Riverside Energy Park

Statement of Common Ground: Dartford Borough Council

VOLUME NUMBER:

08

PLANNING INSPECTORATE REFERENCE NUMBER:

EN010093

DOCUMENT REFERENCE:

8.01.02

May 2019 | Revision 0 (Deadline 2)

Planning Act 2008 | Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

CORY
RIVERSIDE ENERGY

Riverside Energy Park Belvedere

Statement of Common Ground between the Applicant and Dartford Borough Council

May 2019

Revision	Date	Description
Draft	December 2018	Draft for discussion
Rev 1b	May 2019	Redraft following meeting on 25th January 2019, Relevant Representation, new proposed Requirement and ongoing discussions

1 Introduction

1.1 Purpose of this Statement of Common Ground

1.1.1 This Statement of Common Ground (SOCG) has been prepared by Cory Environmental Holdings Limited (trading as Cory Riverside Energy ('the Applicant')) and Dartford Borough Council ('DBC'). For the purposes of this SOCG, the Applicant and DBC will jointly be referred to as 'the Parties'.

1.1.2 The Applicant has applied to the Secretary of State under the Planning Act 2008 for powers to construct, operate and maintain an integrated Energy Park, to be known as Riverside Energy Park ('REP'). The principal elements of REP comprise complementary energy generating development and an associated Electrical Connection (together referred to as the 'Proposed Development').

1.1.3 Preparation of this SOCG has been informed by discussions between the Parties. The purpose of this SOCG is to set out agreed factual information about the application for the Proposed Development (the 'Application') to facilitate an efficient examination process.

1.1.4 DBC has confirmed that its submissions and this SOCG will relate to the geographical and statutory remit of Dartford Borough only.

1.1.5 This SOCG covers the following topics/issues:

- Transport;
- Air Quality; and
- Draft Development Consent Order (dDCO) articles and requirements.

1.1.6 In respect of Noise and Vibration, it is agreed by DBC that it has no comments to make or matters to raise in response to the submitted Application.

1.1.7 In respect of Human Health, it is agreed by DBC that it has no comments to make or matters to raise that are not addressed within the Air Quality section of this SoCG.

1.1.8 In respect of lighting, it is agreed that the considerations given to likely significant effects during construction and decommissioning of the Proposed Development are considered appropriate in respect of the geographical remit of DBC. DBC has no comments to make on the Proposed Development's potential lighting effects and the mitigation for those effects.

1.1.9 It is agreed by DBC and Kent County Council (KCC) that DBC will defer to KCC and their relevant experts in respect of comments to the Examining Authority relating to the following topics:

- Historic Environment;
- Terrestrial Biodiversity; and
- Socio-economics.

1.1.10 In respect of these disciplines, and other disciplines listed in the accepted **Environmental Statement (ES)** (**6.1-6.3**, **APP-038 to APP-099**), it is agreed that DBC has no comments to make and matters are agreed.

1.1.11 Overall, this SOCG is intended to give a clear position of the state and extent of agreement between the Parties at the date on which this SOCG is signed and submitted to the Secretary of State.

1.2 The Application

1.2.1 The Application was submitted on 16th November 2018 and accepted by the Secretary of State on 14th December 2018. The Application was accompanied by an Environmental Statement ('ES').

1.2.2 It is agreed that the ES forms the full and complete Environmental Impact Assessment ('EIA') for the purposes of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) and it is further agreed that the ES contains sufficient environmental information to enable the Secretary of State to make his determination.

1.3 The Examination

1.3.1 An examination (the 'Examination') of the Application is to be held pursuant to Chapter 4 of Part 6 of the Planning Act 2008 (the 'Act') and the Infrastructure Planning (Examination Procedures) Rules 2010 (the 'EP Rules').

1.3.2 A Preliminary Meeting, pursuant to Rule 7 of the EP Rules, was held at the start of the examination period.

1.4 Description of the Proposed Development

1.4.1 The Proposed Development comprises REP and the associated Electrical Connection. These are described in turn, together with the anticipated REP operations, below. **Chapter 3 Project and Site Description** of the **ES** (**6.1, APP-040**) provides further details of the Proposed Development.

REP

1.4.2 REP would be constructed on land immediately adjacent to Cory's existing Riverside Resource Recovery Facility ('RRRF'), within the London Borough of Bexley ('LBB') and would complement the operation of the existing facility. It would comprise an integrated range of technologies including: waste energy recovery, anaerobic digestion, solar panels and battery storage. The main elements of REP would be as follows:

- **Energy Recovery Facility (ERF)**: to provide thermal treatment of Commercial and Industrial (C&I) residual (non-recyclable) waste with the potential for treatment of (non-recyclable) Municipal Solid Waste (MSW);
- **Anaerobic Digestion facility**: to process food and green waste. Outputs from the Anaerobic Digestion facility would be transferred off-site for use in the agricultural sector as fertiliser 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 would be CHP Enabled with necessary on site infrastructure included within the REP site.

Electrical Connection

1.4.3 REP would be connected to the electricity distribution network via a new 132 kilovolt (kV) underground electricity cable connection. The route options for the Electrical Connection are shown in the **Works Plans** (**2.4, APP-008**).

1.4.4 In consultation with UK Power Networks (UKPN), Cory is considering Electrical Connection route options to connect to the existing National Grid Littlebrook substation located south east of the REP site, in Dartford. The route options are located within the LBB and Dartford Borough, and would run from a new substation proposed to be constructed within the REP site.

2 Matters agreed between the Parties

2.1 Introduction

2.1.1 The Parties are agreed on all matters and in particular, are agreed on the points set out in this section (**Section 2**).

2.2 Transport

2.2.1 The scope of the **Transport Assessment (6.3, APP-066)** is defined within **Section 6.1**, **Chapter 6 Transport** of the **ES** (**6.1, APP-043**). This description of the topic is an appropriate basis upon which to produce the ES Chapter.

Legislation, Policy Context, Guidance and Standards

2.2.2 The policy context, legislation, guidance and standards considered in the Transport Assessment are noted in **Chapter 2 Regulatory and Policy Background** of the ES (**6.1, APP-039**) and **Section 6.2, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.3 The policy context, legislation, guidance and standards considered to inform the Transport assessment are appropriate.

Consultation

2.2.4 Consultation undertaken with regards to Transport is summarised in **Section 6.3, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.5 The summary of consultation presented is correct so far as it provides an accurate record of consultation with DBC on transport to date.

Reasonable Worst-Case Parameters Used for Assessment

2.2.6 The reasonable worst-case parameters used for the assessment of Transport are presented in **Section 6.4, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.7 The reasonable worst-case parameters used for assessment are considered appropriate for the robust assessment of potential Transport impacts arising from the Proposed Development.

Assessment Methodology and Significance Criteria

2.2.8 The methodology for Transport is presented in **Section 6.5, Chapter 6 Transport** of the ES (**6.1, APP-043**). The assessment methodology is considered appropriate.

