The Great Grid Upgrade

BT-NG-020621-545-0044

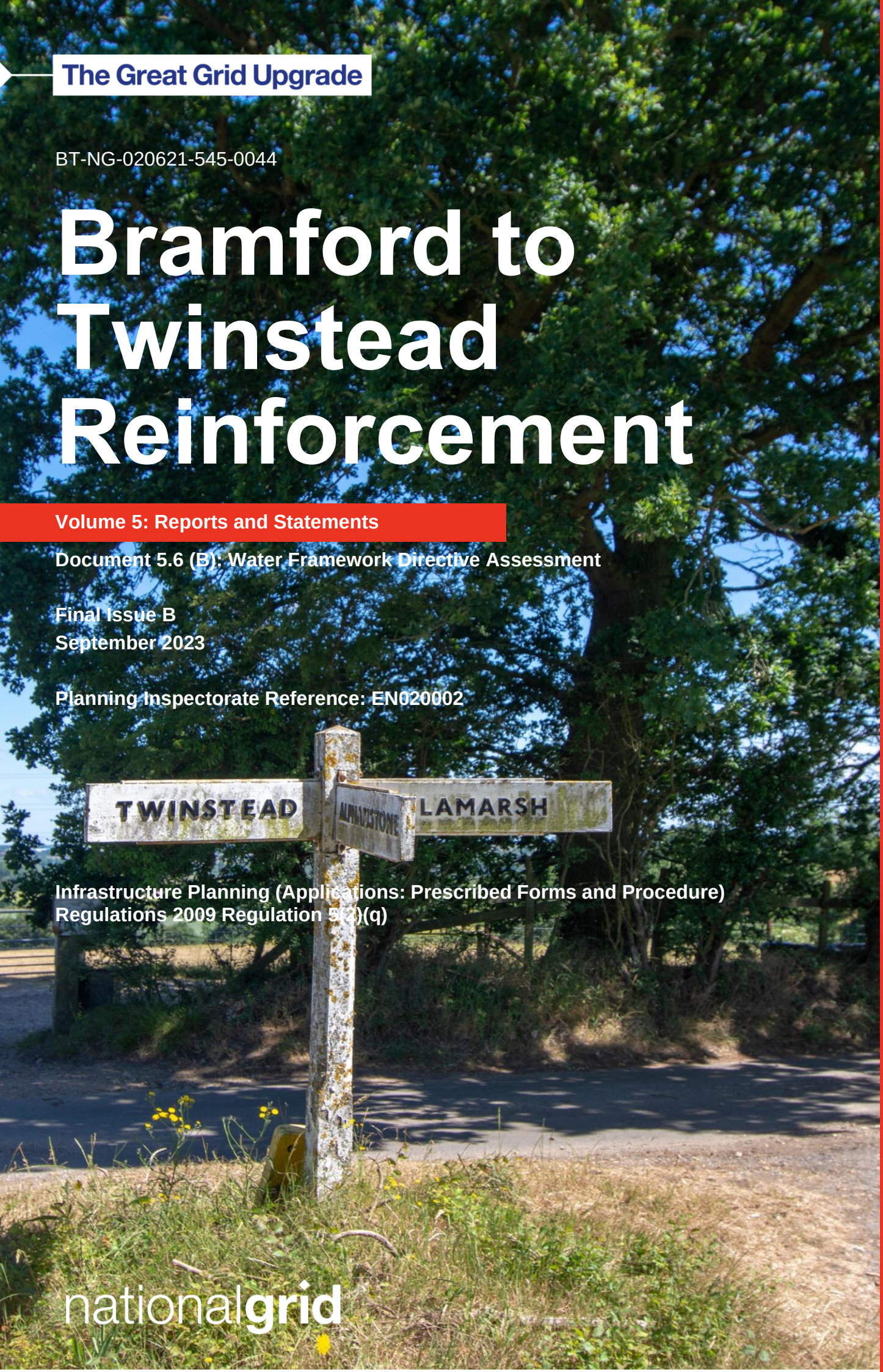
Bramford to Twinstead Reinforcement

Volume 5: Reports and Statements

Document 5.6 (B): Water Framework Directive Assessment

Final Issue B
September 2023

Planning Inspectorate Reference: EN020002



Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(q)

nationalgrid

Page intentionally blank

Version History

Date	Issue	Status	Description / Changes
April 2023	A	Final	For DCO submission
September 2023	B	Final	Update in response to the Relevant Representation from the Environment Agency [**RR-031**] for Deadline 1. No changes required to the accompanying figures.

Contents

Executive Summary

Purpose of this Report

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 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.

This report documents the Water Framework Directive (WFD) screening assessment undertaken for the proposed reinforcement. The assessment followed a staged approach.

Scope of the Assessment

The study area (or Zone of Influence (ZoI)) for this assessment includes land within the Order Limits, in addition to surface and groundwaters within 500m of the Order Limits. This ZoI is justified on the basis of the nature of the proposed project activities. The surface waterbodies within the ZoI are the Belstead Brook (ID: GB105035040440), River Brett (ID: GB105036040930), River Box (ID: GB105036040920) and River Stour (Wixoe to Lamarsh) (ID: GB105036040941). The groundwater bodies within the ZoI are the Essex Gravels (ID: GB40503G0004000), North Essex Lower London Tertiaries (ID: GB40502G400900), North Essex Chalk (ID: GB40501G400700) and Waveney and East Suffolk Chalk and Crag (ID: GB40501G400600).

The River Box and River Stour were screened into the WFD assessment because these are in underground cable sections of the project where a wide corridor of topsoil strip is required, and there would be direct interactions with these waterbodies, for example including construction of temporary bridges to provide access during construction and establishment of trenchless crossing compounds in their vicinity. The River Brett was also screened in given the need for a temporary bridge during construction. The Belstead Brook was screened out as there would be no physical disturbance of this waterbody during construction or operation and no pollution pathways to the waterbody.

All of the groundwater bodies within the ZoI were screened out of the WFD assessment owing to the very limited interactions between the project and the waterbodies and given that foundations for pylons, the cable sealing end compounds, grid supply point substation and temporary bridges (where piled foundations are proposed) would be designed and constructed in accordance with good practice measure GH06 which requires a Foundation Works Risk Assessments for these activities.

Several watercourses, that are not designated WFD waterbodies but are located within WFD operational catchments and drain to the River Box, River Brett and River Stour WFD waterbodies, would be crossed by the project for construction access and for underground cable trenches. The potential effects on these watercourses have been considered cumulatively within the assessment of the WFD waterbodies, which is a precedented approach.

Results of the Assessment

The initial assessment of the project components, undertaken in Stages 1 to 3, concluded the potential for negative effects linked to specific construction activities: construction works in, over, under or adjacent to waterbodies to create crossings for construction access or for cable

trenching. These activities were taken forward to Stage 4 which provides an assessment of these activities and the potential for effects on waterbodies.

Stage 4 concluded that the residual effects of the activities on the screened in waterbodies would be negligible following implementation of the embedded and good practice measures outlined in this report. It also showed that there would be no effects allowing for flexibility within the Limits of Deviation, due to the embedded measures regarding the trenchless crossings and bridges.

This assessment concludes that the project is compliant with the objectives of the WFD and on this basis, no further assessment is proposed.

1. Introduction

1.1 Overview

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 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 Water Framework Directive (WFD) screening assessment has been produced to support the application for development consent and the accompanying Environmental Statement (ES) under the Planning Act 2008.

1.1.3 As the project is a Nationally Significant Infrastructure Project, 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 Limits of Deviation (LoD), which represent the maximum deviation for permanent infrastructure, such as the overhead line, pylons and underground cables. Therefore, the permanent aspects of the project could be located anywhere within the LoD.

1.1.4 The assessment presented within this report is based on the Proposed Alignment, which is the design that is shown on the General Arrangement Plans (**application document 2.10**). However, a sensitivity assessment has also been applied to consider whether there would be other effects if the flexibility provided by the LoD was to occur.

1.2 WFD Requirements

1.2.1 The Water Environment (England and Wales) Regulations 2017 (as amended) implemented the WFD in England and Wales. Under Section 2 of the European Union (Withdrawal) Act 2018, the 2017 Regulations continue to have effect in domestic law following the UK's withdrawal from the European Union.

1.2.2 The purpose of the WFD is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and ground waters. The Directive aims to prevent further deterioration in, and enhance, water quality, and promote sustainable water use. The 2017 Regulations require the 'appropriate agency' i.e., the Environment Agency, for England, to prepare River Basin Management Plans (RBMP) for each river basin district, for approval by the Secretary of State.

1.2.3 The RBMP describe the current state of the water environment for each river basin district, the pressures affecting the water environment, the objectives for protecting and improving it, and the programme of measures needed to achieve the statutory environmental objectives of the WFD (i.e., to enable water bodies to achieve 'Good' status). The overarching requirement was that they should reach at least 'Good' status (or potential) by 2015. This date has been extended to 2027 for many waterbodies, where it was recognised that reaching the 2015 target would bring disproportionate burdens.

1.2.4 Under the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, an application for a Development Consent Order (DCO) must be accompanied by a plan with accompanying information identifying water bodies in the

relevant RBMP, together with an assessment of any effects on such water bodies likely to be caused by the development (regulation 5). The relevant Water Bodies are shown on the Water Bodies in the River Basin Management Plan (**application document 2.8.4**). The assessment is documented in this report.

1.2.5 This report uses the term 'WFD waterbody' to describe a waterbody that is assigned a WFD waterbody identifier code within a RBMP.

