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Proposed Grid Supply Point Substation off the A131

Environmental Appraisal
Appendix 1: Construction Environment Management Plan (CEMP)
April 2022

nationalgrid

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Appendix 1: Construction Environmental Management Plan

1. Introduction

1.1 Summary

- 1.1.1 National Grid Electricity Transmission (National Grid) is applying for planning permission for a new Grid Supply Point (GSP) off the A131, between Butler's Wood and Waldegrave Wood, to the east of Wickham Saint Paul and to the southwest of Sudbury (the proposed GSP substation). The proposed GSP substation is required to facilitate the removal of approximately 25km of existing 132kV overhead line in connection with the proposed reinforcement of the 400 kilovolt (kV) transmission network between Bramford Substation in Suffolk and Twinstead Tee in Essex (hereafter referred to as 'the wider reinforcement project').
- 1.1.2 This Construction Environmental Management Plan (CEMP) sets out site-specific measures and construction methodologies that will be implemented to help avoid or reduce potential effects of the project on the environment during construction.

1.2 Purpose of the CEMP

- 1.2.1 The purpose of the CEMP is to set out how environmental management will be undertaken during construction of the proposed GSP substation. It also explains how traffic, waste and proposed planting will be managed. The main responsibility for implementing the CEMP will fall to the contractor.
- 1.2.2 The planning application for the proposed GSP substation includes environmental commitments under the following categories:
- Embedded Design: measures that form part of the engineering design (set out in Section 3.1 of the Environmental Appraisal).
 - 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 set out in Annex A (Code of Construction Practice - CoCP) of this CEMP.

1.3 Structure of the CEMP

- 1.3.1 Section 1 (this section) sets out the purpose and structure of the CEMP, and Section 2 provides an overview of the project and construction approach.
- 1.3.2 Sections 3 and 4 set out general site practices such as working hours, construction programme, and roles and responsibilities. It references to general good practice measures contained in the CoCP (Annex A) as appropriate.
- 1.3.3 Sections 5 to 13 are structured as per the environmental topic sections of the Environmental Appraisal. Each chapter commences with a succinct summary of where relevant construction-phase measures are contained in the Environmental Appraisal or CoCP. Sections 5 to 13 then set out any additional information in relation to implementation of identified measures.
- 1.3.4 Section 14 explains procedures in relation to site checks and reporting and how any change to the CEMP would be managed, if change were necessary to implement the proposed GSP substation.

2. Description of the Proposed GSP Substation

2.1 Introduction

2.1.1 The proposed GSP substation will involve the installation of the following features:

- a fenced compound approximately 270m by 50m in size, enclosed by a 2.4m high palisade security fence and 3.4m high electric pulse fence;
- small modular container type housings and associated electrical equipment, and small modular self-contained office/welfare units;
- two Super Grid Transformers and associated reinforced concrete bunds;
- a 13m high steel gantry to receive downloads from the adjacent existing 400kV overhead line pylon;
- a permanent bellmouth junction and access road from the A131;
- a separate 400kV single circuit sealing end enclosure, approximately 33m by 30m in area, and associated gantry; and
- LED lighting, surface and foul drainage and landscape plantings.

2.1.2 More details of the proposed GSP substation are set out in Section 2 of the Environmental Appraisal.

2.2 Environmental Commitments

2.2.1 National Grid has identified a number of good practice measures that would avoid or reduce environmental effects during the design and construction phases. The good practice measures are presented within Annex 1 of this CEMP. These measures will be delivered if the proposed GSP substation was granted consent and will be implemented during construction. Each good practice measure has been assigned a reference number, for example (GG01) and these are referenced throughout the CEMP. The commitment numbering has been kept consistent with the CoCP on the wider reinforcement project, and the numbering is therefore not consecutive in all cases, as commitments not relevant to the proposed GSP substation have been excluded from this CEMP. This is for ease of cross-reference to other documents.

2.2.2 The design of the proposed GSP substation is the result of a process of iterative design development. Environmental considerations have had a key influence on the design, with input from the project team (including the results of site surveys) and discussions with interested parties (such as landowners, Braintree District Council and regulators). This has led to a number of embedded measures being included within the design that avoid or reduce potential impacts that may otherwise be experienced during construction and operation. Table 2.1 outlines the key embedded measures that have been incorporated into the design to date.

Table 2.1: Embedded Measures

Embedded Measures	Benefits
The proposed GSP substation has been positioned between Butler's Wood and Waldegrave Wood	This location poses the least impact on the landscape character of the area, visual amenity, ecology and the historic environment. This option would also be the least

Embedded Measures	Benefits
The proposed GSP substation would include noise enclosures around the SGT transformers, which is built into the designs presented. SGTs would also be installed on shallow concrete plinths surrounded by concrete bunds designed to contain spills.	constrained from a technical perspective and would have the shortest access road. The noise enclosure is a good practice design measure that would provide a barrier around the transformers and reduce the operational noise levels at the boundary of the site. The concrete plinth and bund structures will act to reduce the risk of pollution events as these are the only items of oil containing plant onsite.
The proposed GSP substation design has been located away from the southern edge of Butler’s Wood.	The design of proposed GSP substation reduces the risk of damage to tree roots and removes the need for trimming existing trees that are not currently subject to management under existing wayleaves. No felling of trees is required within Butler’s Wood or Waldegrave Wood to facilitate construction and operation of the proposed GSP substation.
The access road has been developed to reduce clear views of the proposed GSP substation from the A131 down the access road and avoid the need to fell trees within woodland designated as Ancient Woodland Inventory (AWI) habitat.	The site access addresses the visibility restrictions of northbound traffic on the A131, while also limiting the visibility of the proposed GSP substation from site entrance. While the location of the site access would involve the removal of a section of hedgerow and may require some tree trimming, it avoids felling trees within Butler’s Wood and Waldegrave Wood, designated within the AWI.
Material generated from excavation areas is being reused on site to provide landscape mounding to the west of the proposed GSP substation and between the proposed GSP substation and A131. The western mound would be approximately 2.5m high while the eastern mound would be approximately 1.5m high.	This avoids creating waste material leaving the site and the softens views with respect to views from the west and east.
Rather than increasing the height of embankments in the western part of the proposed GSP substation, the design incorporates a retaining wall whereby the eastern extent of the proposed GSP substation is approximately 1m below the surrounding ground level.	Alongside the inclusion of a 1m mound between the GSP and the A131, the drop in ground level helps screen components of the GSP and soften views from the east. This also reduces the requirement for embankments so the western extent of the proposed GSP substation would not be as elevated and soil does not need to be imported.
A 1:60 gradient for the level of the proposed GSP substation has been incorporated such that the western extent of the proposed GSP substation would not be as elevated and earthworks are reduced when compared to a flat design meaning the embankments required at the west of the access road are further from Butler’s Wood.	The reduced elevation of the western extent of the proposed GSP substation reduces the potential landscape and visual impacts and the reduced in required earthworks reduces the proximity to trees in Butler’s Wood.

Embedded Measures	Benefits
Standard landscape planting has been incorporated around the proposed GSP substation.	The landscape planting would help to soften views towards the GSP substation and reconnect the two separate blocks of ancient woodland.
National Grid has committed to achieving a 10% Biodiversity Net Gain (BNG). As part of the proposed GSP substation an area for BNG using Biodiversity Metric 3.0 (Defra, 2021) has been identified.	This commitment means that the proposed GSP substation will deliver a net improvement to biodiversity. Figure 4 outlines the area included in the site boundary within which planting or land management for BNG is proposed (as well as embedded landscape planting) which, once established, also contributes to filtering and softening views of the proposed GSP substation.
In development of the proposed GSP substation design, a previously curved shape of woodland planting has been modified to align with feedback provided by Natural England, Essex County Council and Essex Place Services.	The alteration of the planting design reflects existing and historical field patterns where possible and provides woodland connectivity between Butler's Wood and Waldegrave Wood; two areas of ancient woodland that have historically been connected.

2.3 Construction Methodology

- 2.3.1 This section outlines the general practices to which contractors shall adhere to in setting out managing, and reinstating day to day site works and maintenance.
- 2.3.2 The layout of the proposed GSP substation and its infrastructure is provided on Figure 2 of the Environmental Appraisal. The contractor site compound and construction work boundaries, and their respective access and egress routes within the site boundary shall be predefined and agreed with National Grid prior to the commencement of works.
- 2.3.3 The site compound for contractors shall include dedicated space for cabins, materials storage and parking for cars and mechanical plant. The positions of the compound entrance are to be agreed with National Grid and should be controlled via a gate/barrier to be kept locked outside of working hours.

Mobilisation and Site Set Up

- 2.3.4 In accordance with commitment GG06, a full record of condition will be carried out (photographic and descriptive) of 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.
- 2.3.5 All necessary early environmental and ecological management will be carried out in accordance with the commitments laid out in this CEMP and the CoCP.
- 2.3.6 In accordance with commitment GG11, the following site layout and housekeeping measures will be implemented during the set-up of the main construction compound:
- 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.

2.3.7 Working areas will be appropriately fenced to reduce the risk of site staff unintentionally exiting the site boundary (GG24). The choice of fencing will be decided following a risk assessment by the contractor, relevant to the work location. Specific areas such as compounds may require additional security measures such as lighting, security guards or closed-circuit television. 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. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified.

2.3.8 Specific areas will be identified for the storage of materials and waste (GG14). 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. 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 detail on waste management is provided in Section 3.4 of this CEMP.

