or drill pits. Depending on the technique, the drill may need to undertake a number of passes to make the hole wide enough to allow the ducts (pipes) to be pulled through. The cables will be pulled through the ducts using a cable pulling rig.



- 4.6.7 The final designs and method for crossing the Sudbury Branch Railway Line will be discussed with Network Rail and will be in accordance with the Protective Provisions set out in the DCO.
- 4.6.8 The trenchless crossing at the River Box, River Stour and the Sudbury Branch Railway Line may require drill pits within the floodplain. The drill pits may require groundwater dewatering as the pits may extend below the bed of the river. Dewatering is defined on the project as works where the groundwater table is actively lowered. The current design potentially requires dewatering at the River Stour and River Box. Once the discharge duration, volume and water quality have been assessed, a decision will be made, in conjunction with the Environment Agency, as to whether an abstraction license and / or discharge permit is required.
- 4.6.9 In accordance with good practice measure GH07, a hydrogeological risk assessment will be undertaken once the trenchless crossing method has been confirmed. This will assess the risks on groundwater or surface water quality associated with the construction method including considering the potential for breakout during drilling and the use of bentonite or other agents proposed. Where the assessment identifies an unacceptable risk to groundwater or surface water quality, then alternative methods and/or additives should be proposed, assessed and used. The hydrogeological risk assessment will be submitted to the Environment Agency for approval prior to construction. The Environment Agency will have up to 21 working days to respond on the hydrogeological risk assessment and their comments will be considered as part of finalising the risk assessment. This can be supported by a pre-submission draft to reduce the risk of any delays.

## Cable Sealing End Compounds

- 4.6.10 Four CSE compounds are proposed on the project, one at each interface between the new overhead line and the new underground cable. Construction is assumed to begin with the preparation and installation of the permanent access route to the CSE compound, which will also be used as the construction access to the rest of the site. The cable trench will also be excavated and the underground cables and/or ducts will be channelled through the trenches onto the CSE structures.
- 4.6.11 The CSE require a clean and controlled environment whilst being terminated and a weatherproof covered scaffold structure will be erected over the CSE during installation. Once constructed, the cables will be tested using a high voltage cable testing lorry from the CSE compound.
- 4.6.12 Percussive piling may be required at the CSE compounds. This will be confirmed through a programme of ground investigations which will in turn inform the foundation designs. A Foundation Works Risk Assessment will be undertaken by the contractor where piled foundations are proposed. The Foundation Works Risk Assessment will assess the risk of the piling creating new contamination pathways and will identify any additional measures required (GH06).

## 4.7 Reinstatement

- 4.7.1 The contractor will clear all temporary working areas and accesses as the work proceeds, as and when these are no longer required for the works. On completion of the construction works, all plant, materials and temporary works will be removed, subject to the provisions of the DCO, unless otherwise agreed with the relevant planning authority. Land used temporarily will be reinstated (bearing in mind any restrictions on planting and land use) to its pre-construction condition. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those

that were removed, following landowner consultation (GG07). Further details on reinstatement can be found in the LEMP (**application document 7.8**).

- 4.7.2 A replacement drainage scheme will be installed within the working area, where appropriate and in accordance with good practice measures W12 and W16 in the CoCP (**application document 7.5.1**). Permanent records of the land drainage locations will be made and passed to the landowners/occupiers.
- 4.7.3 Reinstatement will also include landscaping, including reseeding grassland areas, replanting hedgerows gaps and trees and planting new areas to help screen the new infrastructure from sensitive receptors. Further details can be found in the LEMP (**application document 7.8**).

# 5. Engagement on the CEMP

## 5.1 Introduction

5.1.1 This chapter sets out the engagement that has been undertaken on the CEMP (including the CoCP (**application document 7.5.1**)) and how the comments were considered when developing the final CEMP for submission with the application for development consent.

## 5.2 Engagement

5.2.1 The CEMP (including the CoCP (**application document 7.5.1**)) was issued to the relevant planning authorities and other relevant statutory consultees to seek feedback on the contents and structure before producing the final CEMP for the application for development consent. The CEMP (including the CoCP (**application document 7.5.1**)) was issued to the following organisations:

- Environment Agency;
- Natural England;
- Babergh and Mid Suffolk District Councils;
- Braintree District Council;
- Essex County Council; and
- Suffolk County Council.

## 5.3 Feedback on the CEMP

5.3.1 Table 5.1 and Table 5.2 summarise the feedback received on the draft CEMP (**application document 7.5**) and CoCP (**application document 7.5.1**) respectively and how this feedback has been considered when developing the final CEMP and CoCP (**application document 7.5.1**) for application. The tables exclude feedback that was not related to the production or development of the CEMP or CoCP, for example some comments related to the assumptions in the Transport Assessment (**application document 5.7**).

Table 5.1 – Feedback Received on the Draft CEMP

| Comment   | How This Has Been Considered  |
|---|---|
| <b>Environment Agency</b>   |   |
| A bridge (rather than culvert) should be provided for the crossing of the Belstead Brook in addition to the other watercourses listed.  | There is no proposed temporary access route crossing over the Belstead Brook. Therefore, no culvert or bridge is anticipated. |
| If bentonite or other lubricants are used to drill the trenchless crossings it is essential that contingency plans are in place to deal with any “breakouts” that may occur during the operation. This will help minimise any impacts of such occurrences on the natural environment. | Noted. A comment to this effect has been added to Section 10.3 of the CEMP.   |
| The current average allocation time for discharge or water resources permit is four months. It is recommended that the permitting team is contacted as soon as possible.  | Noted. This will be considered as part of the detailed construction schedule developed by the contractor.                     |

| Comment  | How This Has Been Considered  |
|--|---|
| Discharges from small package sewage treatment plants must have an environmental permit if they cannot meet the General Binding Rules.   | A comment to this effect has been added to Section 9.3 regarding the need for permits.  |
| Discharge of silt-settled water where chemical flocculants or coagulants have been used will require an Environmental Permit from us.  | A comment to this effect has been added to Section 9.3.   |
| <b>Natural England</b>   |   |
| It is advised that reference to Option 2 at Hintlesham Woods is removed from the CEMP.   | Reference to Option 2 has been removed from the CEMP.   |
| Natural England would advise that the size of the working area for the new 400kV overhead line is provided as given for the working area for the underground cable installation.   | Text has been added in Section 4.5 for the assumption of the working area around pylons.  |
| Natural England would advise considering the risk of a potential bentonite break-out where horizontal directional drilling is used beneath watercourses.   | A new good practice measure (GH07) has been added to the CoCP ( <b>application document 7.5.1</b> ). This is also referenced in Section 10.3.   |
| Good practice measure GG07 states that hedgerows, fences and walls will be reinstated to a similar style and quality to those that were removed. As an opportunity to improve biodiversity and connectivity, Natural England would advise that the reinstated hedgerows should be of a similar <b>or higher</b> quality. | Noted. This is a good practice measure that applies across the whole project. The LEMP ( <b>application document 7.8</b> ) describes where National Grid is proposing to reinforce and enhance hedgerows on the project.  |
| <b>Suffolk County Council (SCC)</b>  |   |
| SCC notes that the Applicant intends to work seven days a week including bank holidays. This means that there will be no respite from traffic movements for local residents and highway users, including PRoW for the duration of the project.   | Working hours are set within the draft DCO ( <b>application document 3.1</b> ). The Transport Assessment assesses the effects of the project on users of the road network and PRoW. The CTMP ( <b>application document 7.6</b> ) contains measures to reduce effects from construction traffic.                                 |
| Table 2.1 does not include New Roads and Street Works Act (NRSWA) permits.   | Details about NRSWA permits are included in the CTMP ( <b>application document 7.6</b> ) and are not duplicated in the CEMP.  |
| The Applicant will need to describe how any pre-commencement activities will be managed with clear reference to which management plan is applicable.   | The draft DCO ( <b>application document 3.1</b> ) states that all pre-commencement operations must be carried out in accordance with the management plans, including the CEMP unless otherwise agreed with the relevant planning authority or other discharging authority as may be appropriate to the relevant plan concerned. |
| The section describing construction of the new 400kV overhead line does not reference the temporary access route which is understood is required for access to the pylons.   | Details regarding construction routes, access points and temporary access routes are set out within the CTMP ( <b>application document 7.6</b> ). These are not duplicated in the CEMP.   |

| Comment  | How This Has Been Considered   |
|--|--|
| <p>SCC preference is for all highway crossings to be constructed using trenchless methods to avoid disruption to the carriageway construction.</p>   | <p>Trenchless crossings take longer and cost more to construct than open-cut methods. National Grid considers it disproportionate to use trenchless crossing methods for all of the many road crossings, which would typically be disrupted for a short period of time during construction.</p>  |
| <p>Rather than 'assuming' that temporary working accesses and working areas will be removed once they are no longer required it would be better to state that this will be the case. If any party considers that any feature should be retained as permanent, then this can be secured through a TCPA application to the LPA.</p>  | <p>The wording at paragraph 4.7.1 has been updated accordingly to remove the text 'it is assumed'.</p>   |
| <p>SCC would ask that the Applicant confirm that the statement that 'no surface water discharges have been identified' is correct and that no permanent or temporary connections are required for the highway infrastructure required for this project considering that the LHA would not allow surface water to discharge onto the public highway from construction accesses. LHA permission will be required for any connections into existing highway drainage systems including ditches.</p> | <p>No discharges to watercourses or existing drainage systems have been identified to date. However, in accordance with good practice measure GG01, the project will be delivered and operated in compliance with all relevant legislation, consents and permits, therefore any consents would be sought where appropriate.</p>  |
| <p>9.3.18: The LHA would consider that prevention and removal of mud from the public highway is appropriate not reduction as the latter is open to interpretation and may result in mud remaining to cause a hazard or inconvenience to road users.</p>  | <p>Good practice measure GG17 and the text in 9.3.18 (now 9.3.19), has been amended to state that '<i>Road sweepers will be deployed on public roads to <u>prevent</u> excessive dust or mud deposits from construction activities</i>'.</p>   |
| <p>SCC would draw the Applicant's attention to using terms such as shall, will, must in such documents rather than should, could, would or may to ensure that the proposed measures are clearly defined, unambiguous and robust.</p>   | <p>Would is future conditional tense and is generally used where the outcome is dependent on something occurring, for example measures regarding contaminated soil <i>would</i> only apply, <i>if</i> contaminated soil were to be found. Likewise, <i>could</i> is generally used to refer to where there is a choice for example 'outside of the compound area, pressure washers <i>could</i> be used', this is one option that could be used.</p> |
| <p>Where the use of large vehicles complying to the most recent emission standards forms the key part of the embedded mitigation to reduce air quality impacts of construction vehicles (13.2.1). Appropriate data collection and reporting of this information is required within either the CEMP or CTMP.</p>  | <p>Section 15 of the CEMP sets out the monitoring and checks that are proposed in relation to implementing the CEMP.</p>   |