1.3 Purpose of this Report

1.3.1 This report summarises Stages 1 to 4 of the WFD Screening and assessment process as follows:

- Stage 1: Defining the Zone of Influence (ZoI) and identifying WFD waterbodies within the ZoI;
- Stage 2: Collating baseline data for those waterbodies;
- Stage 3: Screening project components and activities to identify those with the potential to impact on WFD quality elements of waterbodies within the ZoI; and
- Stage 4: Comprises the preliminary assessment of the components of the project screened in at Stage 3 against the WFD quality elements that make up the overall WFD status of screened in waterbodies. If this stage concludes potential for non-compliance with WFD objectives, a further Stage of detailed assessment is required.

1.3.2 National Grid has embedded measures into the design of the project to avoid or reduce significant effects that may otherwise be experienced during construction and operation of the project. Embedded measures are those that are intrinsic to and built into the design of the project. Embedded measures are given a reference code that starts with 'EM' for ease of reference, for example the trenchless crossings proposed at the River Box and the River Stour are references EM-E05 and EM-G04 respectively. The full list of embedded measures can be found in the Construction Environmental Management Plan (CEMP), Appendix B: Register of Environmental Actions and Commitments (**application document 7.5.2**).

1.3.3 National Grid has also identified a number of good practice measures, which generally comprise measures imposed through legislative requirements or represent standard sector good practices. These include measures to reduce nuisance from construction activities. The good practice measures are set out in the CEMP, Appendix A: Code of Construction Practice (CoCP) (**application document 7.5.1**) and each measure has been assigned a reference code, e.g. GG01.

1.3.4 Embedded and good practice measures relevant to the WFD screening assessment are summarised in Appendix 1 of this report. As noted above, the embedded measures and the good practice measures both form part of the CEMP (**application document 7.5**), which is secured through Requirement 4 of the draft DCO.

1.4 Structure of this Report

1.4.1 The structure of the report is as follows:

- Chapter 1 Introduction: Background information on the project and WFD requirements;

- Chapter 2 Project Description: This describes the components of the project including the operational features and also the temporary features during construction such as temporary bridges used for construction access;
- Chapter 3 Summary of Stages 1 to 3: An overview of Stages 1 to 3 of the WFD screening assessment;
- Chapter 4 Stage 4 – WFD Preliminary Assessment: Sets out the approach to Stage 4 of the WFD screening assessment, the WFD mitigation measures assessment and the assessment of residual impacts; and
- Chapter 5 Conclusion: States the conclusions of the WFD screening assessment including whether any further stages of assessment are required.

2 Project Description

2.1 General Description

2.1.1 The reinforcement would comprise approximately 18km of overhead line (consisting of approximately 50 new pylons, and conductors) and 11km of underground cable system (with associated joint bays and above ground link pillars).

2.1.2 Four cable sealing end (CSE) compounds would be required to facilitate the transition between the overhead and underground cable technology. The CSE would be within a fenced compound, and contain electrical equipment, support structures, control building and a permanent access track.

2.1.3 Approximately 27km of existing overhead line and associated pylons would be removed as part of the proposals (25km of existing 132kV overhead line between Burstall Bridge and Twinstead Tee, and 2km of the existing 400kV overhead line to the south of Twinstead Tee). To facilitate the overhead line removal, a new grid supply point (GSP) substation is required at Butler's Wood, east of Wickham St Paul, in Essex. The GSP substation would include associated works, including replacement pylons, a single circuit sealing end compound and underground cables to tie the substation into the existing 400kV and 132kV networks.

2.1.4 Some aspects of the project, such as the underground cable sections and the GSP substation, constitute 'associated development' under the Planning Act 2008.

2.1.5 Other ancillary activities would be required to facilitate construction and operation of the project, including (but not limited to):

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

2.1.6 It is assumed that this reinforcement would operate at a voltage of at least 400kV in a similar way to the transmission network. For the purposes of this report, the new overhead line is referenced as 'proposed 400kV overhead line' to differentiate it from the existing 400kV overhead line and the UK Power Networks owned 132kV overhead line.

2.1.7 For a full description of the project reference should be made to ES Chapter 4: Project Description (**application document 6.2.4**).

2.2 Construction Assumptions

2.2.1 The assessment presented within this report is based on the Proposed Alignment, which is the design that is shown on the General Arrangement Plans (**application document 2.10**). However, it should be noted that the permanent aspects of the project are not fixed and could be located anywhere within the LoD, as defined on the Work Plans (**application document 2.5**). The location and orientation of the CSE compounds, GSP substation and underground cables may also change within the LoD. However, sensitivity testing has been applied to identify whether there would be new or different significant effects subject to the application of the flexibility provided by the LoD. This is presented in Section 4.5.

2.2.2 The baseline construction schedule assumes an 18 month programme for constructing the GSP substation in advance of development consent (via a planning permission that has been granted under the Town and Country Planning Act 1990 and in accordance with other associated consents). The phases following construction and commission of the GSP substation would take approximately four years. The alternative scenario has the GSP substation being constructed as the first phase of work under the DCO but with some activities running concurrently. Both the baseline construction schedule and the alternative scenario would see construction completed in 2028.

2.2.3 In both the baseline construction schedule and the alternative scenario, there would be a linear rolling construction programme, following completion of site enabling works, However, there is likely to be concurrent works in different locations at times. Some temporary features, including watercourse crossings and temporary access routes, may be in place for the duration of construction to maintain access to the working area. Further details are provided in ES Chapter 4: Project Description (**application document 6.2.4).**

3. Summary of Stages 1 to 3

3.1 Stage 1: Defining the Zone of Influence and Screening WFD Waterbodies

3.1.1 This stage of the screening assessment defines the ZoI of the project and identifies which WFD surface water and groundwater waterbodies are present within the ZoI. It also screens those waterbodies to focus further stages of assessment only on those waterbodies having potential to deteriorate because of project activities.

3.1.2 The ZoI is determined by considering the distance between waterbodies and construction and operation activities and the hydrological connectivity between waterbodies to the project. Waterbodies that are not considered to have the potential to be impacted, due to lack of direct or indirect connectivity, or due to distance, are screened out at this stage.

3.1.3 The ZoI for this assessment has been defined to include land within the Order Limits, in addition to land within 500m of this boundary. This reflects the surrounding water environment and is sufficient for the inclusion of all potentially affected waterbodies.

3.1.4 Within the ZoI, there are several WFD surface and groundwater bodies that are managed under the Anglian RBMP (Environment Agency, 2016a), which are described in the following sub-sections.

Surface Water Body Screening

3.1.5 The surface waterbodies within the ZoI are listed below with their WFD waterbody ID, and are shown on Figure 1: Waterbody Status:

- Belstead Brook (GB105035040440);
- River Brett (GB105036040930);
- River Box (GB105036040920); and
- River Stour (Wixoe to Lamarsh) (GB105036040941).

3.1.6 In addition to the WFD surface waterbodies listed above, there are also several watercourses within the ZoI which are not assigned WFD identifiers in the RBMP. These include ordinary watercourses and drainage ditches. As these watercourses are situated in WFD operational catchments and drain to WFD surface waterbodies, project activities with the potential to have an effect on the attributes of these watercourses have also been considered in the assessment.

3.1.7 The River Box and River Stour were screened into the WFD assessment because these are in underground cable sections of the project, where a wider corridor of topsoil strip is required (approximately 80m wide as standard) compared to the overhead line sections. There would also be direct interactions with these waterbodies in the form of cable crossings coupled with temporary access route crossings. There would be construction activities in their riparian corridors and operation of above ground infrastructure (CSE compounds and the GSP substation) would also be located within their catchments.

3.1.8 The River Brett is located in an overhead line section of the project, where a limited topsoil strip would be required (generally around pylon locations). During construction, whilst there would be limited interaction with the watercourse, a temporary access route

crossing would be needed over the River Brett, so this watercourse is screened into the assessment. During operation of the project, there would be no pollution pathways to the River Brett nor physical disturbance to them.

3.1.9 The Belstead Brook is also located in an overhead line section of the project. It flows through land within the Order Limits at three locations. During construction existing pylons along the 132kv overhead line would be removed (closest pylon approximately 160m from the channel) and new pylons for the 400kV overhead line would be constructed. The closest proposed pylon is located approximately 190m from the watercourse. There would be one construction compound located distant from, but within the catchment of this waterbody. No temporary crossings of the Belstead Brook are required for construction access. On this basis the Belstead Brook is screened out of the assessment.

3.1.10 An overview of the hydrological relationship between with the project and the screened in waterbodies is included below in Table 3.1.

Table 3.1 – Screened In WFD Waterbodies Within the ZoI

Waterbody Name (WFD Waterbody ID)	Hydrological Relationship to the Project
River Box (GB105036040920)	This waterbody flows through land within the Order Limits and would be crossed by an underground cable section of the project using a trenchless technique (EM-E05). During construction existing pylons along the 132kV overhead line would be removed. The closest pylon is located approximately 90m from the river channel. There would be two CSE compounds, which would be situated distant from the waterbody and outside of the floodplain of the waterbody (defined by the extent of Flood Zone 3). A temporary clear span bridge would be used for the temporary access route crossing of the watercourse (W17) to facilitate access for construction materials and plant. This bridge is expected to be in place for up to four years (2024 to 2028). The length of the watercourse effected would be less than 20m.
River Stour (Wixoe to Lamarsh) (GB105036040941)	This waterbody flows through land within the Order Limits and would be crossed by an underground cable section of the project using a trenchless technique (EM-G04). During construction existing pylons along the 132kV overhead line would be removed. The closest pylon is located approximately 40m from the watercourse. There would be two CSE compounds and the GSP substation, which would be located distant from, but within the catchment of this waterbody. A temporary clear span bridge would be used for the temporary access route crossing of the watercourse (W17) to facilitate access for construction materials and plant. This bridge is expected to be in place for up to four years (2024 to 2028). This would be of a sufficient size and design to allow existing navigation of the river by non-motorised vessels to continue during construction. The length of the watercourse effected would be less than 20m.

