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# Bramford to Twinstead Reinforcement

Volume 2: Plans and Drawings

Document 2.1: Guide to the Plans

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nationalgrid

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# 1. Guide to the Plans

## 1.1 Introduction

- 1.1.1 National Grid Electricity Transmission plc (here on referred to as National Grid) is making an application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new 400 kilovolt (kV) electricity transmission line over a distance of approximately 29km (18 miles), the majority of which would follow the general alignment of the existing overhead line network.
- 1.1.2 This document has been produced to support the application for development consent under the Planning Act 2008. It provides a guide to the plans produced to support the application. It explains the role of the different plans and factors that should be considered when reviewing these plans.
- 1.1.3 National Grid has prepared a series of documents to explain the project, including plans and drawings. This guide provides more detail about the plans that are available (**application documents 2.2 to 2.11.15**) and what is shown on each plan.
- 1.1.4 Whilst the plans illustrate many aspects of the project, they do not explain the rationale for the design. A description of the project is provided in the Environmental Statement (ES) Chapter 4: Project Description (**application document 6.2.4**).
- 1.1.5 In accordance with normal practice, it should be noted that depending on their type, the plans and drawings show either indicative locations or illustrative designs to give a general understanding of the project for which consent is sought, or they show the parameters within which the project will be constructed. The designs are likely to change within the parameters shown, to reflect ongoing detailed design, and/or unforeseen engineering or environmental circumstances. Flexibility will be retained through Limits of Deviation (LoD) (described below).

## 1.2 Sections

- 1.2.1 The project has been subdivided into seven sections:
- Section AB – Bramford Substation/Hintlesham;
  - Section C – Brett Valley;
  - Section D – Polstead;
  - Section E – Dedham Vale Area of Outstanding Natural Beauty (AONB);
  - Section F – Leavenheath/Assington;
  - Section G – Stour Valley; and
  - Section H – Grid Supply Point (GSP) Substation.

- 1.2.2 The plans and drawings show design and lands information that provide a more detailed understanding of the proposals.
- 1.2.3 Where designs are shown, these comprise either indicative or illustrative examples of what the proposed equipment typically might look like, and where and how it might be configured within the parameters of the draft Development Consent Order (DCO). This is because the final designs may change to reflect detailed design, and/or to respond to unforeseen engineering or environmental circumstances. The plans are grouped into five categories:
- Parameter Plans – these plans show parameters which define the zones within which specific works would be carried out. The parameters defined on these drawings are fixed and would not be subject to change;
  - Indicative Plans – these plans indicate the way in which National Grid expect the project would be arranged. These tend to be plans to show geographically specific matters, such as the location of the Cable Sealing End (CSE) compounds;
  - Illustrative Plans – these plans illustrate one way in which the project might be arranged, or typical equipment that might be used. These tend to be plans to show typical types of equipment, such as substation equipment;
  - Informative Plans – these drawings or plans support the application for development consent. Generally, they are required under the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 and provide factual information about the surrounding environment; and
  - Order drawings – other drawings or plans which are referred to in provisions within the draft DCO.

## 1.3 The Order Limits

- 1.3.1 The project is a Nationally Significant Infrastructure Project (NSIP) and Order Limits have been defined to encompass the land required temporarily to build the project and permanently to operate the project. The Order Limits include the LoD, which represent the maximum deviation for permanent infrastructure, such as the overhead line, pylons and underground cables.
- 1.3.2 The Order Limits are shown as a solid red line on all plans.

## 1.4 Limits of Deviation (LoD)

- 1.4.1 Within the Order Limits, parameters known as LoD are set out.
- 1.4.2 LoD are a common feature of NSIP's. They allow for adjustment to the final positioning of the permanent infrastructure for example to avoid localised constraints or unknown or unforeseeable issues that may arise. This could include, previously unidentified poor ground conditions may require a pylon to be moved slightly for geotechnical reasons, such as ground stability.
- 1.4.3 The horizontal LoD define the parameters within which the position on the ground of proposed permanent infrastructure may deviate from the position shown on the plans. This applies to both linear (for example overhead line and underground cables) and non-linear (for example the GSP substation and CSE compounds) proposed infrastructure. Horizontal LoD are shown on the Works Plans as a dashed line (yellow for overhead line, blue for

underground cable, and pink for non-linear works). In some areas the LoD and draft Order Limits are contiguous.

