



## Schedule 2.1 – Services Description

## CHANGE HISTORY

Version	Description	Author	Document Number
5.0	Execution version	TfL	75250921.19

## **Contents**

<b>Part A – General Requirements and Specific Requirements</b>	<b>4</b>
1 <b>General Requirements</b>	<b>4</b>
2 <b>Specific Requirements – Commercial Mobile Services</b>	<b>14</b>
3 <b>Specific Requirements – Fibre Services</b>	<b>18</b>
4 <b>Specific Requirements – Streetscape Services</b>	<b>19</b>
5 <b>Specific Requirements – Public Wi-Fi Services</b>	<b>20</b>
6 <b>Specific Requirements – Works Funded By Grants Services</b>	<b>22</b>
<b>Part B – Specific Requirements - ESN Implementation Services</b>	<b>24</b>
1 <b>Specific Requirements - ESN Implementation Services</b>	<b>24</b>
<b>Annex 1 – Commercial Mobile Services Coverage</b>	<b>30</b>
<b>Annex 2 – Public Wi-Fi Services Coverage</b>	<b>43</b>
<b>Annex 3 – Additional Coverage Locations for ESN</b>	<b>52</b>
<b>Annex 4 – Existing Agreements</b>	<b>55</b>
<b>Annex 5 – TTL Infrastructure Re-Charges and Availability</b>	<b>58</b>

## Part A – General Requirements and Specific Requirements

### 1 General Requirements

#### 1.1 Commercial

No.	Topic	Requirement
<b>GRC1</b>	<b>Overall Opportunity</b>	
GRC1(a)	Overall Opportunity	<p>No later than twenty (20) Working Days prior to 1 September each year, the Concessionaire shall provide an annual report, to TTL (the "<b>Annual Report (ANR1)</b>"), which shall be consistent with the format of the Business Plan and shall include:</p> <ul style="list-style-type: none"> <li>(a) a narrative section (which shall be consistent with the Business Plan Narrative) detailing: <ul style="list-style-type: none"> <li>(i) the business strategy which shall detail the Concessionaire's vision for the concession and demonstrate how the Concessionaire will generate growth and value over the Term including a Customer Product roadmap;</li> <li>(ii) the market analysis which shall include the current market, market trends and the opportunities these will create, supported by evidence and research;</li> <li>(iii) an analysis of the competitive landscape including competitive opportunities and threats and how the Concessionaire will create a competitive advantage in the market;</li> <li>(iv) a description of the value proposition and an explanation of how the Concessionaire intends to maximise Customer lifetime value throughout the Term;</li> <li>(v) any synergies between the Service Lines that the Concessionaire believes are achievable from both a revenue and cost perspective and how those benefits will be realised; and</li> <li>(vi) a summary of the Concessionaire's performance for each Service Line, during the previous twelve (12) months (or in the case of the first year, the Effective Date to the first 30 June following the Effective Date), including explanations for any variance between forecast and actual</li> </ul> </li> </ul>

		<p>Capital Investment and Gross Revenue; and</p> <p>(b) a financial summary (which shall be consistent with the Business Plan Financial Summary) including:</p> <p>(i) actuals, which must be updated for any historical adjustments identified as a result of any audit undertaken in accordance with Schedule 7.5 (Financial Transparency and Audit Rights), to the Quarter ending 30 June; and</p> <p>(ii) forecasts for each remaining Quarter during the Term.</p>
GRC1(b)	Overall Opportunity	<p>The Concessionaire shall ensure that any projections in the Annual Report (ANR1) are consistent with:</p> <p>(a) Schedule 4.1 (Concessionaire Solution); and</p> <p>(b) the Milestones and Key Milestones,</p> <p>in order to provide the Services and create the Customer Products which it will market and sell to generate the Gross Revenue.</p>
GRC2	Organisation	<p>The Concessionaire shall establish and maintain, either directly or by using third parties, the capabilities required to deliver the Services, including to:</p> <p>(a) deliver the Customer Products;</p> <p>(b) achieve the Gross Revenue forecasts stated in the Business Plan; and</p> <p>(c) actively develop and appraise future opportunities related to the Services and the Customer Products (including revenue generating opportunities).</p>
GRC3	Business Processes	<p>The Concessionaire shall establish and then on an ongoing basis seek to improve the business processes that enable the commercial activities that deliver the Gross Revenues stated in the Business Plan.</p>
<b>GRC4</b>	<b>Risk Management</b>	
GRC4(a)	Risk Management	<p>The Concessionaire shall, from the Effective Date, develop and maintain on an ongoing basis a strategic risk and issues register (the "<b>Strategic Risk and Issues Register</b>") which shall:</p> <p>(a) identify strategic risks;</p> <p>(b) analyse the likelihood and impact of the identified risks;</p>