| Comment  | How This Has Been Considered  |
|--|---|
| Where there is non-compliance with a transport related measure or a complaint regarding impacts from construction traffic then the relevant LHA should be made aware within a specified time (15.3.1). All non-compliances and complaints together with remedial actions, if appropriate, shall also be summarised in the regular monitoring reports submitted to the LHA. | The non-compliance and complaints procedures are set out in Sections 15.3 and 15.4, respectively. This states that where environmental incidents and non-conformance with the CEMP occurs that the appropriate enforcing authority will be contacted and informed.  |
| <b>Essex County Council</b>  |   |
| For working hours, the window of working outside the as scheduled hours is very open from the information provided in the CEMP. In addition, the activities which may take place prior to the construction hours will mean people arriving at site and be engaged in activities well in advance of the operating hours.  | Working hours are set within the draft DCO ( <b>application document 3.1</b> ).   |
| There are no specifics in the CEMP that deal with proposals for any abnormal loads.  | Abnormal loads are covered in the CTMP ( <b>application document 7.6</b> ) and are not duplicated in the CEMP.  |
| Percussive piling is suggested, and the CEMP will need to include measure to mitigate and monitor noise emitted.   | Measures to mitigate and monitor noise from percussive piling are outlined in Section 14.3.   |
| Does the CEMP apply to pre-construction works, for example construction of temporary access routes?  | The draft DCO ( <b>application document 3.1</b> ) states that all pre-commencement operations must be carried out in accordance with the management plans, including the CEMP unless otherwise agreed with the relevant planning authority or other discharging authority as may be appropriate to the relevant plan concerned. |
| <b>Babergh and Mid Suffolk District Council</b>  |   |
| To avoid confusion with the role of an Ecological Clerk of Works which uses the standard abbreviation ECoW, we recommend using EnvCoW instead for Environmental Clerk of Works.  | The CEMP and other management plans have been updated to use the abbreviation 'EnvCoW' for the Environmental Clerk of Works role.   |
| <b>Braintree District Council</b>  |   |
| The CEMP should set out the mitigation measures for the construction phase, including screening of fixed plant and the application of Best Practicable Means (BPM).  | Construction phase mitigation measures and BPM for noise and vibration are set out in Chapter 14 of the CEMP.   |
| It is noted that the document was in draft form and not complete at the time of writing this technical note, with the section 'Additional Mitigation Measures' incomplete.   | It was not possible to include the Additional Mitigation Measures section in the draft version, as the EIA was still being completed. However, the Additional Mitigation Measures sections have now been completed in this version of the CEMP.   |

| <b>Comment</b>  | <b>How This Has Been Considered</b>   |
|---|---|
| The development includes the construction of temporary access routes, one of which is 3.5km long. This and other temporary access routes have the potential to be a significant source of noise and may require mitigation measures. There is also no reference to the construction and maintenance of the temporary access routes.   | Good practice measure GG27 has been added to the CoCP ( <b>application document 7.5.1</b> ). Maintenance of temporary access routes is covered within the CTMP ( <b>application document 7.6</b> ) and is not duplicated in the CEMP.   |
| Chapter 10 of the CEMP cross-refers to a number of other application documents, including the ES chapter, the MWMP and the Tier 1 Preliminary Contamination Risk Assessment. Without sight of these documents it is not possible to comment fully on the content of the CEMP, as it is clear that the CEMP relies on compliance / consistency with them.  | The following documents can all be found in the application for development consent, including ES Chapter 10: Geology and Hydrogeology ( <b>application document 6.2.10</b> ), the MWMP ( <b>application document 7.7</b> ) and the Tier 1 Preliminary Contamination Risk Assessment, which in ES Appendix 10.1: Geology Baseline and Preliminary Risk Assessment ( <b>application document 6.3.10.1</b> ). |
| It is recommended that the CEMP refers to details of general construction good practise for the prevention of releases of contamination to the ground from construction activities. Examples may include measures for the storage and use of hydrocarbon fuels, measures for the washout / cleaning of concrete mix areas, in accordance with CIRIA 648 Control of water pollution from linear construction projects. | CIRIA 648 Control of water pollution from linear construction projects) has been added to the list of guidance referenced in paragraph 9.3.13 of the CEMP. In addition, the CoCP ( <b>application document 7.5.1</b> ), contains a number of good practice measures relating to storage of materials to reduce risks of contamination e.g. GG14.  |
| Braintree District Council is concerned about the length of time that activities can be undertaken on site, and indeed those activities which are seeking to be exempt from the process. The project will have significant impact during construction and these impacts should be limited to more amenable times of the day.  | Working hours are set within the draft DCO ( <b>application document 3.1</b> ).   |

**Table 5.2 – Feedback Received on the Draft CoCP**

| <b>Comment</b>  | <b>How This Has Been Considered</b>   |
|---|---|
| <b>Suffolk County Council</b>   |   |
| More detail is required to GG25 in terms of community engagement during construction.   | Further details on community engagement are set out in Section 3.4 of the CEMP.   |
| <b>Essex County Council</b>   |   |
| The British Standard in relation to tree and hedgerow protection should be quoted in GG08.  | GG08 is generic to sensitive features and not just trees. The British Standard is referenced in LV02.   |
| In relation to GG11, will there be any point for electric vehicles charging made available and cycle parking provided?                      | Paragraph 4.2.6 has been amended to include reference to electric vehicles charging points and cycle storage at the main construction compound. |
| At GG12 is anything to be put in place to limit vehicle reversing alarms, potentially using a system other than the usual reversing alarms? | No change has been made to GG12 as the vehicle reversing alarms are a safety feature.   |

| Comment   | How This Has Been Considered  |
|---|---|
| There are no references to health and safety facilities on site in case of accident to the workforce.   | Health and safety requirements are a legislative requirement and are therefore they are not included as good practice measures in the CoCP.   |
| It is suggested that the aftercare period in LV03 is extended to a 10 years given that the area has low rainfall and planting on potential bunded areas could need longer than this to properly establish.  | Five years is considered to be a standard duration for aftercare of hedgerows and trees, as these are expected to have matured sufficiently to have establish during this period. Five years is typical for most large infrastructure projects.   |
| At B02 the word 'assumption' doesn't go far enough in my professional opinion and should be amended.  | B02 has been amended to remove reference to 'assumption'.   |
| For TT01, it is assumed that a CTMP will be developed.  | A CTMP ( <b>application document 7.6</b> ) has been submitted with the application for development consent.   |
| TT03, what does "short period" mean?  | Assumptions on PRoW closure durations are provided in the Transport Assessment ( <b>application document 5.7</b> ).   |
| <b>Braintree District Council</b>   |   |
| Measure GH01 refers to pre-construction ground investigation in areas where ' <i>potential contamination is known, or strongly suspected to be present as a result of past activities</i> '. However, the CEMP (paragraph 10.3.10) indicates that no such areas are present. Therefore, it is not clear in practice what work, if any, will be carried out under measure GH01. It is recommended that the Applicant clarifies this so that the application documents align. | ES Appendix 10.1: Geology Baseline and Preliminary Risk Assessment ( <b>application document 6.3.10.1</b> ) describes the known areas where a risk of contamination has been identified and notes a low risk within the Order Limits. However, further ground investigations are proposed, that may identify other (currently unknown) areas with a risk of contamination. Therefore, the statement in the CEMP is correct based on present understanding, GH01 refers to the measures that may be determined in future investigations. |



# 6. Landscape and Visual

## 6.1 Introduction

- 6.1.1 ES Chapter 6: Landscape and Visual (**application document 6.2.6**) considers the potential effects on landscape designations, landscape character areas and visual effects on local communities.
- 6.1.2 The main effects on landscape and visual receptors during construction comprise the removal of vegetation during construction along with the presence of construction activities within the landscape and views from communities. This chapter should be read alongside the LEMP (**application document 7.8**), which contains additional information relating to planting and reinstatement.

## 6.2 Management Measures

- 6.2.1 Construction phase management measures in relation to landscape and visual are contained in the following documents:
- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**);
  - General good practice measures including GG06 to GG08 and topic-specific good practice measures LV01 to LV03 in the CoCP (**application document 7.5.1**); and
  - ES additional mitigation measures EIA\_LV01 and LV02 in ES Chapter 6: Landscape and Visual (**application document 6.2.6**) and in the REAC (**application document 7.5.2**).

## 6.3 Implementation of Measures

- 6.3.1 All construction phase measures in relation to vegetation retention, loss and reinstatement are set out in the LEMP (**application document 7.8**). The following subsection set out the construction phase measures in relation to construction lighting.

## 6.4 Lighting Planning and Preparation

- 6.4.1 The concept of 'Environmental Zones' was introduced by the Commission Internationale de l'Eclairage and updated by the Institute of Lighting Professionals in its publication Guidance Notes for the Reduction of Obtrusive Light GN01:2020 for the UK. The existing lighting context of the area surrounding the project will be considered against the system of lighting classification identified in these two documents to develop appropriate levels of lighting performance.
- 6.4.2 The following lighting standards and guidance documents will be considered when designing the lighting for use during construction:
- BS EN 12464-2:2014 – Light and lighting. Lighting of workplaces. Part 2 Outdoor workplaces (British Standards Institute (BSI), 2014a);
  - Guidance Note 01/20 Guidance Notes for the Reduction of Obtrusive Light (Institute of Lighting Professionals, 2020); and
  - Guidance Note 08/18 Bats and Artificial Lighting in the UK (Institute of Lighting Professionals, 2018).
- 6.4.3 A standard lighting approach will be implemented during the works. Unless stated otherwise below, the construction lighting will be installed in accordance with GN01:2020,

BS EN 12464-2-2014 (Outdoor Workplaces). Lighting will be the lowest average lux levels necessary for safe delivery of each task and will be positioned and directed to reduce the intrusion into adjacent properties and habitats, where practicable.

- 6.4.4 Appropriate lighting fixtures, including hoods/cowls and louvres, whether fixed or mobile, will be used to control lighting direction away from sensitive receptors, such as residential properties and habitats, where this does not create a risk to construction working.
- 6.4.5 It is anticipated that the primary source of temporary lighting requirements will be provided by mobile solar lighting towers or similar. These typically operate with a lux level of circa 20 and a lumen output of 10-40k. Generally, the tower will extend up to 4m and include four LED lights which can be directionally adjusted.
- 6.4.6 The use of solar lighting towers will be limited to the working hours authorised under Requirement 7 of the draft DCO (**application document 3.1**). Requirement 7(3) states that the core working hours exclude start up and close down activities up to one hour either side of the core working hours (see Section 2.3 for details of working hours). Light emissions will be reduced during these start-up and shut-down activities. Outside of these hours, lighting is not expected to be required except at temporary construction compounds, areas where exceptional work is required or where there is a requirement for additional security. Security lighting will only be activated in the event of motion sensors detecting an intruder. This allows live CCTV to be recorded/viewed by the security control room which can be switched off remotely in the event of a false alarm (such as if the motion sensors were activated by an animal).
- 6.4.7 There will be a requirement for 24 hour working for certain activities, such as at trenchless crossing locations where once started, activities need to continue until complete. Such areas will be lit in accordance with good practice measures GG10 and GG20, including the requirements of BS EN 12464-2-2014 (Outdoor Workplaces). When not required for safe working, the requirements of GN01:2020 will be met.

# 7. Biodiversity

## 7.1 Introduction

- 7.1.1 ES Chapter 7: Biodiversity (**application document 6.2.7**) considers the potential effects of the project on biodiversity. The receptors considered were statutory designated sites, non-statutory designated sites, ancient woodland, priority habitats and terrestrial and aquatic biodiversity (including protected species).
- 7.1.2 The project could affect biodiversity during construction through direct effects, such as the loss or fragmentation of habitats within the construction footprint, or indirectly through changes in groundwater, pollution of watercourses or deposition of dust. Species could also be affected directly through injury or mortality and indirectly through disturbance.

## 7.2 Management Measures

- 7.2.1 Construction phase management measures in relation to biodiversity are contained in the following documents:
- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**);
  - General good practice measures including GG06 to GG08 and topic-specific good practice measures B01 to B13 in the CoCP (**application document 7.5.1**); and
  - ES additional mitigation measure EIA\_B01 in ES Chapter 7: Biodiversity (**application document 6.2.7**) and in the REAC (**application document 7.5.2**).

## 7.3 Implementation of Measures

- 7.3.1 All construction phase measures in relation to biodiversity are set out in the LEMP (**application document 7.8**).

# 8. Historic Environment

## 8.1 Introduction

8.1.1 ES Chapter 8: Historic Environment (**application document 6.2.8**) considers the potential effects on archaeological remains, built heritage and historic landscape assets. The project could affect the historic environment during construction by disturbing known and unknown archaeology during excavation and through the removal of historic landscape features. The risk to features is greater in the underground cable sections where the ground disturbance is greater.

8.1.2 A programme of pre-construction archaeological surveys has been undertaken as described within the Archaeological Framework Strategy (**application document 7.9**). The results of the surveys have informed the impact assessment and the management measures proposed.

## 8.2 Management Measures

8.2.1 Construction phase management measures in relation to the historic environment are contained in the following documents:

- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**);
- General good practice measures including GG06 to GG08 and topic-specific good practice measures H01 to H05 in the CoCP (**application document 7.5.1**);
- ES additional mitigation measure EIA\_H01 in ES Chapter 8: Historic Environment (**application document 6.2.8**) and in the REAC (**application document 7.5.2**);
- Archaeological Framework Strategy (**application document 7.9**); and
- Outline Written Scheme of Investigation (**application document 7.10**).