2.2.9 The cumulative assessment methodology for Transport is presented in **Section 4.10, Chapter 4 ES Assessment Methodology** of the ES (**6.1, APP-041**). The cumulative assessment methodology is considered appropriate.

Assumptions and Limitations

2.2.10 Assumptions made with regards to Transport are summarised in **Section 6.6, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.11 The assumptions presented are considered appropriate.

Baseline Conditions and Receptors

2.2.12 The baseline conditions and receptors for Transport are presented in **Section 6.7, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.13 The baseline conditions and receptors presented are considered appropriate.

Embedded Mitigation

2.2.14 The embedded mitigation which is those designed to be an inherent part of the scheme for which development consent is sought or those which would be undertaken to meet existing legislative requirements for potential Transport effects is set out in **Section 6.8, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.15 The embedded mitigation is considered appropriate and adequate, in terms of their nature and scale, to address potential Transport effects.

Assessment of Likely Effects

2.2.16 The assessment of effects during construction and decommissioning for Transport is presented in **Section 6.9, Chapter 6 Transport** of the ES (**6.1, APP-043**). The assessment of effects during construction and decommissioning presented is considered appropriate.

2.2.17 The assessment of effects during operation for Transport is presented in **Section 6.9, Chapter 6 Transport** of the ES (**6.1, APP-043**). The assessment of effects during operation presented is considered appropriate.

Cumulative Assessment

2.2.18 The assessment of cumulative effects for Transport is presented in **Section 6.10, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.19 The cumulative effects from transport are not intended to be assessed separately as they are inherently included within the growth factors applied to the **Transport Assessment** (**Appendix B.1 Chapter 6** of the **ES** (**6.3, APP-066)**).

2.2.20 The cumulative effects presented are considered appropriate.

Further Mitigation and Enhancement

2.2.21 The consideration of further mitigation and enhancement measures for Transport are presented in **Section 6.11, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.22 The consideration of further mitigation and enhancement measures are appropriate by DBC subject to the inclusion of the following paragraphs in the **Outline Construction Traffic Management Plan** (**Appendix L** to the **Transport Assessment** (**Appendix B.1** to the **ES**) (**6.3, APP-066**)) at **Section 7.2**:

"It is recognised that Fastrack is an award-winning bus rapid transit system operating in Dartford Borough and Kent County. The preferred route of works to construct the Electrical Connection follows, in part, Route A of Fastrack and may therefore interact with services during construction.

Whilst the general measures in this Outline CTMP would be employed to mitigate effects along all routes, particular consideration would be given to the specific opportunities presented along the lightly trafficked dedicated busway and at the interface with the general traffic routes of Marsh Street North and Rennie Drive. This includes, but is not limited to:

- *exploring the optimum working arrangement in respect of temporary traffic management such as traffic signal controlled versus priority traffic management for lane management and closures;*

- *exploring the practicable optimum phasing, extent and timing of works, in discussion with DBC and KCC, to seek a 'minimised' overall effect on Fastrack services, particularly at the timetabled location of service crossover in the vicinity of Marsh Street North."*

2.2.23 Notwithstanding the above, it is agreed between the Parties that the interaction with Fastrack services generally is likely to be limited based on the frequency of services set out in **Paragraph 3.5** of **Appendix A** to this SoCG, the likely temporary traffic management and the timetabled crossover location.

2.2.24 The matters informing the above agreed position are set out in the technical note which comprises **Appendix A** to this SoCG titled **Fastrack Interface with Electrical Connection Construction.**

2.2.25 Whilst it is agreed between the Parties that there is no technical or environmental justification to place a restriction on operational traffic movements in respect of effects arising from the Proposed Development, the Applicant has confirmed to DBC that it has been in ongoing discussions with the LBB. The result of these discussions is that the Applicant is proposing the restriction, as set out in **Appendix B**, to be submitted at Deadline 2 and to be secured within the DCO.

2.2.26 With the addition of the above commitment, it is agreed that matters in relation to operational vehicle movements through Dartford Borough (including at junction 1A and on local roads), optimising use of the River Thames and in respect of potential uncontrollable highway incidents are all satisfactorily resolved (being matters set out in DBC's Relevant Representation).

Residual Effects and Monitoring

2.2.27 The summary of residual effects and monitoring for Transport is presented in **Section 6.12, Chapter 6 Transport** of the ES (**6.1, APP-043**).

2.2.28 A schedule of mitigation and monitoring is presented in **Chapter 17 Schedule of Mitigation and Monitoring** of the **ES** (**6.1, APP-054**).

2.2.29 The summary of residual effects and monitoring is appropriate.

2.3 Air Quality

2.3.1 The scope of the Air Quality assessment is defined within **Section 7.1**, **Chapter 7 Air Quality** of the ES (**6.1, APP-044**). This description of the topic is an appropriate basis upon which to produce the ES Chapter.

2.3.2 This section adequately addresses matters relating to Human Health, to the extent that DBC does not have any further comments to make or matters to raise in that respect.

Legislation, Policy Context, Guidance and Standards

2.3.3 The policy context, legislation, guidance and standards considered in the assessment of Air Quality are noted in **Chapter 2 Regulatory and Policy Background** of the **ES** (**6.1, APP-039**) and **Section 7.2, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.4 The policy context, legislation, guidance and standards considered to inform the Air Quality assessment are appropriate.

Consultation

2.3.5 Consultation undertaken with regards to Air Quality is summarised in **Section 7.3, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.6 The summary of consultation presented is correct so far as it provides an accurate record of consultation with DBC on Air Quality to date.

Reasonable Worst Case Parameters Used for Assessment

2.3.7 The reasonable worst-case parameters used for the assessment of Air Quality are presented in **Section 7.4, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.8 The reasonable worst-case parameters used for the assessment are considered appropriate for the robust assessment of potential Air Quality impacts arising from the Proposed Development.

Assessment Methodology and Significance Criteria

2.3.9 The methodology for Air Quality is presented in **Section 7.5, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**). The assessment methodology is considered appropriate.

2.3.10 The cumulative assessment methodology for Air Quality is presented in **Section 4.10, Chapter 4 ES Assessment Methodology** of the **ES** (**6.1, APP-041**). The cumulative assessment methodology, is considered appropriate.

Assumptions and Limitations

2.3.11 Assumptions made with regards to Air Quality are summarised in **Section 7.6, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.12 The assumptions presented are considered appropriate.

Baseline Conditions and Receptors

2.3.13 The baseline conditions and receptors for Air Quality are presented in **Section 7.7, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.14 The baseline conditions and receptors presented are considered appropriate.

Embedded Mitigation

2.3.15 The embedded mitigation which is those designed to be an inherent part of the scheme for which development consent is sought or those which would be undertaken to meet existing legislative requirements for potential Air Quality effects is set out in **Section 7.8, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.16 The embedded mitigation is considered appropriate and adequate, in terms of their nature and scale, to address potential Air Quality effects.