- 1.4.4 Vertical LoD (which limit the maximum vertical height, or the depth below ground, of any new infrastructure) are specified in the draft DCO (**application document 3.1**).

## 1.5 The Proposed Alignment

- 1.5.1 Certain plans and documents for example various chapters within the ES use the term 'Proposed Alignment' when describing the route. The Proposed Alignment is a concept used to help communicate the potential route of the reinforcement and has been developed as a result of consultation feedback, ongoing engineering design, environmental assessment work and landowner discussions. It includes indicative locations for pylons, gantries, cables, CSE compounds and the GSP substation.
- 1.5.2 However, noting what is said above regarding the purpose and effect of the LoD, National Grid will not be seeking approval for a specific alignment, or specific pylon locations. This is to provide an appropriate and necessary degree of flexibility during detailed design and construction for example to take account of unforeseen circumstances, such as unsuitable ground conditions or ecological constraints.

## 1.6 Modification, Removal and Realignment Works

- 1.6.1 The plans and drawings also show the areas in which National Grid is proposing to modify, remove or realign existing infrastructure, including:
- Existing pylons to be modified or removed;
  - Existing overhead lines to be replaced, modified or removed; and
  - Existing gantries to be modified or removed.
- 1.6.2 Modification works refer to the changing or restoring of an existing asset whilst it remains in its current location. An example of modification works would be changing the arms of existing pylons (which will remain in situ) to accommodate angle changes and new overhead line deviations.
- 1.6.3 Removal works refers to the dismantling and disposal of existing equipment that will no longer be required at the end of the project, for example taking down and removing a pylon on the existing 132kV overhead line route.
- 1.6.4 Realignment works refer to the changing or restoring of existing assets which will be relocated to a different position. An example of realignment works is the relocation of the existing 400kV overhead line from its existing alignment to a modified alignment where it ties into Bramford Substation.

## 1.7 Other Features

1.7.1 Other features shown on the plans and drawings are summarised in Tables 1.1 and 1.2.

Table 1.1 - Permanent Features

Permanent Features	Overview
Category 2 fence	A barrier of 2.4m in height with an electric pulse fence.
Category 3 fence	A barrier of 2.4m in height without an electric pulse fence.
CSE compound	Compounds containing equipment needed to transfer transmission circuits between underground cables and overhead lines.
CSE platform tower (pylon)	A pylon type which incorporates cable sealing end equipment, via a platform, that allows underground cables to connect into the overhead lines.
Environmental areas	These are locations identified for mitigation planting and/or biodiversity net gain.
Full line tension gantries	Types of gantries which allow conductors to connect into a substation or compound directly from a pylon, without requiring a bulky terminal pylon. This allows a larger span between the final pylon and the gantry.
Gantries	An overhead bridge-like structure supporting electrical equipment. A transition point from overhead line equipment to equipment in a substation or compound.
GSP Substation	Used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses.
Overhead lines	Conductors (wires) carrying electric current, strung from pylon to pylon.
Permanent access bellmouth	A flared vehicular access/egress point connecting a permanent operational route to the public highway, designed to accommodate turning movements by large vehicles. It may involve creating visibility splays, which is a safety feature where vegetation may be removed from the bellmouth to enable a driver to see down the road and know when the road is clear.
Permanent access route	A permanent road constructed to convey maintenance vehicles in order to maintain infrastructure when operational.
Proposed Alignment	This term is used to help communicate the potential alignment of the project within the application. It is the design as shown on the General Arrangement Plans ( <b>application document 2.10</b> ), which has been developed through an iterative design process including engineering and environmental inputs alongside feedback received through various consultation stage. It should be noted that as the project is an NSIP, that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the LoD as defined on the Work Plans ( <b>application document 2.5</b> ).
Pylons	Structures that support the overhead line (conductors). There are two types of pylons; suspension, where the conductors are simply suspended from the tower and tension (angle).
Substation	Substations are used to control the flow of power through the electricity system. They are also used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses

<b>Permanent Features</b>	<b>Overview</b>
Underground cabling	An insulated conductor carrying electric current designed for underground installation. Also includes associated infrastructure related to communications, cable jointing, inspection and testing.

Table 1.2 - Temporary Features

<b>Temporary Features</b>	<b>Overview</b>
Access point	An access point is the location where the construction working area meets the public highway. Access points may consist of existing gates into fields used by farm vehicles or may involve the construction of a temporary access point which would be removed / reinstated at the end of construction. Access points may involve a bellmouth as described above.
Bailey bridge	A temporary bridge of lattice steel assembled from prefabricated standard parts.
Temporary access bellmouth	A flared vehicular access/egress point connecting a construction site to the public highway, designed to accommodate turning movements by large vehicles. It may involve creating visibility splays, which is a safety feature where vegetation may be removed from the bellmouth to enable a driver to see down the road and know when the road is clear.
Cable working area	Working area required to construct the underground cable systems including; haul road, soil storage and installation of cables.
Construction compounds	Temporary compounds installed during the construction phase of the project. Each compound may contain storage areas including laydown areas, soils storage and areas for equipment and fuel, drainage, generators, car parking and offices and welfare areas (portacabins).
Stringing positions	Areas used for stringing/installing new electrical equipment, such as wires and conductors on pylons.
Temporary construction access route	A temporary road constructed to convey construction vehicles through the working areas. These can be made of imported stone or using protective covering such as Trakmat. These would be removed at the end of construction.
Temporary overhead line diversions and pylons	Temporary diversions of existing overhead line may be required to ensure electricity flows are maintained at all times during construction of the project to limit the disruption to the electricity network. These typically comprise a short section of overhead line with temporary structures or pylons which electricity flows are diverted along.
Temporary construction area	The additional temporary construction space required to construct the project in a particular area, but which will not be required once construction has taken place.
Trenchless crossing	A crossing installation method used to avoid a sensitive feature such as a watercourse or environmental feature.



## 1.8 Plan Details

- 1.8.1 This section provides detail on what the different plans and drawings show. To make it easier to understand the plans, the colour and symbols used for the pylons and overhead lines are consistent throughout the plan series. The legend showing the symbols used throughout the plan series is included in Table 1.4.
- 1.8.2 All plans are ordered from east (existing Bramford Substation) to west (GSP substation south of Sudbury). All plans with multiple pages have a key plan included to help users quickly locate an area or section of interest along the length of the project. Many of the main parameter plans, including the works plans and land plans are divided over 30 sheets at 1:2,500 scale.
- 1.8.3 The plans and drawings published to support our application are listed in Table 1.3. The design and layout plans listed in Table 1.3 are indicative and illustrative and show only the principal assets.

Table 1.3 - List of Plans

Application Document Reference Number	Title	Regulation Number	Plan Type	Description
2.2	Location Plan	5(2)(o)	Informative	This plan shows a very high-level view of the location of the project in the context of the surrounding locality, including the Order Limits.
2.3	Land Plans	5(2)(i) (i)-(iii)	Order drawing	<p>These plans show the types of statutory land powers (compulsory acquisition or temporary use) National Grid intend to seek for the Order land, within the Order Limits. The land to which these powers relate, has been split down into land plots and those plots have been given a unique plot number that can be found within the Book of Reference (<b>application document 4.3</b>).</p> <p>There are seven different classes of land powers within the application:</p> <ul style="list-style-type: none"> <li>• Class 1: Acquisition of all interests and rights in the land—This is where National Grid would purchase the land, for example, where National Grid would be constructing the GSP and permanent CSE compounds;</li> <li>• Class 2: Compulsory Acquisition of Rights - Overhead Line— Acquisition of rights by the creation of new rights, or modification of existing rights for the sections of new overhead line. These rights allow National Grid to construct, operate, and maintain the project;</li> </ul>