## 8.3 Implementation of Measures

8.3.1 The Archaeological Framework Strategy (**application document 7.9**) sets out the project approach to managing the risk of archaeology on the project. This includes the survey work that has been undertaken and that is proposed and the steps that will be taken to protect archaeology, or reduce the impact to archaeology, or as a last resort, excavate and record features.

8.3.2 The Outline Written Scheme of Investigation (**application document 7.10**) sets out proposed measures for managing archaeology both pre and during construction. This has been provided to the archaeological curator(s) at Suffolk and Essex County Councils and will be updated as further survey result come to light. Further Detailed Written Scheme of Investigation for specific aspects of work will be submitted to the archaeological curator(s) at Suffolk and Essex County Councils as applicable.

# 9. Water Environment

## 9.1 Introduction

- 9.1.1 ES Chapter 9: Water Environment (**application document 6.2.9**) considers the potential effects on surface water receptors. In addition, a Flood Risk Assessment (**application document 5.5**) and Water Framework Directive Assessment (**application document 5.6**) have been produced as part of the application for development consent. These documents conclude that with good practice measures in place, there is a low risk of the project generating significant effects on surface water receptors.
- 9.1.2 As noted in Section 1.3 of the CEMP, this chapter sets out the measures that will be implemented to safeguard surface water and groundwater water quality and manage land drainage and flood risk during construction of the project. It fulfils the purpose of and contains all of the necessary measures that would be set out in a standalone Water Management Plan. The LEMP (**application document 7.8**) contains details about how watercourses will be reinstated following construction.
- 9.1.3 Crossing watercourses designated as main rivers, is an activity (a ‘flood risk activity’) under the Environmental Permitting (England and Wales) Regulations 2016 which requires a permit. Likewise, the obstruction of flow in ordinary watercourses is controlled under the Flood and Water Management Act 2010 and requires an ‘ordinary watercourse consent’. National Grid will submit FRAP for the main river crossings to the Environment Agency and Ordinary Watercourse Consent applications to the relevant LLFA for the non-main rivers, in accordance with W01 in the CoCP (**application document 7.5.1**).

## 9.2 Management Measures

- 9.2.1 Construction phase management measures in relation to the water environment are contained in the following documents:
- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**); and
  - General good practice measures including GG14 and GG16 and topic-specific good practice measures W01 to W18 in the CoCP (**application document 7.5.1**).

## 9.3 Implementation of Measures

- 9.3.1 The following sub-sections set out the construction phase measures in relation to water together with details of their proposed implementation. Many of the commitments and measures outlined within this section have been developed during discussions held with the Environment Agency and the LLFA (see Chapter 5 for details).

### Site Planning and Preparation

- 9.3.2 In accordance with good practice measure W07, the layout of the site compounds will be planned to control potential risks to surface water, groundwater and flooding. This will include identifying buffer zones at watercourses to a distance from the bank appropriate to the location (GG15). The buffer zones will be dependent on factors such as avoiding areas of floodplain and sensitive bank or instream features. The demarcation fencing will be designed subject to the risk of runoff affecting a sensitive receptor. Where a high risk of runoff has been identified, the buffer zones will be delineated with silt fencing to provide

further protection from potential site runoff. Alternatively, if runoff risk is low, the locations may be demarcated with fencing, such as pedestrian barrier or heras type barrier.

- 9.3.3 The main site compound is assumed to be connected to mains water supply, subject to approvals from the relevant utility provider. Wastewater will undergo suitable treatment measures such as biodigesters or would be taken away by tankers to a suitable disposal unit. Where activities require an environmental permit, this will be sought from the Environment Agency in accordance with GG01. The satellite compounds are unlikely to have mains water connections and therefore are likely to have water deliveries to supply potable water to welfare facilities. Wastewater will be treated using suitable technology, for example, biodigesters, and/or taken away by tankers as waste.
- 9.3.4 Where applicable, compounds will be provided with good practice measures for water conservation for example the use of water-efficient taps within welfare, waterless toilet facilities, assessment of whether water can be reused, for example for dust suppression, and regular checks for water leaks.
- 9.3.5 Good practice measures in relation to pollution control, storage of fuels and hazardous materials will be adhered to. The main site compound will display plans showing surrounding water features, areas sensitive to flooding, drainage layouts, locations of substances classified as hazardous under the Control of Substances Hazardous to Health Regulations 2002 and fuel stores, as well as the location of spill kits. At compounds and across all areas of the site, fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 (GG14).
- 9.3.6 The main site compound and satellite compounds will also display contact details for the LLFA, the Environment Agency, the EnvCoW and for a spill response company which can be contacted at short notice for an immediate emergency response. Construction site personnel will also receive training, via toolbox talks, in the clean-up of spillages and in pollution prevention techniques when working in proximity to water receptors.
- 9.3.7 In accordance with good practice measure AS05, land drains and ditch locations will be identified based on existing land drainage plans and/or site observations. Land drains will be adjusted to avoid or minimise damage to tree roots, where practicable. Where required, land drainage will be installed (either temporary or permanent) to maintain the integrity of existing field drainage systems for the duration of works. Drainage systems however will not be installed into areas where they are not currently present, e.g. environmental wetlands. The actual condition and characteristics (e.g. depth of installation, pipe type and diameter) of the existing drainage will be recorded upon excavation. Landowners will be consulted during the pre-construction surveys to establish the existing underdrainage within those areas to be disturbed during construction.
- 9.3.8 Landowners will be informed of the design of drainage works required during construction and following installation, including pipe layout, falls, dimensions and outfalls (if required), together with the timing of the land drainage work. This will ensure any local knowledge appropriate to individual circumstances is not missed.

## Surface Water Abstraction and Discharges

- 9.3.9 The contractor will comply with all relevant consent conditions or DCO provisions regarding abstractions and other discharge activities (GG01 and W01).

### Abstraction

- 9.3.10 No surface abstractions are anticipated on the project. Water for trenchless crossings is assumed to be delivered in by tankers. Water sources in the use of site cabins, for general

cleaning and dust suppression are expected to be either using mains supply or tankered delivery. If abstraction was to be required, discussions will be held with the Environment Agency to discuss the requirement for an environmental permit for discharge activities in accordance with GG01 and W01.

## Discharges

- 9.3.11 No surface water discharges have been identified on the project. If water discharge was to be required, discussions will be held with the Environment Agency to discuss the requirement for an abstraction licence in accordance with GG01 and W01.
- 9.3.12 Dewatering associated with potential interception with groundwater is considered within Chapter 10: Geology and Hydrogeology of the CEMP, in particular Section 10.3.

## Pollution and Erosion Management Measures

- 9.3.13 During construction, each work activity method statement will set out how pollution and sediment risk will be managed, including proactive actions and measures to control pollution risks. The method statement will consider risks either directly from the construction works or due to external factors such as extreme weather. Measures will include appropriate storage and handling of fuels and other substances hazardous to the environment.
- 9.3.14 Construction method statements will take into account the requirements of the Environment Agency and LLFA. Works will consider the advice set out in the following guidance documents:
- Former guidance for Pollution Prevention, various publication dates (accessed via the NetRegs website);
  - C648 Control of water pollution from linear construction projects. (Construction Industry Research and Information Association (CIRIA), 2006);
  - C532 Control of Water Pollution from Construction Sites (CIRIA, 2001); and
  - C650 Environmental Good Practice on Site (CIRIA, 2005).
- 9.3.15 The methods used to control flows, scour and erosion will be decided by the contractor, according to site specific circumstances and with reference to any relevant licence conditions. Many of these measures will be installed during the initial set up of the construction area, such as header drains. However, additional measures may also be used during construction for example at times of heavy rainfall.
- 9.3.16 During opencut crossings, there is potential for runoff from the main construction strip, riverbanks and the trench itself, and pollutants from on-site activities to enter the watercourse. Good practice measure W02 aims to capture runoff and pollutants to prevent their entry into the watercourse. In addition, measures are presented to mitigate a spill event such as the positioning of spill kits, booms and other containment devices downstream of the crossing.
- 9.3.17 Works at watercourses will be checked prior to commencement by an ecologist for presence of invasive and non-native species. If these are identified, the contractor will develop a method statement in line with relevant guidance and in discussion with the EnvCoW. This will include as a minimum that equipment will be cleaned prior to works starting and before removal from site to prevent transfer of invasive species between sites.

- 9.3.18 As part of good site practices, vehicles will be maintained and inspected on a regular basis to prevent and identify any leaks, and refuelling undertaken at designated locations. This will limit any drips and spills from vehicles throughout the project area.
- 9.3.19 Good practice measures GG17 and GH02 are both measures to reduce the effects of vehicles transporting mud and dust from the construction areas and compounds to where it could enter watercourses. Wheel washing or other wheel cleaning systems will be provided at each main compound access point on to the highway where a need has been identified through the design process. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads to prevent excessive dust or mud deposits from construction activities (GG17). Outside of the compound area, pressure washers could be used, dependent on the ground conditions and whether there is potential to transport mud or dust onto the road. Hard surfacing will be used at compound access points onto the public highway, to prevent muddy areas developing in areas of heavy construction traffic. Road cleaners will be used, as required, to remove excessive dust or mud deposits from construction activities.
- 9.3.20 Potentially hazardous materials and chemicals such as fuel, oils and lubricants will be stored in an appropriate manner within the main site compound. Drip trays and containment measures will be used extensively across the project to capture potential leakages. Storage of flammable liquids will be within double-walled tanks or surrounded by a containment area of 110% capacity which will capture any spillage/leakage in the event of a breach of containment. Where applicable, all storage will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001.
- 9.3.21 Operations such as refuelling of mobile plant will be undertaken at designated refuelling points located away from potentially sensitive water features (GG14) and where practicable, they will be stored at least 15m from watercourses, ponds and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a 15m distance, for example refuelling a water pump adjacent to a watercourse, additional pollution prevention measures will be identified. All refuelling, oiling and greasing of construction plant and equipment will take place above drip trays (or similar) and also away from drains. Static plant and small tools will be refuelled using portable fuel containers. Drip trays will be used during refuelling.
- 9.3.22 While mobilising works areas, various measures such as those described in good practice measure GG15 will be implemented to manage site surface water, divert clean surface water away from the work site and to prevent silt pollution and erosion of exposed soils. Examples of these types of good practice measures are summarised below and will be selected for use as necessary dependent on the local conditions, such as level of risk from flooding, weather conditions and surrounding topography:
- Cut-off or interception drains: Collection channels constructed to divert runoff water from entering disturbed surfaces. Generally constructed above cuts or fills and in natural, undisturbed ground on the up-side slope of the working area in steep areas;
  - Temporary site drains: Control and collection of runoff water from site into temporary drainage channel using the various silt control measures listed below to maintain the water free of silt;
  - Culverts/flume pipes – cross track drainage: Structures made from pipes (for example, plastic, concrete or steel) designed to maintain continuous flow of clean water through the worksite during construction;



- Diversion berms: Used to divert clean water runoff to a well-vegetated area by constructing a small berm of compacted earth from material excavated from a shallow trench located on the upslope;
- Berms are constructed at set intervals from the top of the slope down and with enough fall to allow the water to slowly flow outside of the berm to a well vegetated area;
- Protection of exposed soils: To reduce the risk of silt being mobilised by erosion caused during rainfall events. Stockpiles will be compacted and graded to reduce rainwater infiltration. If they are in a sensitive area, e.g. near a watercourse, consideration will be given to covering over, e.g. with tarp or geotextile, to prevent erosion;
- Check dams and sumps: Installed within drainage ditches and cut-off trenches to slow down the flow of water, preventing erosion and allowing silt to settle out. Check dams can be made from a variety of materials, including silt fences, stone, straw bales, sandbags, soil or clay. Sumps behind the dam allow for emptying of silt;
- Small settlement area/ attenuation ponds: A small swale or depression within the site ditch to intercept and retain silty water before it leaves site, to give it a chance to settle out and to protect sensitive sites and watercourses below the site from silt pollution. These may be provided on the line of cut-off trenches or form part of temporary site drainage, to control flow and silt;
- Filter dams: Installed to slow down the flow of water and provide some filtration within drainage ditches. Involves provision of gravel within the channel/ditch lined with geotextile. The geotextile can also be 'lipped' at intervals along the length of the stone, to provide an additional barrier and filtration system for the water flowing through the gravel;
- Silt fencing: A geotextile barrier installed on stakes and buried into the ground to provide a barrier to protect sensitive receptors such as adjacent watercourses. The fence captures and slows the flow of silty water, allowing the fence to filter out the silt particles;
- Buffer strips: Retained areas of vegetation between the work site and sensitive receptors, to allow natural drainage and protection. These will be demarcated on site;
- Silt bags and filters: For water to be pumped into, during dewatering operations, to provide filtration of silt particles. They can also be used to accept a gravity feed from a settlement lagoon or drainage pipe;
- Settlement tanks: Use of purpose-made tanks such as Siltbuster, that allow silt-laden water to be pumped through at controlled rates, to allow settlement and discharge of clear water downstream; and
- Flocculants and coagulants: A chemical solution for very fine silt particles that will not settle out by gravity alone. Their use will require a permit with the Environment Agency in accordance with GG01.