Assessment of Likely Effects

2.3.17 The assessment of effects during construction and decommissioning for Air Quality is presented in **Section 7.9, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**). The assessment of effects during construction and decommissioning presented is considered appropriate.

Cumulative Assessment

2.3.18 The assessment of cumulative effects for Air Quality is presented in **Section 7.10, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.19 The cumulative effects presented are considered appropriate.

Further Mitigation and Enhancement

2.3.20 The consideration of further mitigation and enhancement measures for Air Quality are presented in **Section 7.11, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**). No further mitigation and enhancement has been identified.

2.3.21 The consideration of further mitigation and enhancement measures are appropriate.

Residual Effects and Monitoring

2.3.22 The summary of residual effects for Air Quality is presented in **Section 7.12, Chapter 7 Air Quality** of the **ES** (**6.1, APP-044**).

2.3.23 A schedule of mitigation and monitoring is presented in **Chapter 17 Schedule of Mitigation and Monitoring** of the **ES** (**6.1, APP-054**).

2.3.24 The summary of residual effects and monitoring is appropriate.

2.4 Draft Development Consent Order (dDCO)

2.4.1 The Parties are agreed on the wording of the operative provisions of the **dDCO** (Articles 1 -43) (**3.1, APP-014**).

2.4.2 The Parties are agreed on the wording of the requirements contained in Schedule 2 of the **dDCO** (**3.1, APP-014)** and the procedure for the discharge of requirements contained in Schedule 12 of the **dDCO** (**3.1, APP-014)**.

3 Matters yet to be agreed between the Parties

3.1 Introduction

3.1.1 The Parties confirm that there are no remaining areas under discussion between the Parties.

4 Confirmation of Agreement

This SOCG is prepared jointly and agreed by the Parties:

Signed for and on behalf of the Applicant .....

Date: .....

Signed for and on behalf of Dartford Borough Council .....

Date: .....

Appendix A Fastrack Interface with Electrical Connection Construction

TECHNICAL NOTE

Job Name:	Riverside Energy Park
Job No:	42166
Note No:	TN012
Date:	02/05/2019
Prepared By:	Peter Wadey / Adrian Neve
Subject:	**Fastrack Interface with Electrical Connection Construction**

1. Introduction

1.1. This note has been prepared on behalf of Cory Environmental Holdings Limited (trading as Cory Riverside Energy (Cory or "the Applicant")) for Riverside Energy Park (REP), in response to technical matters raised by Kent County Council (KCC) and Dartford Borough Council (DBC). Technical matters raised relate to the interface of the construction of the Electrical Connection, as described within **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040)** which accompanies the DCO Application, with Route A of the bus rapid transit Fastrack service.

1.2. The matters were raised at meetings held on 03 October 2018, 25 January 2019 and 06 February 2019, and through related correspondence during that period. Relevant Representations (RRs) from both DBC and KCC were submitted on 12 February 2019 and included the following statements regarding the Fastrack and Electrical Connection interface:

i. KCC states in its RR that: "*Paragraph 2.8.5 states that an option for the electrical connection route from Bob Dunn Way to the Littlebrook substation would follow the Fastrack dedicated busway between Binnie Road and Rennie Drive. Due to the strategic nature of Bob Dunn Way, and the 15-24-month construction timeline, if the electrical connection has to be made along one of the two proposed routes, it would be preferable for the electrical connection to be constructed along the line of the Fastrack dedicated busway, to reduce the impact on the local highway network. The method and configuration of temporary traffic management associated with the construction of the electrical connection should be defined and agreed within the Construction Traffic Management Plan (CTMP) and secured as a requirement of the DCO, to avoid undue impact on Fastrack. This should be reflected in the Statement of Common Ground (SoCG).*"

ii. DBC states in its RR that: "*With regard to the Electrical Connection the Council wishes to ensure adequate mitigation and management of the construction process to ensure that the impact on the road network and/or Fastrack is reduced. The Borough Council consider that the method and configuration of temporary traffic management associated with the construction of the Electrical connection should be defined and agreed within the Construction Traffic Management Plan, secured as a Requirement of the DCO, and would seek to have the ability to agree this methodology before any work starts.*"

1.3. A route option has been selected since submission of the DCO Application and the associated documents, including **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040),** which describe the route of the Electrical Connection. Updated documents are to be submitted at Deadline 2 (20 May 2019). The preferred route for the Electrical Connection interfaces with the dedicated busway for Fastrack Route A between Binnie Road and Rennie Drive/Littlebrook Manorway. The routes also interface along the general traffic road of Rennie Drive/Littlebrook Manorway to the Littlebrook Sub-station. Updated Works Plan are to be submitted at Deadline 2 of the Examination (20 May 2019).

1.4. The principles of the process, programme and management of the construction of the Electrical Connection would be captured and confirmed within a **Code of Construction Practice** (CoCP) for those works, which would be secured through **Requirement 11** of the **Draft DCO (3.1, APP-014)**. , which requires the CoCP to accord with the **Outline CoCP** (7.5, APP-106) submitted with the application. The detailed methodology, construction logistics and temporary traffic management would be set out in a Construction Traffic Management Plan (CTMP) which is secured by Requirement 13 of the **Draft DCO (3.1, APP-014).** The CTMP would be agreed with KCC, as Local Highway Authority and in consultation with DBC and would be in accordance with the **Outline CTMP**, Appendix L of Appendix B.1 the Transport Assessment of the **ES (6.3, APP-066)**.

1.5. This note considers the main interfaces between Fastrack Route A and the preferred Electrical Connection route, as indicated within the **Works Plans (2.2, APP-008)** included within the DCO Application and updated by the **Works Plan Rev 1** submitted at Deadline 2 of the Examination (20 May 2019). The review looks at the temporary impacts that might be anticipated on the Fastrack bus services and the associated passengers through the construction of the Electrical Connection [such as temporary severance; driver (vehicle) delay; pedestrian (passenger) delay; pedestrian amenity].

1.6. Typical Environmental Impact Assessment criterion for traffic effects would consider a change of less than 10% in traffic flow to be Not Significant. The interface between the Fastrack Route A services and the construction of the Electrical Connection should not be appraised on this basis as the change in traffic flow is only affected by the temporary and minor movement of construction vehicles along that corridor. The appraisal is therefore carried out on the impact of the working area on the operation of the Fastrack services, with a judgment taken on the likely impact of the operation of the services and passengers' access to those services.

1.7. Through the evidence provided it is shown that the impact of the construction of the Electrical Connection would be no more than a **Negligible** impact on the operation of the Fastrack services and access to those services for passengers. The impact is therefore considered **Not Significant**.

2. The Electrical Connection

2.1. The Electrical Connection, related works and construction assumptions are described in various sections of the ES **(6.1, APP-040)**, as follows.