Waterbody Name (WFD Waterbody ID)	Hydrological Relationship to the Project
River Brett (GB105036040930)	This waterbody flows through land within the Order Limits and would be crossed by an overhead line section of the project. During construction existing pylons along the 132kV overhead line would be removed (closest pylon approximately 50m from the channel) and new pylons for the 400kV overhead line would be constructed. The closest proposed pylon is located approximately 200m from the watercourse. A temporary clear span bridge would be used for the temporary access route crossing of the watercourse (W17) to facilitate access for construction materials and plant. This bridge is expected to be in place for up to four years (2024 to 2028). The length of the watercourse effected would be less than 20m.

3.1.11 Some of the other watercourses (i.e. not designated as WFD waterbodies) within the ZoI would be crossed by the underground cable trenches using opencut techniques. In addition, a number of these minor watercourses would also be temporarily culverted during construction as part of the temporary access route. The assumptions regarding these crossings (locations, lengths and durations) based on the Proposed Alignment can be found in Appendix 1: Summary of Embedded and Good Practice Measures. Typical cross section plans for temporary bridge and access culvert crossings are provided in **application documents 2.11.13** and **2.11.14** respectively. These assumptions form the basis of the assessment.

3.1.12 Although they are not designated WFD waterbodies, two of these watercourses drain to the River Box WFD waterbody, four drain into the River Stour WFD waterbody and one drains to the River Brett WFD waterbody, which have been screened into the assessment. The project could have temporary effects on these other watercourses, and these are considered cumulatively within the assessment of the WFD waterbodies. This is a precedented approach for assessing effects on non-designated waterbodies and the assessment is reported in Section 4.4.

Groundwater Bodies Screening

3.1.13 The groundwater bodies within the ZoI are listed below with their WFD waterbody ID:

- Essex Gravels (GB40503G0004000);
- North Essex Lower London Tertiaries (GB40502G400900);
- North Essex Chalk (GB40501G400700); and
- Waveney and East Suffolk Chalk and Crag (GB40501G400600).

3.1.14 Table 3.2 presents a summary of the hydrological relationship between the groundwater bodies and the project.

Table 3.2 – WFD Groundwater Bodies Within the ZoI

Waterbody Name (WFD Waterbody ID)	Hydrological Relationship to the Project
Essex Gravels (BG40503G0004000)	Extensive areas between Twinstead and Hadleigh, including in the valleys of the Rivers Stour, Box and Brett, crossed by both overhead line and underground cable section of the project.
North Essex Lower London Terteries (GB40502G400900)	Narrow bands in the main river valleys.
North Essex Chalk (GB40501G400700)	Present in the River Stour valley around Leavenheath and the River Brett valley east of Hadleigh, crossed by underground cable sections of the project.
Waveney and East Suffolk Chalk and Crag (GB40501G400600)	Present from Hintlesham to Bramford, underlying an overhead line section of the project.

3.1.15 All of the groundwater bodies within the ZoI were screened out for the following reasons:

- The project has a very small footprint in the context of the groundwater bodies in the ZoI and interactions with these waterbodies would be limited. Excavation works to create the underground cable sections would be near surface, with a typical excavation depth of around 1.3m. The requirement to dewater excavations is therefore expected to be limited;
- Deeper excavations would be limited to localised areas, for example, at the trenchless crossings. At these locations, ground investigation data would be used to inform the crossing design and this will help to safeguard groundwater quality and reduce the potential for breakouts of drilling muds;
- Where foundations for pylons and at the GSP substation and CSE compounds are constructed and where localised deeper opencut works associated with crossing roads or other services are undertaken, these works would be undertaken in accordance with good practice measure GH06 in the CoCP (**application document 7.5.1**). This states that a Foundation Works Risk Assessment would be undertaken by the Contractor where piled foundations are proposed and would identify any additional measures required;
- With the exception of rainwater pumped from excavations which would be encouraged to infiltrate to ground, no heavily silted or otherwise contaminated waters would be discharged to ground during construction or operation of the project;
- Operational drainage design for the GSP substation and CSE compounds and land reinstatement would be such that there would be no change to existing groundwater recharge patterns (W12 in the CoCP (**application document 7.5.1**)); and
- During construction, temporary effects would be avoided or reduced by the good practice measures in the CoCP (**application document 7.5.1**).

3.1.16 Potential for minor and localised effects on groundwater quality and flows is assessed in ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**). This recommends that the good practice measures within the CoCP would avoid any likely significant effects to groundwater receptors. Therefore, it was concluded that the project

does not have the potential to cause further deterioration of the current Poor status of these waterbodies and they are screened out of the assessment.

3.2 Stage 2: Collating Baseline Data

3.2.1 Baseline data was collated to characterise the waterbodies that were screened in at Stage 1. An overview of this data is provided below, with additional water quality data provided in ES Appendix 9.1: Water Environment Baseline (**application document 6.3.9.1**).

3.2.2 The WFD waterbodies that have been screened into the assessment at Stage 1 are described within this section along with their current WFD status, their specific objectives and any mitigation measures in place or planned are detailed. The information has been taken from the Anglian RBMP and the Environment Agency's Catchment Data Explorer website, Cycle 3 (2022 to 2027) data, (Environment Agency, 2023c). Data has also been obtained from site walkover surveys undertaken in June 2021, when a photographic record and field notes of baseline conditions were recorded.

River Box

3.2.3 The River Box, shown in Photograph 3.1a (left), is designated as a heavily modified waterbody and achieves an overall Moderate status, limited by its ecological quality (fish) and its physico-chemical quality (phosphate). Its chemical status is Fail, because of mercury and its compounds and polybrominated diphenyl ethers (PBDE), which have been used in the manufacture of a wide range of products, including plastics.

3.2.4 Table 3.3 presents a summary of Cycle 3 data, as well as field notes recorded during the site walkover undertaken in June 2021.

Table 3.3 – Baseline Data for the River Box (Environment Agency, 2023c)

Waterbody ID	**GB105036040920**
Length (km)	23.34
Catchment area (km^2)	66.15
Overall status	**Moderate**
Ecological status	**Moderate**
Biological quality	Moderate
Hydromorphology	Supports Good
Physico-chemical	Moderate
Specific pollutants	High
Chemical Status	**Fail**
Priority substances	Good
Other pollutants	Does not require assessment
Priority hazardous substances	Fail

Waterbody ID	GB105036040920

Field Notes:

Steep sided banks, channel width of between 2m and 5m.

Banks of earth, vegetated with occasional trees, shrubs, grass and abundant herbs. Cattle grazing the riparian zone, watercourse banks are fenced.

In-channel vegetation comprising occasional submerged macrophytes.

Stony bed material. High flow velocity and depth of flow of approximately 1m.

3.2.5 Reasons for the River Box not achieving Good status are reported as sewage discharges, poor land and livestock management practices, and physical modifications causing barriers to fish movement.

3.2.6 The River Box has an ecological status objective of Good by 2027 and a chemical status objective of Good by 2063.

Photograph 3.1a – River Box (Left) and Photograph 3.1b – River Stour (Right)

River Stour

3.2.7 The River Stour, shown in Photograph 3.1b, is designated as a heavily modified waterbody and has overall Moderate status. It is similarly limited by its physico-chemical supporting elements, in particular dissolved oxygen and phosphate. The chemical status of Fail is attributed to mercury, PBDE and perfluorooctane sulphonate.

3.2.8 Cycle 3 data is presented in Table 3.4 along with field notes recorded during the site walkover undertaken in June 2021.

Table 3.4 – Baseline Data for the River Stour (Environment Agency, 2023c)

Waterbody ID	**GB105036040941**
Length (km)	40.01
Catchment area (km^2)	111.66
Overall status	**Moderate**
Ecological status	**Moderate**
Biological quality	High
Hydromorphology	Supports Good*
Physico-chemical	Moderate
Specific pollutants	High
Chemical Status	**Fail**
Priority substances	Good
Other pollutants	Good
Priority hazardous substances	Fail
Field Notes: Shallow bank profile (< 45 degrees), typical channel width of between 5m and 10m. Banks of earth, vegetated with occasional trees, frequent reeds/sedges and herbs. Cattle grazing the riparian zone, watercourse banks not fenced. In-channel vegetation comprising abundant submerged macrophytes Slow flow velocity and depth of flow of approx. 2m.	

** Hydromorphology status from 2014, not assessed for cycle 3.*

3.2.9 Reasons for the waterbody not achieving good status are common to those reported for the River Box, including point source sewage discharges, diffuse pollution from poor agricultural and land management practice and physical modifications.

3.2.10 The River Stour has an ecological status objective of Good by 2027 (although this is assigned low confidence by the Environment Agency) and a chemical status objective of Good by 2063.

River Brett

3.2.11 The River Brett, shown in Photograph 3.2, is designated as a heavily modified waterbody and has overall Moderate status. It is similarly limited by its physico-chemical supporting elements, in particular phosphate, and its biological quality elements. The chemical status of Fail is attributed to mercury and PBDE.

Photograph 3.2 – River Brett

3.2.12 Cycle 3 data is presented in Table 3.5 along with field notes recorded during the site walkover undertaken in June 2021.

Table 3.5 – Baseline Data for the River Brett (Environment Agency, 2023c)

Waterbody ID	**GB105036040930**
Length (km)	24.71
Catchment area (km^2)	85.81
Overall status	**Moderate**
Ecological status	**Moderate**
Biological quality	Moderate
Hydromorphology	Supports Good
Physico-chemical	Moderate
Specific pollutants	High*
Chemical Status	**Fail**
Priority substances	Good
Other pollutants	Does not require assessment
Priority hazardous substances	Fail
Field Notes: Shallow bank profile (< 45 degrees), typical channel width approx. 5m. Vegetated banks of earth, watercourse banks not fenced.	