9.3.23 Discharge of silt-settled water with chemical flocculants or coagulants will require an Environmental Permit from the Environment Agency in accordance with good practice measure GG01.

9.3.24 The activities that will require concrete to be used include but will not be limited to the construction of the pylon foundations and structures within the GSP substation and CSE

compounds. Concrete washout from concreting operations will be managed so that no concrete runoff or wash water enters the local drainage systems or watercourses. Appropriate methods such as dry brushing of the mixer chutes, to avoid washing out on site, or the use of roadside washout systems and containers to provide designated sealed washout locations, will be provided. The specific method used will be selected based on the level of risk in the area and extent of concrete being poured. Where there is no risk to the environment or human health, wash water may be used for construction processes such as dust suppression in line with Environment Agency Low Risk Waste Position 16 (Reusing wash waters and treating cement and silt washings at construction sites: LRWP 16).

9.3.25 A dedicated Emergency Response Crew will be nominated for each worksite to respond in the event of a spill. Regarding minor spills, spill operations training will include hands-on, field-level training on operating spill response equipment and deployment and operation of technical devices. Spill response training will be frequently reinforced during briefings and toolbox talks to promote immediate and adequate spill response.

9.3.26 In the event of a major spill incident, a specialist emergency response contractor will be available. This can be called upon for 24-hour response to an incident where containment and clean-up is not possible with the site resources. The number and procedure for mobilising this contractor will be included in method statements, briefings, during training, and displayed within welfare/office facilities.

9.3.27 In the event of a pollution incident, the contractor will implement the relevant incident procedures which will include the following steps:

- Stop work;
- Make area safe e.g. use appropriate spill kit;
- Contact Environmental Manager to provide initial assessment and advise on further action;
- As appropriate, contact the relevant enforcement authority as soon as practicable, e.g. the Environment Agency via the incident hotline (0800 807060); and
- Initiate incident reporting procedure.

## Flood Risk Reduction Measures

9.3.28 As stated within good practice measure W01, the project will work in compliance with permits and licences. FRAP for main rivers and Ordinary Watercourse Consent for ordinary watercourses will be obtained from the relevant authority (Environment Agency, LLFA or IDB) for all qualifying works. The applications will include measures to protect water quality and watercourse morphology and conveyance, in order to comply with Water Framework Directive objectives. The applications will also demonstrate that the proposed works are unlikely to cause impediment to watercourse flows to the detriment of flood risk.

9.3.29 A clear span bridge will be used to cross the River Stour, which is too wide and deep to be crossed using a culvert (W17). The soffit of the crossing over the River Stour will be set on the basis of navigational requirements, which far exceed the requirements for flooding, i.e. well in excess of the design flood level defined as the fluvial 1% AEP plus climate change level, plus a 600mm freeboard. Should land raising be required in Flood Zones 2 or 3 to access the temporary crossings, flood risk modelling will be carried out to ensure no increase in flood risk elsewhere. Detailed drawings of temporary crossings alongside river levels will also be submitted to the Environment Agency to show that there

is sufficient head clearance for navigation. Clear span bridges are also proposed at the River Brett and the River Box. No temporary access route crossing is required at the Belstead Brook.

- 9.3.30 All main rivers and ordinary watercourses crossed by an opencut methodology will be designed to allow continued downstream flow during construction to reduce flood risk (W15).
- 9.3.31 A buffer zone will be maintained along watercourses which will allow for unimpeded rises in water levels during out of bank flow events.
- 9.3.32 All compounds are located in Flood Zone 1 (lowest risk of flooding). Where practicable, soil stockpiles will be located outside of Flood Zone 2 and 3 and areas of high or medium risk of flooding from surface water (as defined by the Environment Agency Risk of Flooding from Surface Water map). Where these measures are not practicable, additional measures will be identified within a flood risk action plan, for example creating breaks in the stockpiles to avoid creating continuous barriers to floodplain flows. Site fencing and screening will also be positioned to reduce the risk of impeding floodwater (W07).
- 9.3.33 The project will subscribe to flood and weather warnings as outlined in good practice measure W08. Weather reports will also feature in the prestart brief for each worksite on a daily basis.
- 9.3.34 In the event that a flood event is forecast, the project will implement a response proportionate to the event in the area at risk. This plan will include:
- Evacuating personnel;
  - Clearing areas at risk of personnel, vehicles and equipment; and
  - Cancelling planned works in areas affected.

## Reinstatement

- 9.3.35 Post-construction, all temporary crossings and/or culverts will be removed unless otherwise agreed in the FRAP/Ordinary Watercourse Consent. Watercourses will be reinstated to at least the same condition as prior to construction and in accordance with the details provided within the relevant FRAP/Ordinary Watercourse Consent. This includes reinstatement of the bank profile and bed levels. This will include replacing any channel substrate that was temporarily removed during the works.
- 9.3.36 In accordance with W12 and W16 in the CoCP (**application document 7.5.1**) post-construction drainage plans will be created when it has been necessary to install new or diverted permanent drainage. These will be made available to the landowner and/or occupier at the conclusion of the works. Drainage systems (land drains) will generally not be introduced into areas where they are not currently present. However, underdrainage may need to be installed on land currently supporting arable agriculture, where poor drainage areas resulting from construction are identified.

# 10. Geology and Hydrogeology

## 10.1 Introduction

- 10.1.1 ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**) considers the potential impacts on the geology and hydrogeology during construction and operation of the project, and whether those impacts are likely to result in significant effects on groundwater, mineral deposits, designated geological sites, surface water (associated with groundwater impacts) and human health.
- 10.1.2 As noted in Section 1.3 of the CEMP, this chapter sets out the good practice measures that will be undertaken during construction activities to reduce the risk to geology and hydrogeology receptors and support the assessment.

## 10.2 Management Measures

- 10.2.1 Construction phase management measures in relation to geology and hydrogeology are contained in the following documents:
- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**); and
  - General good practice measures including GG14 and GG16 and topic-specific good practice measures GH01 to GH07 in the CoCP (**application document 7.5.1**).

## 10.3 Implementation of Measures

- 10.3.1 The following sub-sections set out the construction phase measures in relation to geology and hydrogeology together with details of proposed implementation.

### Groundwater Abstraction and Discharge

#### Abstraction

- 10.3.2 No groundwater abstractions are currently anticipated on the project. Water sources are expected to be via mains supply or tankered delivery. If this was to change, discussions will be held with the Environment Agency to discuss the requirement for an abstraction licence in accordance with GG01 and W01.

#### Dewatering and Discharges

- 10.3.3 Dewatering is anticipated to only be required at locations where there is a need for the underground cables to be installed deeper than in the standard open-cut sections, for example at the River Stour and River Box trenchless crossings. ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**) assesses the effects of the deeper crossings on groundwater. Dewatering may be required at the trenchless crossings due to the drill depth and the duration of the activities at this location. Where dewatering is required, National Grid will apply for a discharge consent to the Environment Agency in accordance with GG01 and W01.
- 10.3.4 In general, the underground cable trenches will be no deeper than 1.3m and are therefore unlikely to require any additional measures in relation to groundwater. Where necessary, water will be removed from the trench where there are localised seepages or rainwater in the base of the trench.

- 10.3.5 It is anticipated that all local discharges will be to ground (after using settlement tanks) and not directly to watercourses. If the latter was required, these discharges would use the Environment Agency regulatory position statement guidance with respect to temporary dewatering from excavations to surface water. The project will also apply the relevant exemptions set out in part 2 of the Water Abstraction and Impounding (Exemptions) Regulations 2017, for example small scale dewatering in the course of building and engineering works. As such, no permit requirement is anticipated for these short-term, temporary discharges of uncontaminated water which is wholly or mainly from rainwater, from an excavation to surface water, for example where rainwater has accumulated within the trench.
- 10.3.6 If required for the trenchless crossing activities and subject to the method chosen, bentonite and drilling fluids will be supplied to the work site using a specifically designed unit manufactured to mix and supply the fluid via pumps. Any excess muds will be contained within purpose-made containers or pits which are lined with high-density polyethylene liner or another suitable method. This will contain any drilling fluid or mud within the pit and allow removal as waste, in line with the MWMP (**application document 7.7**). Alternatively, where volumes and logistics allow, a drilling fluid recycling unit will allow re-use of the material. If the construction method of the trenchless crossing uses bentonite or other agents, then an assessment of potential breakout during the drilling process will be undertaken (GH07) to support a contingency plan where required.
- 10.3.7 A Preliminary Risk Assessment (**application document 6.3.10.1**) has been undertaken to support the baseline of the ES, which has not identified any potentially significant sources of contamination, however there is the potential for unexpected contamination to be identified. During dewatering, visual monitoring will be undertaken for suspended solids and signs of hydrocarbon contamination (oily sheens). Where suspended solids or visual signs of hydrocarbon contamination are present, the water will be contained and if the suspended solids or visual hydrocarbon cannot be removed, through filtration, settlement or absorbents locally on site, further permitting would be sought or it will be treated or appropriately disposed of off-site.

## Piling of Foundations

- 10.3.8 Piling may be required (subject to ground conditions) at pylon locations, CSE compounds, the GSP substation and temporary bridge crossings. ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**) assesses the effects of piling.
- 10.3.9 In accordance with GH06, a Foundation Works Risk Assessment will be undertaken by the contractor once the foundation solution is identified (for each pylon and CSE compound). The Foundation Works Risk Assessment will assess the risk of piling creating a new contamination pathway and will identify any additional mitigation measures that may be required. The assessment will be prepared in accordance with the Environment Agency guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination' (Environment Agency, 2001). Pylon foundations will also be designed with suitable corrosion and pH resistant concrete formulas to reduce the risk of leaching harmful compounds into soil and groundwater.

## Encountering Unexpected Contamination

- 10.3.10 As part of the design evolution, potentially contaminated sites have been avoided where practicable. A Tier 1 Preliminary Contamination Risk Assessment has also been undertaken, as presented in ES Appendix 10.1: Geology Baseline and Preliminary Risk Assessment (**application document 6.3.10.1**). This identified the risk from potential

sources of contamination to be, at worst, moderate/low within localised areas of the Order Limits. However, there is the potential during the construction phase for previously unidentified contaminated ground to be encountered. Good practice measure GH01 sets out the process that will be followed in relation to areas of both known and unknown contamination.