		<p>(c) set out dependencies and mitigations; and</p> <p>(d) determine who is best placed to manage the risks and mitigations and ensure that mitigation actions are delivered.</p>
GRC4(b)	Risk Management	No later than the tenth (10th) Working Day of each month, the Concessionaire shall provide to TTL a report on the strategic risks, issues and action log (the " <b>Strategic Risks and Issues Report (SRI1)</b> ") which shall identify the highest priority risk and issues with mitigation plans for risks and a resolution plan for issues.
GRC4(c)	Risk Management	<p>The Concessionaire shall establish and operate a risk management capability to effectively manage the risks identified in the Strategic Risk and Issues Register in order to reduce:</p> <p>(a) the likelihood of risks becoming issues; and</p> <p>(b) the impact of such issues on the Services, safety and TTL's or any member of the TfL Group's reputation.</p>

## 1.2 Technical

No.	Topic	Requirement
<b>GRT1</b>	<b>Technical processes</b>	
GRT1(a)	Technical processes	The Concessionaire shall use standard processes and technology to manage the delivery of the Customer Products, including for implementation, product lifecycle management, asset management and service management.
GRT1(b)	Technical processes	Where the Concessionaire has not achieved ISO 20001 accreditation prior to the Effective Date, the Concessionaire shall produce and deliver to TTL within sixty (60) Working Days of the Effective Date, a plan for achieving such accreditation within five (5) years from the Effective Date.
GRT1(c)	Technical processes	Where applicable, the Concessionaire shall comply with the plan produced in accordance with requirement GRT1(b) and any approach to gaining accreditation described in Schedule 4.1 (Concessionaire Solution).
<b>GRT2</b>	<b>Requirements and design</b>	
GRT2(a)	Requirements and design	The Concessionaire shall use a standard product lifecycle management processes to manage Customer Products and use it to identify, develop and deliver new Customer Products.
GRT2(b)	Requirements and design	The Concessionaire shall define the specifications for:

No.	Topic	Requirement
		<p>(a) the Customer Products identified in Schedule 4.5 (Business Plan); and</p> <p>(b) any new Customer Products it identifies during the Term.</p>
GRT2(c)	Requirements and design	The Concessionaire shall ensure that the Customer Product specifications and the Designs shall include specific maintenance provisions, minimising the need for physical access to the Telecommunications Infrastructure.
GRT2(d)	Requirements and design	The Concessionaire shall ensure the Designs for each of the Service Lines meet the Customer Product specifications.
GRT2(e)	Requirements and design	The Concessionaire shall ensure the Designs are prepared to a level suitable to gain Approval or Assurance (as applicable).
GRT2(f)	Requirements and design	The Concessionaire shall ensure that all Designs are updated throughout the Term to reflect changes to the Telecommunications Infrastructure and As-Built Records within thirty (30) Working Days of such changes or later if agreed in advance at TTL's discretion.
GRT2(g)	Requirements and design	When notified by TTL of a station upgrade or modification to TTL Assets which requires the Concessionaire to carry out works, the Concessionaire shall deliver the scope of works within the timescales and at the fixed price agreed between the Parties in accordance with Paragraph 5 of Part B of Schedule 7.1 (Fees and Charges).
<b>GRT3</b>	<b>Planning, build and test</b>	
GRT3(a)	Planning, build and test	The Concessionaire shall procure and install the Telecommunications Infrastructure (but excluding any TTL Infrastructure already installed) to meet the specifications set out in the Designs by the Milestone Dates in respect of the Key Milestones.
GRT3(b)	Planning, build and test	<p>The Concessionaire shall use a defined project management method that is stage-gate based (such as TTL's Pathway process) and which shall be used to deliver:</p> <p>(a) the Telecommunications Infrastructure from the production of the:</p> <p style="padding-left: 40px;">(i) High Level Designs; and</p> <p style="padding-left: 40px;">(ii) Low Level Designs;</p> <p>(b) the physical installation of any Telecommunications Infrastructure; and</p> <p>(c) the verification and validation of the Telecommunications Infrastructure.</p>