Waterbody ID	GB105036040930
In-channel vegetation comprising submerged macrophytes	
Slow flow velocity	

* *Specific pollutant status data from 2014, not assessed for Cycle 3*

3.2.13 Reasons for the waterbody not achieving good status are common to those reported for the River Box and River Stour, including point source sewage discharges, diffuse pollution from poor agricultural and land management practice and physical modifications.

3.2.14 The River Brett has an ecological status objective of Good by 2027 (although this is assigned low confidence by the Environment Agency) and a chemical status objective of Good by 2063.

Essex Combined Management Catchment Measures

3.2.15 The River Box, River Stour and River Brett waterbodies are in the Essex Combined management catchment. A set of measures have been identified to deliver improvements in the status of waterbodies within this catchment. These centre on provision of additional treatment to reduce concentrations of phosphate from wastewater treatment works discharges, and habitat improvement projects to enable fish passage, for example, installation of fish passes.

Other Watercourses

3.2.16 Some of the ordinary watercourses that are crossed by the project and drain to the River Box, River Stour and River Brett were observed during site walkover surveys during Summer 2022. One of the watercourses draining to the River Stour was observed to be dry, whilst standing or running water was observed in the remainder of the watercourses. However, it is noted that the flow conditions observed would have reflected the dry period of weather experienced in Summer 2022.

3.3 Stage 3: Screening Project Components and Activities

3.3.1 Stage 3 of the assessment identified relationships between the components of the project and screened in WFD waterbodies. Any components and activities with the potential to influence the screened in waterbodies were screened in for further assessment.

3.3.2 The options appraisal, detailed in ES Chapter 3: Alternatives Considered (**application document 6.2.3**), has sought to avoid environmental constraints, such as areas supporting valuable habitats and designated sites, and avoiding larger residential communities. The route corridor and alignments were selected based on balancing the technical, environmental, and economic constraints. The project also includes embedded measures, such as undergrounding in areas of high landscape value and trenchless crossings of the River Stour and River Box.

3.3.3 The project consists of three main components, described in ES Chapter 4: Project Description (**application document 6.2.4**):

- Overhead line sections including removal of and modifications to existing overhead lines;
- Underground cable sections including four CSE compounds; and

- A new GSP substation and associated works.

3.3.4 To facilitate construction of these permanent components there would also be a number of temporary components, such as construction compounds and temporary access routes and activities such as soil stripping, excavations and drainage works.

3.3.5 Table 3.6 details the components of the project and their relationship to the screened-in waterbodies where relevant. Current proposed watercourse crossing locations based on the Proposed Alignment are shown on Figure 2: Watercourse Crossings and crossing assumptions are outlined in Appendix 2: Schedule of Assumed Crossings. Project activities that are not considered to have the potential to cause waterbody deterioration nor prevent implementation of any planned measures, are screened out at this stage. The assessment has been informed by the water environment impact assessment presented in ES Chapter 9: Water Environment (**application document 6.2.9**).

3.3.6 Table 3.6 makes reference to the proposed good practice measures that are detailed in the CoCP (**application document 7.5.1**) and summarised in Appendix 1. The activities associated with the construction phase assume a linear rolling construction programme following completion of site enabling works. The screened in activities from Table 3.6 have been taken forward for further assessment at Stage 4, details of which are included in the Chapter 4 of this report.

Table 3.6 – Screening of Project Components and Activities

Development Activities	Proposed Measures to Prevent Waterbody Deterioration	Scoped In/Scoped Out of Stage 4
Construction Phase		
Pollution risk associated with general construction activities.	Adoption of good practice measures to prevent pollution (GG14), including in an emergency scenario (GG22). Measures to manage worksite runoff/drainage (GG15), biosecurity (B04) and reinstatement (GG07).	**Scoped out** – given the implementation of the measures in the CoCP, general construction would have negligible impacts on the quality elements of screened in waterbodies.
Soil stripping, handling and storage resulting in silted runoff to waterbodies and changes to runoff rates/patterns.	Management, storage and reinstatement of soils in accordance with good practice (GG18), daily (when working within 10m of a watercourse) visual inspection to monitor storage of materials and application of pollution prevention measures and regular review of effectiveness of silt reduction measures and checking buffer zones are maintained around watercourses. Use of measures described in GG15 to prevent erosion of exposed soils and silt pollution.	**Scoped out** – given the implementation of the measures in the CoCP, this activity would have negligible impacts on the quality elements of screened in waterbodies.

Development Activities	Proposed Measures to Prevent Waterbody Deterioration	Scoped In/Scoped Out of Stage 4
Establishment and use of construction compounds, with associated pollution risks and potential for physical disturbance of riparian corridors.	Compounds located to avoid encroaching into floodplains and riparian corridors. Adoption of good practice for construction compound establishment and use (GG14, GG16, GG18). Suitable surface water and foul water drainage provision (GG15, W13).	**Scoped out** – given the implementation of the measures in the CoCP, general construction would have negligible impacts on the quality elements of screened in waterbodies.
Construction works in, over, under or adjacent to waterbodies to create crossings for construction access, with effects on hydromorphology (physical change), flow regimes and water quality.	Undertaking works in accordance with relevant consents/permits (W01). Temporary crossing design in accordance with good practice (W02, W04). Retaining riparian vegetation and natural substrates through temporary crossing structures (W03).	**Scoped in** – this development activity carries some risk of causing deterioration (albeit temporary) of waterbody status and is taken forward to Stage 4 for further consideration.
Construction works in, over, under or adjacent to waterbodies for cable trenching with potential effects on water quality associated with soil strip and drilling muds breakout risks.	Undertaking works in accordance with relevant consents/permits (W01). Use of trenchless crossing techniques suited to local ground conditions for the River Stour and River Box (W11) and opencut crossings following good practice techniques (W02).	**Scoped in** – this development activity carries some risk of causing deterioration (albeit temporary) of waterbody status and is taken forward to Stage 4 for further consideration.
Construction of foundations.	Design and construction of foundations in accordance with recommendations of bespoke Foundation Works Risk Assessments (FWRA) (GH06).	**Scoped out** – given the implementation of the recommendations of the bespoke FWRA, this activity would have negligible impacts on the quality elements of screened in waterbodies.
Operation Phase		
Operational drainage of permanent GSP substation and CSE Compounds.	Surface water drainage managed using Sustainable Drainage Systems (SuDS) in accordance with policy and guidance requirements of the Lead Local Flood Authorities (W12).	**Scoped out** – given the implementation of the SuDS, operational drainage discharges would have negligible impacts on the screened in waterbodies.

Development Activities	Proposed Measures to Prevent Waterbody Deterioration	Scoped In/Scoped Out of Stage 4
General maintenance activities.	Maintenance activities would include routine checks and inspections. Overhead line sections would be inspected annually from the ground using a small van, or by helicopter to check for visible faults or signs of wear. Underground cables would be checked every three years and if needing replacement or repair, works involving breaking ground would be subject to similar environmental safeguards as described for construction.	**Scoped out** – negligible risk of causing deterioration of waterbody status.

4. Stage 4 – WFD Preliminary Assessment

4.1 Approach

4.1.1 For the development activities screened in, an assessment has been undertaken to determine whether the project is likely to result in failure to meet the WFD objectives for the waterbody comprising:

- Failure to prevent any deterioration in the status of a waterbody;
- Failure to achieve good ecological status or good ecological potential;
- Prevention of implementing any of the mitigation measures specified in the Anglian RBMP or detailed on the Environment Agency's Catchment Data Explorer website; and
- Non-compliance or compromised implementation of other legislations.

4.1.2 The assessment has been informed by the results of a desk study and field notes recorded during the site walkovers undertaken in June 2021 and summer 2022.

4.1.3 The assessment applies a traffic light system (red, amber, green) for screening the potential for risk at a local scale and/or for cumulative effects on the WFD objectives noted in paragraph 4.1.1 above (Environment Agency, 2016b). The traffic light assigned under the Environment Agency's system of WFD risk screening for rivers is dependent on whether the activity can meet Flood Risk Activity Permit (FRAP) exemption conditions for service crossings (Environment Agency, 2023a). Activities with an amber or red rating require further review as part of a Stage 4 assessment.

4.2 Preliminary Assessment

Traffic Light Classification

4.2.1 As detailed in Appendix 1, National Grid has included a number of embedded and good practice measures into the project. These include proposals to install temporary clear span bridge crossings for the River Brett, Box and Stour (W17). These would need to be in place potentially for most of the construction phase (up to four years – see Appendix 2: Schedule of Assumed Crossings) and therefore cannot be classified as 'temporary' in line with Environment Agency criteria (assumed to be six months or less). It is anticipated that these crossings would require a FRAP from the Environment Agency. Therefore, these crossings classify as an 'amber' activity under the WFD risk screening for rivers (Environment Agency, 2016b), under the bridges and crossings category of works as details are not available to confirm that they would meet all of the FRAP exemption criteria.

4.2.2 The underground cables would be installed using trenchless crossing at the River Box (EM-E05) and River Stour (EM-G04), which would avoid impacts to the watercourses. It is considered the crossings meet the majority of the exemption criteria for a FRAP, however at this stage of design it is not conclusive as to whether all are satisfied. This activity is therefore assigned 'amber' as a precautionary approach.

Failure to Prevent Water body Deterioration and Preventing Achieving Good Status

4.2.3 To satisfy the WFD objectives of avoiding deterioration and achieving improved waterbody status, to 'Good' for both waterbodies, it is necessary to implement specific embedded and good practice measures to reduce the temporary detrimental impacts of the works, such that when considered at the waterbody scale, the residual risk of deterioration is negligible.