2.3.9 The access point to the A131, shown on Figure 2, will be designed to reduce risks and congestion by providing for the safe and efficient passage of construction traffic. Measures such as ‘bellmouth’ construction and temporary construction matting or temporary hardstanding construction will be used to protect verges and provide a sound foundation for the safe passage of vehicles. Further details on roads are described in Section 10 of this CEMP.

2.3.10 A range of delivery vehicles will be used during mobilisation e.g. light goods vehicles and vans to deliver smaller items, Heavy Goods Vehicles (HGV) and low-loader units to deliver larger items such as excavators, construction mats, and Portakabin™-size local welfare units and abnormal indivisible loads (AILs) to deliver the super grid transformers. Construction traffic movements will be kept to the minimum reasonable for the effective and safe construction of the project. AIL plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so (GG12).

Reinstatement

2.3.11 Land used temporarily will be reinstated where practicable to its pre-construction condition and use bearing in mind the planting and land use proposals shown on Figure 4 of the Environmental Appraisal.

2.3.12 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/structures will be removed. The Planting Plan is included in Figure 4 of the Environmental Appraisal and the contractor will implement the requirements of this plan. A five-year aftercare period will be established for all planting and reinstatement (LV03).

2.4 Construction Schedule

- 2.4.1 Subject to receiving planning consent, it is anticipated that construction would begin in early 2023 and that there would be an approximately 14 month period between commencement of construction and the start of operation in early 2024.
- 2.4.2 Construction activity will begin with site preparation including setting up the temporary accommodation, parking and laydown area. The permanent perimeter fencing will be completed early in the construction programme. The permanent access road will be installed to connect the proposed GSP substation to the existing road network and will be designed to highways standards.
- 2.4.3 The initial preparatory works will comprise the temporary removal of the top layer of ground and laying a temporary stone capping to provide a clean and stable working platform. 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 proposed GSP substation.
- 2.4.4 Following the preparatory works, any required permanent foul, oily water, including below ground oil separator, and surface water drainage systems will be installed.
- 2.4.5 Shallow concrete pad foundations and steel supports will be installed for the electrical equipment. Reinforced concrete bunds will be installed for each SGT.
- 2.4.6 Connection of the proposed GSP substation will require a series of outages on the 400kV and 132kV overhead lines. The scheduling of these outages take into account wider network considerations and will dictate elements of the construction programme. The majority of the civil construction works (consisting of earthworks, concrete works and fencing) will be completed prior to any outages and will take approximately six to eight months.
- 2.4.1 Following the main civil construction works the mechanical and electrical works associated with one of the SGT circuits would be undertaken as well as the accompanying works (laying of high voltage cables, works associated with 132kV pylon replacement including installation and removal of a 132kV temporary diversion and installation of a 400kV a line temporary diversion).
- 2.4.2 Once operational, subsequent works will need to be undertaken during an outage on the 400kV overhead line and these include the replacement of the 400kV pylon, removal of the 400kV temporary overhead line diversion, remaining mechanical and electrical works for the other SGT circuit and commissioning of that circuit. The exact timing of these works will be dependent on when outages can be taken and may be up to a year after the 400kV overhead line diversion is installed.
- 2.4.3 As the construction activities and scheduling permits, the landscape works will be undertaken in the first suitable season during construction.
- 2.4.4 Once 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.
- 2.4.5 Some access tracks and temporary fencing may 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 the relevant parties and they will be updated of any amendments to the schedule during construction.

2.5 Working Hours

2.5.1 The working hours are referred to as the 'Core Working Hours' throughout this CEMP. These are:

- 07:00–19:00 Mondays to Fridays; and
- 08:00–17:00 on Saturdays, Sundays and Bank Holidays

2.5.2 The Core Working Hours incorporate 'start up' and 'close down' activities which are defined to mean general works that will not create an audible disturbance to local residents. Start up and close down activities include but are not restricted to:

- arrival and departure of workforce and staff at site and movement to and from *places of work (staff to remain considerate of neighbours, no loud music or raised voices)*;
- general refuelling of plant;
- site inspections and safety checks;
- site meetings (daily briefings, *safety meetings, toolbox talks and quiet inspections/walkovers*);
- site clean-up (site housekeeping that does not require the use of plant);
- general site maintenance; and
- low key maintenance and safety checking of plant and machinery (provided this *does not require or cause loud hammering or banging*).

2.5.3 Noise and light emissions will be reduced and these start up and shut down activities will not involve the operation of construction plant and equipment.

2.6 Material and Waste Management

Introduction

2.6.1 This section sets out the measure regarding material and waste management. No excess or export of earthworks is anticipated, as material will be reused for landscape mounding.

Efficient Material Use During Construction

2.6.2 The following steps will be taken through the detailed design and construction phases with relevance to material management:

- Wherever practicable, the designs will seek standardisation of materials and building elements into the design e.g. the use of prefabricated components. This will provide greater compatibility between market supply and specification. This in turn, will reduce the risk of over-specification which reduces the choice of available material sources and will increase the opportunities to reuse materials and equipment between different projects.
- Materials will be ordered to size and actual requirements in order to reduce over-ordering and potential wastage. Also by working with manufacturers to reduce the amount of packaging used during the transportation of materials and supporting suppliers who will take back returns of unused products.
- Sourcing construction materials from suppliers with responsible sourcing certification and using local suppliers where practicable. The use of local suppliers will also reduce transport miles, reducing the carbon footprint of construction.

- Using 'just in time' deliveries where practicable, so that storage is optimised and to reduce the risk of oversupply and damage on site.
- Managing resource efficiency by storing materials in the correct way to avoid risks of damage, spillage and vandalism. Particular attention should be given around the delivery of materials to site and making sure these are unloaded in a way that reduces the risk of damage in accordance with CoCP commitment GG13.
- All timber procured will be obtained from recycled, reclaimed sources or be accredited to meet sustainable forestry standard such as the Forest Stewardship Council (FSC). Any remaining timber not sourced through the above will target a known temperate source using the Department for Environmental, Food and Rural Affairs (Defra) central point of expertise in timber.

2.6.3 The site compound will contain designated areas for storage to protect materials from damage. This will include designated secure material storage areas away from regular site traffic to reduce the risk of accidental collision, use of original package/pallets to keep materials secure until required and use of material covers where required to protect materials sensitive to rainwater. The materials storage area will be secured out of hours to prevent unauthorised access.

Efficient Water Consumption During Construction

2.6.4 The main uses of water during construction are anticipated to be:

- General water consumption: This includes drinking water for workers, handwashing facilities and flushing of toilets.
- Dust suppression: Water will be sprayed to suppress dust generating during the work, particularly during dry spells.
- Cleaning of roads and working areas: Non-potable tanker water will be used to clean roads and working areas.

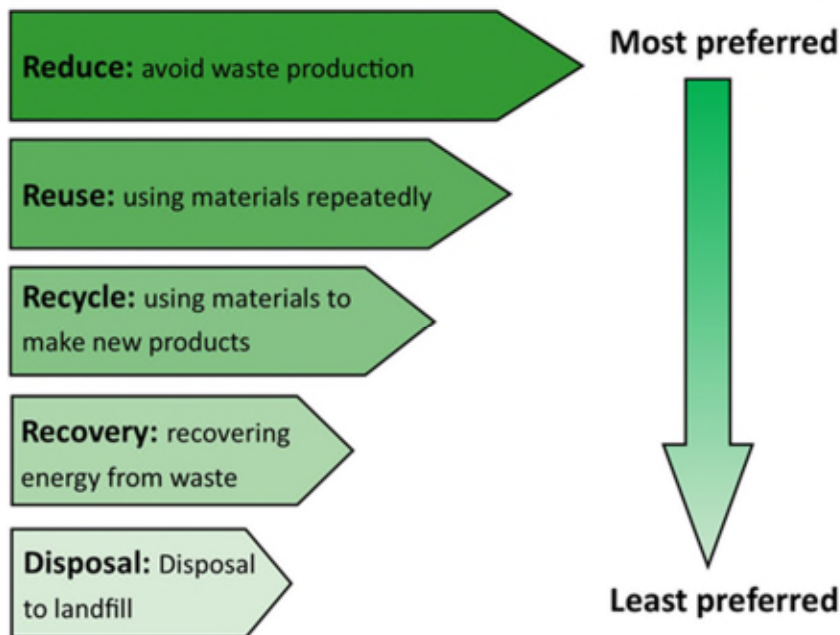
2.6.5 The site compound is likely to be connected to the mains water supply that is located in the verge of the A131, while tankers will take away foul water as waste. The compound will be provided with good practice measures for water conservation including the use of water-efficient taps within welfare, waterless toilet facilities, assessment of whether water can be reused, and regular checks to hoses for water leaks.

Waste Management

Definitions

2.6.6 The waste hierarchy is designed as a process, which starts with measures to avoid the production of waste in the first place, through reuse, recycling and recovery, so that the least amount of waste is sent for disposal. The waste hierarchy, shown in illustration 3.1 will be followed.

Illustration 3.1: The Waste Hierarchy



2.6.7 The following steps will be taken through the detailed design and construction phases of the proposed GSP substation with relevance to waste management:

Design and Pre-construction

2.6.8 Waste will be considered during the detailed design stage as part of seeking further opportunities to design out waste at source. During the pre-construction stage, the contractor will manage resources in an effective manner to reduce the risk of over-ordering materials or purchasing the wrong type of material, both of which can lead to the production of waste. The contractor will use the detailed design drawings to inform the procurement strategy so that the right quantities and type of material is ordered. These steps will reduce waste being created in the first place.

