

Riverside Energy Park

Construction Traffic Management Plan

Electrical Connection – London Borough of Bexley

In accordance with Requirement 13, Schedule 2, of the Riverside Energy Park Order (2020) as amended



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1 Introduction

1.1 Overview

- 1.1.1 This document is the Construction Traffic Management Plan (CTMP) for the construction of Riverside Energy Park (REP) (hereafter referred to as 'REP' or 'the Authorised Development') and has been prepared in accordance with Requirement 13 of the Riverside Energy Park Order (2020) as amended.
- 1.1.2 The Riverside Energy Park Order 2020 was made by the Secretary of State on 9th April 2020. This has been amended by the Riverside Energy Park (Correction) Order 2021 (the 'Order') which came into force on 10 March 2021. The Order grants Cory Environmental Holdings Limited (trading as Cory (or 'the Undertaker') powers to construct, operate and maintain an integrated energy park comprising complementary energy generating development (with energy from waste being the largest component) and an associated Electrical Connection which will run from REP and terminate at the Littlebrook substation in Dartford.
- 1.1.3 Schedule 2 of the Order presents 33 Requirements, conditions that must be met at various stages prior to the Authorised Development becoming operational. Requirement 13: Construction Traffic Management Plan is set out in full at Section 1.2 below; in short, states that no part of the works can commence until a CTMP for that work has been submitted to and approved by the relevant planning authority.
- 1.1.4 This CTMP has been prepared by Stantec UK Limited (Stantec) on behalf of Cory to seek approval from London Borough of Bexley ('LBB') as the relevant planning authority for Requirement 13 as it applies to Work Number ('Work No.') 9 within its administrative boundary.

1.2 The Authorised Development

- 1.2.1 The Authorised Development is prescribed at Schedule 1 of the Order comprising the following Work Numbers:
- Work No. 9: Works to construct and install an electrical connection in the London Borough of Bexley and the Borough of Dartford.

Integrated Energy Park

- 1.2.2 The integrated energy park will be constructed on the Main REP Site, land immediately adjacent to Cory's existing Riverside Resource Recovery Facility located within the London Borough of Bexley and will complement Cory's existing operations. The energy park will predominantly generate electricity via an Energy Recovery Facility (ERF). The ERF will provide thermal treatment of residual (non-recyclable) commercial and industrial (C&I) waste and municipal solid waste (MSW). Much of the necessary plant for the ERF will be contained within the Main REP Building. The energy park will also include:
- Anaerobic Digestion facility: to process food and green waste. Outputs from the Anaerobic Digestion facility will be transferred off-site for use in the agricultural sector as fertilizer or as an alternative, where appropriate, used as a fuel in the ERF to generate electricity;
 - Solar Photovoltaic Installation: to generate electricity. Installed across a wide extent of the roof of the Main REP Building;
 - Battery Storage: to store and supply additional power to the local distribution network at times of peak electrical demand. This facility would be integrated into the Main REP Building; and

- On Site Combined Heat and Power (CHP) Infrastructure: to provide an opportunity for local district heating for nearby residential developments and businesses. REP will be CHP Enabled with necessary on-site infrastructure included within the Main REP site.

1.2.3 Neither the construction process for the Main REP Site nor the Electrical Connection works located within the Borough of Dartford are addressed within this CTMP. They will be the subject of a separate CTMP to be submitted to the Dartford Borough Council ('DBC').

Electrical Connection

1.2.4 REP will be connected to the electricity distribution network via a new 132 kilovolt (kV) underground electricity cable connection. The Electrical Connection is shown in Figure 2.3 and 2.4 and route alignment plans can be found in Appendix A.

1.2.5 The Electrical Connection will be constructed, running predominantly underground between the Main REP Site and the Electrical Connection point at Littlebrook substation, connecting into an existing National Grid building in Dartford. The Undertaker for the Electrical Connection is UK Power Networks ('UKPN'). The route will be located within the administrative boundaries of both LBB and DBC and will run from a new substation within the Main REP site to the existing substation at Littlebrook.

Construction Compounds

1.2.6 The use of Electrical Connection temporary construction compounds are limited to the locations at which Horizontal Directional Drilling (HDD) will be undertaken. These may be used for, but not limited to, laydown, parking, fabrication and welfare. It is not proposed that there will be any HDD along the section of the Electrical Connection within the borough of Bexley.

The Undertaker

1.2.7 Cory Environmental Holdings Limited, trading as Cory, is the Undertaker for REP.

1.2.8 Cory is registered in England (Company Number 5360864) with registered address at 10 Dominion Street, Floor 5, London, United Kingdom, EC2M 2EF.

1.2.9 As one part of a wider group, Cory has provided essential services and infrastructure to the people of London, and has operated barges along the River Thames, since the late 1800s. Today, the company provides a wide range of resource management services to a number of different clients, including waste transfer, sorting for recycling, and energy recovery, and still uses barges to transport waste and ash. These services are provided across a number of key sites: the materials recycling facility located at Wandsworth; a number of river-based transfer stations; and energy recovery currently takes place at the Riverside Resource Recovery Facility (RRRF).

1.2.10 Further information on Cory is available at <http://www.coryenergy.com/>.

1.3 Scope & Purpose of Document

1.3.1 This CTMP covers all numbered works relating to the Electrical Connection and associated construction compounds (Work No. 9) within Schedule 1 of the Order, where those works relate to construction of the Electrical Connection within the London Borough of Bexley. In accordance with Requirement 13, it sets out the procedures and methods intended to govern the construction works (including site preparation).

1.3.2 A separate CTMP document is being developed for the Main REP Site authorised under Works No. 1A, 1B, 1C, 1D, 1E, 2, 3, 4, 5, 6, 7, 8. Therefore, this document will not detail

specific measures relevant to the construction works for the Main REP Site but will signpost to the Main REP Site CTMP where necessary. This CTMP also does not relate to works relating to the Electrical Connection and associated construction compounds (Work No. 9) within Schedule 1 of the Order, where those works relate to construction of the Electrical Connection within the Borough of Dartford.

1.3.3 There will be a consistent approach across the CTMPs, and they will be relatable to one another. Each CTMP will be prepared to reflect the different requirements of their particular phase of construction.

1.3.4 The measures set out in this CTMP will seek to ensure that effects on the highway network are reduced as far as practicable during the construction phase. It forms the management framework for the planning and implementation of construction activities in accordance with the commitments identified as part of the Requirements in Schedule 2 to the Order.

1.3.5 Requirement 13 of the Order states that:

1.3.6 “Construction traffic management plan(s)”

13. (1) No part of the pre-commencement works may be carried out and no part of the authorised development may commence until a construction traffic management plan for that part has been submitted to and approved by the relevant planning authority (in consultation with the relevant highway authority and Transport for London). A construction traffic management plan(s) must be substantially in accordance with the outline construction traffic management plan and must include the following (as applicable for the part of the authorised development to which the construction traffic management plan relates)

(a) construction vehicle routing plans in respect of both workers and deliveries;

(b) proposals for the scheduling and timing of movements of delivery vehicles including details of abnormal indivisible loads;

(c) site access plans;

(d) where practicable, proposals for temporary diversions of any public rights of way;

(e) measures to ensure the protection of users of any footpath within the Order limits which may be affected by the construction of the authorised development;

(f) proposals for the management of junctions to and crossings of highways and other public rights of way;

(g) a construction logistics plan;

(h) a procedure for reviewing and updating the construction traffic management plan(s);

(i) a construction worker travel plan, including details of the temporal distribution of workers at Work Nos. 5(q), 8 and 9(d), the likely number of worker vehicle movements and the management of workforce parking; and

(j) appropriate procedures to provide for a vehicle booking management system.

(2) The construction traffic management plan submitted pursuant to sub-paragraph (1) must be accompanied by a statement and associated junction appraisals (as defined in the outline construction traffic management plan) demonstrating how the likely construction traffic impacts identified in the environmental statement are addressed through the measures contained in the construction traffic management plan(s).

(3) *The construction traffic management plan(s) submitted pursuant to sub-paragraph (1) that relate to Work Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 9 must be accompanied by a highways base condition survey (as defined in the outline construction traffic management plan).*

(4) *The construction traffic management plan(s) and any updated construction traffic management plan(s) submitted following any review must be implemented as approved by the relevant planning authority”*

1.3.7 In accordance with Requirement 13 (1), this document has been prepared in accordance with the Outline CTMP (6.3, appendix L to appendix B1, Rev.6, September 2019) a certified document as per Schedule 11 of the Order.

1.3.8 Table 1.1 below sets out how this CTMP responds to each element of Requirement 13.

Table 1-1 Requirement 13 and how it is addressed in this CTMP

Requirement 13	Response
(1) <i>No part of the pre-commencement works may be carried out and no part of the authorised development may commence until a construction traffic management plan for that part has been submitted to and approved by the relevant planning authority (in consultation with the relevant highway authority and Transport for London). A construction traffic management plan(s) must be substantially in accordance with the outline construction traffic management plan and must include the following (as applicable for the part of the authorised development to which the construction traffic management plan relates)</i>	This CTMP is submitted to London Borough of Bexley for consultation with Transport for London. The approval of LBB is sought to allow contractors to be appointed and construction work to commence. The CTMP is developed substantially in accordance with the outline CTMP, which was consented by the Order. The alignment between the documents is evidenced within this CTMP.
(a) <i>construction vehicle routeing plans in respect of both workers and deliveries</i>	Provided in Section 4 4 Vehicle Routeing and Access
(b) <i>proposals for the scheduling and timing of movements of delivery vehicles including details of abnormal indivisible loads</i>	Provided in Section 10 Strategies to Reduce Impacts
(c) <i>site access plans</i>	Provided in Section 5 Site Access and Appendix C Traffic Management Plans
(d) <i>where practicable, proposals for temporary diversions of any public rights of way</i>	Provided in Section 7 Public Rights of Way Considerations
(e) <i>measures to ensure the protection of users of any footpath within the Order limits which may be affected by the construction of the authorised development</i>	Provided in Section 7 Public Rights of Way Considerations
(f) <i>proposals for the management of junctions to and crossings of highways and other public rights of way</i>	Provided in Section 7 Public Rights of Way Considerations and Section 8 Temporary Traffic Management and Traffic Regulation Orders
(g) <i>a construction logistics plan</i>	Provided by this CTMP in particular Sections 3 - 12
(h) <i>a procedure for reviewing and updating the construction traffic management plan(s)</i>	Provided in Section 12