Application Document Title Reference Number	Regulation Number	Plan Type	Description
			<ul style="list-style-type: none"> <li>• Class 3: Compulsory Acquisition of Rights of Underground Cable – Acquisition of rights by the creation of new rights, the imposition of restrictions, or the acquisition of existing rights or benefits of existing restrictions for sections of underground cable. These rights allow National Grid to construct, operate, and maintain the project;</li> <li>• Class 4: Compulsory Acquisition of Rights – Access - Acquisition of rights of access that allow National Grid to construct, operate, and maintain the project;</li> <li>• Class 5: Compulsory Acquisition of Rights – Biodiversity Net Gain (BNG) - Acquisition of rights that would allow the carrying out of BNG works or activities related to that land;</li> <li>• Class 6: Temporary Use for Construction, Mitigation, Maintenance and Dismantling of redundant infrastructure – This means the temporary use of the land. These rights apply to areas of land that would be temporarily used during construction and then reinstated (subject to specified exceptions), for example the construction compounds and the haul road; and</li> <li>• Class 7: Temporary Use for Access – This means the temporary use of rights on the land for temporary access. These are so National Grid can temporarily access the project for the construction work.</li> </ul>
			<p>The classes of right are listed in order of magnitude, starting with Class 1 (Compulsory Acquisition of land) with (in most cases) each class including all subordinate rights within the lesser classes. For instance, Class 1 would also include Class 2, 3, 4, 5, 6 and 7 rights.</p>
			<p>The exception to that rule is Class 5, which pertains to BNG land. That Class stands alone and is not subject to the above hierarchy, due to the nature of the BNG purposes. To ensure that this is made clear on the Land Plans, where a plot is solely Class 5 then it is shown in dark green, but where a plot is to be subject to both Class 5 and another class, then the Class 5 dark green colour is shown hatched, so that it is clear what other class also applies.</p>
			<p>Within the book of reference (<b>application document 4.3</b>) there is a column dedicated to the class of interest or right to be acquired or power to be used by</p>

Application Document Reference Number	Title	Regulation Number	Plan Type	Description
				<p>both National Grid and UKPN. This is shown against each land plot by a two number system, each number divided by a forward slash. The first number is the National Grid class, and the second number is the UKPN class.</p> <p>In addition to book of reference (<b>application document 4.3</b>) and the statement of reasons (<b>application document 4.2</b>), Schedules 10 and 11 of the draft DCO also set out certain details in respect of temporary use plots.</p>
2.4	Special Category Land Plans	5(2)(i) (iv)	Informative	<p>These plans show any land that is defined as Special Category Land, which land is subject to powers of compulsory acquisition of rights (being Classes 2-5). No such land is subject to Class 1 powers.</p> <p>Special Category Land is defined as the land identified as forming part of a common, open space, National Trust land, or a fuel or field garden allotment. In this case the only such land is open space.</p> <p>Within these plans sheets are only included where there is Special Category Land identified.</p> <p>Further details on this plan are described in Part 4 of Schedule 2 (plans) of the draft DCO. Further details of the Special Category Land are set out in Appendix C to the Statement of Reasons (<b>application document 4.2.3</b>).</p>
2.5	Work Plans	5(2)(j)	Parameter	<p>These plans show the main permanent aspects of the project that are described in Schedule 1 of the draft DCO (<b>application document 3.1</b>). The plans show the Proposed Alignment centerlines of the linear works that make up the application. In respect of the permanent linear works (the overhead line and underground cables) these will be subject to the LoD. The plans also show the LoD within which the CSE compounds and GSP substation works can be located.</p> <p>The plans show the LoD that National Grid is applying for, which gives some flexibility in the design in respect of the works. National Grid has applied a standard approach to the LoD to most of the route, however there are some areas along the route where local constraints mean that they are restricted.</p> <p>The pylons have each been numbered, e.g. RB001, based on the Proposed Alignment.</p>