2.2. **Page 28 paragraph 3.3.3** of **Chapter 3 Project and Site Description** of the ES **(6.1, Reference APP-040)** states that:

> "*The Electrical Connection would comprise a trefoil of cables (3 cables laid together to comprise a single 3-phase circuit), buried in a cable trench typically 450mm wide and with 900mm cover (except where there is potential for trenchless installation or a localised deeper trench to be required to pass below a specific constraint) when laid under highway footways and carriageways, with jointing pits approximately every 500 m along the route. To provide 900mm typical cover, with c. 160mm diameter ducts and c. 50mm duct bedding, the excavation required would typically be 1.2m deep. The preferred cable route (and alternatives) generally follow existing carriageway routes."*

2.3. **Paragraph 3.5.25** of **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040)** states that:

> *"Where works are undertaken along footpaths and verges, a 3 m wide working corridor would be likely and generally be expected to cause some encroachment of the works area onto the highway, typically resulting in a lane closure. Where the proposals require works within the highway carriageway, a lane closure would be required. Depending on the width of the chosen highway route, a lane closure for the working area would typically require:*
>
> *a. On dual carriageways - a reduction from two lanes to one along one of the carriageways; and*
>
> *b. On single carriageways – traffic signals to control single lane traffic working."*

2.4. **Paragraphs 3.5.28 and 3.5.29** of **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040)** state that:

> "*When trenching works are being undertaken it is expected that a length of up to 200 m would typically be excavated to facilitate duct laying. Longer lengths of excavation would be avoided by the commitment from UKPN to use a ducted cable system. This allows relatively short lengths of ducting to be installed and long cable lengths to be pulled through later between jointing pits.*
>
> *The actual working area that would be fenced off could be up to c. 300 m to allow for safe clearances, including traffic management. Typical main mobile plant for open trenching would include an excavator with a breaker attachment, a dumper truck and a compactor. A specialist trenching machine may also be used. Where works are close to existing live services, precautionary digging may be undertaken locally by hand."*

2.5. **Paragraph 3.5.31** of **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040)** states that:

> *"It is expected that a typical trench length would be open for around 7 days and that this would be on a rolling basis along the length of the route. The location of jointing pits would need to be determined by subsequent detailed design. Their location would depend on the maximum length the cables can be pulled, which will depend on the number of bends and cable drum lengths. Joint pits may need to be accessed, with an associated working area, to install and joint cables. The expected time for such an installation would be approximately 5 days."*

2.6. Trenchless options for the construction of the Electrical Connection have been considered and could be adopted along sections of the route. These limited locations would typically be at bridges, waterways, railway crossings and other structures. Trenchless construction would be supported by a compound, approximately 30m by 20m in area, to contain the necessary construction plant, equipment and materials, as set out at **paragraph 3.5.33** of **Chapter 3 Project and Site Description** of the ES **(6.1 APP-040)**.

2.7. KCC has expressed in its RR that "*if the electrical connection has to be made along one of the two proposed routes* [between Joyce Green Lane and Rennie Drive/Littlebrook Manorway]*, it would be preferable for the electrical connection to be constructed along the line of the Fastrack dedicated busway, to reduce the impact on the local highway network"*.

2.8. As part of the baseline data gathering process for the Transport Planning evidence for the DCO Application, an Automatic Traffic Count was undertaken between Tuesday 17 April 2018 and Monday 30 April 2018 on Bob Dunn Way, just to the west of the Littlebrook interchange western roundabout. Figure 1, below, provides the survey results indicating the average daily traffic flow profile at that location.

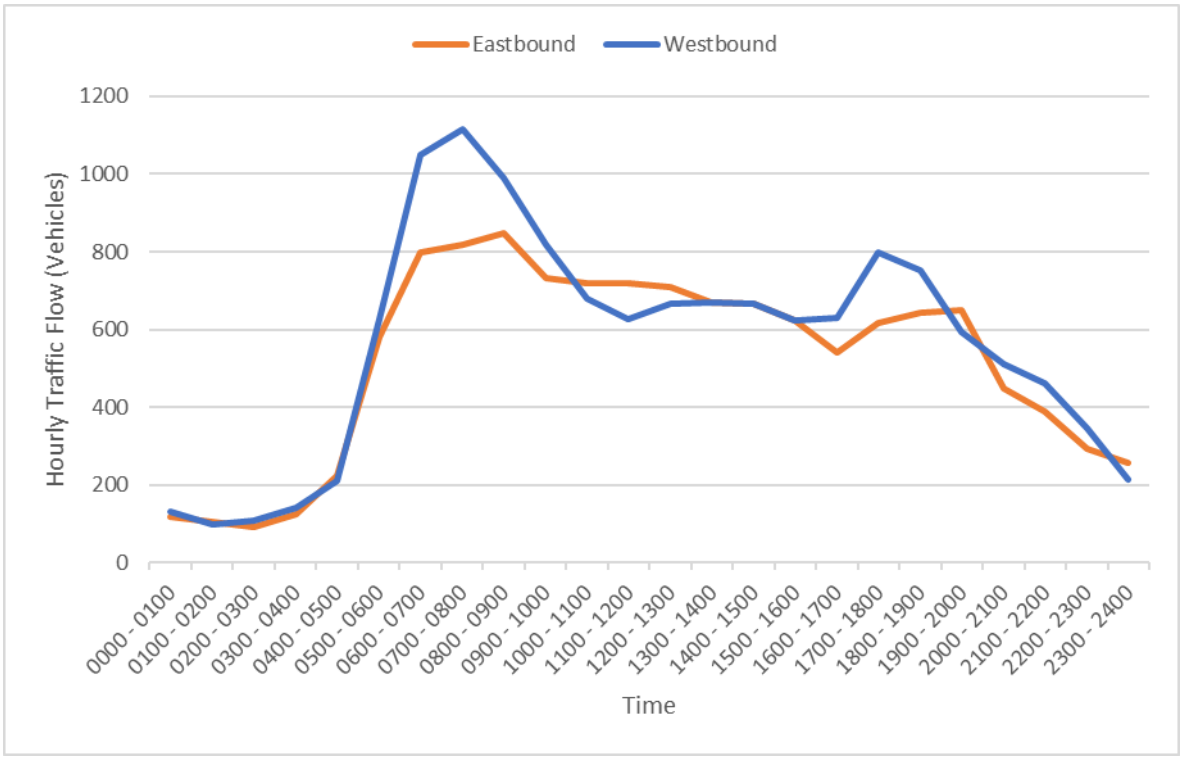

Figure 1 A206 Bob Dunn Way Average Daily Traffic Profile

2.9. The profile indicates a lower peak for eastbound traffic volumes along this section of Bob Dunn Way during the evening peak compared to the morning peak. Traffic volumes are, however, reasonably constant from about 05:30 until about 20:00.

2.10. The Design Manual for Roads and Bridges (DMRB) Volume 5 Section 1 Part 3 TA 79/99 Amendment No 1 – Determination of Urban Road Capacity, Table 1 'Types of Urban Roads and the features that distinguish them', provides guidance as to the classification of route for Bob Dunn Way. Table 2 'Capacities of Urban Roads one-way hourly flows in each direction' provides a guide to the volume of traffic each type of route might be expected to carry.