4.2.4 The access crossings of the waterbodies and the cable crossings of the River Box and River Stour would be undertaken in accordance with the good practice measures detailed in the CoCP (**application document 7.5.1**) and summarised in Appendix 1.

4.2.5 In accordance with commitment W17, the clear span bailey bridges proposed for the access crossings of the River Box, River Stour and River Brett would be designed with soffits that are raised 600mm above the flood level. The abutments of the bridges would be set back from the river channels to reduce impacts on the channels and riparian corridors as shown on the Design and Layout Plans Temporary Bridge for Access (**application document 2.11.13**). These designs would reduce shading of the channels, as well as maintain floodplain connectivity. It is noted that although the crossings are not classified as 'temporary' in accordance with Environment Agency criteria, they would only be in place for the construction phase of the project, following which the structures would be removed and any necessary reinstatement works would be undertaken (GG07).

4.2.6 Trenchless crossing techniques are proposed for the cable crossings of the River Box (EM-E05) and the River Stour (EM-G04). At these crossings, the drill pits would be situated outside of Flood Zone 3 where practicable, and the cables would be laid at least 1m below the hard bed level of the rivers and will remain at or below this level for a distance of not less than 3m from the edge of the riverbank (W11).

4.2.7 In order to reduce effects on water quality associated with soil strip, earthworks and stockpiled soil would be protected by covering, seeding or using water suppression where appropriate (GG18). Storing of soil stockpiles within 15m of the River Box, River Stour and River Brett would be prevented (W02).

4.2.8 An Emergency Action Plan would be developed for the construction phase which would outline procedures to be implemented in case of unplanned events (GG22). This, combined with the good practice measures described in the CoCP, such as GH07, would reduce the effects associated with drilling muds breakout and would also reduce the likelihood of an unplanned event such as this occurring.

4.2.9 The good practice and embedded measures described above would reduce effects on the water quality of the River Box and River Stour (both biological and physicochemical quality elements) with respect to both screened in activities. With respect to the temporary access crossings, the measures described above would also reduce effects on the hydromorphology of the River Box, River Stour and River Brett, in addition to reducing effects on the quantity and dynamics of flow within the waterbodies.

Implementation of Mitigation Measures Specified in the Anglian RBMP

4.2.10 As detailed in Section 3.2, measures to improve the future status of the screened in waterbodies are centred on provision of additional treatment to reduce concentrations of phosphate from wastewater treatment works discharges, and habitat improvement projects to enable fish passage. The proposed trenchless crossing and temporary access route crossings would not impede the implementation of these measures.

Compromised Implementation of Other Legislation

4.2.11 The project's compliance with other legislation and planning policy is described in ES Chapter 2: Regulatory and Planning Policy Context (**application document 6.2.2**). This concludes that the project does not compromise implementation of other legislation nor cause non-compliance with relevant legislation.

4.3 Residual Impacts

4.3.1 Table 4.1 provides a summary of the assessment of the residual effects of the screened in development activities on surface waterbodies within the ZoI.

4.3.2 The assessment has considered the channel lengths of the waterbodies that would be temporarily physically disturbed or otherwise impacted by project crossings of them for access and for cable trenching, in the context of the lengths of these waterbodies as a whole.

Table 4.1 – Summary of Residual Effects

Waterbody	Project Activity	Potential Effects	Residual Risk of Deterioration at the Waterbody Scale*
River Box	Construction works in, over or adjacent to waterbodies to create temporary access route crossings, with effects on hydromorphology (physical change), flow regimes and water quality.	20m of the River Box waterbody affected by crossing, for a duration of four years. This represents 0.09% of the total length of the waterbody.	No residual risk
River Stour		20m of the River Stour affected by crossing, for a duration of four years. This represents 0.05% of total length of the waterbody.	
River Brett		20m of the River Brett affected by crossing, for a duration of four years. This represents 0.08% of the total length of the waterbody.	
River Box	Construction works in, over, under or adjacent to waterbodies for cable trenching with potential effects on water quality associated with soil strip and drilling muds breakout risks	0.09% of total length of the River Box waterbody affected by crossing.	Negligible residual risk
River Stour		0.05% of total length of the River Stour waterbody affected by crossing.	

** Following implementation of the good practice and embedded measures described in Appendix 1.*

4.4 Cumulative Assessment

4.4.1 Several of the 'other watercourses' (i.e. not designated as WFD waterbodies) within the ZoI would be crossed by the underground cable trenches using opencut techniques and a number of these minor watercourses would also be temporarily culverted during

construction due to the temporary access routes crossings (see Figure 2: Watercourse Crossings).

4.4.2 The residual effects on the other watercourses that drain to the River Box, River Stour and River Brett WFD waterbodies are summarised in Table 4.2. This considers the reach lengths of the other watercourses within their catchments that would be temporarily impacted by project activities. The cumulative reach lengths effected have been calculated for all of the other watercourses within the receiving WFD waterbody catchments. This is then considered in the context of the WFD waterbodies.

4.4.3 Up to 80m of the watercourse would be opencut and 100m would be stopped up and over pumped (or flumed) at each cable crossing of other watercourses. The temporary crossings of the temporary access routes would be less than 10m, as shown on Design and Layout Plans Temporary Culvert for Access (**application document 2.11.14**).

Table 4.2 – Summary of Residual Effects on Minor Watercourses

Receiving WFD Waterbody	Project Activity	Potential Effects	Residual Risk of Deterioration at the Waterbody Scale*
River Box	Construction works in, over or adjacent to waterbodies to create temporary access route crossings, with effects on hydromorphology (physical change), flow regimes and water quality.	20m of other watercourses affected by crossings, for a duration of four years. Cumulatively, this represents 0.17% of the total length of the River Box WFD waterbody.	No residual risk
River Stour		40m of other watercourses affected by crossings, for a duration of four years. Cumulatively, this represents 0.15% of the total length of the River Stour WFD waterbody.	
River Brett		10m of other watercourse affected by crossings, for a duration of four years. Cumulatively, this represents 0.12% of the total length of the River Brett WFD waterbody	
River Box	Construction works in, over, under or adjacent to waterbodies for cable trenching.	200m of other watercourses affected by crossings, for a duration of eight weeks. This represents 0.86% of the total length of the River Box WFD waterbody.	No residual risk
River Stour		100m of other watercourses affected by crossings, for a duration of eight weeks. This represents 0.25% of the total length of the River Stour WFD waterbody.	

** Following implementation of the good practice and embedded measures described in Appendix 1.*

4.4.4 With the good practice and embedded measures in place, no conflicts with WFD objectives have been identified due to the project's impacts on other watercourses. The impacts on the minor watercourses summarised in Table 4.2 have been considered cumulatively within the assessment of the corresponding WFD waterbodies.

4.5 Sensitivity Testing

4.5.1 As noted in Section 2.2 the assessment presented within this report is based on the Proposed Alignment, which is the design that is shown on the General Arrangement Plans (**application document 2.10**). However, it should be noted 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 (**application document 2.5**).

4.5.2 Sensitivity checks have been undertaken to consider the flexibility provided by the LoD and whether this would change the assessment presented above. This has concluded that when taking account of the embedded and good practice measures (see Appendix 1), that changes to the positions of the temporary crossings of the screened in waterbodies would not result in any new impacts, nor increase the risk of waterbody deterioration. Therefore, the objectives of the WFD would not be compromised when considering flexibility provided within the LoD.

5. Conclusion

5.1.1 A screening assessment has been undertaken in relation to the Bramford to Twinstead Reinforcement. The WFD waterbodies that were screened in were limited to the River Box (GB105036040920), the River Stour (GB105036040941) and the River Brett GB105036040930). Several watercourses, that are not designated WFD waterbodies, drain to these WFD waterbodies and the potential effects on these watercourses have been considered cumulatively within the assessment of the WFD waterbodies.

5.1.2 The underlying WFD groundwater bodies were scoped out of any further assessment owing to the very limited interactions between the project and the waterbody.

5.1.3 The review of the project components concluded the potential for negative effects linked to specific construction activities: construction works in, over, under or adjacent to waterbodies to create crossings for construction access or for cable crossings of watercourses via opencut methods. These activities were taken forward to Stage 4 of the assessment.

5.1.4 Stage 4 concluded that the residual effects of the activities on the screened in waterbodies would be negligible, following the implementation of the good practice and embedded measures outlined in Appendix 1.

5.1.5 This assessment concludes that the project is compliant with the objectives of the WFD, including preventing any deterioration in the status of a waterbody, and when considering the potential for cumulative effects. On this basis, no further assessment is proposed.

5.1.6 Sensitivity checks have also been undertaken to consider the flexibility afforded to the project by the set LoD. These concluded that, taking account of the embedded and good practice measures, that the changes to the positions of the temporary crossings of waterbodies would not compromise the objectives of the WFD, nor the conclusions presented herein.

References

Environment Agency and Department for Environment, Food and Rural Affairs (2019) Flood risk activities: environmental permits. (Online) Available from: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits (Accessed March 2023).

Environment Agency (2001) Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention (REP NC/99/73).

Environment Agency (2016a) Anglian River Basin District Management Plan 2015. Last updated 21 June 2018. (Online) Available from: https://www.gov.uk/government/publications/anglian-river-basin-district-river-basin-management-plan (Accessed March 2023).

Environment Agency (2016b) Protecting and improving the water environment – Water Framework Directive compliance of physical works in rivers. Doc No. 488_10.

Environment Agency (2023a) Exempt flood risk activities: environmental permits. 3. Service crossing below the bed of a main river not involving an open cut technique (FRA3). (Online) Available from: https://www.gov.uk/government/publications/environmental-permitting-regulations-exempt-flood-risk-activities (Accessed March 2023) .