Site Planning and Preparation

2.6.9 Materials will be reused where practicable, for example temporary site cabins and fencing can be reused on different construction projects. This can also apply to temporary site matting used in haul routes and plastic pipes used in temporary culvert crossings. Materials will be stored correctly to avoid damage.

2.6.10 Waste will be separately stored to avoid cross contamination. The type of waste will dictate the containers and laydown areas required to facilitate safe storage including measures to avoid the risk of pest and vermin. Storage containers will be labelled to indicate the type of waste that may be deposited in them. Contaminated or hazardous waste will have separate designated areas within the main site compound to avoid the risk of contaminating other material and waste streams. Handling and storage of these will be dependent on the level, type or classification of the waste.

2.6.11 The contractor will implement the good practice measures set out in Section 10 of this CEMP. This will protect the soil quality and structure of soils temporarily disturbed during construction and allow them to be reused during the reinstatement process.

- 2.6.12 It is anticipated that any excess soil gained from the displaced soil within the excavation areas will be reused in landscaping mounding. National Grid does not anticipate that soil will need to be removed off site. Where soil is potentially contaminated, it will follow the measures outlined in Section 9.

Reinstatement

- 2.6.13 In accordance with commitment GG07, land used temporarily will be reinstated where practicable to its pre-construction condition or its proposed use shown Figure 4 of the Environmental Appraisal (Planting Plan). Any topsoil or subsoil removed to facilitate construction will be reused and replaced in accordance with the good practice measures in Section 10.

Handling and Disposal of Waste During Construction

Typical Construction Waste

- 2.6.14 During construction, various waste will be created during the works. This will include the following sources along with the likely corresponding waste management methods:
- Vegetation arisings: Green waste will be created from the clearance of hedgerow prior to construction of the site access. Some of these arisings may be retained on site where this is identified as having a habitat benefit. In such cases, vegetation may be left to form dead wood habitat, log piles or chippings and mulch. Any vegetation that cannot be used on site, and therefore highlighted as requiring removal, shall be composted as green waste at a recycle facility.
 - Metal such as aluminium and steel: Steel and aluminium are recyclable with a high degree of efficiency. It also includes metal offcuts, such as those from cables, pylons and piling. These shall be collected and recycled off-site at a recycling facility for disposal.
 - Cement and concrete: Cement or concrete arisings will be collected and recycled as hardcore at a recycling facility. Cement washings shall be collected into a designated area and disposed of off-site.
 - Wooden formwork/temporary works: all wooden formwork/temporary works or support timbers, where clean, will be collected and reused, sent to a recycling facility or disposed of. If the timber has come into contact with poured concrete, it shall be disposed of as hazardous waste.
 - Packaging/dunnage – the bulk of the packaging/dunnage is expected to be the timber frames. There are likely to be other unquantifiable pieces of equipment delivered in a variety of protective packaging. Packaging/dunnage will be collected and recycled for reuse or sent to a recycling facility for disposal;
 - Crushed stone: Virgin crushed stone will be used during the temporary works and will include the surface of the main compound and crane pads. When the temporary works are complete, the crushed stone will be carefully removed, in order to avoid disturbance of the underlying soil. Where suitable, the stone will be reused on other construction projects or sent to a recycling facility for disposal.
 - Greases and oils: All greases and oils will be collected and sent to a recycling facility for treatment and disposal as hazardous waste.

- Waste water: Wastewater generated from construction compound welfare facilities will be collected and tankered off site for disposal at a licensed treatment facility.
- Drainage materials: Plastic, concrete, brick and stone-based materials will be used as part of the pre-construction drainage installation. Waste generated from these will be collected and sent to a recycling facility for treatment and disposal.

General Office Waste

2.6.15 In addition to the general construction waste, there will be offices and welfare cabins. The following items will be separated in dedicated bins so that they can be recycled at an appropriate waste facility:

- Paper and cardboard;
- Metal such as aluminium cans;
- Plastic;
- Glass (not including bulbs and fluorescent tubes);
- Ink cartridges and toner cartridges; and
- Batteries.

2.6.16 General office waste is also likely to be generated, which includes items that are not classified as hazardous but that cannot be reused or recycled. These will be disposed of in general waste bins and sent to landfill and an appropriate facility. General office waste includes biodegradable kitchen and canteen waste.

Potential Contaminated Land

2.6.17 Potentially contaminated sites have been avoided in design. However, a residual risk remains that unidentified contamination may be present.

2.6.18 Section 9 of this CEMP sets out how contaminated land would be identified and the process for developing working methods for managing the risk. Made ground and materials found to be or strongly suspected of being contaminated will be segregated from natural and inert materials; and ground arisings deemed unsuitable for reuse within the project will be disposed of appropriately, for example to a soil treatment centre or landfill.

2.6.19 Any excavation materials identified as being potentially contaminated and unsuitable for reuse within the site 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.

2.6.20 Should any asbestos be identified by the ground investigation or encountered during construction works, then this will be managed and disposed of in accordance with The Control of Asbestos Regulations (DWP, 2012).

Waste Management Records and Handling

2.6.21 Storage of waste on site shall either be within the scope of, and comply with, the requirements of one or more of the activities specified as exempt from Waste Management Licensing; or carried out under an environmental permit issued by the Environment Agency.

- 2.6.22 All waste will be identified and allocated the appropriate waste code from the European Waste Catalogue (EWC). The assessment will be undertaken by a Site Waste Manager. Waste will be classified using the Waste Acceptance Criteria (WAC) as identified in the EWC designation table. Where required, WAC testing will be undertaken. The purpose will be to confirm that classification is correct in respect to either inert wastes or hazardous wastes. WAC testing may be required for the disposal of inert wastes, such as glass, ceramics and wood, depending on the specific waste handlers' requirements.
- 2.6.23 Any company collecting waste must be legally authorised to do so. This ensure that any company collecting its waste is either:
- Registered as a waste carrier (registered carriers hold a licence which must be checked). Registered waste carriers are licensed by their respective environmental regulator and are issued with a Waste Carriers Licence (valid for three years);
 - Exempt from requiring carrier registration; or
 - A waste collection authority in England (licence not required).
- 2.6.24 Any waste which cannot be used on site will be recycled or disposed of off-site, via a registered carrier to a licensed landfill site, a licensed transfer station, a licensed recycling facility or an exempt site. Every proposed destination site will be checked to ensure that a valid environmental permit or waste exemption has been issued by the Environment Agency for the type of waste to be received. Copies of the relevant permits shall be obtained and saved by the contractor in the project file storage system.
- 2.6.25 All non-hazardous waste arising from the work carried out by staff will be accompanied by a Waste Transfer Note when passed to a Registered Waste Carrier for removal from a site. All Waste Transfer Notes will be signed by a trained site representative, who will also check the permit or exemption of the registered Waste Carrier using the information held on the Environment Agency's website.
- 2.6.26 A Hazardous Waste/Special Waste Consignment Note will be completed for every movement of hazardous waste. Hazardous Waste/Special Waste Consignment Notes will be signed by a trained site representative. If hazardous waste is being returned to a depot for assessment it will be handled and transported appropriately. A waste carrier's license will also be obtained.
- 2.6.27 All parties involved in the carriage of waste must sign and retain a copy of the transfer documentation. This is a legal requirement, and failure to maintain a record of waste collections can result in prosecution. Completed Waste Transfer Notes and Hazardous Waste Consignment Notes must be kept on file for:
- Waste Transfer Note – two years; and
 - Hazardous Waste Consignment Note – three years.

3. Team Roles and Responsibilities

3.1 Environmental Management Systems

- 3.1.1 Construction of the proposed GSP substation will comply with the ISO 14001:2015 (ISO, 2015) requirements.
- 3.1.2 National Grid will implement management processes and briefings to ensure 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 BS EN ISO 14001 standard.
- 3.1.3 The contractor has an Environmental Policy that meets the requirements of ISO 14001 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 planning application documents including this CEMP. 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 Procedures for monitoring construction processes against the project environmental measures are set out in the sections below. Specific individuals and roles have been identified, as well as control measures, training procedures, monitoring systems and emergency procedures to be employed throughout the different phases.
- 3.2.3 Overall roles and responsibilities are presented in Table 3.1. These roles may be delivered by multiple people, who are designated with that specific responsibility, e.g. Environmental Clerk of Works (ECoW). The ECoW 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	Will be responsible for the maintenance of all environmental plans and registers, including monitoring that the environmental measures are implemented on site and as recorded within the CEMP. They will be the main point of contact for all environmental matters on site. They will oversee ecological pre-construction surveys. They will also develop good working relationships with key external stakeholders such as the Environment Agency, Natural England and the relevant planning authorities.
Environmental Clerk of Works	National Grid	Will monitor that the works proceed in accordance with relevant environmental requirements. The ECoW will be supported as necessary by appropriate specialists.

Role	Organisation	Responsibilities
Works Supervisor	Contractor	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.
Technical specialist advisors	Contractor / National Grid	These will be expected to 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 commitment GG05, all staff and operatives will undergo a site-specific induction, which includes the following environmental topics:

- ecology: working 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; and
- spill and emergency response.

3.3.2 Weekly 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 A 24 hour 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 around the perimeter of the construction site in appropriate locations where they will be visible to the public. The telephone number and project website details will be provided to the local authorities and other relevant parties.

3.4.2 Any complaints received during construction will be investigated and appropriate action will be taken. Further details can be found in Section 13.4.