Requirement 13	Response
<i>(i) a construction worker travel plan, including details of the temporal distribution of workers at Work Nos. 5(q), 8 and 9(d), the likely number of worker vehicle movements and the management of workforce parking; and</i>	Provided in Section 10 Strategies to Reduce Impacts
<i>(j) appropriate procedures to provide for a vehicle booking management system</i>	Provided in Section 10 Strategies to Reduce Impacts
<i>(2) The construction traffic management plan submitted pursuant to sub-paragraph (1) must be accompanied by a statement and associated junction appraisals (as defined in the outline construction traffic management plan) demonstrating how the likely construction traffic impacts identified in the environmental statement are addressed through the measures contained in the construction traffic management plan(s).</i>	Mitigation initiatives are summarised at Section 10 and described in detail through Sections 3 to 9 of the document. The CTMP indicates the interfaces with general traffic and public transport and sets out how those interfaces are to be managed. Junction appraisals have been carried out and details can be found in Section 6 and Appendix E.
<i>(3) The construction traffic management plan(s) submitted pursuant to sub-paragraph (1) that relate to Work Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 9 must be accompanied by a highways base condition survey (as defined in the outline construction traffic management plan).</i>	The framework for the baseline condition survey is set out in Section 6.3. The condition survey within this CTMP will relate only to Work No. 9 within the London Borough of Bexley.
<i>(4) The construction traffic management plan(s) and any updated construction traffic management plan(s) submitted following any review must be implemented as approved by the relevant planning authority”</i>	The Undertaker and its contractors are committed to construct Work No. 9 within the London Borough of Bexley in accordance with this CTMP, or the subsequently approved versions thereof.

1.4 CTMP Objectives

1.4.1 The coverage and objectives of this CTMP are to:

- set out the details of the construction processes for the Electrical Connection within the London Borough of Bexley;
- minimise impacts of the demolition and construction stages on the local community and highway network;
- lower emissions from those construction processes;
- enhance safety and awareness;
- provide information on traffic routing and site access;
- provide an indication of programme and key dates;
- provide for reinstatement of the highway following construction; and

- identify temporary traffic management, waiting and loading controls and parking suspensions and Highway Licences required to undertake the works safely and efficiently.

1.5 Other Related Documents

1.5.1 In addition to this CTMP, further documents will be used to implement specific mitigation measures during the construction phase including:

- Code of Construction Practice (CoCP)

1.5.2 The CoCP includes a Site Waste Management Plan (SWMP) and Preliminary Materials Management Plan (PMMP). This CTMP signposts to the CoCP as required.

1.6 Terminology

1.6.1 For ease of reference, the following terms have been used in this document unless the context indicates otherwise:

- [the] Riverside Energy Park Development Consent Order – the name of the granted Development Consent Order (DCO), can be abbreviated to the “Order”.
- [the] DCO Site – The Main REP Site, the Electrical Connection, and the Temporary Construction Compounds and laydown areas (i.e., everything within the Order Limits).
- [the] Authorised Development – The entire scheme including the Main REP site; Electrical Connection; and Temporary Construction Compounds.
- [the] Main REP Site – The site of permanent works in the area adjacent/around RRRF, north of Norman Road. This does not include the offsite Construction Areas.
- [the] Main REP Building – the main building housing the ERF, the majority of Anaerobic Digestion equipment and Battery Storage.
- [the] development of REP – development/construction at the Main REP Site only i.e., excluding the Electrical Connection and Temporary Construction Compounds.
- CHP-Enabled – a plant which is fully capable of exporting heat, with all required infrastructure in place. The Environment Agency considers this approach Best Available Technique (BAT) for energy efficiency in circumstances where there are technically and economically viable opportunities for the supply of heat from the outset.
- CHP-Ready – a plant which is initially configured to generate electrical power only but which is designed to be ready, with minimum modification, to supply heat in the future. In cases where there are no immediate opportunities for the supply of heat from the outset, the Environment Agency considers that BAT is to build the plant to be CHP-Ready to a degree which is dictated by the likely future opportunities which are technically viable and which may, in time, also become economically viable.
- Anaerobic Digestion Facility – the entire onsite facility capable of treating food/green waste. Does not include any transport or management of waste offsite, e.g., disposal of compost
- [the] Temporary Construction Compounds - The area west of Norman Road, Belvedere, to be used (temporarily) during construction of REP for laydown, parking, fabrication, welfare etc.
- Cory Environmental Holdings Limited trading as Cory – the Undertaker, abbreviated to ‘Cory’ or ‘the Undertaker’.

2 Context, Considerations and Challenges

2.1 Introduction

- 2.1.1 This Section sets the general context as relevant to this CTMP. It has been refreshed at the time of preparing the CTMP, considering the characteristics of the stage of construction.

2.2 Policy Context

Overarching National Policy Statement for Energy – EN1 July 2011

- 2.2.1 Section 5.13 of the NPS EN1 includes the following points which have helped to inform this Outline CTMP:
- 2.2.2 *“The consideration and mitigation of transport impacts is an essential part of Government’s wider policy objectives for sustainable development as set out in Section 2.2 of this NPS.”* (Paragraph 5.13.2).
- 2.2.3 *“Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts.”* (Paragraph 5.13.4).
- 2.2.4 *“A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the IPC should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development.”* (Paragraph 5.13.6).
- 2.2.5 *“Water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective.”* (Paragraph 5.13.10).
- 2.2.6 *“All large infrastructure projects are likely to generate hazardous and non-hazardous waste. The [Environment Agency’s] EA’s Environmental Permitting (EP) regime incorporates operational waste management requests for certain activities. When an applicant applies to the EA for an Environmental permit, the EA will require the application to demonstrate that processes are in place to meet all relevant EP Requirements”.* (Paragraph 5.14.4).

National Policy Statement for Renewable Energy Infrastructure – EN3 July 2011

- 2.2.7 Section 2.5.25 of NPS EN3 seeks that *“Government policy encourages multi-modal transport and the IPC should expect materials (fuel and residues) to be transported by water or rail routes where possible.....Applicants should locate new biomass or waste combustion generating stations in the vicinity of existing transport routes wherever possible.”*

National Planning Policy Framework (NPPF), 2021

- 2.2.8 The National Planning Policy Framework (NPPF) was revised on 20 July 2021 and sets out the government’s planning policies for England and how these are expected to be applied. This revised Framework replaces the previous NPPF published in March 2012, revised in July 2018 and updated in February 2019.
- 2.2.9 Section 9: Promoting Sustainable Transport – paragraph 104 is applicable to the preparation of this CTMP and states that:

Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.*

Traffic Management Act, 2004

- 2.2.10 Part 2 of the Traffic Management Act sets out the responsibility of Local Traffic Authorities to manage traffic networks within their geographical area of responsibility. This includes efficient use of the highway network and the requirement to take measures to minimise contributions to traffic congestion. Part 5 outlines the responsibility of local authorities in Greater London to manage the strategic route network. This includes TfL's role to manage certain areas of the Greater London route network.

Mayor's Transport Strategy, March 2018

- 2.2.11 This document uses construction logistics in relation to the transport of demolition and construction materials by road, rail and water. It highlights the importance of CLPs in supporting and improving the efficiency and sustainability of construction supply chains.
- 2.2.12 In relation to FORS, and in addition to references in the draft New London Plan 2018, the document states that it can promote best practice in order to tackle congestion and improve the efficiency of the freight industry.
- 2.2.13 Proposal 16 states that "*The Mayor, through TfL, and working with the boroughs and members of the Freight Forum, will improve the efficiency of freight and servicing trips on London's strategic transport network by:*
- Identifying opportunities for moving freight on to the rail network where this will not impact on passenger services and where the benefits will be seen within London.
 - Increasing the proportion of freight moved on London's waterways.
 - Reviewing the potential benefits of a regional freight consolidation and distribution network and completing the network of construction consolidation centres in London."

TfL Freight and Servicing Action Plan (2019)

- 2.2.14 The TfL freight and servicing action plan sets out and clarifies future freight and servicing policies as well as the actions that can be taken in present day to support safe, clean and efficient freight operations. These include:

- Launching the HGV Safety Permit Scheme incorporating the world's first Direct Vision Standard (DVS) for HGVs;
- Managing work-related road risk through programmes such as Construction Logistics and Community Safety (CLOCS) scheme and the Fleet Operator Recognition Scheme (FORS);
- Advocating the use of Construction Logistics Plans to set out protocols for managing construction freight to development sites and focussing on construction supply chains and how their impact on the road network can be reduced.
- Championing the use of Construction Consolidation Centres where multiple bulk material deliveries are stored and transported to construction sites offering opportunities to improve operational efficiency, reduce congestion and delays, and improved safety.

Construction Logistics Planning Guidance, TfL (2019)

2.2.15 The purpose of the Construction Logistics Plan (CLP) guidance is to ensure that CLPs of high quality are implemented to minimise the impact of construction logistics on the road network. A CLP is an important management tool for planners, developers and construction contractors. The CLP focuses specifically on construction supply chains and how their impact on the road network can be reduced. The construction supply chain covers all movements of goods, waste and servicing activity to and from site. Well planned construction logistics will reduce:

- **Environmental impact:** Lower vehicle emissions and noise levels
- **Road risk:** Improving the safety of road users
- **Congestion:** Reduced vehicle trips, particularly in peak periods
- **Cost:** Efficient working practices and reduced deliveries

Local Policy

2.2.16 LBB's 'Bexley Sustainable Design and Construction Guide - Supplementary Planning Document' (adopted October 2007) sets out guidance that would be followed as part of the construction logistics of the Authorised Development.

2.2.17 Under the Section 5 'Conserving resources and reducing carbon emissions' and the sub-section on 'Materials' Guidance 22 states that developers should:

- consider the use of prefabricated elements in order to reduce total energy used in the construction phase, speed up assembly, improve quality and minimise defects and wastage; and
- consider the source location of prefabricated elements to minimise transportation.