2.11. Bob Dunn Way is a dual carriageway with two lanes in either direction. In accordance with the DMRB tables, Bob Dunn Way would be classified as an Urban All-purpose class 2 (UAP2) route and should be able to carry in the region of 3,200 vehicles per hour in either direction. Each lane would have a capacity of 1,600 vehicles per hour.

2.12. However, it is acknowledged that the link capacity along this corridor could be slightly lower due to a moderately high proportion of heavy goods vehicles (HGV) - typically higher than 15%.

2.13. The maximum eastbound traffic flow on Bob Dunn Way occurs in the morning peak period at approximately 850 vehicles per hour, across both lanes of the eastbound carriageway. This volume of traffic lies comfortably within the theoretical capacity of one lane (i.e. the effect of a lane closure during construction of the Electrical Connection). The network around the Littlebrook interchange is heavily influenced by the operation of A282 junction 1a. Congestion is observed to occur on Bob Dunn Way when the Dartford crossing is congested, typically during the evening peak period.

2.14. It is concluded that constructing the Electrical Connection along the eastbound carriageway of Bob Dunn Way to the east of Joyce Green Lane, using a lane closure, could adversely affect the operation of the approaches to the Littlebrook interchange and A282 junction 1a. This would be due, primarily, to the operation of the junction and adjoining interchange rather than link capacity. That strategy, therefore, would have a greater adverse effect on the operation of the Strategic Road Network in that area, particularly during the afternoon peaks but also in the morning, when compared to the impact of constructing the Electrical Connection along the dedicated busway – discussed below.

2.15. In the westbound direction, the morning peak hour traffic flow of 1,114 vehicles, spread across both lanes of the westbound carriageway, is greater than the evening traffic flow. That volume of traffic is suitable for the UAP2 classification; however, queues are observed to occur at the Thames Road / Burnham Road roundabout during the morning peak and at times during the evening peak. These queues do not directly influence traffic flow on the eastbound carriageway.

2.16. Constructing the Electrical Cable along the westbound carriageway, and in turn closing a lane for those works, would affect the network capacity on approach to the Burnham Road roundabout, increasing the length and duration of traffic queues. The increased queueing could potentially affect the operation of the Littlebrook interchange.

3. The Fastrack Route

3.1. It is acknowledged that Fastrack is a high standard service with a strong emphasis on performance and reliability, seeking to run to scheduled times.

3.2. The preferred route of the Electrical Connection interfaces with Fastrack Route A along the dedicated bus-only corridor from Binnie Road to Rennie Drive/Littlebrook Manorway. Fastrack Route A does not interface with A206 Bob Dunn Way. The section of Route A, together with an indicative route for the Electrical Connection is shown on Figure 2 below.

3.3. There is a total of six pairs of bus stops along the route, comprising six in the eastbound and six in the westbound direction. The bus stops are referenced as A – F in Figure 2 and include the bus stops in both the eastbound and westbound direction.

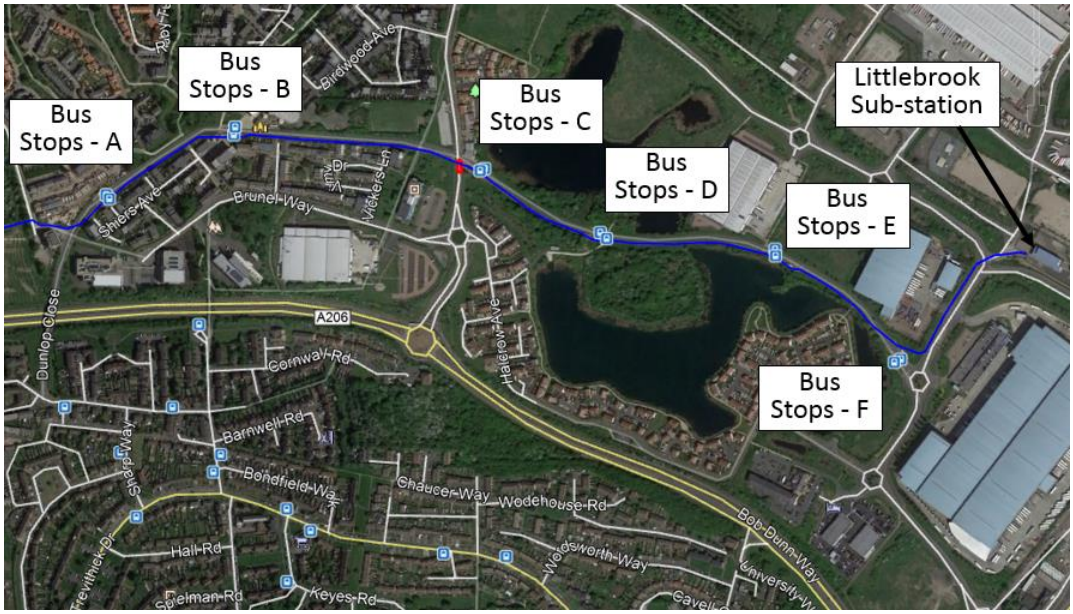

Figure 2 Preferred Electrical Connection Route along the dedicated busway

3.4. Fastrack Route A along the route of the dedicated busway and Rennie Drive/Littlebrook Manorway can be considered in three sections:

1. Binnie Road to Marsh Street North (total length 670m)
    - Bus Stops A and B – Two westbound and two eastbound bus stops
2. Marsh Street North to Rennie Drive/Littlebrook Manorway (total length 810m)
    - Bus Stops C, D, E and F – Four westbound and four eastbound bus stops
3. Rennie Drive/Littlebrook Manorway from the busway to Littlebrook Sub-station (total length 230m)
    - No Bus Stops

3.5. From timetable information Issue 13 "*Fastrack A – From 7th April 2019*" published by the bus operator, Arriva, Route A runs at a 10 minute headway in each direction during the day (with the exception of Sundays when the headway is 20 minutes). Since April 2019 the westbound headway during the weekday morning peak has reduced to 8 minutes between 07:00 and 08:15. Outside the core day time (circa 07:00-19:00) the headway is approximately 20 minutes. The timetable for Route A is scheduled such that eastbound and westbound services cross at the junction of the busway and Marsh Street North.

3.6. DBC and KCC have stated that the headway during the daytime, excluding peak period headway, is likely to reduce to 9 minutes shortly, although the date is not yet confirmed.

3.7. A diagrammatic representation (see Figure 3 below) of the interaction between eastbound and westbound services has been prepared to understand how those services interact along the interface zone with the construction of the Electrical Connection. This shows that the westbound and eastbound buses enter either end of this section of corridor at approximately the same time and are scheduled to meet only in one location through that part of the corridor – i.e. the Marsh Street North junction. At all bus stop locations, the timetabled information shows that the services are spaced a few minutes apart.

3.8. Each bus takes approximately 5-6 minutes to travel between Binnie Road and Rennie Drive/Littlebrook Manorway and is scheduled to leave that section of route before the next bus arrives into the system i.e. there is only one bus in each direction in the section at any one time.