4. Landscape and Visual

4.1 Vegetation Retention, Loss and Planting

General Approach

- 4.1.1 No live trees require to be felled to facilitate construction or operation of the proposed GSP substation. As shown on Figure 4 of the Environmental Appraisal, section of hedgerow would be removed at the site access point at the A131. Some tree trimming may also be required for the site access.
- 4.1.2 In accordance with commitment GG06, a full record of condition will be carried out (photographic and descriptive) of 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.
- 4.1.3 In accordance with Commitment GG24, working areas will be appropriately fenced. The type of fencing installed will depend on the area to be fenced and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. 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. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified. The ECoW and arborist will contribute to discussions on appropriate signage and/or fencing to protect environmentally sensitive features.

Woodland and Tree Retention

- 4.1.4 No live trees require to be felled to facilitate construction or operation of the proposed GSP substation. Some trimming of tree canopies may be required for the site access with the A131 and any tree works will be carried out by a specialist contractor.
- 4.1.5 A site based arboricultural survey of Butler's and Waldegrave woodland edges has confirmed that deep ditches are present at the edges of the woodland. This is considered sufficient site-based evidence that any tree root protection areas (RPA) will be irregular and contained within the woodlands. Roots are not anticipated to extend below and beyond substantial ditches that mark the boundaries of the ancient woodlands. Based on this assessment, standard application of tree root protection areas (RPA) is not required for adjacent woodland areas and buffer zones relate only to canopy spread.

Hedgerows

- 4.1.6 The location of the site access requires the removal of a section of hedgerow as shown on Figure 4 of the Environmental Appraisal. This will be undertaken by an appropriately experienced contractor.
- 4.1.7 Fencing of the working area at the hedgerow will create a barrier between the retained hedge and the working area.

Planting

- 4.1.8 The Planting Plan included in Figure 4 of the Environmental Appraisal shows the location of proposed planting and existing features such as hedgerows that are to be retained. Proposed planting and seed mixes are included on the plan.

- 4.1.9 The Planting Plan follows the following principles:
- Trees and shrubs will be of local provenance and shall be supplied in accordance with BS 8545:2014 Trees: from nursery to independence in the landscape (British Standards Institution, 2014).
 - Planting will occur in the nearest appropriate season to avoid the risk of failed plantings due to frost, waterlogging or other seasonal challenges. This includes any subsequent replacement of failed planting
 - Planting shall be undertaken by an appropriately experienced landscape contractor, in accordance with good horticultural practice and the following current British Standards:
 - BS 4428:1989 Code of practice for general landscape operations (British Standards Institution, 1989); and
 - BS 8545:2014 Trees: from nursery to independence in the landscape (British Standards Institution, 2014).
- 4.1.10 Planting will be protected to prevent grazing damage, using either fencing or biodegradable tree guards.
- 4.1.11 The stock sourced for planting reinstatement will comprise locally appropriate species. These will be consistent with those identified in the ecological and arboricultural surveys, unless site conditions and habitats can be improved (for example, where the existing planting includes Invasive Non-Native Species (INNS) that will be inappropriate to reinstate; or where there are existing species at risk of pests and diseases (such as ash dieback)).
- 4.1.12 While the section of hedgerow to be removed will not be reinstated in situ due to the permanent site access, planting to fill gaps in hedgerows adjacent to the proposed GSP substation on either side of the A131 will be provided. The same or similar species within the existing hedgerow will be planted, including a proportion of feathered stock to establish the hedge form. Hedgerow trees will also be planted if space/constraints allow.

Reinstatement

- 4.1.13 The contractor will clear all temporary working areas and accesses as the work proceeds, and when they are no longer required for the works. On completion of the construction works, all plant, materials and temporary works/structures will be removed. Topsoil will be returned to its final location at the earliest suitable time of year.
- 4.1.14 Where required, weed suppression measures will be applied to the topsoil heap before topsoil replacement. Topsoil is pulled from the heap using excavator buckets and displaced gradually to the correct grade using either excavators or bulldozers as reinstatement progresses and topographic levels are checked regularly by GPS survey equipment so that reinstated levels match the existing profile before construction or the proposed landscape mounding shown on Figure 4.

Monitoring

- 4.1.15 Where vegetation, including hedgerows, have been planted as part of the reinstatement, these will have a five-year aftercare period in accordance with commitment LV03.
- 4.1.16 The five-year aftercare includes inspections to:

- check and record failing, dead or defective plants and replace any failed planting each year, between November and end of March;
- re-firm plants and inspect, adjust or remove stakes, guards and ties as required; and
- apply herbicide to maintain weed-free plant circles around base of transplants and spot-treat undesirable species, having regard to any restrictions on use of herbicides in certain locations, for example, in proximity to water courses of other sensitive habitats.

4.1.17 The schedule of monitoring will be as follows:

- Year 1-3: annual monitoring (further details of which are provided in sections 8.2 and 8.3 below) through the establishment period (three years). This is considered necessary as fertile bare ground, even with a cover crop, might easily get invaded by expansive nitrophiles or invasives.
- Year 3-5: the monitoring will decrease to bi-annual checks as the habitat will be relatively closed.
- Year 5: the monitoring will either reduce to the standard every-four-years practice (which is considered typical for established and not overly dynamic habitats).

4.1.18 If, within a period of five years beginning with the date of planting, planting is removed, uprooted, destroyed, dies or (in the reasonable opinion of the relevant planning authority) becomes seriously damaged or defective, must be replaced with planting material of the same specification as that originally planted unless otherwise approved by Braintree District Council.

4.1.19 BNG Monitoring Report will be produced after the first monitoring visit and updated accordingly after each subsequent visit. The BNG Monitoring Report will be shared with local repositories for environmental data in accordance with the British Standard for BNG – BS8683 (BSI, 2021 and CIRIA, 2019)

Maintenance of Shrub and Tree Planting

4.1.20 The native woodland and shrub planting will be monitored in accordance with the timeframes set out above. During each visit the appointed person shall ensure the following:

- The planting shall be maintained 95% clear of weeds growth;
- All planting is windfirm;
- The security and fitting of all shrub guards and where necessary adjust or replace; and
- All planted areas are free from litter.

4.1.21 The appointed persons shall review the following and carry out any required works as appropriate:

- Any damaged transplants should be reported to the planting contractor and shrubs shall be pruned back once annually for the five year monitoring period.
- The planting contractor shall make good any transplant or shrub that has died or is not developing full foliage throughout its branches within the 5 year aftercare period. The contractor shall replace plants as soon as possible during the planting season immediately following the loss.

Maintenance of Grassland Seeded Areas

- 4.1.22 The seeded grassland areas will be cut three times per year in the first two years after seeding. The sward in the seeded area will be cut to 150mm. This cutting regime will favour the establishment of a relatively diverse sward, which would also be suitable for invertebrates. There will be no cuts between mid-June and mid-August to allow most plant species to produce flowers and seeds.
- 4.1.23 Once the sward is established, it will be mown to 150mm twice a year, avoiding cuts between June and August to prevent the sward from becoming too long and increase plant diversity. This would occur in perpetuity unless a long-term management plan is developed, defining an alternative approach.

Lighting Planning and Preparation

- 4.1.24 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 proposed GSP substation will be considered against the system of lighting classification identified in these two documents to develop appropriate levels of lighting performance.
- 4.1.25 The following lighting standards and guidance documents will be considered when designing the lighting for use during construction:
- British Standard EN 12464-2:2014 – Light and lighting. Lighting of workplaces. Part 2 Outdoor workplaces (British Standards Institute, 2014);
 - GN01: 2020 Guidance Notes for the Reduction of Obtrusive Light (GN01:2020) (Institute of Lighting Professionals, 2020); and
 - Guidance Note 08/18, Bats and artificial lighting in the UK (Institute of Lighting Professionals, 2018).
- 4.1.26 A standard lighting approach will be implemented during the works. This approach will use mobile lighting towers which will be orientated inwards of the works away from any adjacent receptors. By preference these will be solar lighting towers.
- 4.1.27 Unless stated otherwise below, the construction lighting will be installed in accordance with: GN01:2020, BS EN 12464-2-2014 (Outdoor Workplaces). Lighting shall be the lowest average lux levels necessary for safe delivery of each task and shall be positioned and directed to reduce the intrusion into adjacent properties and habitats.
- 4.1.28 Appropriate lighting fixtures, including hoods/cowls and louvres, whether fixed or mobile, will be used where necessary to control lighting direction away from sensitive receptors.
- 4.1.29 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 would extend up to 4m and include four LED lights which can be directionally adjusted.
- 4.1.30 The use of solar lighting towers will be limited to the Restricted and Core Working Hours. Light emissions will be reduced during start-up and shut-down activities which will not involve the operation of construction plant and equipment.
- 4.1.31 The construction compound will not be lit at night outside Core Working Hours except for welfare and site security cabins that will include low level lighting. Motion sensor lighting

will be used in areas of high security risk. 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 is able to switch off the lighting remotely in the event of a false alarm (such as if the motion sensors were activated by an animal).

5. Biodiversity

5.1 Pre-construction Surveys

- 5.1.1 Appendix 3 of the Environmental Appraisal set out the desk study and field surveys undertaken as part of the baseline assessment.
- 5.1.2 A preconstruction walkover survey will be undertaken to check the site for any change in protected species presence (e.g. badger setts) or newly established invasive non-native plant species. If a new badger sett is discovered within the site an appropriate method statement on working around the sett would be necessary. If there would be unavoidable damage or disturbance to the new sett, a licence for sett closure would be necessary from Natural England would be required. If any invasive non-native species (INNS) of plant are noted within the project boundary then a method statement would be developed to detail management and/or treatment to reduce risks that the species are spread during the works.
- 5.1.3 Hazel dormouse are assumed to be present within suitable habitats in the site. Therefore, finger-tip search of the section of hedgerow to be removed (shown on Figure 4 of the Environmental Appraisal) would be undertaken by an experienced dormouse ecologist prior to removal with subsequent supervision of the removal.