2.2.18 Guidance 33 in Section 6 'Ensuring comfort and security in and around the development' and the sub-section on 'Waste and recycling' states that at the design stage the waste hierarchy should be applied:

- reduce the amount of waste generated;
- reuse;
- recycle;

- recover energy and materials; and
- minimise disposal.
- Re-use and recycling of construction and demolition waste on site should be considered.

2.2.19 Section 7 'Minimising the adverse effects of the construction on site and surroundings' sub-section 'Considerate construction' Guidance 35 expects developers to achieve certification under the Considerate Constructors Scheme.

2.2.20 Guidance 38 within Section 8 'Encouraging sustainable living through building design and information provision' sub-section 'Sustainable forms of transport, information provision and locally sourced labour' suggests that the river should be used where possible for the transport of materials to development sites and identifies that water is more efficient than rail, though both are preferred to road freight. This particularly relates to bulk materials. That sub-section further promotes the use of travel planning initiatives and the provision of suitable cycle parking and welfare facilities.

2.3 Policy and Guidance Compliance

2.3.1 The Authorised Development and the consented outline CTMP conform to the policy and guidance base as tested at DCO Examination and is in accordance with applicable policies and aspirations which have been released since that period.

2.3.2 This document sets out the management and mitigation measures that are to be adopted and employed through the construction period to reduce the effects on the local and strategic network in accordance with the controls set out through the DCO and associated consented documents.

2.4 Location Context

2.4.1 The following plans provide information about the Main REP Site location and the Electrical Connection route in the context of Greater London, the local road network and in relation to the London Borough of Bexley.

2.4.2 Appendix A provides plans which indicate the route of the Electrical Connection between the Main REP Site and the Littlebrook substation. The drawing at Appendix A1 shows the overall route whilst Appendix A2 gives a more focused indication of the section within the London Borough of Bexley. A series of indicative Temporary Traffic Management plans, included at Appendix C, give the concept for the method of management at key locations along the corridor.

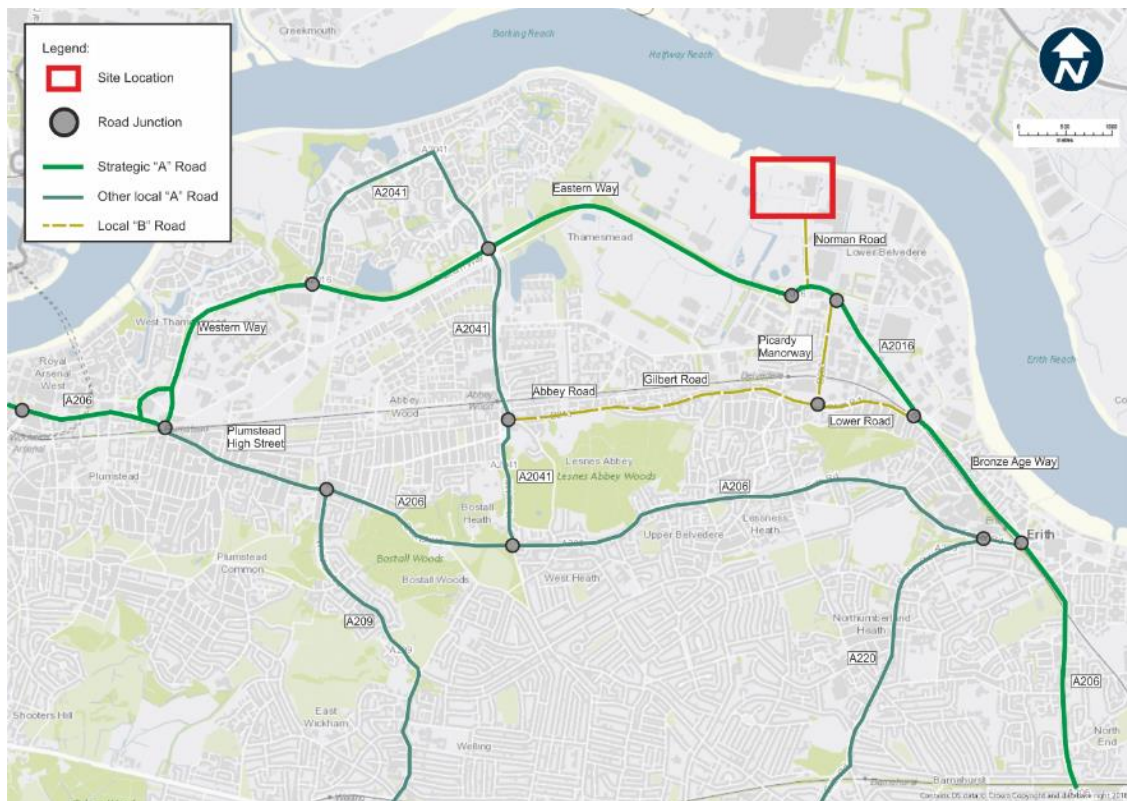
Riverside Energy Park: Construction Traffic Management Plan

Electrical Connection – London Borough of Bexley

Figure 2-1: London Context



Figure 2-2: Local Context Plan



2.5 Local Access Context

Highways, Carriageways and Footways

- 2.5.1 Access to the mobile works for the Electrical Connection has been planned in line with the staged construction of the route; access to the construction area will be by way of site transport. Direct access to the Electrical Connection construction areas is for works transport only.

Railway/Underground

- 2.5.2 The Electrical Connection route will cross the alignment of the railway lines along the route at three locations:

- Queens Road (A2016)
- Northend Road (A206)
- Thames Road (A206)

- 2.5.3 Section 6, of this document, sets out how the works will be co-ordinated with Network Rail, the train operating company and LBB. The railway bridge on Thames Road (A206) is near to the borough boundary. Therefore, cross-boundary working will be beneficial between the LBB and DBC and KCC. It is understood that there is a good working relationship between the authorities and street works information is regularly shared and coordinated appropriately.

Bus Routes

- 2.5.4 In the vicinity of the Main REP site and the Electrical Connection works around along Norman Road and Picardy Manorway, there are three bus routes serving Picardy Manorway (180, 401 and school service 601), with bus stops located on each side of the dual carriageway. Given that site construction traffic and the construction traffic associated with the construction of the Electrical Connection would have to pass these stops on its in/outbound journeys, this might pose some minor effects on buses arriving / departing the stops. Service 601 provides school transport with one journey in the morning and one in the afternoon.

- 2.5.5 The route for the Electrical Connection would not interact with local bus services for much of its length by following strategic roads. However, sections of the Electrical Connection route interface with bus routes B12, N89, 89, 99, 180, 229, 401, 428 and 469, and school services 602 and 669. Services 602 and 669 provide school transport with one journey each in the morning and one in the afternoon.

- 2.5.6 An appraisal of the anticipated disruption to bus services during the Electrical Connection works can be found in Section 6 and Appendix E and includes:

- proposals for the method of traffic management;
- a judgement of the disruption to those services;
- details of any proposed diversions or suspensions to the routes;
- bus stop suspensions or temporary relocations;
- the programme for those impacts; and
- the monitoring and review processes to be used.

- 2.5.7 This approach has been developed in consultation with LBB, TfL and the bus service operator during the preparation of the DCO submission and agreed through the examination.
- 2.5.8 The appraisal set out above will complement junction appraisals which will consider specific junctions on the network, as set out in Section 6 and Appendix E of this document.

Cycling

- 2.5.9 For the Electrical Connection workforce, cycle commuting access is extremely unlikely to the work areas given the worksite safety requirements and the linear and temporary nature of the works. The Principal Contractor has also indicated that all workers will travel to the work areas using works vehicles which are required to undertake the works.

2.6 Considerations and Challenges

Neighbouring Construction Sites

- 2.6.1 The Principal Contractor will work with LBB to confirm the final programme and sequence of works. This process will take account of other construction activity along the Electrical Connection route. In collaboration with LBB's Network Management team, the Principal Contractor will work with those undertaking other consented works to seek to co-ordinate construction and maximise the efficiency of the construction programmes for each party, limiting impacts on the highway network. LBB will advise and co-ordinate planned and unplanned works in accordance with their Network Management duties.

Consultation with Stakeholders

- 2.6.2 A meeting was held with officers from LBB and TfL on Wednesday 14th July 2021 to discuss the Electrical Connection works and introduce the basis for temporary traffic management that is proposed to be used to facilitate the works. A summary of the key points of feedback given at the meeting is provided below that have been taken into consideration as part of this CTMP.
- LBB confirmed their preference for being provided with copies of the route alignment and draft preliminary Traffic Management Plans. Officers would then be able to consider the proposed working arrangements and provide feedback. Officers would also review the detailed layouts and phasing of the temporary traffic management proposals as they come forward from the Principal Contractor for final street works permitting and co-ordination at the final lead into the works.
 - TfL would also consider the initial proposals in respect of interface with local bus services. They would co-ordinate with the service operators.
 - LBB commented that much of the Electrical Connection route runs along a prominent route for local residents, HGVs and buses and therefore minimising the impact of the works would be a priority. Concern was raised about potential road closures and diversionary routes.
- 2.6.3 Following the meeting, to assist with an informal review prior to formal submission of this finalised CTMP, Stantec provided:
- Overview presentation from the meeting for information
 - Route alignment drawings for information
 - Draft preliminary Traffic Management Plans for review and comment

- Compass Traffic Management Design document that provides commentary on the TM working arrangements
- Technical Note that provides an overview of the proposed working arrangements along the route

2.6.4 No response to the submission of indicative temporary traffic management plans has been provided by LBB or TfL in advance of the finalisation of this CTMP. The proposed strategy is, therefore, included within this CTMP and will be adopted by the Principal Contractor when preparing the detailed temporary traffic management layouts and works phasing.

Royal Mail

2.6.5 The Royal Mail requested notification of road closures and diversions to address concerns of traffic congestion and to ensure they can retain access to their collection and delivery points. The Principal Contractor will be responsible for notifying Royal Mail should the Electrical Connection works obstruct access to their collection and delivery points.

2.6.6 Access to private properties will be retained at all times, including during the period of construction associated with Bridge Road, Wessex Driver and Eversley Avenue.