Application Document Reference Number	Title	Regulation Number	Plan Type	Description
				<p>Included at the end of the Work Plans is a Table of Parameters, which sets out the assumed height of above ground linear and non-linear works. Article 5 of the draft DCO sets out all of the relevant LoD in respect of the above.</p> <p>Sheet 23 shows the proposed GSP substation. Due to the overlapping nature of the LoD in this location, three inset boxes are displayed showing the LoD for underground cables, overhead lines and non-linear works separately.</p> <p>Further details on this set of plans are listed in Part 7 of Schedule 2 (plans) of the draft DCO.</p>
2.6	Traffic Regulation Order Plans	5(2)(o)	Order drawings	<p>These plans also show the extent of the proposed Traffic Regulation Orders and sections of the road / street that may need to be subject to a Traffic Regulation Order while works are undertaken, such as where restrictions or traffic management would be required to facilitate the construction and maintenance of the project.</p> <p>The Traffic Regulation Orders also have a specific reference, each reference begins with TRO, followed by the section reference and then a unique number. For example: TRO-AB-1 would be the first Traffic Regulation Order reference in Section AB: Bramford Substation / Hintlesham.</p> <p>Further detail on Traffic Regulation Orders is described in Schedule 12 (pursuant to Article 47) of the draft DCO.</p>
2.7	Access, Rights of Way and Public Rights of Navigation Plans	5(2)(k)	Order drawings	<p>These plans show the access points from the public highway that are needed to construct, operate or maintain the project. Each of these new or altered access points have been given a unique number. These numbers are in the following format:</p> <p>The references are first described by the section A-H, then the access type, followed by the number of the access of that type found in the section. The subsequent letters describe types of access followed by the letter AP to denote access point:</p> <ul style="list-style-type: none"> <li>• AP – standard access or multiple types e.g. ADE (standard, demolition and environment access);</li> <li>• DAP – Demolition access only;</li> <li>• EAP – Environmental area access only; and</li> </ul>

Application Document Title Reference Number	Regulation Number	Plan Type	Description	
2.8.1	Statutory and Non-Statutory Sites of Nature Conservation, Geological and Landscape Importance	5(2)(l)(i)	Informative	<ul style="list-style-type: none"> <li>YLAP – Access to 4YL pylon for earthing and arching horns.</li> </ul> <p>For example, D-EAP1 is the first access point in Section D: Polstead, that is the access to an environmental area.</p> <p>Need to explain the local authority reference numbers</p> <p>These plans also show Public Rights of Way (PRoW) and streets that are affected by the project and the type of management proposed for these affected PRoW and streets.</p> <p>Each of the affected PRoW and streets have been given a reference number, starting with P for PRoW and SM for street management and diversions, followed by the section (A-H) and then a unique number. For example: P-AB-1 would be the first PRoW reference in Section AB: Bramford Substation / Hintlesham. Similarly, SM-AB-1 would be the first street management reference in Section AB: Bramford Substation / Hintlesham. The referencing has generally been applied east to west. Further details in respect of these plans are listed in Part 1 of Schedule 2 (plans) of the draft DCO.</p> <p>Public rights of way and streets may be subject to different types of management (e.g. closure with diversion and without diversion) at different points during the construction programme and therefore may be listed in more than one schedule.</p> <p>Further detail on streets or public rights of way to be temporarily stopped up is described in Schedule 7 of the draft DCO. Further detail on access to works is described in Schedule 8 of the draft DCO. Further detail on the public right of navigation power can be found in Article 50 of the draft DCO.</p> <p>This plan shows environmental designations including the Dedham Vale AONB, sites of special scientific interest, ancient woodland and other environmental features relevant to the application including notified and potential geological sites. The plan shows Tree Preservation Orders within and outside the Order Limits, they are only shown up to 15m outside of the Order Limits.</p>