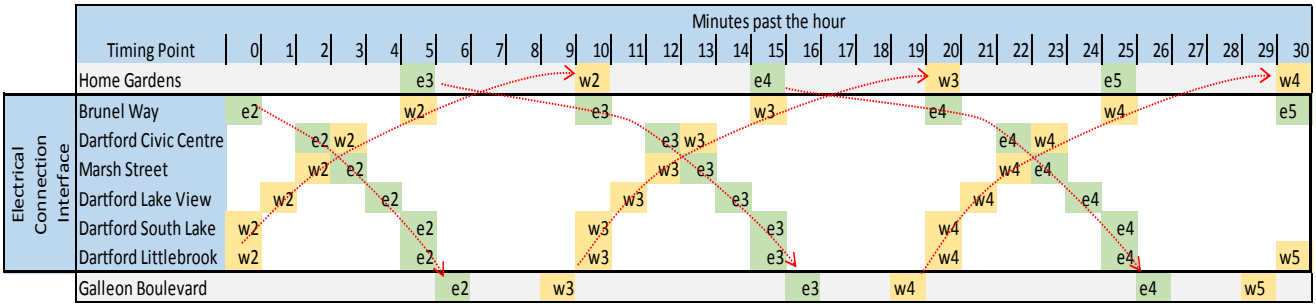

Figure 3: Diagrammatic Representation of Scheduled Interface Between Services Between Brunel Way and Littlebrook

4. Bus Interface with Construction Working Areas

4.1. The point at which westbound and eastbound buses pass each other is of particular importance as that will be the point where the greatest delay to services could be experienced. As described at Section 5, below, the construction works will reduce the busway to single alternate-way working.

4.2. The above scheduling representation indicates that buses on the eastbound and westbound services are scheduled to pass each other between the Dartford Civic Centre and the Marsh Street North bus stops, in the vicinity of the Marsh Street North junction with the busway.

4.3. With the exception of the area around the Marsh Street North junction, there is a low probability of buses on Fastrack Route A passing each other at the construction works for the Electrical Connection, due to the frequency of buses passing along the busway between Binnie Road and Rennie Drive/Littlebrook Manorway. The likelihood of a bus passing another in the opposite direction decreases the further away the construction works are from that junction.

4.4. It takes each bus approximately 5 to 6 minutes to pass along this section of the corridor. Even with the more frequent westbound morning peak 8 minute headway, it is not expected that more than two buses (one in either direction) would be within the section of the route which interfaces with the Electrical Connection construction works.

4.5. As described in **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040)**, it is proposed that construction of the Electrical Connection would require single lane closures over a typical length of 200m (300m when including entry and exit temporary traffic management measures) – taking approximately 7 days to complete. That lane closure would reduce the running carriageway of the busway to alternate way working for buses. That operation would be managed using temporary traffic signals, as discussed at Section 5 below.

4.6. The preferred Electrical Connection contractor, UKPN, has advised that the efficient method of construction is to use this length of works such that it allows: ducts to be laid; reinstatement of the trench; and then drawing the electrical cabling through that ducting, before moving the working area on to the next section.

4.7. The agreed temporary traffic management and the associated length of each section of cable work would be set out within a finalised CTMP and agreed with DBC (as Local Planning Authority), in consultation with KCC and secured through Requirement 13 of the **Draft DCO (3.1, APP-014)**. The CTMP will detail the process of traffic management and is anticipated to include the use of portable temporary traffic signals. This would facilitate a safe working environment and ensure vehicles, including construction vehicles, do not conflict in the section of lane closure.

4.8. Chapter 8 ‘Road Works and Temporary Situations (2009)’ of the DfT’s Traffic Signs Manual recommends that portable traffic signals should be used for controlled areas over 80m in length up to a length of 300m.

4.9. **Part 3 Articles 10 to 16** of the **Draft DCO (3.1, APP-014)** provide the street work consents that the Electrical Connection contractor would require for access to the prohibited section of the dedicated bus corridor during the construction works and to ensure future access for maintenance. The sections of the busway corridor are as listed within **Schedule 3** of the **Draft DCO (3.1, APP-014)**.

4.10. The Fastrack Route A scheduling shows that there is a low probability that buses will pass at the Electrical Connection construction works, except in the vicinity of the Marsh Street North junction. The reasonable worst case scenario could be that a bus arrives at the controlled area around the construction works in one direction at the same time as a bus in the opposite direction. The impact would then be the time that it takes the first bus to clear the traffic managed area around the construction works. An estimate of the timing at the construction work is given at Section 6, below. There would be no queuing or bunching of buses.

5. Traffic Management Measures

5.1. It is assumed that, based on **paragraph 3.5.25** of **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040),** a 3m wide working zone would be required for the installation of the Electrical Connection.

5.2. The corridor along the busway is typically approximately 3.3m wide with a 1.8m landscaped area between the footway/cycleway and carriageway. The carriageway is approximately 6.7m wide, as shown in Figure 4, below.

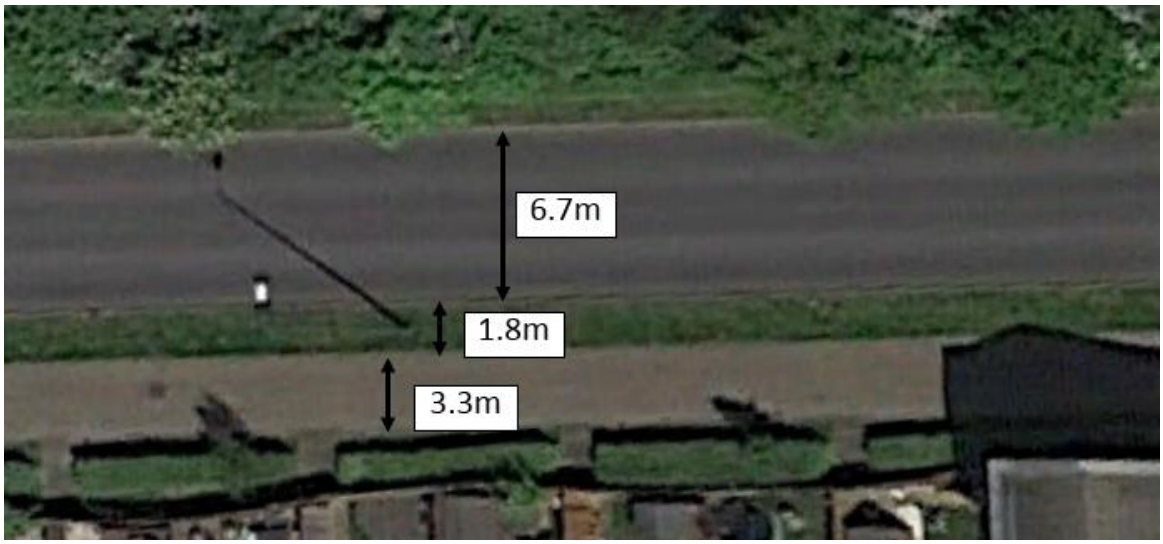

Figure 4: Typical Corridor Widths

5.3. If the contractor determines to construct the Electrical Connection within the footway/cycle way corridor, in order to provide a 3m working area, there would still be a requirement to close one carriageway lane. This would provide pedestrians and cyclists an alternative route around the working zone and to provide a safe working area for the construction workforce and the necessary plant, equipment and material.