2.7 Communication

2.7.1 The Principal Contractor is responsible for ensuring coordination with adjacent development sites to minimise traffic disruption. They are also responsible for promoting a good working relationship with the immediate neighbours and dealing with any complaints arising from the construction of the Electrical Connection. Site boards will be provided at work sites and compounds giving contact details for both day-to-day enquiries and emergencies. The signs will be the responsibility of the Principal Contractor to provide and maintain during the period of highway works.

2.7.2 Copies of the street works permits and any necessary Temporary Traffic Regulation Orders will be posted at the working areas to allow members of the public and Highway Inspectors to reference the works if required.

2.7.3 A copy of the CTMP will be uploaded to the Project Website. The complaints procedure is outlined in full in the REP Electrical Connection CoCP¹ (Requirement 11).

¹ REP Electrical Connection Code of Construction Practice, submitted TBC 2021, reference TBC

3 Construction Programme and Methodology

- 3.1.1 At the time of writing a Principal Contractor has not been appointed to carry out the Electrical Connection works. To inform the concept for the construction strategy for the Electrical Connection, UKPN's sub-contractor (Compass) has been appointed to provide indicative Traffic Management ('TM') Plans, working arrangements, programme and phasing information. References in this CTMP to the Principal Contractor refers to both the information provided to date by Compass and also commitments that apply to the Principal Contractor once appointed.
- 3.1.2 It should be noted that the programme (start and end dates and works duration) and working arrangements may be subject to change. This is dependent on the final working arrangements agreed between LBB and the Principal Contractor for the Electrical Connection during the permitting stage.
- 3.1.3 The indicative construction programme and methodology provided below has been prepared by the Principal Contractor and gives an overview of the Electrical Connection works.
- 3.1.4 The following further information to provide additional detail can be found in the Appendices:
- Cable route alignment drawings are provided in **Appendix A**
 - Description of indicative length of works, phasing and impact on buses and pedestrians in **Appendix B**
 - Indicative Temporary Traffic Management Plans in **Appendix C**
 - Indicative Traffic Management Design schedule produced by UKPN/Compass in **Appendix D**
 - Junction appraisals and interface with bus networks in **Appendix E**
- 3.1.5 A summary of the key information from these documents is provided below.

3.2 Works Description

- 3.2.1 The works comprise of the following:
- The Electrical Connection, running underground between the Main REP Site and the Electrical Connection Point at Littlebrook substation connecting into an existing National Grid building in Dartford; and
 - Temporary construction compounds required to support the construction of the Electrical Connection route where Horizontal Directional Drilling is required
- 3.2.2 The main elements of the Electrical Connection works include:

Duct installation

- Excavation of a trench to an approximate depth of 1,250mm and width of 450mm
- Laying of ducts:
 - 2 x 89mm outside diameter Emtelle uPVC ducts for pilots
 - 3 x 160mm outside diameter Emtelle uPVC ducts for 132v cables

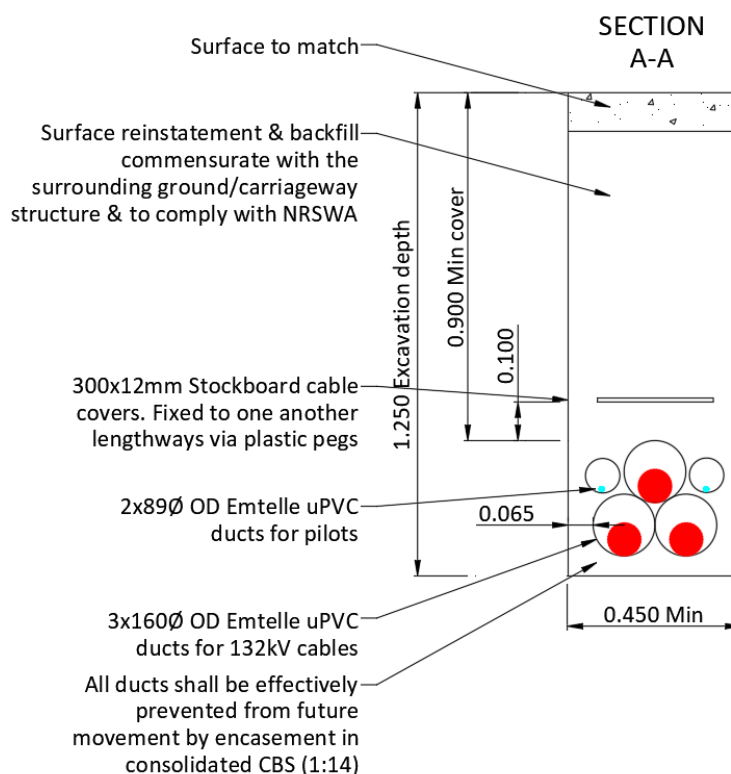
- All ducts will be encased in consolidated Cement Bound Sand (1:14) to prevent future movement
- Installation of stockboard cable covers (300mm x 12mm) – fixed to one another lengthways with plastic pegs
- Surface reinstatement and backfill commensurate with surrounding ground/carriageway structure – to comply with New Roads & Street Works Act 1991 (NRSWA)

Cable installation

- Cable installation – once the excavation and duct work is completed, the electrical cable will be installed via cable pull method. This will be carried out from small sections of traffic management located at draw pits along the corridor. The cable will be supplied from vehicle mounted drums and will not require intrusive street works. These works will be programmed following completion of the ducting works and will be the subject of separate street works permits.
- Cable testing
- In-line jointing

3.2.3 **Figure 3.1** below provides a cross section of the ducting and cabling works.

Figure 3-1 Standard Cross Section Detail



3.3 Structure Works and Horizontal Directional Drilling

3.3.1 Where the Electrical Connection route crosses certain structures such as culverts and bridges specific construction techniques may be needed. For example, the use of prefabricated cable

trays and flat steel plates to provide protection. Some fifteen structures have been identified and further detail on the required construction works can be found in Appendix D. The structures identified within the borough of Bexley include Lower Road Underpass (STR2), Queens Road footbridge over railway (STR7) and River Cray bridge culvert (STR11).

3.3.2 There are no proposed HDD works within the borough of Bexley.

3.4 Works Programme

3.4.1 The works overview provided below is for the full Electrical Connection route from the Main REP Site to Littlebrook substation. This is provided for completeness and to ensure consistency across the different CTMPs. The detailed information on route alignment and working arrangements is then provided only for those works undertaken within the borough of Bexley.

3.4.2 A period of approximately 14 months for detailed design; data and information gathering; permit and preparatory consents works will precede the physical construction works. That is currently assumed to continue until May 2022. The Electrical Connection works have an intended overall construction duration of approximately 12 months from May 2022 to May 2023. It is anticipated that there will be 262 days of construction works. The construction works are broken down into six phases that align with the route starting closest to the Main REP Site and finishing at Littlebrook substation. Phases 1, 2, 3 and part of phase 4 are within the borough of Bexley. Phases 4, 5 and 6 are within the Borough of Dartford but are described here for completeness, albeit greyed out in the table. The six phases are as shown in summary in

Route	Distance (m)	Local Planning Authority
Norman Road	760	London Borough of Bexley
Picardy Manorway	300	London Borough of Bexley
Bronze Age Way	2,285	London Borough of Bexley
Queen's Road	650	London Borough of Bexley
South Road	220	London Borough of Bexley
Northend Road	1,170	London Borough of Bexley
Thames Road	1,820	London Borough of Bexley
Thames Road	120	Dartford Borough Council
Bob Dunn Way	1,175	Dartford Borough Council
Joyce Green Lane	300	Dartford Borough Council
Binnie Road	60	Dartford Borough Council
Kent Fastway	650	Dartford Borough Council
Marsh Street North	15	Dartford Borough Council
Kent Fastway	795	Dartford Borough Council
Rennie Drive	235	Dartford Borough Council
Littlebrook	100	Dartford Borough Council
Total	10,655	
Total LBB	7,205	

Total DBC	3,450
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Table 3-3, 3-2 and 3-3 and

3.4.3 Figure 3-2.

Table 3-1 Intended Works Schedule

Indicative Engineering Works (started March 2021)	
Activity <ul style="list-style-type: none"> detailed design 	Involves <ul style="list-style-type: none"> produce detailed design and obtain approval carry out condition survey of existing infrastructure along cable route
Pre-Construction Works (approx. start January 2022)	
Activity <ul style="list-style-type: none"> preparing information to undertake works 	Involves <ul style="list-style-type: none"> obtain current utilities checks along the route for construction packs prepare detailed packs to issue site gangs produce Construction Phase Plan organise work permits, book road space and notices to Local Authorities and interested parties
Engineering Works (approx. start May 2022)	
Activity <ul style="list-style-type: none"> carry out installation works to structures and key crossing points 	Involves <ul style="list-style-type: none"> physical installation of cable route where it interfaces with Structures and Fast Track crossing points
Phase 1 (approx. start May 2022)	
Activity <ul style="list-style-type: none"> Duct installation along Normal Road and Picardy Manorway Excavate joint bays Cable installation and testing 	Involves <ul style="list-style-type: none"> installation of Traffic Management excavate trenches, install cable, test and reinstate trenches. Excavate and install joint bays as required. move traffic Management to the next section record As Built information
Phase 2 (approx. start December 2022)	
Activity <ul style="list-style-type: none"> Duct Installation along Bronze Age Way Excavate joint bays 	Involves <ul style="list-style-type: none"> installation of Traffic Management excavate trenches, install cable, test and reinstate trenches. Excavate and install joint bays as required. move traffic Management to the next section record As Built information
Phase 3 (approx. start July 2022)	
Activity <ul style="list-style-type: none"> Duct installation along Queens Road and Northend Road Excavate joint bays 	Involves <ul style="list-style-type: none"> installation of Traffic Management excavate trenches, install cable, test and reinstate trenches. Excavate and install joint bays as required.