Application Document Reference Number	Title	Regulation Number	Plan Type	Description
2.8.2	Habitats of Protected Species and Important Habitats	5(2)(l)(ii)	Informative	This plan shows the locations of habitats of protected species and important habitats based on the project's environmental surveys. An assessment of the effects on habitats and species is presented in ES Chapter 7: Biodiversity ( <b>application document 6.2.7</b> ). The data shown in the plan is clipped to the Order Limits and the figures shown are based on the results of site surveys and ariel imagery where site access was not available, further details can be found in Appendix 7.1 Habitats Baseline Report ( <b>application document 6.3.7.1</b> ).
2.8.3	Statutory and Non-Statutory Sites and Features of the Historic Environment	5(2)(m)	Informative	This plan shows scheduled monuments, listed buildings and archaeological sites on the historic environment record. An assessment of effects on these sites is presented in ES Chapter 8: Historic Environment ( <b>application document 6.2.8</b> ). Historic environment references can be found in Appendix 8.1 Historic Environment Baseline ( <b>application document 6.3.8.1</b> ).
2.8.4	Water Bodies in the River Basin Management Plan	5(2)(l)(iii)	Informative	This plan shows Water Framework Directive (WFD) surface water and ground water bodies relevant to the project.
2.9	Trees and Hedgerows to be Removed or Managed Plans	5(2)(o)	Indicative	<p>These plans show the trees and hedgerows that are potentially affected by the project.</p> <p>A tree is defined as a perennial woody plant having a main stem and usually a distinct crown with a stem diameter (measured at 1.5m above ground level) of 75mm or greater. A hedgerow is defined as any boundary line of trees or shrubs over 10m long and less than 5m wide at the base, provided that at one time the trees or shrubs were more or less continuous.</p> <p>The trees and hedges have been broken down into the following four categories:</p> <ul style="list-style-type: none"> <li>Retained - means individual trees, sections of hedgerow or groups of trees that would be retained if the Proposed Alignment shown on the General Arrangement Plans (<b>application document 2.10</b>) were to be implemented;</li> <li>Pruned – means individual trees, sections of hedgerow or groups of trees that would be trimmed or pruned back if the Proposed Alignment</li> </ul>

Application Document Reference Number	Title	Regulation Number	Plan Type	Description
2.10	General Arrangement Plans	5(2)(o)	Indicative	<p>shown on the General Arrangement Plans (<b>application document 2.10</b>) were to be implemented;</p> <ul style="list-style-type: none"> <li>• Coppiced - means individual trees, sections of hedgerow or groups of trees that would be cut down to ground level (without the roots being removed) if the Proposed Alignment shown on the General Arrangement Plans (<b>application document 2.10</b>) were to be implemented; and</li> <li>• Removed - means individual trees, sections of hedgerow or groups of trees that would be removed (including the roots) if the Proposed Alignment shown on the General Arrangement Plans (<b>application document 2.10</b>) were to be implemented.</li> </ul> <p>The impact upon individual trees, sections of hedgerow or groups of trees (i.e., shown as 'Retained, pruned, coppiced or removed') could change by the use of flexibility from the LoD.</p> <p>The location of commercial orchards within the Order Limits are shown on the plans for information only. Potential impacts on commercial orchards if the Proposed Alignment shown on the General Arrangement Plans (<b>application document 2.10</b>) were to be implemented are considered as part of the agreements with affected landowners.</p> <p>The data shown in the plan is clipped to the Order Limits and the figures shown are based on the results of site surveys and ariel imagery where site access was not available.</p> <p>Further details on this plan are described in Schedule 13 of the draft DCO.</p> <p>These plans show an indication of the construction and operational components of the proposals based on the Proposed Alignment within the parameters of the draft DCO with reference to the Work Plans (<b>application document 2.5</b>).</p> <p>The plans include the following principal components:</p> <ul style="list-style-type: none"> <li>• the Order Limits;</li> <li>• the Limits of Deviation (LoD);</li> <li>• temporary construction works including, temporary overhead line diversions, temporary construction access routes, temporary</li> </ul>