5.2 Consents, Licences and Permits

- 5.2.1 The planning application includes the Great Crested Newt District Level Licencing Impact Assessment and Conservation Payment Certificate. The final licence payment will be submitted to Natural England in Autumn 2022.

6. Historic Environment

6.1 Archaeological Watching Brief

- 6.1.1 A programme of geophysical survey was undertaken at the proposed GSP substation in November 2021. This was followed by archaeological trial trenching in March 2022. The results of the evaluations, in conjunction with the desk-based study in Section 3.4 of the Environmental Appraisal, indicates that:
- there is a low density of archaeological remains present within the site;
 - the archaeological remains which have been identified are of low/local value; and
 - that there is a low potential for further archaeological remains to be present which, if found, would likely be of similarly low / local value.
- 6.1.2 An archaeological watching brief will be undertaken during construction. This will be completed under a Written Scheme of Investigation (WSI) which will detail the scope of works, methodology, archiving, and dissemination. The WSI will also include the provision for establishing a suitable mitigation in the event of unexpected archaeological discoveries during construction which are more extensive or significant than predicted.
- 6.1.3 The WSI will be submitted to the archaeological curator at Essex County Council for agreement prior to commencement of construction.

7. Water Environment

7.1 Site Planning and Preparation

- 7.1.1 In accordance with good practice measure W07, the layout of the site compound will be planned to control potential risks to surface water, groundwater and of flooding.
- 7.1.2 Good practice measures for water conservation will be followed including the use of water-efficient taps within welfare, waterless toilet facilities, assessment of whether water can be reused, and regular checks to hoses for water leaks.
- 7.1.3 Good practice measures in relation to pollution control, storage of fuels and hazardous materials will be adhered to. Plans showing surrounding sensitive areas, areas sensitive to flooding, drainage layout, location of substances considered under the Control of Substances Hazardous to Health Regulations 2002 (COSHH (DWP, 2002)) and fuel storage and the location of any spill kits will be on display. Fuel and oil will be stored in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 (GG14).
- 7.1.4 Contact details for the Lead Local Flood Authorities, the Environment Agency, the persons responsible on the construction site and contacts of a spill response company which can be contacted at short notice for an immediate response will also be on noticeboards and in handbooks.
- 7.1.5 In accordance with commitment AS05, land drains and ditch locations will be identified based on existing land drainage plans and/or identified during the works (in the absence of drainage plans). Land drainage will be installed (either temporary or permanent) to maintain the integrity of the field drainage for the duration of works. 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.
- 7.1.6 Landowners will be informed of the design of drainage works required during construction, together with the timing of the land drainage work. This will ensure any local knowledge appropriate to individual circumstances is not missed.
- 7.1.7 No abstractions are anticipated to be required. Water sources in the use of site cabins, for general cleaning and dust suppression are expected to be via a connection to the mains water supply that is located in the verge of the A131.

7.2 Pollution and Erosion Management Measures

- 7.2.1 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. This could be 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.
- 7.2.2 Works will consider the advice set out in the following guidance documents:
- Former guidance for Pollution Prevention, various publication dates (GPPs, Accessed via <http://www.netregs.gov.uk>);
 - C532 Control of Water Pollution from Construction Sites (Construction Industry Research and Information Association (CIRIA), 2001); and

- C650 Environmental Good Practice on Site (CIRIA, 2005).

7.2.3 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.

7.2.4 Commitments GG17 and GH02 provide measures to reduce the effects of vehicles transporting mud and dust from the construction areas. Wheel washing will be provided at the access point on to the highway and an adequate supply of water will be always made available. Further measures are discussed in Section 10.2 of this CEMP.

7.2.5 While mobilising works areas, various measures including those described in commitments 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 (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 should be compacted and graded to reduce rainwater infiltration. If they are in a sensitive area, e.g. near a watercourse, consideration should 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.
- Flocculants and coagulants: A chemical solution for very fine silt particles that will not settle out by gravity alone. Their use will require agreement with the EA.

7.2.6 Activities will require concrete to be used. Concrete washout from concreting operations will be managed so that no concrete runoff or wash water enters the local drainage systems or watercourses. Methods such as dry brushing of the mixer chutes, to avoid washing out on site 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 possible, and if 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 Guidance – Treating and using water that contains concrete and silt at construction sites: RPS 235 (Environment Agency, 2020).

7.2.7 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. Some classroom learning will be required, but the emphasis is on practical use of equipment. Spill response training will be frequently reinforced during briefings and toolbox talks to promote immediate and adequate spill response.

7.2.8 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.

7.2.9 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 ECoW 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.

7.3 Flood Risk Reduction Measures

7.3.1 The contractor will subscribe to flood and weather warnings as outlined in commitment W08. Weather reports will also feature in the prestart brief for each worksite on a daily basis.

7.3.2 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.

7.4 Private Water Supplies

7.4.1 No private water supplies (PWSs) have been identified within site to date within discussions with the landowner. Should supplies be identified, discussions and agreements including protection arrangements and/or provisions of alternative water supplies will be put in place. The following measures in accordance with commitment W09 will be followed:

- In the event of a landowner or tenant complaining that installation activities have affected their PWS, an initial response will be provided within 24 hours.
- Where the installation works have affected a PWS, an alternative water supply will be provided, as appropriate.

7.4.2 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, as appropriate.

7.5 Reinstatement

7.5.1 Post-construction drainage plans will be created when it has been necessary to repair or install new permanent drainage and 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.

8. Geology and Hydrogeology

8.1 Excavation Works and Piling

8.1.1 The initial preparatory works will comprise the temporary removal of the top layer of ground and laying a temporary stone capping to provide a clean and stable working platform. Typically, the topsoil and a layer of subsoil will be excavated in the area of the field only using a tracked mechanical excavator and this is replaced with 3.75cm thick, clean imported granular fill to form a surface to the compound. It is anticipated that excavated material will be re-used on-site for landscape mounding

8.1.2 In accordance with CoCP measure GG23, stone pads will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used e.g. for the gantry. The stone pads will provide stable working areas and will reduce disturbance to the ground. The stone pad area will be stripped of the topsoil, which will be stored and reinstated in accordance with soil management measures (good practice measure AS01).

8.2 Potential Contaminated Land

8.2.1 Section 3.6 of the Environmental Appraisal has not identified any potential sites with potential contamination risks. However, a residual risk remains that unidentified sites are present.

8.2.2 If unexpected contaminated ground is uncovered during construction, it shall be tested to determine the levels of contamination. Where contamination is confirmed, it will be reported to the local authority in writing. An investigation and risk assessment of the contamination will be undertaken (the scope of which will be agreed with the local authority) to assess the nature and extent of any contamination within which works are being carried out. The findings of the investigation will be reported to the local authority and where remediation is required to control or prevent the release, or potential release, of contamination as a result of the works, a detailed remediation scheme will be prepared and submitted for the approval of the relevant planning authority. The remediation scheme will be implemented as approved.

8.2.3 Management measures will include the following:

- Any potential contaminated materials will be segregated and stored in an impervious bunded area of a suitable nature to prevent contamination of ground water or land. Known or suspected contamination stockpile areas will be tested (sample frequency, sample location) to correctly classify the material;
- Pre-classification of soils will be undertaken prior to reuse of site-won materials; and
- The soil and soil leachate acceptance criteria will be established in the detailed design stage.

8.2.4 Commitment 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. Ground arisings deemed unsuitable for reuse within the project will be disposed of appropriately, for example to a soil treatment centre or landfill.

9. Agriculture and Soil

9.1 Site Planning and Preparation

- 9.1.1 Works will be programmed to occur throughout the year. However, during wet conditions and where soil is saturated, soil handling works will be put on hold until the conditions/materials are more appropriate to earth moving.
- 9.1.2 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 with the use of fencing or other barriers or by the provision of ground protection, for example track matting, geomembrane etc. No traffic
- 9.1.3 king of vehicles/plant or materials storage will occur outside demarcated working areas.
- 9.1.4 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:
- Topsoils and subsoils intended for reinstatement will be temporarily stockpiled as close to where they were stripped from as practicable; and
 - Different soil types and made ground will be stripped and stored separately where applicable.
- 9.1.5 No excess or export of earthworks is anticipated, as material will be reused for landscape mounding.

9.2 Soil Stripping

- 9.2.1 The soil stripping method will follow the guidance set out in Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009).
- 9.2.2 Machinery for undertaking the topsoil and subsoil stripping will include tracked excavators of varying sizes and bulldozers where practicable and where there is no risk of soil structural damage. 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. Where this is not possible due to existing site constraints, the material will be placed into a dump truck and driven to the area proposed for landscape mounding or temporary soil storage locations.
- 9.2.3 Where topsoil stripping is required, the normal working practice will be to strip full depth of topsoil (where present).
- 9.2.4 The soil handling methodology will be determined based on soil moisture content. Where practicable, soil handling when soil moisture content is above the lower plastic limit (the moisture content at which soil begins to behave as a plastic material and the soil is deemed too wet to handle without causing damage to the soil structure), should be avoided. 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 shall be allowed to fully thaw before commencing backfilling activities.