<ul style="list-style-type: none"> • Cable installation to duct, cable testing and in-line jointing 	<ul style="list-style-type: none"> • move traffic Management to the next section • record As Built information
Phase 4 (approx. start December 2022)	
Activity <ul style="list-style-type: none"> • Duct installation along Thames Road • Excavate joint bays • Cable installation to duct, cable testing and in-line jointing 	Involves <ul style="list-style-type: none"> • installation of Traffic Management • excavate trenches, install cable, test and reinstate trenches. Excavate and install joint bays as required. • move traffic Management to the next section • record As Built information
Phase 5 (approx. start September 2022)	
Activity <ul style="list-style-type: none"> • Duct installation along Bob Dunn Way • Excavate joint bays • Cable installation to duct, cable testing and in-line jointing 	Involves <ul style="list-style-type: none"> • installation of Traffic Management • carry out Horizontal Directional Drilling ('HDD') • excavate trenches, install cable, test and reinstate trenches. Excavate and install joint bays as required. • move traffic Management to the next section • record As Built information
Phase 6 (approx. start May 2022)	
Activity <ul style="list-style-type: none"> • Duct installation along Dunlop Close, Marsh Street and Rennie Drive • Excavate joint bays • Cable installation to duct, cable testing and in-line jointing 	Involves <ul style="list-style-type: none"> • installation of Traffic Management • excavate trenches, install cable, test and reinstate trenches. Excavate and install joint bays as required. • move traffic Management to the next section • record As Built information
Commissioning (approx. start April 2023)	
Activity <ul style="list-style-type: none"> • Final Terminations and Checks 	Involves <ul style="list-style-type: none"> • Inspections to be carried out by UKPN
Post-Construction (approx. start May 2023)	
Activity <ul style="list-style-type: none"> • As-built Reviews 	Involves <ul style="list-style-type: none"> • Prepare Operations and Management / Construction Design and Management documents to include full As Built records

Table 3-2 Electrical Connection Route

Route	Distance (m)	Local Planning Authority
Norman Road	760	London Borough of Bexley
Picardy Manorway	300	London Borough of Bexley
Bronze Age Way	2,285	London Borough of Bexley
Queen's Road	650	London Borough of Bexley
South Road	220	London Borough of Bexley

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Northend Road	1,170	London Borough of Bexley
Thames Road	1,820	London Borough of Bexley
Thames Road	120	Dartford Borough Council
Bob Dunn Way	1,175	Dartford Borough Council
Joyce Green Lane	300	Dartford Borough Council
Binnie Road	60	Dartford Borough Council
Kent Fastway	650	Dartford Borough Council
Marsh Street North	15	Dartford Borough Council
Kent Fastway	795	Dartford Borough Council
Rennie Drive	235	Dartford Borough Council
Littlebrook	100	Dartford Borough Council
Total	10,655	
Total LBB	7,205	
Total DBC	3,450	

Table 3-3 Indicative Construction Programme

Phase	Location	Duration (Days)	Start Date	End Date
Phase 1	Norman Road- Picardy Manorway	55.5	16/05/22	01/08/22
Phase 2	Bronze Age Way	117	05/12/22	16/05/23
Phase 3	Queens Road - Northend Road	106	22/07/22	19/12/22
Phase 4	Thames Road	94	15/12/22	25/04/23
Phase 5	Bob Dunn Way	74	13/09/22	26/12/22
Phase 6	Joyce Green Lane – Fastway – Rennie Drive – Littlebrook substation	97	16/05/22	27/09/22

Figure 3-2 Indicative Programme Gantt Chart

Phase	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23
Phase 1	█	█	█	█									
Phase 2								█	█	█	█	█	█
Phase 3			█	█	█	█	█	█					
Phase 4								█	█	█	█	█	
Phase 5					█	█	█	█					
Phase 6	█	█	█	█	█								

- 3.4.4 As can be seen the phases vary in duration and are not chronologically sequential. Phases 1 and 6 both start in May 2022 and end one month apart in August and September 2022 respectively. Phases 3 and 5 start in July and September 2022 respectively and both end in December 2022. Phases 2 and 4 then both start in December 2022 and finish in May and April 2022 respectively.
- 3.4.5 The construction phasing sequence is phases 1 and 6, 3, 5, 2 and 4. The phasing sequence provides for construction activities to take place in two geographically separate locations along the route at once. Spreading the construction activity in this manner will help to minimise the potential impact on the road network.
- 3.4.6 Phases 1, 2, 3 & 4 from Norman Road to Thames Road cover the works within the the borough of Bexley. Phase 1 along Norman Road and Picardy Manorway is scheduled to start in May 2022 and last approximately four months. Phase 3 on Queens Road and Northend Road is then set to begin in July 2022 and last six months. Phases 2 and 4 on Bronze Age Way and Thames Road respectively are planned to start in December 2022 and run for six months and five months. The section of the route in Phase 4 within the boundary of the borough of Bexley will last approximately 4-6 weeks.
- 3.4.7 It should be noted that the programme (start and end dates and works duration) may be subject to change. The indicative works programme is developed from the design and construction information provided within this CTMP. The final detail for the works programme will reflect the final working arrangements agreed between LBB and the Principal Contractor for the Electrical Connection, which will be set out during the street works permitting stage.

3.5 Construction Hours

- 3.5.1 The core construction hours and construction vehicle access times are set out in the CoCP. Those hours specifically apply to construction at the Main REP Site but are generally to be adopted for works on the Electrical Connection unless otherwise agreed with LBB. The stated core construction hours are:
- 07.00hrs – 19.00hrs Monday to Friday (excluding Bank Holidays); and
 - 07.00hrs – 13.00hrs Saturdays
- 3.5.2 The Electrical Connection works will generally follow the core working hours. As a result of the location of some of the areas of highway works it may be necessary for working hours to be extended to address unforeseen engineering challenges. That could require work to extend in the interests of safety or for works' critical requirements such as materials setting periods or unforeseen delays to materials supply. The non-standard working hours could include night time and weekend working to minimise disruption on the road network. Works at rail interfaces could also require night time or extended working hours where confirmed with Network Rail and LBB. Advice given in Traffic Advisory Leaflet 8/14 Extended Working Hours at Road Works will be followed.
- 3.5.3 Extended or non-standard working hours required or proposed will be agreed with LBB and approved through applications under s61 of the Control of Pollution Act 1974.

Electrical Connection Working Hours Schedule

- 3.5.4 The Principal Contractor has indicated the likely working hours schedule as shown below, with non-standard hours shown in *italics*. These working hours will be applied to the different phases and work areas along the Electrical Connection route with the working hours for each specific works area agreed with LBB at the permitting stage for the works.

Weekday and Weekend working

- Normal hours: 8am – 6pm
- *Normal plus extended: 7am – 8pm*
- *Night working: 8pm – 6am*

3.6 Phase Working Arrangements

- 3.6.1 The information at Appendix B is taken from indicative information developed prior to appointment of a Principal Contractor and is therefore subject to change. It provides a detail on the possible duration of works and highlights where working arrangements will be likely to alter or reduce impact on highway operation. The phases are covered in likely chronological order to give an impression of how the works will progress from the perspective of road users.

4 Vehicle Routeing and Access

4.1 Routeing of Electrical Connection Worksite Construction Traffic

4.1.1 The preferred routeing for construction traffic to the Electrical Connection work sites will be broadly similar to that of the Main REP Site. Access to the works for the Electrical Connection will follow the same strategic routes. The Electrical Connection works route aligns with the identified strategic routes of A2016 and A206 for most of its route. Therefore, this provides direct vehicle access to most of the work areas. Where necessary local route variations have been identified and are set out below. An overview of the strategic and local access routes is shown in Figure 4-1 and a description of the routes is provided below.

4.2 Construction Traffic Approaching from the East and M25

4.2.1 Construction traffic accessing the Electrical Connection work areas from the east will use the A206/A282(M25) Littlebrook Interchange or A2/A282(M25) Darenth Interchange. Vehicles routeing from the A206/A282 Littlebrook Interchange will use A206 Bob Dunn Way, A206 Thames Road – Northend Road and A2016 Bronze Age Way – Picardy Manorway. The route from the A206/A282 Littlebrook interchange is dual carriageway. There is a short section reduced to single carriageway due to the railway bridge over the carriageway on A206 Thames Road. The carriageway is reduced to single carriageway on the approach to the bridge and the bridge then dissects the single carriageway with opposing traffic lanes passing through separate bridge arches. The maximum height for vehicles passing through the bridge arches is 16 ft 3 in (4.9 m). This height restriction will not affect access to or from the work areas.

4.3 Construction Traffic Approaching from the West

- 4.3.1 Construction traffic travelling from the west will approach the Electrical Connections sites from the A2016 Eastern Way. The route from the north of the River Thames and A12 is likely to be from the A102 Blackwall Tunnel approach where it joins the A206 Woolwich Road, A206 Woolwich Church Street, A206 Woolwich High Street, A206 Plumstead Road, A206 Pettman Crescent, A2016 Western Way and the A2016 Eastern Way before joining A2016 Picardy Manorway and Norman Road. The route is predominantly dual carriageway with a section of Woolwich Road being single carriageway. To access work areas further along the Electrical Connection route, vehicles will use the roads identified in Point 4.2.
- 4.3.2 Traffic travelling from the southwest within M25 will approach the site from the South Circular Road, joining A206 on Woolwich High Street where traffic joins the route from the A102 Blackwall Tunnel approach to access the site from the A2016 Picardy Manorway.
- 4.3.3 Where access is required during the operating hours of the London Lorry Control Scheme (LLCS), it will be the responsibility of the haulier to agree exemptions as necessary. Eastern Way (A2016) is a route included within the LLCS. Hauliers will also be responsible for ensuring that their vehicles comply with the London Ultra Low Emission Zone and the Low Emission Zone.

4.4 Abnormal Indivisible Loads

Abnormal Indivisible Loads ('AILs') are not anticipated to be needed for the Electrical Connection works. Should an AIL be required, it will be the responsibility of the haulier to determine the requirements of the AIL movement i.e. route planning, notification period, notifying authorities, attendants and escorts etc. The haulier will be required to make use of relevant guidance such as the Fleet Operators Recognition Scheme (FORS)² Managing Abnormal Indivisible Loads toolkit.

² [Managing Abnormal Indivisible Loads toolkit for operators - FORS - Fleet Operators Recognition Scheme \(fors-online.org.uk\)](https://www.fors-online.org.uk)

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Figure 4-1: Local Construction Traffic Access Plan



5 Site Access

5.1 Electrical Connection Works Areas

- 5.1.1 At the Electrical Connection works areas, vehicles will access the safe working zone directly from the running carriageway and leave in forward gear. The works areas will be configured to comply with Traffic Signs Manual Chapter 8 – Road Works and Temporary Situations.