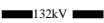

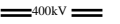























Application Document Reference Number	Title	Regulation Number	Plan Type	Description
				<p>construction compounds, trenchless crossings, temporary access points and temporary access bridges;</p> <ul style="list-style-type: none"> <li>• areas for proposed environmental mitigation; and</li> <li>• the Proposed Alignment (encompassing indicative locations for pylons, cables, CSE compounds and the GSP substation).</li> </ul> <p>These plans also include proposed environmental areas which include embedded measures, mitigation and enhancement areas as defined within ES Chapter 4: Project Description (<b>application document 6.2.4</b>).</p> <p>A range of temporary construction works whilst not shown are also required within the Order Limits, including but not limited to; surveys, protective scaffolding, diversion of services, drainage works, storage of material.</p>
2.11.1	Design and Layout Plans: Grid Supply Point Substation Layout	5(2)(o)	Indicative	<p>This plan shows an indicative layout of the proposed GSP substation. This plan shows the proposed features including the substation boundary, proposed permanent accesses and locations of various substation equipment and infrastructure.</p> <p>This plan also shows proposed pylons and existing pylons to be removed.</p>
2.11.2	Design and Layout Plans: Grid Supply Point Substation Elevations	5(2)(o)	Indicative	<p>This plan shows an indicative elevation view of the proposed GSP substation, including the proposed substation equipment, gantries, pylons and substation equipment to be installed.</p>
2.11.3	Design and Layout Plans: Grid Supply Point Substation Single Circuit Cable Sealing End Compound	5(2)(o)	Indicative	<p>This plan shows an indicative view of the design of the proposed single circuit CSE compound in layout and elevation.</p>
2.11.4	Design and Layout Plans: Grid Supply Point Substation 400kV Temporary	5(2)(o)	Indicative	<p>This plan shows an indicative view of what the temporary 400kV overhead line diversion may look like during construction of the GSP substation.</p>









Application Document Reference Number	Title	Regulation Number	Plan Type	Description
	Overhead Line Diversion			
2.11.5	Design and Layout Plans: Dedham Vale East Cable Sealing End Compound	5(2)(o)	Indicative	This plan shows an indicative view of the design of the proposed Dedham Vale East CSE Compound at Polstead Heath in layout and elevation.
2.11.6	Design and Layout Plans: Dedham Vale West Cable Sealing End Compound	5(2)(o)	Indicative	This plan shows an indicative view of the design of the proposed Dedham Vale West CSE Compound at Leavenheath in layout and elevation.
2.11.7	Design and Layout Plans: Stour Valley East Cable Sealing End Compound	5(2)(o)	Indicative	This plan shows an indicative view of the design of the proposed Stour Valley East CSE Compound at Little Cornard in layout and elevation.
2.11.8	Design and Layout Plans: Stour Valley West Cable Sealing End Compound	5(2)(o)	Indicative	This plan shows an indicative view of the design of the proposed Stour Valley West CSE Compound at Alphamstone in layout and elevation.
2.11.9	Design and Layout Plans: Cable Working Cross Section	5(2)(o)	Illustrative	This plan shows an illustrative cable working cross section through agricultural land. The 80m working width would lie within the 100m LoD shown on the Work Plans ( <b>application document 2.5</b> ). The actual layout would vary depending on site specific factors.
2.11.10	Design and Layout Plans: Pylon Designs	5(2)(o)	Illustrative	This plan shows illustrative pylon designs used on the existing 132kV overhead line and the proposed 400kV overhead line. The design and height of the pylons used would vary depending on the final design and topography within the parameters contained within the draft DCO with reference to the Work Plans ( <b>application document 2.5</b> ).