- 9.2.5 In some cases, it may be necessary to handle soils when they are saturated, for example due to programme. In these cases, location-specific methods for handling, reconditioning and re-use will be agreed with the soil technical advisor prior to work commencing.
- 9.2.6 Topsoil will be recovered 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). Where it is not clear the soil technical advisor will advise on the appropriate depth.
- 9.2.7 If sustained heavy rainfall is experienced (>10mm in 24 hours), soil stripping activities will be put on hold until the ground has met the agreed moisture content criteria.

9.3 Creation of Stockpiles

- 9.3.1 Soil stockpiling will be required during construction activities to enable the reuse of the soil resource, limit soil damage from weather and other construction activities and soil loss. 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. Stockpiles should not be positioned where they are vulnerable to compaction or erosion.
- 9.3.2 In accordance with commitment W07, no construction materials or stockpiles of soils/arising should be stored within the small areas of high and medium risk of flooding from surface water, shown in Appendix 7 (Flood Risk Assessment). Where this cannot be avoided, stockpiles will be aligned to avoid creating continuous barriers to floodplain.
- 9.3.3 Topsoil stockpiles shall not exceed 4m in height and subsoil stockpiles shall not exceed 5m in height. Protection of earthworks and soil will be managed by methods such as covering or seeding. For all soils, records will be made of the stripping locations to assist in the reinstatement.
- 9.3.4 Soil will be stored in an area of the site where it can be left undisturbed and will not interfere with site operations. Topsoil can be stored either on topsoil (of the same type) or on subsoil. Where stored directly on topsoil, a marker layer comprising straw will be used to ensure it is possible to clearly determine the base of the stockpile when the material is re-used. However, as subsoil should only be stored on subsoil, topsoil will first be stripped from any land to be used for subsoil storage.
- 9.3.5 Stockpiles will be formed by loose-tipping into heaps. During formation, the top and sides will be smoothed 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, helping to reduce erosion and ponding.

9.4 Stockpile and Subsoil Maintenance

- 9.4.1 Seeding may be applied to stockpiles where they are likely to be in place for over six months. Other methods of stockpile protection may include covering with tarpaulin, to reduce the risk of runoff and colonisation of weeds. For the remaining areas of excavation, the soil will be replaced and the area re-soiled as soon as possible following the installation works.
- 9.4.2 Unvegetated stockpiles will be maintained throughout the works to reduce the risk of dust, using a variety of methods. For example, implementing spraying with water during dry weather to prevent wind erosion (generation of dust).

- 9.4.3 Vegetated stockpiles will be managed to prevent the colonisation and spread of weeds. This will be undertaken by cutting or the use of herbicides.
- 9.4.4 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.
- 9.4.5 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.

9.5 Reinstatement

- 9.5.1 Soil replacement will follow the methodology set out by Defra (2009). Reinstatement of topsoil will only be carried out when topsoil is in a reasonably dry state. Topsoil will be returned to its final location at the earliest suitable time of year. Soil loosening techniques, such as deep-tine cultivation and subsoiling, will be used where required to break up any compaction which has occurred, for example after removal of temporary track surface before topsoil reinstatement.
- 9.5.2 Land used temporarily will be reinstated to an appropriate condition relevant to its previous or proposed use. 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.
- 9.5.3 Soil reinstatement is the reverse of soil stripping with topsoil being replaced over subsoil. Soil horizons will be replaced to the correct thickness. The topsoil will not be compacted. Once reinstated, the area will be left clear of traffic, except for any temporary access. This will be removed as the last activity as the working area fencing is taken down.
- 9.5.4 Prior to topsoil placement, subsoil decompaction may be required. The top layer of subsoil (to extend below the depth of normal agricultural activity) will be loosened with an agricultural cultivator before the replacement of any topsoil removed. For the decompaction to be effective, conditions should be suitably dry such that the use of cultivation tools is effective to break up the soil.
- 9.5.5 Where required, weed suppression measures will be applied to the topsoil stockpile before topsoil replacement.
- 9.5.6 Topsoil will be removed from the stockpiles using excavator buckets and spread to the correct depth using either excavators or bulldozers as reinstatement progresses. Topographic levels will be checked regularly by GPS survey equipment so that reinstated levels match the existing profile before construction, or the proposed landscape contours as shown on Figure 4.

10. Traffic and Transport

10.1 Introduction

10.1.1 Good practice measures will be implemented in relation to manage impacts caused by the works to the road network and to avoid or reduce impacts of the extra traffic that will be generated during construction.

10.1.2 The following terminology is used to describe the construction routes:

- Strategic Road Network (SRN): Comprises the motorway and trunk road network, managed by National Highway, which provides construction access from a wide catchment to the Local Road Network;
- Local Road Network (LRN): Comprises the local roads which link the SRN to the proposed GSP substation site. It includes the A131 running between Sudbury and Braintree; and
- Access Point: This is where the proposed GSP substation site joins the LRN at the A131. A gate will be installed at the access point to prevent unauthorised access to the site. This may be set back from the public carriageway (up to 20 metres where practicable), so that a single HGV does not block the carriageway.

10.2 Construction Traffic

10.2.1 Section 3.8 of the Environmental Appraisal explains that construction traffic vehicle numbers are expected to be low, with a one-way daily average of 10 construction vehicles (one heavy good vehicle) per day (i.e. 10 inbound and 10 outbound). The daily workforce is expected to be less than 20 workers. A Permit Scheme will be used and construction traffic routes are expected to utilise the A120, the A12 and the A131.

10.2.2 No Public Rights of Way (PRoW) closures or diversions are required during construction of the proposed GSP substation.

Vehicle Use

10.2.3 An Abnormal Indivisible Load (AIL) Access Study is being undertaken to assess the suitability of the road network. The outputs of this study, including any alterations required to the road network and the timing of the AIL movements, will be agreed with relevant highway authorities prior to construction. The use of AILs e.g. for delivery of the super grid transformers, will be undertaken in accordance with Government guidance transporting abnormal loads (UK Government, 2022).

10.2.4 AILs will follow the routing that will be agreed with National Highways and the relevant highway authorities. The relevant highway authorities and police will be notified, and appropriate forms completed for AIL routing. This will be completed through the Electronic Service Delivery for Abnormal Loads (ESDAL) system. Notice to the police will also be required in certain circumstances. Full details for all notice periods are set out in the Special types enforcement guide (Driver and Vehicle Standards Agency, May 2018).

10.2.5 Heavy goods vehicles and light goods vehicles will also be used during construction. HGV movements will normally take place during the Core Working Hours. Where practicable, deliveries of construction materials will be timed to fall outside of traditional peak traffic periods (i.e. 08:00 to 09:00 and 17:00 to 19:00 Monday to Friday) or as otherwise set out

as part of a Permit Scheme. Vehicles finishing at the end of a working day shall be permitted to leave site (i.e. a one-way movement out of the access point to the LRN).

10.2.6 In accordance with commitment GG12, plant and construction vehicles will conform to relevant applicable standards for the vehicle type as follows:

- Euro 4 (nitrogen oxides (NOx)) for petrol cars, vans and minibuses;
- Euro 6 (NOx and particulate matter (PM)) for diesel cars, vans and minibuses; and
- Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).

10.2.7 Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.

Contingency Routes

10.2.8 There may be exceptional circumstances when traffic movements are temporarily compromised, which will impact on construction vehicles being able to use the agreed construction traffic routes and access point. These exceptional circumstances are defined as one or more of the following:

- a traffic or other similar incident on the highway network that disrupts the normal operation of the highway network or results in the closure of the highway network;
- a breakdown of a HGV on route to the authorised development;
- work requested to be completed out of hours by the local highway authority/ Network Rail e.g. scaffold erection; or
- emergency health and safety requirement (incident).

10.2.9 In the event of any incident occurring that impacts on the safe and efficient operation of the road network, contingency routes will be provided by pre-established traffic diversions and diversions as set out by the relevant highway authorities.

10.2.10 Further to this, the contractor will regularly monitor the website <https://one.network/> and liaise directly with National Highways and/or the local highway authorities to establish where predefined routes may be temporarily disrupted by other works or events and seek to establish alternative routes.

Construction Route Signage

10.2.11 All signage for the site will comply with relevant standards including Traffic Safety Measures and Signs for Road Works and Temporary Situations Chapter 8 (DfT, 2009).

10.2.12 The following signage is proposed:

- Access Route and Point Signs: Temporary signage will be erected along construction traffic routes on the LRN to provide access (directional) routing information. This temporary signage will also be provided in the vicinity of the proposed bellmouth on the A131 and also will provide warning to other road users of the likely presence of construction vehicles.
- Temporary Diversion Signs: In the event that any diversions of traffic along the construction traffic routes are required, temporary signage will be installed by National

Grid or the relevant highway authority or both in accordance with relevant signage design guidance as is standard.

- 10.2.13 Signage will be weighted to help it stay in place and the contractor will undertake regular checks to report any defects with signage.

Access Points

- 10.2.14 Traffic management may be required during the construction of the proposed bellmouth at the A131 for safety of road users. The proposed traffic management measures are likely to be in place for a short period (less than two weeks) during construction. Traffic management measures could include temporary traffic signals or manned stop and go boards. Specific locations, timings and the specific traffic management measures will be agreed with the local highways authorities as part of a Permit Scheme.

- 10.2.15 Measures such as ‘bellmouth’ construction and temporary construction matting or temporary hardstanding construction will be used to protect verges and provide a sound foundation for the safe passage of vehicles. Security fencing will be installed around the roadside access areas along with signage restricting access to construction traffic and construction teams only.