5.2 Pedestrians, Cyclists and Parking

- 5.2.1 The Electrical Connection work areas will be accessed by works vehicles only. No private vehicle parking will be provided at the work areas. The Principal Contractor has stated that all workers will travel to the work areas using works vehicles. Therefore, it is not expected that any workers will travel to work areas via public transport, cycling or walking.
- 5.2.2 Compass, on behalf of UKPN and the Undertaker, has indicated that the size of the workforce required will vary from between 3-20 workers on-site at any one time, depending on the size of the work area and the activity taking place. The number of works vehicles on-site at any one time will likely vary from 3-8, again dependent on the size of the work area and the construction activity. All vehicles will be held within the temporary traffic management areas.

6 Impact on Other Highway Users

6.1 Works Impact on Other Highway Users

- 6.1.1 The works associated with the construction of the Electrical Connection between the Main REP Site and the Littlebrook Substation will have an impact on the road network at the locations where the cable installation works are undertaken. Through detailed planning; careful reviews of the phasing and approach to the works; minimising road closures and avoiding works at sensitive times, the effects of these nationally important works will be minimised. The Principal Contractor will collaborate with LBB to seek to deliver the works in an appropriate and efficient way, within the controls of the consented DCO and its control documents.
- 6.1.2 The length of works area within the borough of Bexley will be agreed with LBB in co-ordination with TfL, to minimise traffic effects whilst maintaining a work site to maximise duct and cable installation efficiency. Unless agreed otherwise with LBB, it is anticipated that each construction area will be up to approximately 200 m in length (extending to approximately 300 m when the associated temporary traffic management measures are included). Suitable temporary traffic management will be put in place and maintained in accordance with the Traffic Signs Manual Chapter 8 – Road Works and Temporary Situations.
- 6.1.3 The Electrical Connection construction site will be a rolling lane closure; temporary side road closures; or directional closure to accommodate open trenching and duct installation, backfilling, and surface reinstatement. The cable laying work site will be enclosed by temporary traffic management measures comprising of worksite barriers, cones and warning signs. The temporary traffic management will be provided following best practice principles.
- 6.1.4 It is envisaged that road closures and diversions will be minimised where possible during the Electrical Connection works. These will be associated with works to cross side roads and junction arms. The main impact of the highway related work will be the temporary loss of highway capacity due to lane closures on sections of dual-carriageway and the need for single lane alternate working on sections of the route provided on single carriageway roads, such as along Thames Road through the rail bridge.
- 6.1.5 Interfaces between local bus services and the construction of the Electrical Connection will be managed in agreement with LBB and where appropriate TfL and the bus operating companies. Where bus stops and other infrastructure are affected by the Electrical Connection works, suitable alternative temporary facilities will be provided. Without unduly affecting other road users, temporary traffic management controls will be configured as far as possible to minimise delays to bus services and disruption to passengers. Where possible the construction approach will minimise the need to amend bus timetables or scheduling. This could include actively managing temporary traffic signals during peak periods to balance traffic flows, such as at the Thames Road railway bridge.
- 6.1.6 The process set out below provides a method to understand the interface between the Electrical Connection construction works and local bus services, within the borough of Bexley. This acknowledges that lane closures within the highway will be unavoidable and that the focus should be on providing a proportionate approach, to mitigate the temporary and transient effects of the construction works on the operation of the road network in the context of normal street works procedures. The Undertaker or Principal Contractor will consult bus operators under the standard notification procedures – including London Work's / Street Manager and with direct contact where there will be an interface with infrastructure and services. The process will provide details of:
- the proposed alignment of the cable trench;
 - constraints and opportunities in respect of phasing;

- temporary traffic management measures and the period for those controls;
 - the extent of the works; and
 - interfaces with bus stops and shelters and how they are managed.
- 6.1.7 The Electrical Connection follows the alignment of the A2016 / A206 corridor within the borough of Bexley. The interfaces have been broken down into six zones which are to be considered in this CTMP:
- Zone 1: Norman Road / Picardy Manorway
 - Zone 2: Lower Road crossing
 - Zone 3: Erith roundabout / James Watt Way
 - Zone 4: Northend Road (inc. Colyers Lane / Bridge Road)
 - Zone 5: Perry Street to Howbury Lane
 - Zone 6: Thames Road (to Crayford Way)
- 6.1.8 Those zones are illustrated in the diagram at Appendix A and were previously discussed and agreed with LBB, TfL and Arriva London during the DCO Examination of the project and subsequently included within the consented Outline CTMP.
- 6.1.9 The Undertaker and Principal Contractor will continue to review opportunities to manage the construction works in those areas to limit and minimise disruption, whilst also implementing measures to manage the works at all other points. The Undertaker has committed to use the carriageway with least traffic disruption for the construction of the Electrical Connection, where practicable and on balance with other construction matters (such as underground structures or ground conditions), and to seek opportunities to use areas outside or adjacent to the running carriageway if appropriate and feasible. The Undertaker and Principal Contractor remain focussed on minimising disruption to bus services through the careful planning of works around bus stops and minimising the extent of traffic management within the highway.
- 6.1.10 Indicative traffic management plans, phasing and working arrangements are provided in Appendix B.
- 6.1.11 For each zone, junction appraisals have been undertaken and, where appropriate, the interface with the bus networks has also been considered. The output from the appraisals can be found in Appendix E and a summary of the key points is provided from paragraph 6.1.16 of this section. The process and considerations applied in the appraisal process are set out below.
- 6.1.12 When appraising the interface with bus services we have adopted the following approach:
- 1) Determine whether the Electrical Connection construction works directly interface with a bus route or bus infrastructure within the borough of Bexley, i.e. adjacent to a bus stop, along or across a bus route.
 - 2a) If not, inform the bus operators, LBB and TfL of the works within the vicinity of routes used by buses through the Street Manager / London Works standard street works notifications and road space bookings, including: working dates; work periods/phasing; and the final cable alignments.
 - 2b) If there is a direct interface, do the works cross or run along a given bus route?

3a) If crossed, for each route crossed, identify: the period of works; extent and timing of lane closures; and whether the alignment and phasing of the works could be practicably adjusted to minimise effects on buses passing through or passengers using the services. Consult on this review with TfL (and the bus operator, if required) via the mechanisms of agreeing this CTMP and, following consultation, confirm the arrangement in the final works permit. The standard Street Manager / London Works notifications would also be adhered to.

3b) If works run along a route, review as for (2a) and also the Principal Contractor, if required by LBB, to meet with LBB Network Management officers, TfL Public Transport and the bus operator and discuss:

- phasing of the works;
- lengths for working areas and details of the interface between the works and the bus services;
- working areas and management around bus stops (including minimising use of temporary bus stops);
- securing adequate manoeuvring into/out of bus stops/laybys (sufficient for the services using that stop); and
- identify with LBB whether there are benefits to undertaking works outside of peak periods that are appropriate in respect of a balance of all effects to all potential receptors, noting that removal and reinstatement of traffic management is unlikely to be practicable. Peak removal of traffic management may only benefit specific locations and would also extend the working period.

6.1.13 As a consequence of the review of the works with the six zones, the following junctions along the Electrical Connection route on the A206/A2016 have been appraised:

- Bexley Road and James Watt Way;
- Perry Street and Howbury Lane; and
- Crayford Way.

6.1.14 The junction appraisals are considered suitably proportionate and address:

- The anticipated time and phasing that the Undertaker or Principal Contractor expects the works to follow when working within the junction;
- The potential alignment options available within the junction for the Electrical Connection and their relationship with general traffic and bus services/infrastructure;
- The extent to which different temporary traffic management options, works procedures (including special working such as off-peak in exceptional cases) and coordination with other works has been considered whilst complying with relevant safety and traffic regulations; and

6.1.15 The outputs from the junction appraisal are at Appendix E and cover the following:

- The timing (i.e. which time of year) and routing of works through the given junction;
- The timescales/phasing of those works (including explanation of how mitigation measures that have previously been set out have been considered);

- Any special construction measures that are proposed, such as off-peak working in exceptional circumstances;
- Relative timing of other works where known (which could include: works at the main REP site; or other third party works that are identified by the relevant authorities or through the Street Manager / London Works and NRSWA processes, which still apply; and how interaction has been minimised where practicable);
- Any flexibility that was reasonably available in the cable routing and associated temporary traffic management and how that has been considered in the final proposed layout;
- The relationship that the detailed temporary traffic management proposals have with bus infrastructure and how they incorporate mitigation;
- Proposals for any additional community information regarding the final implementation – including advance notices on street;
- An appraisal of the current bus route interactions and frequencies on those routes and the expected interaction with the works at the above junction locations;
- Proposals for any further appraisal where this is proportionate and appropriate to the expected interaction at the junction

Junction Appraisal Outcomes

- 6.1.16 The full set of junction appraisals can be found in Appendix E. A summary of the key outcomes is provided below.
- 6.1.17 On balance the appraisal work has not identified junctions or locations where the Electrical Connection construction works is deemed to have a impact on the operation of the highway network or the bus network over a significant period of time, which could be further mitigated in a proportionate manner. The transient and temporary nature of the works and mitigation factors such as weekend and out of hours working; removal of traffic management measures during weekdays (where appropriate); actively managing temporary traffic signals to balance traffic flows; the use of temporary road closures in certain locations to speed up the overall works duration; and single lane working in other locations to minimise highway capacity impact, mean that the works would be managed to minimise impacts.
- 6.1.18 Potential temporary diversion routes for local traffic and buses have been identified where necessary. Access to residential properties will always be maintained and footway access will be maintained wherever possible, or signed diversions provided.
- 6.1.19 The impact on the highway and bus networks have been mitigated where possible and therefore does not require further analysis. The final working arrangements, to the satisfaction of LBB and TfL, can be further refined and agreed with the Principal Contractor during the works permitting stage.