- 10.3.11 The contractor will be responsible for identifying areas of unexpected contamination, which could include, but is not limited to, the following:
- Unusual coloured or stained soil (e.g. chemical or oil residues);
  - Fibrous material within soil (e.g. asbestos);
  - Presence of foreign objects (e.g. chemical containers, batteries, tanks, waste pits, drainage runs, domestic waste);
  - Evidence of previous soil workings and/or made ground;
  - Malodourous nature (e.g. petrol/diesel/oily smells, rotten egg smell); and
  - Oily sheen on water within excavations.
- 10.3.12 If unexpected contaminated ground is encountered, it will be inspected and sampled by a suitably qualified and experienced geoenvironmental engineer, and the samples submitted to a United Kingdom Accreditation Service (UKAS) accredited laboratory for testing for an appropriate range of parameters to identify the nature and level of any potential contamination. The results of the testing will be reviewed and assessed by a suitably experienced person to determine if and how the material should be excavated, segregated, stockpiled and if necessary treated or disposed of.
- 10.3.13 Any temporary on-site storage of contaminated material must be in designated areas using suitable methods such as impermeable sheeting, coverings, and with adequate perimeter collection drains to reduce the potential for leachate and run off from the stockpiled material to be generated and migrate.
- 10.3.14 The suitability of the material for re-use will be assessed and where further investigation and remediation of the unexpected contamination is required, a detailed remediation strategy will be prepared and agreed with the relevant planning authority prior to implementation. A Verification Report will also be required to demonstrate full compliance with the requirements of the remediation strategy and submitted to the relevant planning authority once the works are completed.
- 10.3.15 If the material is determined to be unsuitable for reuse it will be removed from site and appropriately disposed in a licensed facility in accordance with the MWMP (**application document 7.7**). Any re-use of material will be undertaken in accordance with the Definition of Waste: Development Industry Code of Practice (Contaminated Land: Applications in Real Environments, 2011).
- 10.3.16 Where contaminated materials are identified and disturbed during construction, the following measures must be adhered to:
- The provision of Personal Protective Equipment (PPE) to construction personnel. PPE will be proportionate to the risk and may include items such as gloves, barrier cream, overalls, dust masks and respirators to minimise direct contact exposure with contaminated materials. The precise PPE requirements will be identified following an appropriate site-specific risk assessment; and
  - The provision of suitable hygiene facilities and clean welfare facilities for all construction site workers.

- 10.3.17 Good practice measure GH02 states that excavation materials identified as being potentially contaminated and unsuitable for reuse within the project will be segregated from other material and transported off-site in suitable vehicles for off-site testing and subsequent disposal. Vehicles will contain and cover the materials to prevent loss of leachate, dust or other material during transport, as required to the risk. The MWMP (**application document 7.7**) contains details of how ground arisings determined as unsuitable for re-use within the project will be disposed of appropriately, for example to a soil treatment centre or landfill.
- 10.3.18 Any confined spaces entry will be undertaken in accordance with appropriate guidance and cognisant of any specific ground gas risks identified.

## Private Water Supplies

- 10.3.19 As part of the pre-construction activities, there will be further discussions with landowners to identify active private groundwater supplies within the Order Limits (W09). To date, no private groundwater supplies have been identified within the Order Limits, however a number have been identified within 500m of the Order Limits and the effects on these during construction are assessed within ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**).
- 10.3.20 Where temporary works are required for periods in excess of 100 days within 500m of an active private groundwater supply, discussions will be held with the relevant landowners to identify the need for any protection arrangements and/or provisions of alternative water supplies that may need to be put in place. The following measures in accordance with good practice measure W09 will be followed:
- In the event of a landowner or tenant reporting that installation activities have affected their Private Water Supply, an initial response will be provided within 24 hours; and
  - Where the installation works have affected a private water supply, an alternative water supply will be provided.
- 10.3.21 In the event of a significant spill of a polluting substance during construction, that cannot be immediately contained, managed and cleaned on site (W10):
- All relevant landowners/tenants will be contacted within 24 hours, within 250m of the spill, to determine if there are any private water supplies that might be affected;
  - An assessment of the likelihood of groundwater contamination reaching identified private water supplies will be undertaken; and
  - Where a private water supply is judged likely to be affected, an alternative water supply will be provided.

# 11. Agriculture and Soil

## 11.1 Introduction

11.1.1 ES Chapter 11: Agriculture and Soils (**application document 6.2.11**) considers the potential effects of the project on agriculture and soil. As noted in Section 1.3 of the CEMP, this chapter sets out the measures that will be undertaken in relation to soil. It fulfils the purpose of and contains all of the necessary measures that would be set out in a standalone Soil Management Plan. This chapter should be read alongside the:

- MWMP (**application document 7.7**), which contains details about how waste, including contaminated soil will be managed and disposed of during construction of the project; and
- LEMP (**application document 7.8**), which contains additional information relating to soils in ecologically important habitats, measures relating to the control of invasive species and other biosecurity risks and aftercare arrangements.

11.1.2 Effective management of the soil resource through the construction process is required to maintain good soil quality as recognised in the following documents which have been considered when producing the CEMP:

- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs (Defra), 2009); and
- Good Practice Guide for Handling Soils (Ministry of Agriculture, Fisheries and Food, 2000), which has been superseded by the Good Practice Guide for Handling Soils in Mineral Workings (The Institute of Quarrying, 2021).

## 11.2 Management Measures

11.2.1 Construction phase management measures in relation to agriculture and soils are contained in the following documents:

- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**); and
- General good practice measures including GG06 and GG08 and topic-specific good practice measures AS01 to AS10 in the CoCP (**application document 7.5.1**).

## 11.3 Implementation of Measures

11.3.1 The following sub-sections set out the construction phase measures in relation to agriculture and soil together with details of proposed implementation.

### Programming the Works

11.3.2 Works will be programmed to occur throughout the year. During wet conditions and where soil is plastic, soil handling works will be put on hold until the conditions/materials are more appropriate, as defined by the field assessment of soil plasticity. Soils will be handled when they are in a reasonably dry and friable state, which is when any soil structure present is least susceptible to lasting damage by compaction and smearing.

11.3.3 In some cases, it may be necessary to handle soils when they are saturated, for example due to programme, engineering or due to the specific nature of the soil, for example in wetland areas. In these cases, location-specific methods will be agreed with the soil scientist prior to work commencing.



- 11.3.4 In the case of frozen ground, excavation works may proceed given effective excavation techniques and implementation of safety measures to prevent excavation collapse during thawing, however backfilling of frozen soils will not be possible as required compaction levels will be unachievable. Subsequently the soils will be allowed to fully thaw before commencing backfilling activities.
- 11.3.5 Allowance will be made within the construction programme for the potential for soil handling operations to have to temporarily cease due to poor weather / ground conditions.

## Site Planning and Preparation

- 11.3.6 In accordance with good practice measure AS10, pre-construction soil surveys will be undertaken in areas of underground cable where soil stripping is proposed and no existing soil survey data is available. This will be used to support the development of detailed soil management measures to inform the handling, movement and reinstatement of soil during construction.
- 11.3.7 A suitably experienced person will be employed to oversee the management of soil during soil stripping, handling, storage and reinstatement. This person will be a qualified soil scientist, someone with the necessary training, qualifications and experience, having achieved the soil professional competence standard 1 (Foundation skills in field soil investigation, description and interpretation) and 6 (Soil science in soil handling and restoration) as set out by the British Society of Soil Science (British Society of Soil Science, 2018) or equivalent.
- 11.3.8 As part of the site planning and in advance of any soil stripping activities the contractor will identify suitable locations for soil storage and soil storage methods based on the soil type and land grade. Site preparation will include the clear marking and signposting of access tracks and all areas that will remain undisturbed during construction activities. Areas of soil that are not to be stripped will be protected. This will either be by total exclusion, for example through the use of fencing, other barriers or appropriate signage, or by the provision of ground protection, for example track matting. No trafficking of vehicles/plant or materials storage will occur outside demarcated working areas.
- 11.3.9 Soil storage areas for different types of topsoil and subsoil will be identified prior to construction activities to avoid the mixing of these resources. The locations identified will take into account the following:
- Topsoil and subsoil intended for reinstatement will be temporarily stockpiled as close as practicable to where they were stripped from; and
  - Different soil types and made ground will be stripped and stored separately.
- 11.3.10 The stockpile locations will take into account landowner boundaries and other site constraints such as flood zones, archaeologically sensitive features and habitat areas.
- 11.3.11 Vegetation will be cleared from all areas where soil stripping will take place and in accordance with LEMP Appendix A: Vegetation Retention and Removal Plan (**application document 7.8.1**). The method of removal will be appropriate to the vegetation type present and will reduce the risk that arisings contain excessive amounts of plant material in the stockpiled soils, which could affect the soil quality due to its putrefaction (rotting) in anaerobic conditions. Arisings must not be added to or mixed with the stripped soil.

## Soil Stripping

- 11.3.12 The soil stripping method will follow the guidance set out in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009).
- 11.3.13 Machinery for undertaking the topsoil and subsoil stripping will include tracked excavators of varying sizes and bulldozers where practicable and where their use is not expected to result in damage to the soils (e.g. compaction or smearing).
- 11.3.14 The size of the earthmoving plant will be tailored to the size of the area to be stripped and the space available within the working area. The use of a long-reach excavator could reduce the need for movement across the soil surface, and the use of tracked vehicles will reduce soil compaction. All plant and machinery will be maintained in good working condition so that the soil is stripped correctly and to reduce the risk of contamination through spillages.
- 11.3.15 Where topsoil stripping is required, the normal working practice will be to strip full depth of topsoil (where present) from:
- Construction compounds;
  - Across the working width; and
  - Any other areas to be trafficked.
- 11.3.16 Wherever the working area allows, the stripped material will be removed and stockpiled adjacent to the excavation, either by pushing it aside or lifting away from the trench. Where this is not possible due to existing site constraints, the material will be placed into a dump truck and driven to the nearest possible location within the Order Limits and stockpiled there for reuse.
- 11.3.17 Topsoil will be recovered to the full width of the working area without contamination with the subsoil. The boundary between the topsoil and subsoil is usually very clearly visible through a change in colour (the topsoil being much darker due to greater organic matter content). The soil handling operations will be informed by the results of the soil survey data, which will identify stripping depths and volumes. Where it is not clear a soil scientist can advise on the appropriate depth.
- 11.3.18 There are areas that will be subject to ‘Strip, Map and Sample’ archaeological investigation prior to the commencement of main construction activities as set out in the Archaeological Framework Strategy (**application document 7.9**) and Outline Written Scheme of Investigation (**application document 7.10**). The specific locations will be identified in Detailed Written Schemes of Investigation (DWSI). In these areas, the soils will be stripped under archaeological supervision following the methodology set out within the DWSI (which will take account of the good practice measures set out for soils).
- 11.3.19 As set out in the Code of Practice (Defra, 2009), if sustained heavy rainfall is experienced resulting in soil materials becoming plastic (as assessed by hand), soil stripping activities will be put on hold until the ground has had at least a full dry day or has met the agreed moisture content criteria. Where this is not possible, weather-specific methods will be agreed with the soil scientist prior to work commencing.
- 11.3.20 Where arisings are deemed unsuitable for reuse, this material will be disposed of in accordance with the steps outlined within the MWMP (**application document 7.7**).