<b>Application Document Reference Number</b>	<b>Title</b>	<b>Regulation Number</b>	<b>Plan Type</b>	<b>Description</b>
2.11.11	Design and Layout Plans: Pylon Working Area	5(2)(o)	Illustrative	This plan shows an illustrative pylon working area for a suspension (line) and tension (angle) pylon. This is the area required to build the pylon. The actual layout would vary depending on site specific factors.
2.11.12	Design and Layout Plans: Temporary Bellmouth for Access	5(2)(o)	Illustrative	This plan shows an illustrative temporary bellmouth design. It shows the entrance where the proposed temporary access route meets the public highway which is required to provide suitable visibility splays. The plan shows the layout of the bellmouth including appropriate sightlines (visibility splays). It also includes cross sections of access works that abut the public highway.
2.11.13	Design and Layout Plans: Temporary Bridge for Access	5(2)(o)	Illustrative	This plan shows an illustrative temporary access bridge (Bailey bridge) design that is proposed at the River Stour, the River Box and the River Brett. This plan gives an illustrative layout plan, a cross-section of the bridge.
2.11.14	Design and Layout Plans: Temporary Culvert for Access	5(2)(o)	Illustrative	This plan shows an illustrative culvert design that may be used along a temporary construction access route to cross ditches and watercourses. It shows how a culvert could be designed using infill and/or sandbags perpendicular to the direction the watercourse is flowing, with a pipe through the middle to enable water to continue flowing. This plan gives a cross-section and a side-view of the culvert.
2.11.15	Design and Layout Plans: Horizontal Directional Drill	5(2)(o)	Illustrative	<p>The trenchless crossings would require the underground cables to be installed using a drill or boring method. The application documents assume that the most likely technique is using a horizontal directional drill (HDD).</p> <p>This drawing shows an illustrative HDD plan and section view. It includes drive and reception pits. Where trenchless crossings are utilised, cables have to widen out of the normal 80m working swathe to enter and exit the HDD. The drawing also shows the duct arrangement for one group of cables as well as the layout of the individual cables within the separate six groups.</p>

Table 1.4 - Legend

Description	Symbol	Description	Symbol
Draft Order Limits		Limits of deviation: overhead lines	
Limits of deviation: underground cable		Limits of deviation: non-linear works	
Permanent access route		Temporary access route	
Existing cable sealing end compound		Proposed grid supply point substation (GSP)	
Existing 400kV overhead line		Proposed cable sealing end compound	
Proposed modification of 132kV overhead line		Proposed 400kV overhead line	
Existing 132kV overhead line		Proposed realignment of existing 400kV overhead line	
Existing 400kV underground cables		Proposed 400kV underground cables	
Existing 132kV underground cables		Proposed 132kV underground cables	
Proposed modification to 400kV overhead line		Proposed 400kV overhead line removal	
Existing pylon (not to scale)		Proposed 132kV overhead line removal	
Proposed pylon (not to scale)		Proposed gantry (not to scale)	
Temporary pylon (not to scale)		Existing gantry (not to scale)	
Proposed gantry realignment (not to scale)		Proposed cable sealing end platform tower (not to scale)	
Proposed cable sealing end platform tower modification (not to scale)		Proposed trenchless 400kV underground cable installation working area	
Propose pylon removal (not to scale)		Proposed pylon modification works (not to scale)	
Section boundaries		Proposed environmental areas	
Temporary 400kV overhead line during construction		Temporary 132kV overhead line during construction	
Temporary 400kV underground cables during construction		Temporary 132kV underground cables during construction	

Description	Symbol	Description	Symbol
Temporary construction compound		Proposed pylon realignment (not to scale)	
Temporary access bridge		Permanent access point	
Temporary access point		Existing substation	

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