6.2 Highway Reinstatement Works and Condition Surveys

- 6.2.1 Highway reinstatement works are to be completed by the Undertaker's Principal Contractor in accordance with the agreed methodology established through the street works permitting agreement. That reinstatement will be within 12 months of the date of final commissioning of the Work No. 9 within the London Borough of Bexley. The highway reinstatement works must include:
- a. The preparation and submission of a Schedule of Condition to LBB. The Schedule of Condition relates to the highways and footways within the Highway Reinstatement Area

which will include (but is not limited to) details of the line and level of footways and carriageways and the state of condition of access covers, surfacing, street furniture, channels and kerbs, street lighting and gullies (to be checked for blockages).

- b. The Undertaker must notify LBB in writing as soon as possible after the development of each Work No.9 has reached the stage where further works will not adversely affect the Highway Reinstatement Area.
- c. The Undertaker must submit to LBB, for its written approval of a further Schedule of Condition and specification for the Highway Reinstatement Works;
- d. Where the further Schedule of Condition identifies that damage has been caused to the Highway Reinstatement Area as a result of the construction of Work No. 9 (within the borough of Bexley) the Undertaker is to repair such damage in accordance with the specification for the highway reinstatement works to its pre-construction condition at the Undertaker's expense.
- e. The Undertaker must obtain sign off from LBB that the highway reinstatement works have been completed within 12 months of the date of final commissioning of Work No. 9 within the London Borough of Bexley.

7 Public Rights of Way Considerations

7.1 Introduction

- 7.1.1 The final alignment of the Electrical Connection will affect FP2 and potentially FP4 Public Rights of Way (PRoW) on a temporary basis. The general reasonable worst case disruption will be for sections where the typical 200m working length (of open excavation for ducting installation) disrupts a given PRoW for the approximate seven working days that it is present at that location and for the construction of jointing pits.

7.2 General Considerations

- 7.2.1 It has been confirmed that:
- i. no permanent diversion or closure of a PRoW is proposed as part of the Electrical Connection;
 - ii. no temporary closure of any PRoW in its entirety is proposed; where localised temporary closures are required, it is expected that a temporary diversion will be sought and will be achievable in accordance with Article 13(1) of the Order;
 - iii. where PRoWs are affected or diverted in the London Borough of Bexley, the width of any temporary alternatives or diversions will be no less than the existing access provision available, where practicable. Where this is not possible, a 2m minimum width should apply;
 - iv. an appropriate path surface should be provided along the alternative or diversion route. The specification of the path surface will be detailed in the site management plans and agreed with LBB; and
 - v. the contractor installing the Electrical Connection will proceed on the basis of seeking to provide 'no less preferable access', e.g. that they do not introduce steps where drop kerbs or ramps were present previously.

7.3 Specific Footpath Considerations

FP2

- 7.3.1 FP2 will be affected by the Electrical Connection works as the proposed cable alignment runs along the west side of Norman Road, at its junction with Picardy Manorway. The Principal Contractor will liaise with LBB to seek to mitigate effects to the PRoW, including seeking to secure the shortest practical temporary diversion route.

FP4

- 7.3.2 FP4 connects to the north end of Norman Road from the east and provides a through route to FP3 (the Thames Path). The exit of FP4 onto Norman Road is not expected to be affected by the Electrical Connection works. In the unlikely event that a diversion or a temporary closure is required for safety reasons, an alternative connection route is available via FP3 and FP2. In the event that a temporary diversion via FP3 and FP2 is proposed, before implementation of this diversion the Undertaker will liaise with LBB to explore whether any alternative practicable solution can be agreed to maintain connectivity of FP4.

8 Temporary Traffic Management and Traffic Regulation Orders

8.1 Parking Suspensions, Waiting and Loading Restrictions and Highway Licences

- 8.1.1 In accordance with Article 11(1) of the Order, the temporary closures of footways, cycle paths and traffic lanes along with road closures, suspensions of access restrictions and on street parking controls will be confirmed as part of the street works permit application process, covered within Article 11(3) of the Order. Any permits and licences, deemed necessary, will be identified through the applications made to LBB and progressed in accordance with the standard permitting processes and as set out in the Order and the finalised CoCP.
- 8.1.2 Temporary Traffic Regulation Orders ('TTROs') are not anticipated to be required to facilitate the construction of the Electrical Connection within the borough of Bexley. If TTROs are required, they will be applied for in accordance with Article 17(2)(a) of the Order and advertised in accordance with Article 17(2b) of the Order.
- 8.1.3 The need for licences for the use of two way and multiphase temporary signals will be determined through the detailed programming of the works at the time of submitting the street works permit applications. It is anticipated that temporary mobile traffic signals are to be required where the Electrical Connection crosses the junction of Norman Road and Picardy Manorway, when crossing Boundary Street and on Thames Road when crossing beneath the railway bridge. Temporary traffic controls will be managed so as to minimise delays to traffic and bus services. This could include manual intervention during busy traffic periods to balance waiting times and will be confirmed in co-operation with LBB during the determination of the street works permit for that section of the works.
- 8.1.4 When undertaking certain operations during construction of the Electrical Connection the use of Stop Works traffic management may be required, this traffic management will only be used during off peak times and with prior approval from LBB. The associated temporary traffic management will be deployed, in accordance with Traffic Signs Manual Chapter 8. It is anticipated that Stop Works controls would only be required to allow construction vehicles safely to access or leave the work areas.

8.2 Electrical Connection Construction Area Traffic Management

- 8.2.1 The construction of the Electrical Connection will incorporate laydown areas for the plant, equipment and materials within the transient construction areas.
- 8.2.2 The Electrical Connection construction areas will be established as safe working areas within the Public Highway with associated temporary traffic management. The layout of the construction areas will follow the Principal Contractors' established practices and accord with the guidance in Traffic Signs Manual Chapter 8 – Road Works and Temporary Situations. Street works notification processes will be implemented in accordance with LBB's processes and reflecting Article 11 of the Order.

9 Construction Traffic Site Deliveries

9.1 Electrical Connection Site Deliveries

- 9.1.1 The main materials for the Electrical Connection route comprise: ducting; pipe bedding back fill; cable warning tape; junction pit components comprising of joint boxes, covers and cable; excavated material; and surfacing materials. Plant and equipment will be delivered and removed directly to or from the construction areas. Refuelling will be carried out either on-site by way of mobile tanker or off-site.
- 9.1.2 The materials will be delivered to the work site by site vehicles or separately commissioned hauliers. The onsite operation will require direct removals of surplus excavated material from the work site along with any removed vegetation from the route. It will also be necessary for reinstatement materials to be delivered direct to the work site. The onsite welfare for work sites will require a mobile welfare unit.
- 9.1.3 The Principal Contractor will seek to ensure that lorries delivering to site with a Gross Vehicle Weight in excess of 8 tonnes comply with requirements of TfL's Work-Related Road Risk ('WRRR') and the Construction Logistics and Community Safety ('CLOCS') standards.
- 9.1.4 In meeting the WRRR requirements, the Principal Contractor will ensure that those operators providing vehicles with Gross Vehicle Weights greater than 8 tonnes to deliver construction materials, plant and sundries to site, will be a member of the Fleet Operators Recognition Scheme ('FORS'), unless specific circumstances are notified to LBB.
- 9.1.5 Where there is a requirement for specialist operators to access site, who are not FORS registered and CLOCS compliant, and it is not reasonable to expect that operator to become so, this will be notified to LBB, with justification given. This could include specialist haulage or lifting contractors who could be visiting site on fewer than three occasions.
- 9.1.6 The Principal Contractor for the Electrical Connection contractor will seek to minimise the potential impact of their works on the adjoining road network during periods of disruption and incidents. Due to the nature of the road works, it may not be feasible to amend working areas at short notice. However, the Principal Contractor will endeavour to work with LBB and TfL to assist in this area wherever practicable and safe to do so.

10 Strategies to Reduce Impacts

10.1 Planned Measures

10.1.1 The following Planned Measures have been identified to assist the Principal Contractor in achieving the goals of this CTMP and better manage the challenges identified in Section 2. Measures identified as “committed” are those that were included as Requirements within the Order (including the Outline CTMP and Outline CoCP (7.5, Rev 4)). The items listed as “proposed” are measures that are being advanced but were not a binding commitment. The “considered” measures have been explored and the following section confirms which measures are being progressed or not and the reasoning behind the decision.

Table 10 1: Planned Measures

Planned Measures Checklist	Committed	Proposed	Considered
Measures influencing construction vehicles, deliveries and Electrical Connection construction layout			
Vehicle safety and environmental standards and programmes	x		
Adherence to designated routes	x		
Delivery scheduling		x	
Retiming for out of peak time deliveries		x	
Retiming for out of hours' deliveries			x
Use of holding areas and vehicle call off areas			x
Follow local bus service interface appraisal process	x		
Measures to encourage sustainable freight			
Freight by Water			x
Freight by Rail			x
Material procurement measures			
DfMA and off-site manufacture			x
Reuse of material on site		x	
Smart procurement		x	
Collaboration amongst other sites in the area			x
Implement a staff travel plan		x	

10.2 Measures Influencing Construction Vehicles and Deliveries

Safety and environmental standards and programmes

- 10.2.1 The Undertaker and Principal Contractor will seek to ensure all contractor and subcontractor lorries arriving at site with an over 8 tonne Gross Vehicle Weight comply with sufficient safety measures and requirements relating to WRRR, as detailed in Section 9 above.
- 10.2.2 The requirements for compliance with WRRR are set out at: <https://tfl.gov.uk/info-for/deliveries-in-london/delivering-safely/work-related-road-risk>.
- 10.2.3 Industry best practice will be adopted, wherever possible, to support the construction Electrical Connection. This will be achieved by ensuring that, through the procurement process, the Principal Contractor and its subcontractors are members of, or signatories to, relevant best practice schemes and initiatives including, for example:
- **Considerate Contractors Scheme (CCS)** – promotes best practice that relates to on-site activities and those in the vicinity of the site.
 - **Fleet Operator Recognition Scheme (FORS)** – for suppliers that will deliver to, and hauliers that visit the works areas, the Principal Contractor will mandate these businesses to be members of FORS before they deliver to site – unless a specific exception is agreed with the LBB prior to that haulier or supplier visiting site (Section 9 refers).
 - **Construction Logistics and Community Safety (CLOCS)** – CLOCS brings the construction logistics industry together to revolutionise the management of work-related road risk and ensure a road safety culture is embedded across the industry. The Principal Contractor will require all hauliers and suppliers to be CLOCS compliant – unless a specific exception is agreed with the LBB prior to that haulier or supplier visiting site (Section 9 refers).
 - **Construction Logistics Improvement Group (CLIG)** – CLIG comprises around 50 construction industry stakeholders which are involved in TfL’s behaviour change project aimed at minimising the impact of the increasing amount of construction and to ultimately reducing the congestion and improve safety and air quality for the capital.
- 10.2.4 Current levels of good practice implemented by major projects such as Crossrail and Thames Tideway Tunnel have led the way in setting the standards which construction projects should attain. The Undertaker is supportive of these standards and will adopt good practices consistent with or exceeding these high levels.