5.4. The side of the carriageway open to buses would be controlled by portable temporary traffic signals. These can be set to vehicle actuation, where the system rests at 'red' in both directions and is then triggered by an approaching vehicle. An alternative to be explored is to give priority to the open lane on a default 'green' light in that direction, with the closed lane direction controlled by vehicle actuation, triggering 'green' by buses when they arrive at the working zone.

5.5. Secondary access points to properties adjoining the busway could be closed when the construction working area passes, to reduce potential risk to residents. As stated at **Paragraph 3.5.31** of **Chapter 3 Project and Site Description** of the ES **(6.1, APP-040)**, it is anticipated that each section of works would be in place for approximately 7 days, before they are moved along the Electrical Connection corridor.

5.6. The construction works would be planned to minimise instances where access would be required across, or diverted around, the working zone for pedestrians and cyclists to access the bus stops from the adjacent roads.

5.7. At bus stops, due to a footway being provided on either side of the shelter, pedestrians and cyclists could be accommodated without being diverted into the carriageway. This could avoid the need to relocate the bus stop. In order to ensure this is safe for pedestrians, cyclists would be required to dismount through this section.

5.8. By maintaining a footway past the Electrical Connection construction working area, the impact on severance and delays to pedestrians and bus passengers should be **Negligible**. Temporary ramps will be installed to allow those with disabilities to negotiate the change in level through the roadworks. Where feasible, sufficient width and facilities will be provided to retain a through route for cyclists. Where this is not possible, cyclists will be required to dismount as they pass the working area.

5.9. Traffic management at the junction of the busway with Marsh Street North would be required in order to construct the Electrical Connection across Marsh Street North. The contractor will set out in the CTMP the method for crossing the junction. This could be undertaken in two phases with the closure of the northbound lane in phase 1 and closure of the southbound traffic lane in phase 2. Marsh Street North would then be controlled by temporary traffic signals to allow for a single lane to be operational.

5.10. Temporary crossing facilities would be included within the traffic signals.

5.11. If the Electrical Connection were constructed within the carriageway, it could be possible to retain the current route of the footway/cycleway past the construction working area, subject to detailed design of the Electrical Connection.

5.12. Along the section of general traffic route on Rennie Drive/Littlebrook Manorway between the two sections of dedicated bus route, the contractor will determine whether the Electrical Connection is constructed within the footway/cycleway or within the carriageway.

5.13. The footway/cycleway along the western side of Rennie Drive/Littlebrook Manorway, could be wide enough to accommodate both a 3m working zone and retain a minimum 1.5m footway.

5.14. There would be a requirement to cross over two junctions along Rennie Drive/Littlebrook Manorway before reaching Littlebrook Sub-station. This could be accommodated in two phases by closure of one side of the carriageway in each phase and providing temporary traffic signals to control vehicular movements.

6. Portable Traffic Signal Controls

6.1. The code of practice for the use of portable traffic signals is set out in 'An Introduction to the Use of Portable Vehicular Signals' (the Pink Book) updated 24 March 2016, published alongside Chapter 8 'Road Works and Temporary Situations' of the DfT Traffic Signs Manual.

6.2. The Pink Book sets out the suggested timings for the traffic signals at page 9 'Adjusting the red timers' and page 10 'Adjusting the Maximum Green settings'. The tables below are extracts from the Pink Book.

Distance (metres)	0	50	100	150	200	250	300
All-Red time (seconds)	5	10	15	20	25	30	

Figure 5: Portable Traffic Signals – Suggested Red Time
[Source: An Introduction to the Use of Portable Vehicular Signals]

Distance (metres)	30	75	135	195	300
Green time (seconds)	35	40	45	50	

Figure 6: Portable Traffic Signals – Suggested Green Time
[Source: An Introduction to the Use of Portable Vehicular Signals]

6.3. The Pink Book guidance indicates that for a length of controlled working area of 250-300m, 'all red' time (to allow vehicles to clear the controlled area) should be 30 seconds and 'green time' should be 50 seconds. The elapsed time between consecutive green times would be in the order of 126 seconds (allowing 3 seconds for amber and 5 seconds for red/amber times). Reducing the length of the controlled area would reduce the elapsed cycle time to around 116 seconds and 86 seconds for 200m and 100m lengths, respectively. The assumptions for these timings are set out at Table 1 below.

Control Length	Sequence							Elapsed time
	Bus1 arrives (eastbound)	Buses 1&2 wait (eastbound + westbound)	Bus 2 prepares (westbound)	Bus 2 travels (westbound)	Westbound prepares to stop (perhaps bus 3)	Bus 1 (+3?) waits (eastbound + westbound)	Bus 1 prepares (eastbound)	
100m	3	(10) 15	5	40	3	(10) 15	5	(76) 86
200m	3	(20) 25	5	(45) 50	3	(20) 25	5	(106) 116
300m	3	30	5	50	3	30	5	126

Table 1: Portable Traffic Signals – Elapsed Cycle Time

6.4. The elapsed timings indicate that, under pre-set signal timings the longest delay a bus could experience at the controlled area would be in the order of 126 seconds. That would be on the basis that the vehicle arrives at the signals at the end of the 'green time' for that direction. It is assumed that there would be no other vehicles at the signals, due to the scheduled headway. The quantum of flow on the corridor is such that each vehicle would pass through the controlled area at the next available green time.

6.5. The above longest elapsed time scenario should not occur due to the scheduled headway between vehicles in the same direction (i.e. there should only be one bus in each direction every 8-10 minutes). When the working area is close to the scheduled cross-over between the eastbound and westbound services (around to Marsh Street North junction), a bus in one direction could be held at the traffic signals whilst the bus in the opposite direction clears the controlled area of the temporary traffic signals.

6.6. The Electrical Connection contractor will set out in the CTMP the method of timing management which will consider the use of Vehicle Actuation and green phase default settings, which would reduce the likelihood of delays to buses.

6.7. It will be agreed with DBC as Local Planning Authority, in consultation with KCC, whether it is appropriate to include temporary controlled crossings for pedestrians and cycles, where pedestrian and cycle routes cross through the controlled area.

6.8. Where feasible the construction works will be configured to leave permanent bus stops operational in their permanent locations. Where necessary temporary facilities will be provided.

6.9. Where the Electrical Connection construction works zone interfaces with other vehicle junctions (at Marsh Street North and Rennie Drive/Littlebrook Manorway) a system of portable traffic signals will be established to control the interface between Fastrack services, general traffic and the contractor's activities.