Environment Agency (2023b) Flood risk assessments: climate change allowances. (Online) Available from: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances (Accessed March 2023).

Environment Agency (2023c) Catchment Data Explorer. (Online) Available from: https://environment.data.gov.uk/catchment-planning/ (Accessed March 2023).

Essex County Council (2020) Sustainable Drainage Systems Design Guide.

Suffolk County Council (2021) Suffolk SuDS Palette Guidance.

Appendix 1: Summary of Embedded and Good Practice Measures

Table A1 – Embedded and Good Practice Measures Relevant to the WFD Assessment

Ref	Measure	Relevance to the WFD Assessment
Embedded Measures in CEMP Appendix B: REAC (application document 7.5.2)		
EM-E05	A trenchless crossing is proposed at the River Box. The drive pits will be located outside of Flood Zone 3 where practicable or will be managed in accordance with the flood risk action plan (W08 in the CoCP). On receipt of a severe flood warning, the Contractor would deploy suitable flood protection measures to safeguard work site personal and equipment.	A trenchless crossing would avoid disturbance to the river habitats and geomorphological features, as well as reduce the risk of pollution of the river during construction.
EM-G04	A trenchless crossing is proposed at the River Stour and beneath the Sudbury Branch Railway Line. The drive pits will be located outside of Flood Zone 3 where practicable or would be managed in accordance with the flood risk action plan (W08 in the CoCP). On receipt of a severe flood warning, the Contractor would deploy suitable flood protection measures to safeguard work site personal and equipment.	A trenchless crossing would avoid disturbance to the river habitats and geomorphological features as well as reduce the risk of pollution of the river during construction
EM-G05	The Order Limits have been widened at the crossing of the River Stour to accommodate soil storage outside of Flood Zone 3 where practicable or to allow placement of soil leaving gaps to avoid blocking floodplain flow paths.	The gaps in the temporary soil storage stockpiles would retain floodplain connectivity and reduce geomorphological effects.
Good Practice Measures in CEMP Appendix A: CoCP (application document 7.5.1)		
W01	All works within main rivers or ordinary watercourses will be in accordance with a method approved under environmental permits issued under the Environmental Permitting Regulations (2016) and the Land Drainage Act (1991), or the protective provisions of the DCO for the benefit of the Environment Agency and the Lead Local Flood Authorities.	The project crosses a number of WFD surface waterbodies and other watercourses and this measure would safeguard the water quality, flow regime and hydromorphology of the waterbodies.

Ref	Measure	Relevance to the WFD Assessment
W02	For opencut watercourse crossings and installation of vehicle crossing points, good practice measures will include but not be limited to: • Where practicable, reducing the working width for opencut crossings of a main or ordinary watercourse whilst still providing safe working; • Installation of a pollution boom downstream of opencut works; • The use and maintenance of temporary lagoons, tanks, bunds, silt fences or silt screens as required; • Have spill kits, straw bales or other appropriate measures readily available for downstream emergency use in the event of a pollution incident; • The use of all static plant such as pumps in appropriately sized spill trays; • Prevent refuelling of any plant or vehicle within 15m of a watercourse (except for machinery associated with over-pumping); • Prevent storing of soil stockpiles within 15m of a main river; • Inspect all plant prior to work for leaks of fuel or hydraulic fluids; and • Reinstating the riparian vegetation and natural bed of the watercourse, using the material removed where appropriate, on completion of the works and compacting as necessary. If additional material is required, appropriately sized material of similar composition will be used.	The project crosses a number of watercourses designated as WFD surface waterbodies and several other watercourses that are not designated as WFD waterbodies. No WFD waterbodies would be crossed using opencut techniques for cable installation. These measures would reduce impacts on the floodplain connectivity, safeguard water quality and reduce impacts on hydromorphology during construction for other watercourses, that drain to WFD surface waterbodies.
W03	Riverbank, ponds and in-channel vegetation will be retained and protected where not directly affected by installation works. Natural substrate will be provided through temporary watercourse crossings culverts.	These measures would reduce impacts on the hydromorphology and biological quality elements of watercourses and ponds effected by construction works. No culverting of WFD waterbodies is proposed.

Ref	Measure	Relevance to the WFD Assessment
W04	Where watercourses are to be crossed by construction traffic using a culvert method, the area above the culvert will be backfilled to permit the passage of plant, equipment, materials and people. The culvert will be sized to reflect the channel width and the estimated flow characteristics of the watercourse under peak flow conditions and kept free from debris. These installation works would be timed to avoid flood flow conditions where practicable, or if periods of work were necessary when higher flow conditions could be expected, suitable pumping provision would be put in place, with standby pumps also made available.	These measures would reduce adverse impacts on hydromorphology during construction. No culverting of WFD waterbodies is proposed.
W06	There will be no permanent land raising undertaken in locations identified as Flood Zone 3.	This means that fluvial floodplain flow routes, connectivity and storage within the Order Limits would not be impacted or lost, reducing effects on hydromorphology quality elements.
W07	Where new or additional surfacing is required on any access tracks and compound areas, these will be permeable surfaces where ground conditions allow or will be designed to achieve green field rates. The project will incorporate appropriate surface water drainage measures into its final design for the temporary access routes so that they do not lead to a significant increase in flood risk. Temporary access 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 (other measures will be included in the CEMP). All construction compounds will be located in Flood Zone 1. Where this is not practicable, additional measures will be identified within a flood risk action plan.	This would avoid the risk that soil piles create an additional barrier to flow routes during construction, which may result in impacts on floodplain connectivity and hydromorphology within the areas of construction.
W11	Where the River Stour and River Box are crossed by a trenchless crossing, the cables will be laid at least 1m below the hard bed level of the river and will remain at or below this level for a distance of not less than 3m from the edge of the riverbank. Marker posts shall also be positioned on each bank of the river to indicate the location of the under-crossing and the nature of the works.	This would reduce the risk of future exposure of the buried cables and avoid impacts on the physical channel form and flow regime of the rivers. This crossing technique would also reduce temporary water quality effects and impacts on aquatic species (physico-chemical and biological quality elements).

Ref	Measure	Relevance to the WFD Assessment
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 the Suffolk County Council SuDS Palette (2021) and will include allowances for climate change in accordance with current (May 2022) Environment Agency requirements. The drainage infrastructure would provide the storage necessary to achieve discharges at greenfield rates and would not significantly alter groundwater recharge patterns by transferring a significant recharge quantity from one catchment to another. A specialised drainage contractor will review the designs and will provide advice to National Grid and its contractor during relevant construction and reinstatement activities.	This would reduce the risk of groundwater and surface water flows being impacted by above ground features.
W13	Wastewater generated from construction compound welfare facilities would be discharged to sewer, subject to the agreements with the utility providers, or in locations where a sewer connection is not reasonably practicable, collected and tankered off site for disposal at a licensed treatment facility.	This would avoid adverse impacts on the water quality (physico-chemical and biological quality elements) of WFD waterbodies and other watercourses and ponds.
W14	Pylons will not be constructed within 8m of the top of bank of main rivers (Belstead Brook and River Brett), in accordance with requirements for regulated activities set out in the guidance for environmental permits for flood risk activities (Environment Agency and Defra, 2019). New 400kV pylons would also not be located within 3m of an ordinary watercourse. This will also reduce disturbance to river channels, banks and riparian corridors. National Grid will seek to avoid situating pylons within Environment Agency Flood Zones 2 or 3. Where this is not practicable, a Flood Risk Activity Permit application would be submitted to the Environment Agency.	This would reduce the risk of impediment of floodplain flows during large flood events and maintain the integrity of riparian corridors, benefitting hydromorphological quality elements.

Ref	Measure	Relevance to the WFD Assessment
W17	Temporary clear span bridge crossings will be used for the temporary access route crossing at the River Stour, River Box and the River Brett. These will be designed with soffits that are raised 600mm above the flood level in accordance with Environment Agency requirements and would be set back 8m (or distance otherwise agreed with the Environment Agency) from the river's edge. Appropriate flood levels will be agreed with the Environment Agency and specified in the Flood Risk Activity Permit applications for these structures. The temporary bridges will be designed specifically to consider the span length and the weight and size of plant and equipment that will cross the bridge. These installation works would be timed to avoid flood flow conditions where practicable, or if periods of work were necessary when higher flow conditions could be expected, suitable pumping provision would be put in place, with standby pumps also made available. In addition, the temporary bridge at the River Stour would be of sufficient size and design to allow existing navigation of the river by non-motorised vessels to continue during construction.	This would reduce the potential for shading of the channels and would hence reduce negative impacts on the biological quality of watercourses.
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. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, in consultation with the landowner.	
GG14	Fuels, oils and chemicals will be stored responsibly, away from sensitive water receptors and in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001. 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 pollution prevention 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.	This would reduce the risk of pollution, safeguarding water quality during construction (physico-chemical and biological quality elements).

Ref	Measure	Relevance to the WFD Assessment
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 ditches, watercourses, drains or sewers without appropriate treatment and agreement of the appropriate authority (except in the case of an emergency). Watercourses 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 work site drainage would be inspected and maintained as required, so that they continue to operate to their design standard, safeguarding surface and groundwater quality.	This would reduce the risk of pollution, safeguarding water quality during construction (physico-chemical and biological quality elements).
GG16	Wash down of vehicles and equipment will take place in designated washdown areas within construction compounds and will be contained. Wash water will be prevented from passing untreated into watercourses and groundwater. Washdown water containing detergent must not pass through an interceptor. Appropriate measures will include use of sediment traps.	This would reduce the risk of pollution, safeguarding water quality during construction (physico-chemical and biological quality elements).
GG17	Wheel washing or other wheel cleaning systems will be provided at each main compound access point on to the highway where a need has been identified through the design process. An adequate supply of water will be made available at these locations at all times. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.	This would reduce the risk of pollution during construction, safeguarding water quality (physico-chemical and biological quality elements).
GG18	Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.	This would reduce the risk of pollution from silted runoff during construction and avoid changes to runoff rates/patterns safeguarding water quality (physico-chemical and biological quality elements).
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.	This would reduce the risk of adverse impacts on water quality (physico-chemical and biological quality elements) during construction due to unplanned events if they were to occur.