10.3 Adherence to designated routes

- 10.3.1 Road traffic routes to be used for journeys to/from the strategic road network in the borough of Bexley are specified in Section **Error! Reference source not found.** These access routes have been reviewed with respect to physical obstructions and hazards which could restrict access for larger construction vehicles.
- 10.3.2 A copy of the route plan as part of a Driver Information Pack will be given to all suppliers when orders are placed to ensure drivers are fully briefed on the required route to take. The supplier will be made aware that these routes are required to be followed at all times, unless agreed or alternate diversions are in place by LBB, TfL or other parties.
- 10.3.3 Abnormal Indivisible Loads are not anticipated to be needed for the Electrical Connection works. However, should an AIL be required, it will be the responsibility of the haulier to determine the requirements of the AIL movement i.e. route planning, notification period, notifying authorities, attendants and escorts etc.

10.4 Delivery scheduling and monitoring

- 10.4.1 The Principal Contractor has indicated that the number of works vehicles likely to be on-site at any one time will vary from 3-8 dependent on the size of the work area and the construction activity. On this basis it is not deemed necessary to implement a Delivery Management System (DMS) due to the small number of vehicles required.
- 10.4.2 Further information on construction vehicle types, required materials, delivery profile and trip generation is provided in Section 11.

10.5 Retiming of deliveries outside peak traffic times

- 10.5.1 Retiming of deliveries outside peak traffic times may improve the operational efficiency of the construction of Electrical Connection, as well as lessening the impact of vehicle activity on the road network. The Principal Contractor for the Electrical Connection will seek to retime deliveries to times outside the morning peak (i.e. outside 07:00-09:00hrs) where practicable. Some elements of the Electrical Connection works are set to take place either overnight or at weekends, which will mean works vehicles are not using the road network at peak times.

10.6 Use of holding and vehicle call off areas

- 10.6.1 The use of a holding area for construction vehicles associated with the Electrical Connection has been assessed and it is not considered necessary. The Principal Contractor has indicated that the number of works vehicles likely to be on-site at any one time will vary from 3-8 dependent on the size of the work area and the construction activity. Therefore, the operation will not require remote holding areas for vehicles.

10.7 Use of logistics and consolidation centres

- 10.7.1 Due to the nature of the Electrical Connection works, the size and type of material deliveries required and the working arrangements it is not considered feasible, proportionate or realistic to use a consolidation centre. However, the Principal Contractor will seek to deliver materials to site in bulk where suitable on-site space allows. This will help ensure deliveries are consolidated and vehicle trips to site are minimised.

10.8 Measures to Encourage Sustainable Freight

Freight by Water

- 10.8.1 Water freight is not proposed to be used for the construction of the Electrical Connection works. The location of the Electrical Connection route and the nature of the works means the use of water freight is not appropriate due to the small volume of materials required at any one time and the types of material required.

Freight by Rail

- 10.8.2 Rail freight is not proposed to be used for the construction of the Electrical Connection works. The location of the Electrical Connection route and the nature of the works means the use of rail freight is not appropriate due to the small volume of materials required at any one time and the types of material required.

10.9 Material Procurement Measures

Design for Manufacture and Assembly and off-site manufacture

- 10.9.1 The nature of the Electrical Connection works, the construction method and the materials used means Design for Manufacture and Assembly ('DfMA') is integrated into the process. This includes components designed so they can only be assembled one way and the use of snap-fits and adhesive bonding rather than threaded fasteners such as nuts and bolts.

Reuse of material on site

- 10.9.2 The nature of the Electrical Connection work means that material excavated from the trenches located within the verges will be retained on-site and re-used to backfill the trenches. This will reduce the amount of imported fill material and the number of vehicles required.

Smart procurement

- 10.9.3 Where appropriate suppliers are available and suitable contracts can be negotiated, materials, equipment and plant will be sourced from local suppliers. Those local suppliers will still be required to be compliant with the contract requirements for vehicle standards and driver training.

10.10 Other Measures

Collaboration amongst other sites in the area

- 10.10.1 The Principal Contractor will consider working collaboratively with other construction sites in the vicinity of the Electrical Connection works should an appropriate opportunity arise. This will be dependent on the final works programme and will be kept under review as the project progresses. It is of relatively low likelihood that a similar construction process will be occurring in close proximity to the Electrical Connection works.

10.11 Implement a Construction Workforce Travel Plan

- 10.11.1 The Principal Contractor has indicated that the size of the construction workforce required will vary from between 3-20 workers on-site at any one time depending on the size (length) of the works area and the construction activities taking place.
- 10.11.2 The Principal Contractor has stated that all workers will travel to the work areas using works vehicles. The Electrical Connection work areas will be accessed by works vehicles (vans and lorries) only. No private vehicle parking will be provided at the work areas. It is not expected that any workers will travel to the works area via public transport, cycling or walking. As only works vehicles (i.e. vehicles needed to complete the construction work) will be used for transporting workers to site and workers will generally be sharing vehicles which are themselves delivering plant and materials, then workforce commuting will be done efficiently and there will be no unnecessary vehicle journeys.
- 10.11.3 Based on the above scenario it is not considered necessary to implement a Construction Workforce Travel Plan. It will be the responsibility of the Principal Contractor to monitor the travel patterns of workers to site and ensure no private car journeys are undertaken.

11 Estimated Vehicle Movements

11.1.1 This section provides an overview of the types of construction vehicles expected to access the work areas for the Electrical Connection as well as estimated construction vehicle movements over the duration of the construction programme.

11.2 Construction Vehicles Accessing Site

11.2.1 It is expected that a range of vehicle types will access the work areas for the Electrical Connection to enable construction, which will comprise of the following (but not limited to):

- Service vans – plant maintenance, PPE, fixings, hand tools, small components, sundry items for site welfare.
- 2 axle rigid lorries – building materials, hand tools, PPE, fixings, road signs, cones, lights.
- 3 axle rigid lorries – plant and equipment deliveries, barriers and fencing for TM, larger components.
- 4 axle rigid lorries – muck away, aggregate supplies, ready mixed concrete, ducting and cabling, larger components.
- 5-6 axle articulated lorries – delivering and collecting larger plant such as excavators and telehandlers.

11.2.2 Due to the nature of the Electrical Connection works multi-axle articulated lorries and AILs will not be required. Mobile cranes are not anticipated to be required and most site lifting will be done by lorry mounted hi-abs or excavators and telehandlers.

11.3 Estimated Vehicle Numbers

11.3.1 The Principal Contractor has indicated that the main materials for the Electrical Connection works comprise – ducting; pipe bedding back fill; cable warning tape; junction pit components comprising of joint boxes, covers and cable; excavated material; and surfacing materials. Plant and equipment will be delivered and removed directly to or from the works areas. Refuelling will be carried out either on-site by way of mobile tanker or off-site.

11.3.2 The materials will typically be delivered in bulk direct to the works areas where space allows. The onsite operation will require direct removals of surplus excavated material from the work site along with any removed vegetation from the route. The onsite welfare will be by a bespoke mobile welfare van.

11.3.3 The Principal Contractor has indicated that for a typical works area approximately 200m in length (300m with TM) the number of works vehicles likely to be on-site at any one time will vary from 3-8 dependent on the available space on-site and the construction activity taking place. For example, site set up might require one transit van, one small flatbed lorry and one rigid Hiab lorry to deliver barriers, fencing, cones and traffic signs and lights. During reinstatement works there may two transit vans, one small flatbed lorry, one rigid Hiab lorry bringing plant and equipment and one tipper lorry delivering surface reinstatement materials.

11.3.4 Based on the scenario above it is likely that the Electrical Connection works will generate between 6-16 vehicle movements per day. This range of daily vehicle movements is likely to be consistent across the duration of the construction programme. It should also be noted that no additional vehicle movements will be needed to transport workers to site as they will all arrive via works vehicles.

11.3.5 The vehicle movements will be spread out across the day with workers arriving on-site in works vehicles at the start of shift between 07:00-08:00hrs. Plant, equipment and materials will then be delivered as required across the working day dependent on the activities taking place. Any collections will likely take place later in the day. The Principal Contractor will seek to time deliveries to site outside of network peak hours wherever practicable.

12 Implementing, Monitoring and Updating

12.1.1 The Principal Contractor will appoint a logistics representative and it will be their responsibility to implement the CTMP. It is expected that the data and information collected as part of the CTMP will include the items set out below.

12.2 Works Vehicles

12.2.1 Vehicle movements to each works area will be recorded – this will be completed manually either through a paper based or digital system. Data collected will include:

- Total vehicles accessing the site
- Type/size/age of vehicles
- Time spent on site
- Supplier FORS accreditation and CLOCS compliance.

12.3 Breaches, complaints and non-compliance

12.3.1 Focussing on the following indicators:

- Reports of incorrect vehicle routing
- Unacceptable queuing at the work sites
- Unacceptable parking; and
- Vehicles breaching Ultra Low Emissions Zone compliance.

12.4 Safety

12.4.1 Focussing on the following indicators:

- Logistics-related accidents
- Record of associated injuries
- Vehicles and operations not meeting safety requirements.

12.4.2 The data collected will be shared with LBB, should it be requested. The Principal Contractor's logistics representative will carry out a review note of the CTMP every month during the construction period within the borough of Bexley and will provide that review note to LBB. If it is deemed necessary and reasonable by both LBB and the Principal Contractor to provide an update to reflect changes in programme, process or construction methodology, which differ significantly from that contained within this CTMP, then a refreshed CTMP will be prepared in collaboration with LBB, within 1 month of that shared decision. Unresolved disputes would have to be referred to the Secretary of State and so should be avoided.

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