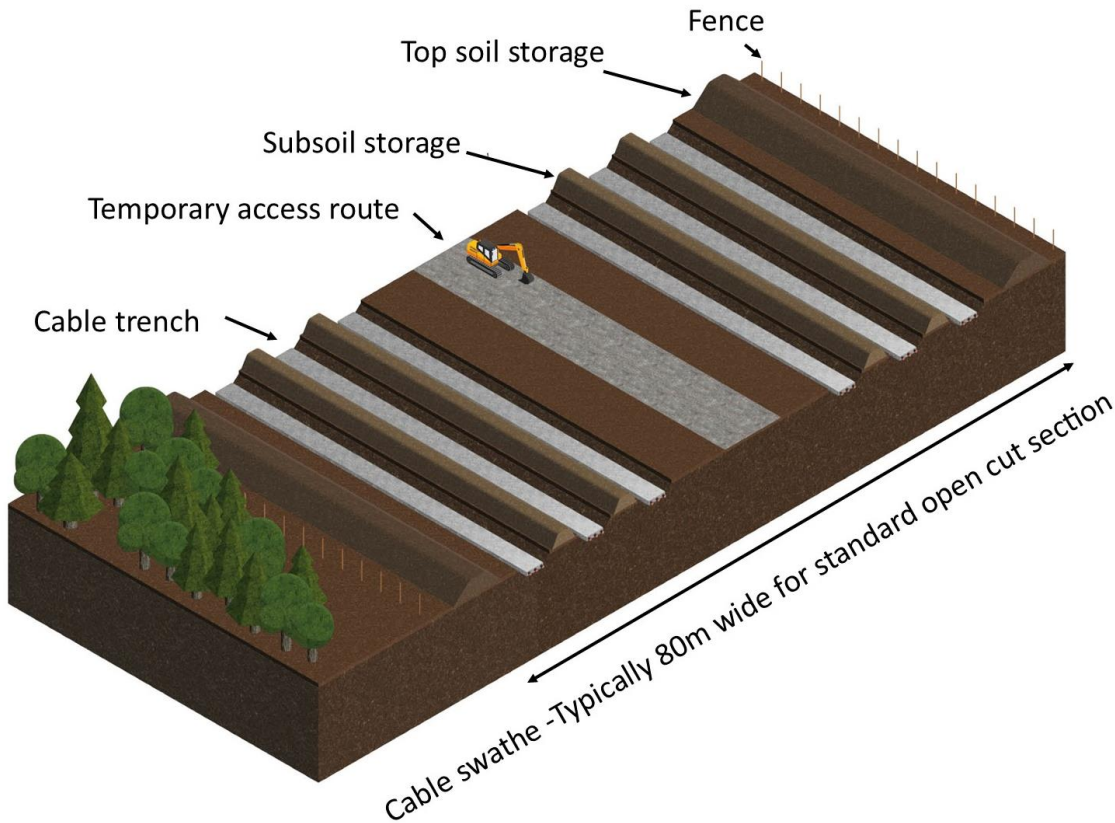
## Creation of Stockpiles

- 11.3.21 Soil stockpiling will be required during construction activities to enable the reuse of the soil resource and limit soil damage from weather and other construction activities. Stockpiles will be designed and positioned to reduce the risks of causing pollution to surrounding watercourses; dust generation; and increasing flood risk to the surrounding area. The stockpiles will not be positioned where they are vulnerable to compaction or erosion.
- 11.3.22 The following good practice measures will apply in relation to soil stockpiles, with further details included in Chapter 9: Water Environment of the CEMP:
- W02: Stockpiles will not be located within 15m of a main river;
  - W06: There will be no permanent land raising undertaken in locations identified as Flood Zone 3; and
  - W07: Construction materials or stockpiles of soils/arising will not be stored within Flood Zone 3 and areas of high and medium risk of flooding from surface water. Where this cannot be avoided, stockpiles will be aligned to avoid creating continuous barriers to floodplain flows.
- 11.3.23 Topsoil stockpiles will not exceed 3m in height and subsoil stockpiles will not exceed 5m in height. A separator geotextile will be placed beneath topsoil stockpile areas.
- 11.3.24 Management of stockpiles will be undertaken to reduce the risk of silt-laden runoff or dust generation, for example through the use of coverings or through seeding where stockpiles will be in place for longer time periods. Where stockpiles become vegetated, weed management will be undertaken, for example through cutting or through the use of selective herbicides to reduce the risk of weed seed predominating in the stockpile seedbank or spreading onto neighbouring land.
- 11.3.25 Water suppression will be used across all areas of exposed earthworks as required to reduce dust generation.
- 11.3.26 Records will be created to show areas where soils have been stripped, where those soils have been stockpiled and where the soils are reinstated to. The records will also include details of the location, volume and soil type to aid reinstatement.
- 11.3.27 Soil will be stored within the Order Limits, where it can be left undisturbed and will not interfere with site operations (see Illustration 11.1). Ground to be used for storing the topsoil will be cleared of excessive vegetation. Topsoil can be stored either on topsoil (of the same type) or on subsoil. However, as subsoil should only be stored on subsoil, topsoil will first be stripped from any land to be used for subsoil storage.
- 11.3.28 Stockpiles will be formed by loose-tipping into heaps. During formation, the top and sides will be smoothed, for example with the bottom of the excavator bucket along the stockpile surface, so that they can shed water more easily down a uniform gradient. This will reduce the risk of water entering into the stockpile and ensure that the stored soil remains dry, reducing the risk of stockpiled materials becoming anaerobic.
- 11.3.29 The layout of stockpiles will vary throughout the works, however they will, wherever practicable, be laid out along the working area edge. Illustration 11.1 shows an indicative layout for a typical underground cable section.
- 11.3.30 In general, soils will not be stored for longer than 18 months. There will be exceptions, for example at the main site compound and underground cable sections, which are anticipated to be in use for up to four years. For the remaining areas of excavation and underground cable installation, the soil layers will be replaced in the correct order as soon

as practicable (for example avoiding unsuitable weather that would affect soil condition) following the installation and testing works.

- 11.3.31 The condition of the stockpiles will be regularly monitored. If rainwater gathers on the stockpile surface or in areas directly adjacent to them, drainage pathways to soakaway areas away from the stockpile will be provided.

**Illustration 11.1 – Typical Cross Section of an Underground Cable Section (Opencut)**



- 11.3.32 Appropriate techniques will be used when necessary to provide protection for subsoils from compaction and smearing in areas subject to heavy trafficking where ground conditions dictate. This will typically be in areas of wet soil. Use of tracked plant will be preferred to wheeled vehicles to reduce compaction of underlying soils. In naturally wet areas bog mats or similar will be used to minimise rutting and compaction of these subsoils.
- 11.3.33 Where soils have not been stripped and temporary access routes are required, these will be constructed using ground protection matting, low ground pressure vehicle tyres or other suitable methods that protect the soil.

## Reinstatement

- 11.3.34 Soil replacement will follow the methodology set out by Defra (2009) once materials such as the temporary access route or compound area have been removed. Reinstatement of subsoil and topsoil will only be carried out when the materials are in a reasonably dry state. Soil will be returned to its final location at the earliest suitable time of year.
- 11.3.35 Land used temporarily will be reinstated to an appropriate condition relevant to its preconstruction condition and, where relevant, Agricultural Land Classification grade, including any subsoil drainage, unless otherwise stated within the LEMP (**application document 7.8**). This will be achieved primarily by reinstating the full soil profile in the

correct sequence of horizons, and in a state where good soil profile drainage and plant root development are achieved.

- 11.3.36 Soil reinstatement is the reverse of soil stripping with topsoil being replaced over subsoil. Soil horizons will be replaced to the correct thickness.
- 11.3.37 Prior to subsoil and topsoil placement the area will be assessed for evidence of compaction and any compaction will be relieved through a suitable method such as ripping to an appropriate depth and at an appropriate spacing to remove all compaction. Ripping or other methods will only be undertaken when the soils are in a non-plastic state to ensure the ripping operation does not result in smearing and additional soil compaction.
- 11.3.38 Where applicable, subsoil will be loose tipped and carefully spread to the required depth across the ripped overburden. Topsoil will be placed and spread over the subsoil with no tracking over either layer. The depth of topsoil spread will take into account post-reinstatement settlement which will depend on the soil type and its condition. This may require soil to be placed 50-100mm above adjacent ground levels to allow for settlement.
- 11.3.39 Where subsoil was not stripped, an assessment will be made of the requirement for deep ripping, as above, and/or subsoil cultivation. Once all compaction has been removed the topsoil will be spread to the required depth, as above. The topsoil will not be compacted. Where a temporary access route is in place, this will typically be the final element to be restored. Once reinstated, the area will be kept clear of traffic.
- 11.3.40 All reinstated land will be free of introduced litter of any kind; and reasonably practicable steps will be taken so that topsoil will be left in a loose friable and workable condition to its original full depth over the working area.
- 11.3.41 The aftercare period will commence after soil characteristics required to achieve the reinstatement standard have been achieved. This means that the land is brought as close as practically possible to its physical state before construction. Further details about aftercare and handover are contained within the LEMP (**application document 7.8**).

# 12. Traffic and Transport

## 12.1 Introduction

- 12.1.1 ES Chapter 12: Traffic and Transport (**application document 6.2.12**) considers the potential impacts of the project on the local road network, the Sudbury Branch Railway Line, navigation on the River Stour and PRow.
- 12.1.2 The project could affect receptors during construction through temporary road closures and traffic management and diversion of PRow.

## 12.2 Management Measures

- 12.2.1 Construction phase management measures in relation to traffic and transport are contained in the following documents:
  - Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**);
  - General good practice measures including GG11 and GG12 and topic-specific good practice measures TT01 to TT03 in the CoCP (**application document 7.5.1**); and
  - ES additional mitigation measure EIA\_TT01 in ES Chapter 12: Traffic and Transport (**application document 6.2.12**) and in the REAC (**application document 7.5.2**).

## 12.3 Implementation of Measures

- 12.3.1 All construction phase measures in relation to traffic and transport are set out in the CTMP (**application document 7.6**), together with details of proposed implementation. All construction phase measures in relation to PRow are set out in the PRow Management Plan (**document 8.5.8**).

# 13. Air Quality

## 13.1 Introduction

- 13.1.1 ES Chapter 13: Air Quality (**application document 6.2.13**) considered the potential air quality and dust effects on both human receptors and ecological receptors. A Dust Risk Assessment has been completed as part of the application for development consent and can be found in ES Appendix 13.1 (**application document 6.3.13.1**). This concluded that with good practice measures in place, that there is a low risk of dust affecting sensitive receptors.
- 13.1.2 As noted in Section 1.3 of the CEMP, this chapter sets out the measures that will be undertaken in relation to dust. It fulfils the purpose of and contains all of the necessary measures that would be set out in a standalone Dust Management Plan. This chapter should be read alongside Chapter 11: Agriculture and Soil of the CEMP, which contains the good practice measures relating to soil management including stripping, storage and reinstatement and Chapter 9: Water Environment of the CEMP, which outlines the methods to control runoff of water or mud to reduce the spread of particulates that could subsequently be disturbed and become airborne.

## 13.2 Management Measures

- 13.2.1 Construction phase management measures in relation to air quality are contained in the following documents:
- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**); and
  - General good practice measures including GG10 to GG19 and topic-specific good practice measure AQ01 in the CoCP (**application document 7.5.1**);

## 13.3 Implementation of Measures

- 13.3.1 The following sub-sections set out the construction phase measures in relation to air quality together with details of proposed implementation.

### Site Planning and Preparation

- 13.3.2 In accordance with good practice measure GG10, the layout of the site compounds will be planned to locate activities or equipment that may produce a noticeable nuisance from plant emissions and dust away from sensitive receptors such as residential properties or ecological sites where practicable.
- 13.3.3 The following activities will be implemented across site to help reduce the risk of dust:
- There will be no bonfires or burning of waste materials at the site (GG19); and
  - A speed limit for vehicles travelling on temporary access routes will be implemented. This will be a maximum of 15mph on surfaced and 10mph on unsurfaced temporary access routes (GG26).

### Construction Plant, Vehicles and Equipment

- 13.3.4 Regular plant checks will be undertaken to check that vehicles and equipment plant conform to relevant applicable standards and that they have been correctly maintained and operated in accordance with manufacturer's recommendations (GG12).

- 13.3.5 Plant used during cutting, grinding or sawing of masonry and concrete with the potential to generate dust, will use dust suppression systems such as water (e.g. addition of water spray at point of impact or cut) or extraction methods (e.g. the use of extractors at the point of cutting and breaking to collect dust) where necessary.
- 13.3.6 When loading, unloading and transporting materials, good practice measure GG13 and GH02 will be adhered to, limiting drop heights of material and sheeting vehicle loads carrying loose or potentially dusty material or spoil. Wheel washing or other wheel cleaning systems will be provided at each main compound access point on to the highway where a need has been identified through the design process. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads to prevent excessive dust or mud deposits from construction activities (GG17).