Ref	Measure	Relevance to the WFD Assessment
GH06	A Foundation Works Risk Assessment will be undertaken by the Contractor at pylons, the CSE compounds, GSP substation and temporary bridges where pilled foundations are proposed. The Foundation Works Risk Assessment will assess the risk of the piling creating new contamination pathways and will identify any additional measures required to protect groundwater and prevent aquifer mixing. This would be prepared in accordance with 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination' (Environment Agency, 2001). Pylon foundations will also be designed with suitable corrosion and pH resistant concrete formulas to reduce the risk of leaching harmful compound into soil and groundwater.	This would safeguard groundwater quality during construction.
GH07	A hydrogeological risk assessment will be undertaken once the trenchless crossing method has been confirmed. This will assess the risks on groundwater or surface water quality associated with the construction method including considering the potential for breakout during drilling and the use of bentonite or other agents proposed. Where the assessment identifies an unacceptable risk to groundwater or surface water quality, then alternative methods and/or additives shall be proposed, assessed and used. The hydrogeological risk assessment will be submitted to the Environment Agency for information prior to construction.	This would safeguard groundwater quality during construction.
B04	To control the spread of invasive species in accordance with the Wildlife and Countryside Act 1981, any plant or machinery that has been used in areas with invasive species (both terrestrial and aquatic), such as Japanese knotweed or invasive aquatic fauna, will be thoroughly cleaned. Water used to clean plant or machinery will be controlled to prevent the spread of the plant (through direct transfer or of seeds, rhizomes, fragments, etc.). The area will be cordoned off to prevent any inadvertent spreading.	This would reduce the pollution risk associated with general construction activities with reference to biosecurity and safeguard biological quality elements.
AS08	Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary by a suitably experienced person, to prevent the creation of preferential drainage pathways.	This would safeguard the low flow regimes (baseflow) of watercourses, protecting biological quality and hydromorphology.

Appendix 2: Schedule of Assumed Crossings

Table B1 – Temporary Access Route Crossings Based on the Proposed Alignment

Watercourse	Reference	Proposed Works	Length Affected	Estimated Duration
Ditch / minor watercourse	W-AB-6-1	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse*	W-AB-7-1	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-AB-16-1	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-AB-25-1	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse*	W-AB-26-1	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-AB-22-1	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse*	W-AB-34	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse*	W-AB-45	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-AB-47	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
River Brett (Main River)	W-C-1	Temporary access route crossing (bridge)	Less than 20m	2024 to 2028
Ditch / minor watercourse	W-D-8	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-E-7	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
River Box (Main River)	W-E-10	Temporary access route crossing (bridge)	Less than 20m	2024 to 2028
Ditch / minor watercourse	W-F-3	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-F-3	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-F-5	Temporary access route crossing - culvert	Less than 10m	2024 to 2028

Watercourse	Reference	Proposed Works	Length Affected	Estimated Duration
Ditch / minor watercourse	W-F-7	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
River Stour (Main River)	W-G-5	Temporary access route crossing (bridge)	Less than 20m	2024 to 2028
River Stour Tributary (Main River)*	W-G-6	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-G-9	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-G-18	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-H-8	**Permanent access at GSP substation**	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-H-10	Temporary access route crossing - culvert	Less than 10m	2024 to 2028
Ditch / minor watercourse	W-H-20	Temporary access route crossing - culvert	Less than 10m	2024 to 2028

*Denotes that the watercourse was dry during the site visit

Table B2 – Underground Cable Crossings Based on the Proposed Alignment

Watercourse	Reference	Proposed Works	Length Affected	Estimated Duration
Ditch / minor watercourse	W-D-8	New 400kV underground cables	Stopped up & over pumped 100m, opencut 80m	8 weeks
Ditch / minor watercourse	W-E-7	New 400kV underground cables	Stopped up & over pumped 100m, opencut 80m	8 weeks
River Box (Main River)	W-E-10	Trenchless crossing	Approximately 100m	6 months
River Stour (Main River)	W-G-5	Trenchless crossing	Approximately 525m	9 months
River Stour Tributary (Main River)*	W-G-6	New 400kV underground cables	Stopped up & over pumped 100m, opencut 80m	8 weeks
Ditch / minor watercourse	W-H-8	New 132kV cable at GSP substation	Stopped up & over pumped 30m, opencut 20m	8 weeks

Watercourse	Reference	Proposed Works	Length Affected	Estimated Duration
Ditch / minor watercourse	W-H-8	New 400kV cable at GSP substation	Stopped up & over pumped 100m, opencut 80m	8 weeks
Ditch / minor watercourse	W-H-11	New 132kV cable at GSP substation	Stopped up & over pumped 30m, opencut 20m	8 weeks

*Denotes that the watercourse was dry during the site visit

Figures

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERBODY STATUS - KEY PLAN
REGULATION 5(2)(q)
SHEET 1 OF 1
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

Mid Suffolk District Council

Babergh District Council

Ipswich Borough Council

Braintree District Council

Colchester Borough Council

Tendring District Council

Sheet 1

Sheet 2

Sheet 3

Bramford Substation

Section AB: Bramford Substation/Hintlesham

Section C: Brett Valley

Section D: Polstead

Section E: Dedham Vale Area of Outstanding Natural Beauty

Section F: Leavenheath/Assington

Section G: Stour Valley

Section H: Grid Supply Point Substation

Legend

- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation

Market, Clare, Acton, Sudbury, Hadleigh, Ipswich, Halstead, Colchester, Colne Valley

255000, 250000, 245000, 240000, 235000, 230000, 225000

580000, 585000, 590000, 595000, 600000, 605000, 610000, 615000

0 1 2 3 4 5 Kilometers

Norwich, Birmingham, Thetford, Cambridge, Ipswich, Stevenage, Colchester, London

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE :
Figure 1
Waterbody Status - Key Plan

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge	GIS
ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_1_KeyPlan_Rev0	A3
NG DRAWING No. BT-JAC-020631-500-0151	SHEET NO. 1 / NO. OF SHEETS 1 / ISSUE: A
SCALE : 1:125000	

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERBODY STATUS
REGULATION 5(2)(q)
SHEET 1 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

Belstead Brook
Gipping (downstream Stowmarket)
AB: Bramford Substation/Hintlesham
C: Brett Valley
Bramford
Burstall Hill
Burstall
Burstall Bridge
Hintlesham
Hadleigh
Essex Gravels
Waveney and East Suffolk Chalk & Crag
North Essex Chalk
North Essex Lower London Tertiaries
River Brett
Upper Layham
Lower Layham
Stutton Brook
A1071
A12

247000
246000
245000
244000
243000
242000
241000
240000
239000

602000 603000 604000 605000 606000 607000 608000 609000 610000 611000 612000 613000

0 0.25 0.5 0.75 1 Kilometers

- Section boundaries
- Order Limits
- Zone of influence (500m)

Water Framework Directive surface waterbodies
- Moderate
- Poor
- Outside assessment area

Water Framework Directive groundwater bodies (all poor status)
- Essex gravels
- North Essex chalk
- North Essex Lower London tertiaries
- Waveney and East Suffolk chalk & crag

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 1 Waterbody Status

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge	GIS
ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_1_Rev0	A3
NG DRAWING No. BT-JAC-020631-500-0151	SHEET NO. 1 / NO. OF SHEETS 3 / ISSUE: A
SCALE: 1:35000	

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERBODY STATUS
REGULATION 5(2)(q)
SHEET 2 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

River Box

D: Polstead

Polstead Heath

North Essex Lower London Tertiaries

North Essex Chalk

Assington

A134

E: Dedham Vale Area of Outstanding Natural Beauty

Polstead

Leavenheath

F: Leavenheath/Assington

Essex Gravels

A1087

Stour (Lamarsh - River Brett)

River Brett

0 0.25 0.5 0.75 1 Kilometers

242000
241000
240000
239000
238000
237000
236000
235000
234000

591000 592000 593000 594000 595000 596000 597000 598000 599000 600000 601000 602000

- Section boundaries
- Order Limits
- Zone of influence (500m)

Water Framework Directive surface waterbodies

- Moderate
- Poor
- Outside assessment area

Water Framework Directive groundwater bodies (all poor status)

- Essex gravels
- North Essex chalk
- North Essex Lower London tertiaries
- Waveney and East Suffolk chalk & crag

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 1 Waterbody Status

CIRCUIT / SITE		
Bramford – Pelham & Bramford – Braintree – Bulls Lodge		GIS
ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_1_Rev0		A3
NG DRAWING No. BT-JAC-020631-500-0151	SHEET NO. 2 / NO. OF SHEETS 3	ISSUE: A
SCALE: 1:35000		

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERBODY STATUS
REGULATION 5(2)(q)
SHEET 3 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

Belchamp Brook
North Essex Lower London Tertiaries
H: Grid Supply Point Substation
Essex Gravels
Stour (Wixoe - Lamarsh)
North Essex Chalk
Workhouse Green
Wickham St Paul
Twinstead
Lamarsh
Alphamstone
G: Stour Valley
Stour (Lamarsh - River Brett)
Pebmarsh Brook
Colne (downstream Doe's Corner)
A131
BULMER CP
MIDDLETON CP
LITTLE GORNARD CP
GESTINGTHORPE CP
WICKHAM ST PAUL CP
GREAT HENNY CP
TWINSTEAD CP
GREAT MAPLESTEAD CP
LITTLE MAPLESTEAD CP
PEBMARSH CP
ALPHAMSTONE CP
BURES HAMLET CP