Vehicle Hygiene

- 10.2.16 In accordance with GG17, wheel washing will be provided at the access point. An adequate supply of water will be made available at all times.

- 10.2.17 All vehicles exiting the site will be checked and cleaned manually (or if it is deemed necessary will pass over a wheel cleaning facility) prior to using the public highway. This will remove debris from vehicles ahead of joining the LRN. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits (GG17). Pressure washers could be used, dependent on the ground conditions and whether there is potential to transport mud or dust onto the road.

Car Parking Control

- 10.2.18 The site compound, located at the proposed GSP substation site, will contain appropriate parking spaces for the workforce. Vehicles authorised to park at will be given a parking permit and visitors will be booked in and then directed to available parking spaces. Car sharing and the use of public transport will be promoted to reduce the number of vehicles.

- 10.2.19 Car park management will be undertaken and monitored in order to control onsite parking and that where limited parking is provided it is used by those it is intended for, as opposed to those who should be accessing the site via other methods.

11. Air Quality

11.1 Site Planning and Preparation

11.1.1 In accordance with good practice measure GG10, the layout of the site compound 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 Butler's Wood and Waldegrave Wood where practicable.

11.1.2 The following activities will be implemented across site to help reduce the risk of dust:

- Implementation of a site speed limit for vehicles travelling on site to limit dust generation, with a maximum of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas; and
- There will be no bonfires or burning of waste materials at the site (GG19).

11.2 Construction Plant, Vehicles and Equipment

11.2.1 Daily plant check sheets will be undertaken on site prior to commencing each shift. These will include checks 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).

11.2.2 Wheel washing will also be provided at each main compound access point and road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits (GG17).

11.3 Earthworks

11.3.1 Section 9 of this CEMP outlines the measures for handling soil on the project, including methods to be taken during soil management (stripping, storage and reinstatement). The below measures will be implemented to reduce dust:

- Monitoring of weather forecasts and registration to weather warnings will aid preparation for 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.
- 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.
- 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 possible, subsoil and topsoil will 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.

11.3.2 Section 8 of this CEMP also outlines the methods to control runoff of water or mud to reduce the spread of particulates that could subsequently be disturbed and become airborne.

12. Noise and Vibration

12.1 Core Principles

12.1.1 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.

12.1.2 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.

12.1.3 Where works may be required to be undertaken outside of the core hours (as described in Section 2.5 of this CEMP), the local planning authority will be notified in advance along with any neighbouring receptors.

12.2 Best Practicable Means

12.2.1 Section 72 of the Control and Pollution Act 1974 requires projects to use Best Practicable Means (BPM) to reduce noise during construction. In accordance with commitment NV01, the following BPM measures will be implemented:

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.
- In accordance with good practice measure GG10, the layout of the site compound 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 Butler's Wood and Waldegrave Wood 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.
- Measures to reduce impacts from noise during construction may include but not be limited to reduction of working width and use of alternative plant or vehicles. This will be reviewed and agreed with the site ecologist.
- 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.

Section 61 Consent

- 12.2.2 As the nearest residential property is over 300m from the site boundary, it is not expected that the contractor will be required to submit applications for Section 61 consents. If Section 61 consent is deemed necessary, the contractor will engage with the planning authority to identify construction activities that may require it. This will include a list of the activities/stages 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).

13. Implementation

13.1 Implementation of the CEMP

- 13.1.1 National Grid will put in place robust procedures to inform and supervise all those working on the site, including its supply chain of contractors, to make sure the control measures set out in the CEMP are adopted during construction. The main responsibility for implementing these control measures will fall to the contractor.
- 13.1.2 The contractor will appoint a suitably experienced Environmental Manager for the duration of the construction phase. In addition, National Grid will appoint a qualified and experienced ECoW during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The ECoW will monitor that the works proceed in accordance with relevant environmental requirements and adhere to the required good practice and mitigation measures. The ECoW will be supported as necessary by appropriate specialists where required.
- 13.1.3 All site staff must be educated, trained, aware and competent in upholding the requirements of this CEMP before conducting works on site.
- 13.1.4 Records of site inductions will be adequately maintained and will be made available upon request.

13.2 Site Checks and Reporting

- 13.2.1 Regular site checks will be carried out to monitor compliance with the CEMP and other associated plans. The programme of site inspections will be controlled by the Environmental Manager and implemented by the ECoW. The overarching inspections are summarised below in Table 14.1. Immediate action including, if necessary 'stopping a job', will be taken should any incidents or non-conformance with the CEMP be found during inspection.
- 13.2.2 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.
- 13.2.3 Site checks and inspections will include checks against compliance with good practice measures and other commitments made by the project.
- 13.2.4 The programme of site inspections will be controlled by the Environmental Manager and implemented by the ECoW, who will draw on appropriate suitably experienced specialists for specific tasks.

Table 14.1: Anticipated Site Checks Relevant to the CEMP

Inspection Type	Purpose	Who	Frequency
General Site Inspections			
Environmental Inspections	To monitor compliance with project commitments and the environmental standards.	Environmental Manager Environmental Clerk of Works	Weekly

Inspection Type	Purpose	Who	Frequency
	To record adherence to good practice commitments and raise actions where concerns are identified. To check management measures for sensitive features are in place.		
Audits (External/Internal)	Formal audit process for internal Management System.	External Auditor Environmental Manager	Annual
Site Checks	To ensure that working practices are carried out in accordance with approved methods, standards and good practice commitments.	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	N/A
Landscape and Visual			
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)
Biodiversity			
Visual inspection	Visual inspections to check for any signs of animal activity, entrapped animals or invasive weeds within the works area.	Environmental Manager Environmental Clerk of Works	Weekly
Cultural Heritage			
Archaeological Watching Brief	This will be completed under a Written Scheme of Investigation (WSI) which will detail the scope of works, methodology, archiving, and dissemination of any unidentified archaeology discovered during construction.	Suitably Qualified Archaeologist	Continual monitoring during periods of excavation.
Water Environment			
Visual inspection	Visual inspections to monitor storage of materials and application of pollution prevention measures.	Works Supervisor	Weekly

Inspection Type	Purpose	Who	Frequency
Monitoring weather conditions	Checking weather conditions and flood alerts for conditions that could result in flooding to the construction site.	Works Supervisor	Daily
Geology and Hydrogeology			
Visual inspection	Visual inspections to check for potential contamination in the soil.	Works Supervisor	During soil stripping
Agriculture and Soil			
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
Air Quality			
Visual inspection	Visual inspections to monitor for visible dust emissions or deposition on site: identifying problems and undertaking corrective actions where dust may be generated or has been generated.	Works Supervisor	Daily during dry conditions and during activities at high risk of generating dust. 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

13.2.5 Findings from inspections will be disseminated to the wider construction team as appropriate and additional procedures put in place if required.

13.3 Non-Compliance Procedure

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

- The relevant work activities shall stop;
- The ECoW, contractor Project Manager and Environmental Manager will be contacted, the Land Officer will be contacted if on private land, for grantor liaison;

- 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.
- 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; and
 - the Food Standards Agency for incidents that have the potential to affect food through deposition on crops or land used for grazing livestock.
- 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.

13.4 Complaints Procedure

- 13.4.1 The name and contact details for any complaints will be displayed at the site entrance. This will include an emergency telephone number.
- 13.4.2 All complaints associated with the construction, including non-conformance with the CEMP, will be reported and investigated using a detailed complaints procedure developed by the contractor.
- 13.4.3 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.
- 13.4.4 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 contractor Project Manager and the Environmental Manager, appropriate action will be taken, and the conclusion recorded. A record will be made of the incident for audit purposes.

13.5 Change Process

- 13.5.1 It may be necessary or prudent to seek an alternative approach to the commitments, mitigations and methodologies set out in this approved CEMP. National Grid and Braintree District Council will adopt the following procedure in respect of a requested change to the requirements of the CEMP.

13.5.2 National Grid will submit the proposed change to Braintree District Council with details of the requested change together with an assessment and the reasons why National Grid considers the change is unlikely to give rise to any materially new or materially different effects in comparison with the authorised development as approved (as identified in the Environmental Appraisal). Upon receipt of the request, Braintree District Council will, acting reasonably, endeavour to respond within 15 business days to either confirm its consent or provide its reasons why the change is not accepted. It should be noted that consent is deemed to be approved if no formal decision is made by Braintree District Council within 42 days of the initial application.