## Earthworks

- 13.3.7 Chapter 11: Agriculture and Soil of the CEMP outlines the measures for handling soil on the project, including methods to be taken during soil management (stripping, storage and reinstatement). Chapter 9: Water Environment of the CEMP outlines the methods to control runoff of water or mud to reduce the spread of particulates that could subsequently be disturbed and become airborne. The below measures will also be implemented to reduce dust.
- 13.3.8 Monitoring of weather forecasts and registration to weather warnings will aid preparation for large earthwork operations. In dry conditions, appropriate water and dust suppression equipment will be available. In wet conditions, the site will be prepared with suitable cleaning equipment and silt controls.
- 13.3.9 Large earthworks and exposed areas or soil stockpiles will be managed to prevent windborne dust. For example, this could include covering, sealing with an excavator bucket or using water suppression.
- 13.3.10 During reinstatement, methods such as loosening the top of subsoil will be used to limit decompaction of the subsoil; this activity will avoid windy conditions and use water to damp down the surface where necessary.
- 13.3.11 The programme of works will be sequenced to allow subsoil and topsoil to be returned at the earliest suitable time of year after construction has been completed. In the circumstances that work is delayed due to an unforeseen event, the measures listed above will be implemented.



# 14. Noise and Vibration

## 14.1 Introduction

- 14.1.1 ES Chapter 14: Noise and Vibration (**application document 6.2.14**) considers the potential noise and vibration effects on human receptors. ES Chapter 7: Biodiversity (**application document 6.2.7**) also considered the potential noise and vibration effects on ecological receptors.
- 14.1.2 Noise and vibration significance thresholds and construction noise and vibration limits at sensitive receptors have been identified based on BS 5228-1 and BS 5228-2, as outlined in the ES. Generally, construction works will take place distant to sensitive receptor locations. Construction noise and vibration attenuates with distance from source. The highest construction noise and vibration impacts will therefore be confined to works that take place in close proximity to receptor locations. The ES concluded that with good practice measures in place, that there is a low risk of noise and vibration affecting sensitive receptors.
- 14.1.3 As noted in Section 1.3 of the CEMP, this chapter sets out the measures that will be undertaken in relation to noise and vibration. It fulfils the purpose of and contains all of the necessary measures that would be set out in a standalone Noise and Vibration Management Plan. National Grid and its contractor will adopt the control measures when undertaking the construction of the project.

## 14.2 Management Measures

- 14.2.1 Construction phase management measures in relation to noise and vibration are contained in the following documents:
- Embedded measures in CEMP Appendix B: REAC (**application document 7.5.2**);
  - General good practice measures including GG10 and GG11 and topic-specific good practice measure NV01 in the CoCP (**application document 7.5.1**); and
  - ES additional mitigation measures EIA\_NV01 and EIA\_NV02 in ES Chapter 14: Noise and Vibration (**application document 6.2.14**) and in the REAC (**application document 7.5.2**).

## 14.3 Implementation of Measures

- 14.3.1 The following sub-sections set out the construction phase measures in relation to noise and vibration together with details of proposed implementation.

### Core Principles

- 14.3.2 In developing the noise control measures to be used, the following hierarchy will be followed:
- Control at source – for example the selection of quieter equipment;
  - The choice of location for equipment on site;
  - Control of working hours; and
  - The provision of acoustic enclosures around equipment or barriers around work sites.

14.3.3 As per the hierarchy above, the first source of control for noise pollution is to control at the source. To this end, where reasonably practicable, efforts will be made to use equipment that reduces the noise produced where located in close proximity to sensitive receptors.

14.3.4 Where works may be required to be undertaken outside of the core hours (as described in Section 2.3), the relevant planning authority will be notified in advance along with any neighbouring receptors. Where a change of plant is required that is expected to produce a higher noise level than that assessed within the ES and cannot be replaced for an alternative, or more items of plant are required than anticipated, then the relevant planning authority would be notified of the change.

## Best Practicable Means

14.3.5 Section 72 of the Control and Pollution Act 1974 requires projects to use Best Practicable Means to reduce noise during construction. In accordance with good practice measure NV01, the following Best Practicable Means measures will be implemented on the project:

### Site Planning and Preparation

- Methods of construction and associated plant will be selected so as to reduce noise and vibration in the first instance, thus reducing the need for the use of percussive and vibratory equipment, particularly for night-time working;
- As part of the site planning the contractor will conduct detailed construction noise and vibration assessments of the activities identified to determine whether there are likely to be any new or different significant adverse effects to those identified within the ES and therefore whether additional measures, including BPM, may be required;
- In accordance with good practice measure GG10, the layout of the site compounds, trenchless crossing and piling rigs will be planned to locate activities or equipment that may produce a noticeable nuisance from noise and vibration away from sensitive receptors such as residential properties or ecological sites where practicable. Work sites will be planned and designed to limit reserving of vehicles and the noise associated with reversing beacons;
- Noise implications will be considered when planning activities such as deliveries of cable drums and bulk materials. Deliveries will be restricted to normal working hours, where reasonably practicable;
- Works within ecologically designated sites or where sensitive features are retained within or adjacent to the Order Limits, suitable buffer zones will be established, along with other measures to reduce impacts from noise to the site or feature, which may include but not be limited to acoustic fencing, reduction of working width and use of alternative plant or vehicles. This will be reviewed and agreed with the site ecologist;
- Static plant will be located so as to optimise screening and/or distance attenuation in relation to occupied residential properties, and fitted with suitable acoustic surrounds if required; and
- Before works commence, the site workforce will be fully briefed on the need to keep all noise generated to a low level (GG05). Additional briefings will be given in advance of any night time works to further limit unnecessary noise.

## Plant and Machinery

- Plant will be inspected on arrival to site and the project will only using plant that conforms with or better than relevant national or international standards, directives or recommendations on noise or vibration emissions, including The Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001 (GG12);
- Fitting compressors, percussion tools and vehicles with effective silencers of a type recommended by the manufacturers of the compressors, tools or vehicles and at least to the requirements of BS 5228-1:2009+A1:2014;
- Setting audible vehicle reversing sirens on as low a setting as is compatible with safety requirements and machines in intermittent use will be shut down in intervening periods of non-use when it is safe to do so; and
- Where reasonably practicable, demolition or dismantling of the existing 132kV overhead line will be carried out using equipment that breaks concrete using pneumatic methods in preference to percussive methods.

## Additional Mitigation Measures

14.3.6 ES Chapter 14: Noise and Vibration (**application document 6.2.14**) has identified that the following locations may experience significant noise effects during construction and will require additional mitigation to avoid significant effects unless a detailed assessment is undertaken which demonstrates that no significant noise impacts would occur to nearby Noise Sensitive Receptors. These locations are:

- Underground cables approximately 160m to the south of Dews Hall Education Centre, Henny Road, Lamarsh, CO8 5EX (588737, 236699);
- Pylon 4Y004A (Realignment/construction) (609163,245621);
- Pylon RB44 (Construction) (592553,237006);
- Pylon RB7 (Construction) (608185,244251);
- Pylon RB33 (Construction) (600664,239851);
- Pylon RB25 (Construction) (603394,240956);
- Pylon 4YLA002 (Removal) (587008,236421);
- Trenchless crossing of the River Stour (night-time works) (589271,236627 and 589846,236774);
- Trenchless crossing of the Sudbury Branch Railway Line (night-time works) (588758,236508 and 589213,236612); and
- Trenchless crossing to the south of Ansell's Grove (night-time works) (587186,235954 and 587832,236098).

14.3.7 These locations are where receptors are in close proximity to the works and the activities proposed have the potential to cause disruption. Due to the location specific nature of these works they cannot be located elsewhere. Additional temporary noise mitigation measures will be put in place to reduce noise levels from construction plant and machinery at these locations.

14.3.8 Levels of noise associated with these works are not anticipated to meet the example thresholds used to determine eligibility for noise insulation and temporary rehousing set out in Annex E of BS5228-1:2009+A1:2014 for receptors.

- 14.3.9 ES Chapter 14: Noise and Vibration (**application document 6.2.14**) has also identified that significant effects relating to vibration may be experienced from construction plant and machinery at pylon 4Y004A. Additional temporary measures will be put in place to reduce vibration levels from construction plant and machinery at pylon 4Y004A, to the east of Hill House Farm, Burstall Hill (609110, 245633), unless a detailed assessment is undertaken which demonstrates that no significant vibration impacts would occur.

## 14.4 Section 61 Consent

- 14.4.1 The contractor will be required to submit applications for Section 61 consents, variations and dispensations under CoPA 1974 for construction activities that are:
- Likely to result in a significant effect at a sensitive receptor (see ES Chapter 14: Noise and Vibration); or
  - Likely to be undertaken outside of the Core Working Hours (within the parameters of DCO Requirement 7 of the draft DCO (**application document 3.1**)).
- 14.4.2 The contractor will engage with the relevant planning authority to identify construction activities that require Section 61 consent. This will include a list of the activities for which separate Section 61 applications will be required to enable all parties to agree the most efficient approach to the Section 61 approval(s).
- 14.4.3 The contractor will seek to engage with the relevant planning authority at least six weeks prior to submission of the Section 61 application to agree the format for the submission. The application for Section 61 consent will include:
- An outline of the proposed construction method, type and number of plant to be used;
  - Definition of the working hours required and, where these differ from the Core Working Hours detailed in Requirement 7 of the draft DCO (**application document 3.1**), a justification for the working hours sought;
  - A work programme which identifies the location and duration of each significant noise-generating activity;
  - The sound power levels, or sound pressure level at 10m, anticipated for each item of plant for each relevant activity;
  - Appropriate (in terms of noise/vibration level, duration and working hours) justification that the method and plant proposed demonstrates that Best Practicable Means has been employed to control noise and vibration impacts;
  - Predicted noise and vibration levels at specified sensitive receptor locations supported by calculations as per the methodology in BS 5228 part 1 (BSI, 2014b) and part 2 (BSI, 2014c); and
  - All steps to be employed to reduce noise and vibration during the works.
- 14.4.4 Where works are located near to a planning boundary, the Section 61 submission will be made to the relevant planning authority within which the construction activities are located. Neighbouring relevant planning authorities will be consulted in advance of the works to determine the need for any additional measures. Where the works are to be undertaken on the boundary between two authorities, an application will be made to each authority. The authorities are requested, through discussion, to agree a common set of consent conditions to be issued from each relevant planning authority.

- 14.4.5 Agreement of proposed measures will be sought from the relevant planning authority through Section 61 consent, dispensation or variation applications.
- 14.4.6 The contractor will be responsible for any appeals under the DCO in relation to Section 60 and Section 61 of the CoPA 1974.

## Dispensation/Variation

- 14.4.7 In the event that works (for which a Section 61 consent has been applied for) have to be rescheduled or modified (e.g. method or working hours) for reasons not envisaged at the time of the Section 61 application, the contractor will apply for a dispensation or variation from the relevant planning authority in advance of the start of those works and at the time specified within the CoPA 1974. The dispensation will be sought by means of an application for a variation to the agreed matters, setting out the revised construction programme or method and the relevant noise calculations.
- 14.4.8 Where the rescheduling relates to work of a more urgent or critical nature (such as an activity likely to delay other schedule critical activities), the contractor will apply to the relevant planning authority using the Section 61 process, or other process agreed with the relevant planning authority. This change application will be issued seven days (but at least two working days) before the start of those works.
- 14.4.9 Where working outside of Core Working Hours has been accepted in a Section 61 consent (including dispensation or a variation), occupiers of nearby residential or other sensitive properties who are likely to be affected will be informed, as soon as reasonably practicable, by the contractor and the likely duration of planned works.
- 14.4.10 The contractor will be required to maintain an up-to-date log of all relevant agreed hours and controls on working. This will incorporate any changes to working hours or practices set out in the CEMP which have been agreed through the Section 61 process.

## Unscheduled Overruns

- 14.4.11 In the event that planned works not covered by a consent (either full Section 61 application or dispensation/variation) extend beyond the approved working hours and continue due to unforeseen circumstances that would affect safety or engineering practicability, the relevant planning authority will be kept informed of the nature, time, location and reasons for the overrun as soon as possible, and records kept by the site management.
- 14.4.12 The relevant planning authority will be requested to provide a designated e-mail address to receive such notifications. The contractor will be required to notify the relevant planning authority in writing by e-mail to a designated e-mail address provided by the relevant planning authority explaining the reason for the unscheduled overruns, the expected duration of the overruns and specific measures to be put in place to minimise the associated noise impacts.
- 14.4.13 Overruns and the reasons for these will be reviewed by National Grid, its contractor and the relevant planning authority, with the aim of reducing the potential for further unplanned overruns.
- 14.4.14 In the case of work required in response to an emergency (or which, if not completed, would be damaging or unsafe), the relevant planning authority will be advised as soon as is reasonably practicable of the reasons for, and likely duration of, such works.