7. Conclusion

7.1. The interface of the Fastrack Route A services with the preferred corridor of the Electrical Connection have been set out above. These indicate that it is unlikely that services would meet at the location of the construction works along the dedicated busway, due to current headways and scheduling. Buses in opposing directions are, therefore, unlikely to meet at the temporarily narrowed section of busway, with the exception of the timetabled cross-over in the area of the Marsh Street North junction. Delays and disruption to services would be minimal, with good management of the temporary traffic management at the construction works.

7.2. The advised decrease to a 9 minute headway would not increase the frequency of buses such that they would meet more frequently within the section of bus corridor between Binnie Road and Rennie Drive/Littlebrook Manorway.

7.3. In order to minimise the impacts on the bus service and manage the interface with Fastrack, the following measures are proposed:

i. The construction working areas would be managed using appropriate temporary traffic management measures to minimise impacts: on through buses; at bus boarding and alighting points; and to facilitate pedestrian and cycle access around the works.

ii. At intersections with general traffic routes (i.e. Marsh Street North and Rennie Drive/Littlebrook Manorway), the construction works would be phased and managed using temporary traffic management measures, including portable traffic signals, such that the safety of the construction area is maintained with delays to bus services minimised.

7.4. The method of management of the construction of the Electrical Connection would be set out in an appropriate, agreed CTMP which is secured through Requirement 13 of the **Draft DCO (3.1, APP-014)** and would be reflected in the Statements of Common Ground with KCC and DBC. The construction process would be set out in the agreed CoCP, secured through **Requirement 11** of the **Draft DCO (3.1, APP-014)** and would be in substantial accordance with the **Outline Code of Construction Practice (7.5, APP-106).** The **Outline CTMP at Appendix L** of **Appendix B.1, the TA to the ES (6.3, APP-066**) would be amended to extend the description for the principles of the temporary traffic management at the construction areas for the Electrical Connection and the following text would be added as paragraphs 7.2.3 and 7.2.4:

7.2.3 "*It is recognised that Fastrack is an award-winning bus rapid transit system operating in Dartford Borough and Kent County. The preferred route of works to construct the Electrical Connection follows, in part, Route A of Fastrack and will therefore interact with services during construction.*

7.2.4 *Whilst the general measures in this Outline CTMP will be employed to mitigate effects along all routes, particular consideration will be given to the specific opportunities presented along the lightly trafficked dedicated busway and at the interface with the general traffic routes of Marsh Street North and Rennie Drive/Littlebrook Manorway. This includes, but is not limited to:*

- *Exploring the optimum working arrangement in respect of temporary traffic management such as traffic signal controlled versus priority traffic management for lane management and closures; and*

- *Exploring the practicable optimum phasing, extent and timing of works, in discussion with DBC and KCC, to seek a 'minimised' overall effect on Fastrack services, particularly at the timetabled location of service crossover in the vicinity of Marsh Street North."*

7.5. KCC has expressed in its RR that "*if the electrical connection has to be made along one of the two proposed routes* [between Joyce Green Lane and Rennie Drive/Littlebrook Manorway]*, it would be preferable for the electrical connection to be constructed along the line of the Fastrack dedicated busway, to reduce the impact on the local highway network"*.

7.6. This note demonstrates that the interface between the bus service of Fastrack Route A and the construction of the Electrical Connection should cause a **Negligible** impact to the operation of the service nor give rise to prolonged or excessive severance to passenger access to the services. These effects are considered **Not Significant**.

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DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
42166/5501/TN012	-	02/05/2019	PW / APN	APN	APN / Client	DS

Peter Brett Associates LLP 33 Bowling Green Lane London EC1R 0BJ
T: +44 (0)20 3824 6600 E: london@peterbrett.com

Appendix B

Heavy commercial vehicle movements delivering waste

1.—(1) Subject to sub-paragraphs (2), (3) and (4), the number of two-way vehicle movements (one vehicle in and one vehicle out) made by heavy commercial vehicles delivering waste to work number 1A during the operational period must not exceed a maximum of 90 per day (90 vehicles in and 90 vehicles out).

(1) Where the daily number of two-way vehicle movements made by heavy commercial vehicles delivering waste to the Riverside Resource Recovery Facility is below the maximum number permitted by condition 28 of planning permission reference 16/02167/FUL (or as permitted under any other planning permission for the Riverside Resource Recovery Facility) so that there is an unused number of two-way heavy commercial vehicles permitted to deliver waste to the Riverside Resource Recovery Facility ("the surplus"), the undertaker may utilise all or part of the surplus for the purposes of work number 1A in addition to the maximum number permitted by sub-paragraph (1).

(2) In the event of a jetty outage, the number of two–way vehicle movements (one vehicle in and one vehicle out) made by heavy commercial vehicles delivering waste to work number 1A during the operational period must not exceed a maximum of 300 per day (300 vehicles in and 300 vehicles out) and must not exceed:

(a) between the hours of 0730–0900, a maximum of 30 (30 vehicles in and 30 vehicles out); and

(b) between the hours of 1630–1800, a maximum of 30 (30 vehicles in and 30 vehicles out).

(3) In the event of a jetty outage affecting both the Riverside Resource Recovery Facility and work number 1A, where the daily number of two-way vehicle movements made by heavy commercial vehicles delivering waste to the Riverside Resource Recovery Facility is below the maximum number permitted by condition 27 of planning permission reference 16/02167/FUL (or as permitted under any other planning permission for the Riverside Resource Recovery Facility) so that there is an unused number of two-way heavy commercial vehicles permitted to deliver waste to the Riverside Resource Recovery Facility ("the jetty outage surplus"), the undertaker may utilise all or part of the jetty outage surplus for the purposes of work number 1A in addition to the maximum number permitted by sub-paragraph (3).

(4) Save where there is a jetty outage, incinerator bottom ash must only be removed via river.

(5) On the first anniversary of the date of final commissioning and annually thereafter, the undertaker must provide the relevant planning authority with a record of the following for the preceding period:

(a) confirmation whether or not a jetty outage occurred during the period;

(b) the number of two–way vehicle movements (one vehicle in and one vehicle out) made by heavy commercial vehicles delivering waste to work number 1A in that period, such number to be split out clearly so that the number of movements during any jetty outage can be ascertained; and

(c) confirmation as to whether there any surplus and/or jetty outage surplus was utilised by the undertaker in that period and, if so, evidence of that surplus and jetty outage surplus (as applicable) being available for use by the undertaker.

(6) In this article—

(a) "heavy commercial vehicle" has the meaning given by section 138 of the Road Traffic Regulation Act 1984;

(b) "jetty outage" means circumstances caused by factors beyond the undertaker's control in which waste has not or could not be received at the jetty or ash containers have not been or could not be despatched from the jetty; and

(c) "operational period" means the period starting with the date on which the commissioning of numbered work 1 is completed and notified as such by the undertaker to the relevant planning authority pursuant to requirement 19 of Schedule 2 of this Order.