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Acronyms

Acronym	Full Reference
AIL	Abnormal indivisible load
AWI	Ancient Woodland Inventory
BNG	Biodiversity net gain
BPM	Best practicable means
BS	British Standard
CCTV	Closed-circuit Television
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practice
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
ECoW	Environmental Clerk of Works
EMF	Electromagnetic field
ESDAL	Electronic Service Delivery for Abnormal Loads
EWC	European Waste Catalogue
FSC	Forest Stewardship Council
GCN	Great crested newt
GSP	Grid Supply Point (substation)
HGV	Heavy Goods Vehicle
INNS	Invasive and non-native species
kV	Kilovolt (1,000 Volts)
LED	Light-emitting diode
LRN	Local Road Network
NOx	Nitrogen oxides
PEIR	Preliminary Environmental Information Report
PM	Particulate matter
PRoW	Public Right of Way
PWS	Private Water Supply
RPA	Tree root protection area

Acronym	Full Reference
SGT	Super grid transformer
SRN	Strategic road network
SuDS	Sustainable drainage systems
WAC	Waste acceptance criteria
WSI	Written Scheme of Investigation

Annex 1: Outline Code of Construction Practice

1. Introduction

- 1.1.1 National Grid has identified a number of good practice measures. These are standard good practice measures that would avoid or reduce environmental effects during the design and construction phases. The good practice measures are presented within the Outline Code of Construction Practice (CoCP) included in the PEIR for the wider reinforcement project.
- 1.1.2 National Grid recognises that a number of these measures would be relevant to the proposed GSP substation. It has therefore, extracted the relevant commitments into the CoCP presented in Table A1. These measures will be delivered if the proposed GSP substation was granted consent. Each good practice measure has been assigned a reference number, for example (GG01). This is for ease of cross-reference to other documents. However, the commitment numbering has been kept consistent with the wider reinforcement project, and the numbering is therefore not consecutive in all cases, as commitments not relevant to the planning application for the proposed GSP substation have been excluded.
- 1.1.3 It is expected that compliance with the CoCP for the proposed GSP substation would be secured by way of planning condition.
- 1.1.4 The proposed GSP substation would also be delivered in compliance with all relevant legislation, consents and permits. Any statutory requirements listed in this document and industry good practice guidance which has informed each part of the document are not to be seen as exhaustive.
- 1.1.5 National Grid will put in place robust procedures to audit and inspect the proposed GSP substation, including its supply chain of contractors, to make sure the control measures set out in the CoCP are adopted when constructing the project.

Table A1: Good Practice Measures

Ref	Good Practice Measures
General Project Commitments	
GG01	The project will be run in compliance with all relevant legislation, consents and permits.
GG05	Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the project. Topics will include but not be limited to: <ul style="list-style-type: none">• pollution prevention and pollution incident response;• dust management and control measures;• location and protection of sensitive environmental sites and features;• adherence to protected environmental areas around sensitive features;• working hours and noise and vibration reduction measures;• working with potentially contaminated materials;• waste management and storage;• flood risk response actions; and• agreed traffic routes, access points, etc.
GG06	A full record of condition will be carried out (photographic and descriptive) of the working areas that maybe affected by the construction activities. This record will be available for comparison following

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	reinstatement after the works have been completed to ensure that the standard of reinstatement at least meets that recorded in the pre-condition survey.
GG07	Land used temporarily will be reinstated where practicable (bearing in mind any restrictions on planting and land use) to its pre-construction condition and use.
Construction Site Set Up	
GG09	The name and contact details for the project will be displayed at the entrance to all compounds. This will include an emergency number.
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 ecological sites where practicable.
GG11	<p>Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include but not be limited to:</p> <ul style="list-style-type: none"> • 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.
GG12	<p>Plant and construction vehicles will conform to relevant applicable standards for the vehicle type as follows:</p> <ul style="list-style-type: none"> • Euro 4 (NOx) for petrol cars, vans and minibuses; • Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and • Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads). <p>Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.</p>
GG13	Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including cable drums and excavated materials, drop heights will be limited.
GG14	Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors. Where practicable, they will be stored >15m from watercourses, ponds and groundwater dependent terrestrial ecosystems. Where it is not practicable to maintain a >15m distance, additional measures will be identified. All refuelling, oiling and greasing of construction plant and equipment will take place above drip trays and also away from drains as far as is reasonably practicable. Vehicles and plant will not be left unattended during refuelling. Appropriate spill kits will be made easily accessible for these activities. Potentially hazardous materials used during construction will be safely and securely stored including use of secondary containment where appropriate. Stored 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. Spill kits will be located nearby.

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GG15	Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of silted or otherwise contaminated site runoff to the drainage ditches without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency). Drainage ditches near work sites would be inspected daily where work activity is being carried out. Inspections will look for signs of siltation or other forms of pollution for the duration of the period of ground disturbance and worksite drainage would be inspected and maintained as required, so that they continue to operate to their design standard, safeguarding surface and groundwater quality.
GG16	Wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.
GG17	Wheel washing 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 where necessary to prevent excessive dust or mud deposits.
GG18	Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
GG19	Bonfires and the burning of waste material will be prohibited.
GG20	Construction lighting will be of the lowest luminosity necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats.
GG22	An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned events, including but not limited to site flooding and pollution incidents.
GG23	Stone pads will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used. The stone pads will provide stable working areas and will reduce disturbance to the ground. The stone pad area will be stripped of the topsoil, which will be stored and reinstated in accordance with soil management measures (good practice measure AS01).
GG24	Working areas will be appropriately fenced. The type of fencing installed will depend on the area to be fenced and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. 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. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise specified.
Landscape and Visual (including Trees)	
LV03	A five-year aftercare period will be established for all reinstatement and proposed planting.
Biodiversity	
B02	The assumption will be that vegetation with the potential to support breeding birds will not be removed during the breeding bird season (March to August inclusive). If any works become necessary during the breeding bird season, works will be supervised by an Environmental Clerk of Works. Appropriate protection measures will be put in place should active nests be found. These will

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	include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the Environmental Clerk of Works.
B03	Where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.
B04	To control the spread of invasive weeds in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas infested with invasive species (both terrestrial and aquatic), such as Japanese knotweed and Himalayan balsam, will be thoroughly cleaned. Water used to clean vehicles will be controlled to prevent the spread of the plant (through seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.
B05	All habitats suitable for common reptiles will be subject to two-stage habitat manipulation that will take place between mid-March and mid-October (with consideration of other protected and notable species potentially present). Firstly, vegetation will be cut to approximately 150mm (with the arisings removed) under the supervision of an Environmental Clerk of Works and the site left for a minimum of two days to allow reptiles to naturally disperse from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an Environmental Clerk of Works. Vegetation will be cleared using appropriate equipment based on the type of vegetation to be removed, the area affected, and the risk of mortality or injuring reptiles. Construction works could commence immediately after completion of the second stage. Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.
Historic Environment	
H01	Locations of known archaeological interest/value, or areas where archaeological work is planned, will be signposted/fenced off to avoid unintentional damage.
H02	Where a previously unknown significant heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, works in that area will be halted. The project will inform the relevant planning authority archaeologist, and Historic England where relevant, and will agree a solution that protects the significance of the new discovery, so far as is practicable, within the project parameters.
H03	In the event that finds of human remains, or 'treasure' as defined by the Treasure Act, 1996 (as amended), the contractor(s) will comply with the requirements of the relevant legislation and best practice guidance.
Water Environment	
W07	Where new or additional surfacing is required on any access tracks and compound areas, these will be permeable surfaces where ground conditions allow. The project will incorporate appropriate surface water drainage measures into its final design for the haul roads and access tracks so that they do not lead to a significant increase in flood risk. Temporary haul routes within Flood Zone 3 and areas of high and medium risk of flooding from surface water will be removed at the end of the construction phase and the ground surface will be reinstated to pre-project levels. No construction materials or stockpiles of soils/arisings should be stored within Flood Zone 3 and areas of high and medium risk of flooding from surface water. Where this cannot be avoided, stockpiles would be aligned to avoid creating continuous barriers to floodplain flows.

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W08	The contractor(s) will subscribe to the Environment Agency's Floodline service, which provides advance warning of potential local flooding events, and subscribe to the Met Office's Weather Warnings email alerts system and any other relevant flood warning information. The contractor(s) will implement a suitable flood risk action plan, which will include appropriate evacuation procedures should a flood occur or be forecast.
W09	Active private water supplies will be identified with landowners through the landowner discussions. Appropriate measures will be considered during construction. In the event of a landowner or tenant reporting that installation activities have affected their private water supplies, an initial response will be provided within 24 hours. Where the installation works have affected a private water supply, an alternative water supply will be provided, as appropriate.
W10	In the event of a significant spill during construction, 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, as appropriate.
W12	Where new, permanent areas of impermeable land cover are created, the drainage design will be in accordance with the requirements of the Essex County Council Sustainable Drainage System (SuDS) Design Guide (2020) and will include allowances for climate change in accordance with current Environment Agency requirements. .

Geology and Hydrogeology

GH02	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.
GH04	The contractor(s) will be responsible for assessing the risk of encountering unexploded ordnance. The contractor(s) will implement measures advised by the risk assessment.

Agriculture and Soils

AS01	Soil management measures will include but not be limited to the following: <ul style="list-style-type: none"> • how the different topsoil and subsoil resources present will be stripped and stockpiled; • suitable conditions for when handling soil will be undertaken, for example avoiding handling of waterlogged soil; • indicative soil storage locations; • how soil stockpiles will be designed taking into consideration site conditions and the nature/composition of the soil; • specific measures for managing sensitive soils, such as heavy-textured soils or those supporting valuable habitats; • suitable protective surfacing (such as Trackway or similar products) where soil stripping can be avoided, based on sensitivity of the environment and proposed works; • approach to reinstating soil that has been compacted, where required; and • details of measures required for soil restoration.
AS03	Access to and from residential, commercial, community and agricultural land uses will be maintained throughout the construction period or as agreed through the landowner discussions. The latter may

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	require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction, alternative field access will be provided in consultation with the landowner/occupier.
AS05	Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The project may include a system of 'cut-off' drains which feed into a new header drain and the project will also take into account surface water runoff measures.
AS06	Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
AS07	All movement of plant and vehicles between fields will cease in the event of a notification by the Department for Environment, Food and Rural Affairs (Defra) of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
Noise and Vibration	
NV01	Construction working will be undertaken within the agreed working hours. Best practicable means to reduce construction noise will be set out within the CEMP.

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