- Section boundaries
- Order Limits
- Zone of influence (500m)

Water Framework Directive surface waterbodies
- Moderate
- Poor
- Outside assessment area

Water Framework Directive groundwater bodies (all poor status)
- Essex gravels
- North Essex chalk
- North Essex Lower London tertiaries
- Waveney and East Suffolk chalk & crag

0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 1 Waterbody Status

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_1_Rev0

A3

NG DRAWING No. BT-JAC-020631-500-0151

SHEET NO. 3

NO. OF SHEETS 3

ISSUE: A

SCALE : 1:35000

240000 239000 238000 237000 236000 235000 234000 233000 232000

580000 581000 582000 583000 584000 585000 586000 587000 588000 589000 590000 591000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERCOURSE CROSSINGS - KEY PLAN
REGULATION 5(2)(q)
SHEET 1 OF 1
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

Mid Suffolk District Council

Babergh District Council

Ipswich Borough Council

Braintree District Council

Colchester Borough Council

Tendring District Council

Sheet 1

Sheet 2

Sheet 3

Bramford Substation

Section AB: Bramford Substation/Hintlesham

Section C: Brett Valley

Section D: Polstead

Section E: Dedham Vale Area of Outstanding Natural Beauty

Section F: Leavenheath/Assington

Section G: Stour Valley

Section H: Grid Supply Point Substation

Legend
- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation

Norwich, Birmingham, Thetford, Cambridge, Ipswich, Colchester, Stevenage, London

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE :
Figure 2
Watercourse Crossings - Key Plan

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_2_KeyPlan_Rev0

A3

NG DRAWING No. BT-JAC-020641-500-0152

SHEET NO. 1

NO. OF SHEETS 1

ISSUE: A

SCALE : 1:125000

0 1 2 3 4 5 Kilometers

255000 250000 245000 240000 235000 230000 225000

580000 585000 590000 595000 600000 605000 610000 615000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERCOURSE CROSSINGS
REGULATION 5(2)(q)
SHEET 1 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

AB: Bramford Substation/Hintlesham

C: Brett Valley

W-AB-7-1
W-AB-16-1
W-AB-26-1
W-AB-45
W-AB-47
W-AB-6-1
W-AB-34
W-AB-22-1
W-AB-25-1
W-C-1

Bramford
Burstall Hill
Burstall
Burstall Bridge
Hintlesham
Hadleigh
Upper Layham
Lower Layham
River Gipping
River Brett
Spring Brook
Belstead Brook
A1071
A12

- Section boundaries
- Order Limits

Ordnance Survey watercourses
- Ordnance Survey watercourses
- Ordinary watercourse

Underground cable watercourse crossings
- Trenchless crossing
- Open cut

Access route crossings
- Bridge
- Culvert

This figure shows the Proposed Alignment
See Environmental Statement Chapter 4: Project Description for further details (application document 6.2.4)

0 0.25 0.5 0.75 1 Kilometers

247000 246000 245000 244000 243000 242000 241000 240000 239000

602000 603000 604000 605000 606000 607000 608000 609000 610000 611000 612000 613000

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE: Figure 2 Watercourse Crossings

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_2a_Rev0

A3

NG DRAWING No. BT-JAC-020631-500-0152

SHEET NO. 1

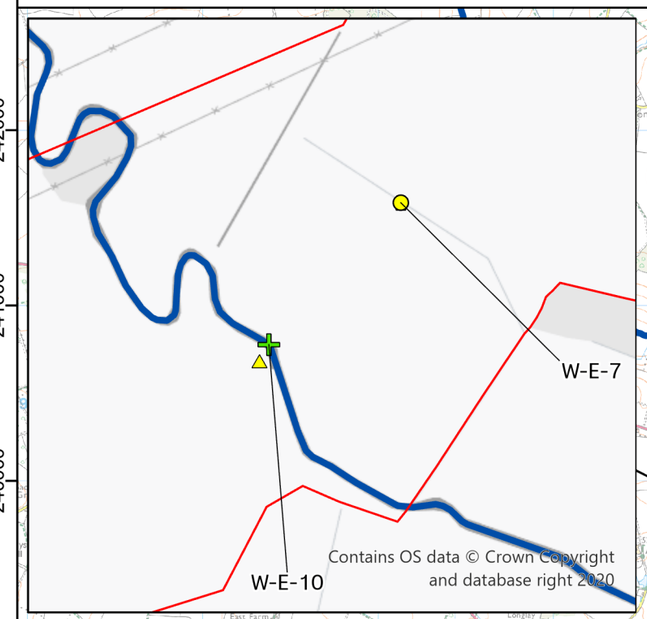
NO. OF SHEETS 3

ISSUE: A

SCALE: 1:35000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERCOURSE CROSSINGS
REGULATION 5(2)(q)
SHEET 2 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6



W-D-8
W-E-7
W-E-10
W-F-7
W-F-5
W-F-3
D: Polstead
E: Dedham Vale Area of Outstanding Natural Beauty
F: Leavenheath/Assington
River Box
River Stour
Polstead
Polstead Heath
Lower
Assington
Leavenheath
Boxford
Stoke-by-Nayland
Nayland
A134
A1087
BOXFORD CP
POLSTEAD CP
ASSINGTON CP
LEAVENHEATH CP
STOKE-BY-NAYLAND CP
BURES ST MARY CP
SHELLEY CP

242000
241000
240000
239000
238000
237000
236000
235000
234000

591000
592000
593000
594000
595000
596000
597000
598000
599000
600000
601000
602000

0 0.25 0.5 0.75 1 Kilometers

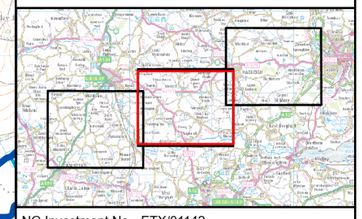
- Section boundaries
- Order Limits

Ordnance Survey watercourses
- Ordnance Survey watercourses
- Ordinary watercourse

Underground cable watercourse crossings
- Trenchless crossing
- Open cut

Access route crossings
- Bridge
- Culvert

This figure shows the Proposed Alignment
See Environmental Statement Chapter 4, Project Description for further details (application document 6.2.4)



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE:
Figure 2
Watercourse Crossings

CIRCUIT / SITE: Bramford – Pelham & Bramford – Braintree – Bulls Lodge	GIS
ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_2b_Rev0	A3
NG DRAWING No. BT-JAC-020631-500-0152	SHEET NO. 2 / NO. OF SHEETS 3 / ISSUE: A
SCALE: 1:35000	

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
WATERCOURSE CROSSINGS
REGULATION 5(2)(q)
SHEET 3 OF 3
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 5.6

H: Grid Supply Point Substation

G: Stour Valley

W-H-8
W-H-10
W-H-11
W-H-20
W-G-18
W-G-6
W-G-5
W-G-6A
W-G-9
W-G-7

Belchamp Brook
River Stour
Henny Meadow Fleet
Cambridge Brook
River Colne

Wickham St Paul
Twinstead
Workhouse Green
Lamarsh
Alphamstone
Pebmarsh
Bures

A131

- Section boundaries
- Order Limits

Ordnance Survey watercourses

- Ordnance Survey watercourses
- Ordinary watercourse

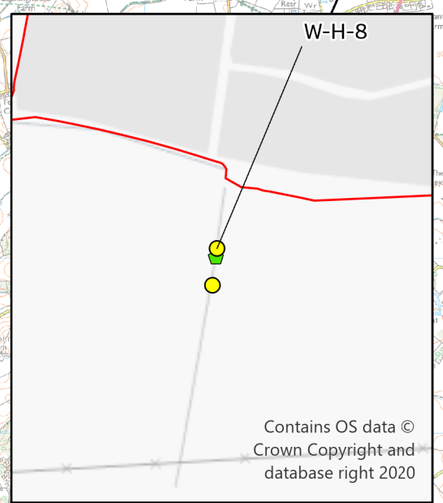
Underground cable watercourse crossings

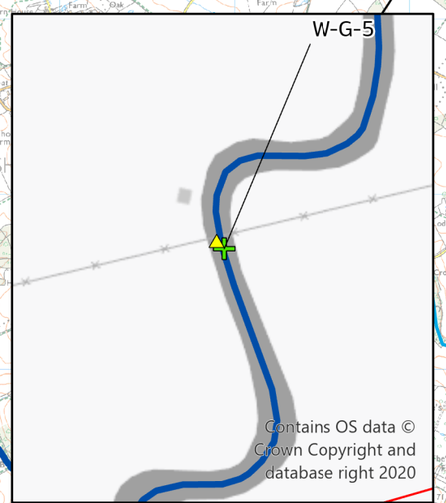
- Trenchless crossing
- Open cut

Access route crossings

- Bridge
- Culvert

This figure shows the Proposed Alignment
See Environmental Statement Chapter 4: Project Description for further details (application document 6.2.4)





0 0.25 0.5 0.75 1 Kilometers

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	03/2023	Rev A for DCO Application	PM	LD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE : Figure 2 Watercourse Crossings

CIRCUIT / SITE :			
Bramford – Pelham & Bramford – Braintree – Bulls Lodge			GIS
ORIGINATOR DRAWING NO. AAA_BTT_WFD_Figure_2c_Rev0			A3
NG DRAWING No. BT-JAC-020631-500-0152	SHEET NO. 3	NO. OF SHEETS 3	ISSUE: A
SCALE : 1:35000			

Page intentionally blank

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com