# 15. Implementation

## 15.1 Implementation of the CEMP

- 15.1.1 National Grid will put in place robust procedures to inform and supervise all those working on the project, including its contractor, to make sure the control measures set out in the CEMP are adopted when undertaking the construction of works authorised by the DCO. The main responsibility for implementing these control measures will fall to the contractor.
- 15.1.2 The contractor will brief all operatives on the specific details within the CEMP prior to the commencement of works. The briefings will be delivered by a suitably trained member of the team such as the site supervisor, Construction Manager or Environmental Manager.

## 15.2 Site Checks and Reporting

- 15.2.1 The contractor will undertake pre-site condition surveys as part of the site setup. This will include making a record of the condition of existing features such as tracks and roads. Post-site condition surveys will be undertaken by the contractor after construction and the results of these will be discussed with the landowner prior to handover.
- 15.2.2 Regular site checks will be carried out across the project to monitor compliance with the CEMP and other associated plans. The programme of site inspections will be managed by the Environmental Manager who will draw on appropriate suitably experienced specialists for specific tasks. The overarching inspections are summarised below in Table 15.1. Immediate action including, if necessary ‘stopping a job’, will be taken should any incidents or non-conformance with the CEMP be found during inspection.
- 15.2.3 Where nuisance is predicted or already occurring, appropriate remediation measures will be put in place to mitigate in accordance with measures outlined within the CoCP and CEMP. The frequency of inspections will be increased when activities with a high potential to cause nuisance are being carried out, or conditions increase the risk of nuisance, e.g. windy conditions increase dust risk.
- 15.2.4 Site checks and inspections will include checks against compliance with good practice measures and other commitments made by the project.

**Table 15.1 – Site Checks Relevant to the CEMP**

| Inspection Type                 | Purpose  | Who   | Frequency |
|---------------------------------|--|---|-----------|
| <b>General Site Inspections</b> |  |   |           |
| Environmental Inspections       | To monitor compliance with project commitments and the environmental standards.<br>To record adherence to good practice measures and raise actions where concerns are identified.<br>To check mitigation measures for sensitive features are in place. | Environmental Manager<br>Environmental Clerk of Works | Weekly    |
| Audits (External/Internal)      | Formal audit process for internal Management System.   | External Auditor<br>Environmental Manager             | Annual    |

| <b>Inspection Type</b>  | <b>Purpose</b>  | <b>Who</b>       | <b>Frequency</b>  |
|---|---|------------------|---|
| Site Checks   | To ensure that working practices are carried out in accordance with approved methods, standards and good practice measures.   | Works Supervisor | Daily visual check in working area                      |
| Environmental Observations  | Allows all staff to raise concerns or good practice ideas to safeguard continual improvement and innovation.  | All staff        | As required.  |
| <b>Landscape and Visual – additional checks included within the LEMP (application document 7.8)</b> |   |                  |   |
| Visual inspection   | Visual inspections of lighting type, number, location and direction to monitor for non-compliance with the lighting design and conformance with the CEMP.   | Works Supervisor | Weekly (daily when exceptional works are taking place)  |
| <b>Biodiversity - checks included within the LEMP (application document 7.8)</b>                    |   |                  |   |
| <b>Historic Environment – checks included within the Outline WSI (application document 7.10)</b>    |   |                  |   |
| <b>Water Environment</b>  |   |                  |   |
| Visual inspection   | Visual inspections to monitor storage of materials and application of pollution prevention measures. Review of effectiveness of silt reduction measures and checking buffer zones are maintained around watercourses. | Works Supervisor | Weekly (daily when working within 10m of a watercourse) |
| Monitoring weather conditions   | Checking weather conditions and flood alerts for conditions that could result in flooding to the construction site.   | Works Supervisor | Daily   |
| <b>Geology and Hydrogeology – further checks set out in the MWMP (application document 7.7)</b>     |   |                  |   |
| Visual inspection   | Visual inspections to check for potential contamination in the soil.  | Works Supervisor | During soil stripping                                   |
| <b>Agriculture and Soil</b>   |   |                  |   |
| Visual inspection   | Visual inspections to check soil stockpiles. For example, checking for signs of erosion, water ponding, loss of protective vegetation and signs of invasive species.  | Works Supervisor | Once a month and after heavy rainfall                   |
| Monitoring weather conditions   | The weather can affect soil handling conditions. For example, soil should not be stripped or moved when waterlogged or frozen.  | Works Supervisor | Daily   |
| <b>Air Quality</b>  |   |                  |   |
| Visual inspection   | Visual inspections to monitor for visible dust emissions or deposition on site: identifying problems and undertaking corrective actions   | Works Supervisor | Daily during dry conditions and during activities       |

| Inspection Type               | Purpose  | Who                   | Frequency   |
|-------------------------------|--|-----------------------|---|
|                               | where dust may be generated or has been generated.   |                       | at high risk of generating dust.<br>e.g. soil handling, cutting |
| Monitoring weather conditions | More dust is likely to be generated and deposited during dry and or windy conditions. Additional dust suppression may be required during such times. | Works Supervisor      | Daily   |
| <b>Noise and Vibration</b>    |  |                       |   |
| Visual inspection             | Checks of noise barriers to check for damage that could reduce the effectiveness.  | Works Supervisor      | Weekly  |
| Monitoring                    | Noise and vibration monitoring during specific activities such as piling.  | Environmental Manager | During noisy or vibratory work activities                       |

15.2.5 The results of inspections will be recorded in an Environmental Log. Findings will be disseminated to the wider construction team as appropriate and additional procedures put in place if required.

## 15.3 Non-Compliance Procedure

15.3.1 The EnvCoW will be responsible for undertaking site audits to check compliance with the CEMP and method statements. All incidents associated with the construction of the project, including environmental incidents and non-conformance with the CEMP, will be reported and investigated as per the following steps:

1. The relevant work activities will stop;
2. The EnvCoW, contractor Project Manager and Environmental Manager will be contacted, the Land Officer will be contacted if on private land, for grantor liaison;
3. The size of the incident will be assessed:
  - If the incident is controllable by staff on site, remedial action will be taken immediately in accordance with any relevant method statement; and
  - If the incident cannot be controlled by the staff on site, emergency assistance will be sought.
4. The appropriate enforcing authority will be contacted and informed, including:
  - The Environment Agency for incidents affecting rivers, groundwater and major emissions to atmosphere;
  - The local sewerage undertaker for incidents affecting sewers;
  - The Local Authority Environmental Health Department for incidents that could affect the public;
  - The Local Highways Authority for incidents that could affect the local road network; and



- The Food Standards Agency for incidents that have the potential to affect food through deposition on crops or land used for grazing livestock.
5. The contractor will instigate an investigation into the occurrence of the incident. An action plan will be prepared to determine why the incident occurred and whether any modifications to working practices are required to prevent a recurrence and all workers will be notified. The findings will be sent to the appropriate enforcing authority where necessary in accordance with any relevant guidance or legislation.

## 15.4 Complaints Procedure

- 15.4.1 All complaints associated with the construction of the project, including non-conformance with the CEMP and other management plans, will be reported and investigated using a detailed complaints procedure developed by the contractor.
- 15.4.2 The detailed complaints procedure (including but not limited to complaints relating to noise, dust, vibration, pollution and construction traffic) will set out:
- How and to whom complaints can be made;
  - A reasonable timeframe for responding to complaints;
  - The potential remedies available to address complaints; and
  - Who to contact in the event that the complainant is not satisfied with the outcome.
- 15.4.3 Primarily any minor issues or complaints relating to site incidents will be dealt with by the contractor. For the escalation of these issues or for more serious issues these will be dealt with by National Grid project team. Any complaints regarding environmental issues will be discussed with the Construction Manager and the Environmental Manager, and appropriate action will be taken, and the conclusion recorded. A record will be made of the incident for audit purposes.
- 15.4.4 In addition to the project telephone helpline and the project website, complaints from an external party may also be received via a number of other sources, for example, via written correspondence or incidental contact with construction workers.
- 15.4.5 Where a member of the public makes a complaint, it will be passed initially to the community relations team. The community relations team will liaise with the other members of the project team to investigate the complaint. Appropriate action will be taken by the project construction team.

## 15.5 Change Process

### Introduction

- 15.5.1 The CEMP is one of the plans listed in sub-paragraph (2) of Requirement 4(1) of the draft DCO (**application document 3.1**) which states: *'All construction works forming part of the authorised development must be carried out in accordance with the plans listed in sub-paragraph (2) below, unless otherwise agreed with the relevant planning authority or other discharging authority as may be appropriate to the relevant plan concerned.'*
- 15.5.2 Requirement 1(4) of the draft DCO (**application document 3.1**) states: *'Where an approval or agreement is required under the terms of any Requirement or a document referred to in a Requirement, or any Requirement specifies "unless otherwise approved" or "unless otherwise agreed" by the relevant highway authority or the relevant planning authority, such approval or agreement may only be given in relation to minor or immaterial changes and where it has been demonstrated to the satisfaction of the relevant highway*

*authority or the relevant planning authority that the subject matter of the approval or agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the Environmental Statement.'*

15.5.3 Where there is a need to update the CEMP beyond derogations addressed pursuant to the above, the below text addresses the process for changing the CEMP itself. This does not cover changes to the DCO (material or non-material) which would be managed through the process set out in Schedule 6 of the Planning Act 2008.

15.5.4 Therefore, the below process is limited to changes to the CEMP.

## CEMP Changes

15.5.5 It may be necessary to amend the details contained in the CEMP as a result of the iterative discussion and engagement that will continue after the CEMP has been approved. The resulting changes would not alter any of the underlying commitments, mitigations and methodologies set out in the CEMP. An example may be where a preconstruction survey identifies that a measure already committed to is no longer required in the CEMP. In every case, consideration will be given to any changes to the outcome of the assessment of environmental effects.

15.5.6 Where there is a proposed change to the CEMP, National Grid will provide details to the relevant planning authority together with evidence of relevant stakeholder engagement, where upon, the relevant planning authority will, acting reasonably, endeavour to respond within 28 days to either confirm its consent to the change to the CEMP or provide its reasons why the change is not accepted. National Grid will also publish any amended version of the CEMP on the project website and will make clear in doing so that any previous version(s) are superseded.

# References

- British Society of Soil Science (2018) Working With Soil – Professional Competency in Soil Science. (Online).
- British Standards Institution (2014a) BS EN 12464-2:2014 Light and lighting. Lighting of work places Outdoor work places. London.
- British Standards Institution (2014b) BS 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. London.
- British Standards Institution (2014c) BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration. London.
- Construction Industry Research and Information Association (2001) Control of water pollution from construction sites. Guidance for consultants and contractors (C532).
- Construction Industry Research and Information Association (2005) Environmental Good Practice on Site (C650).
- Construction Industry Research and Information Association (2006) Control of water pollution from linear construction projects. (C648);
- Contaminated Land: Applications in Real Environments (2011) The Definition of Waste: Development Industry Code of Practice.
- Department for Environment, Food and Rural Affairs (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.
- Environment Agency (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.
- Health and Safety Executive (2002) Control of Substances Hazardous to Health Regulations.
- Institution of Lighting Professionals (2018) Guidance Note 08/18 Bats and artificial lighting in the UK, Bats and the Built Environment series.
- Institution of Lighting Professionals (2020) Guidance Note 01/20 Guidance notes for the reduction of obtrusive light.
- International Organization for Standardization (2015) BS EN ISO 14001:2015 Environmental management systems – Requirements with guidance for use. Geneva.
- Institute of Quarrying (2021) Good Practice Guide for Handline Soils In Mineral Workings
- Ministry of Agriculture, Fisheries and Foods (2000) Good Practice Guide for Handling Soils.
- NetRegs (n.d.) Sector specific environmental guidance for businesses. (Online)

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