No.	Topic	Requirement
GRT3(c)	Planning, build and test	The Concessionaire shall establish, within twenty (20) Working Days of the Effective Date, and then operate processes to manage project risks, assumptions, issues and dependencies as part of its project management methodology.
GRT3(d)	Planning, build and test	The Concessionaire shall define project governance processes within twenty (20) Working Days of the Effective Date, including monitoring and reporting processes to ensure that the Services are delivered on time and to scope.
GRT3(e)	Planning, build and test	No later than the tenth (10th) Working Day of each month, the Concessionaire shall provide to TTL: <ul style="list-style-type: none"> <li>(a) the Implementation Monitoring Report (IMP1); and</li> <li>(b) the Implementation Forecast Report (IMP2),</li> </ul> as specified in Table 1 of Annex 2 (Reports) of Schedule 8.1 (Governance).
GRT3(f)	Planning, build and test	The Concessionaire shall use an appropriate verification and validation method to ensure that the Telecommunications Infrastructure is delivered in accordance with the Designs.
GRT3(g)	Planning, build and test	The Concessionaire shall ensure that Customer Products are delivered ready for service in accordance with the specifications the Concessionaire identifies.
GRT3(h)	Planning, build and test	The Concessionaire shall ensure that the Customer Products will be developed using industry standard requirement tracking methods.
GRT3(i)	Planning, build and test	Within thirty (30) Working Days of the Effective Date, the Concessionaire shall produce and provide to TTL for Approval, a specific works instructions document (" <b>Works Instructions Document</b> ") based on WI200.
GRT3(j)	Planning, build and test	If requested by TTL during the Term, the Concessionaire shall: <ul style="list-style-type: none"> <li>(a) consult with TTL to produce a separate Works Instructions Document based on WI200 for a certain scope of work; and</li> <li>(b) provide the separate Works Instructions Document to TTL for Approval as part of the design and build process for that certain scope of work.</li> </ul>
<b>GRT4</b>	<b>Operate</b>	
GRT4(a)	Operate	Within sixty (60) Working Days of the Effective Date, the Concessionaire shall provide a service management capability based on ITIL v3.0 or ISO 20001 or equivalent to deliver the Customer Products, including capabilities for the following areas: <ul style="list-style-type: none"> <li>(a) service strategy;</li> <li>(b) service design;</li> </ul>



No.	Topic	Requirement
		<ul style="list-style-type: none"> <li>(c) service transition;</li> <li>(d) service operation;</li> <li>(e) continuous service improvement (as defined by ITIL v3.0);</li> <li>(f) service measurement; and</li> <li>(g) service reporting.</li> </ul>
GRT4(b)	Operate	The Concessionaire shall ensure that all Telecommunications Infrastructure is installed and operated in compliance with all relevant legislation.
GRT4(c)	Operate	The Concessionaire shall be responsible for obtaining all planning permission necessary for the purposes of fulfilling its obligations under the Agreement.
GRT4(d)	Operate	The Concessionaire shall create and use all systems necessary to operate the Services, including the relevant business support systems (BSS) and operations support systems (OSS).
GRT4(e)	Operate	The Concessionaire shall ensure that where the Concessionaire needs to undertake work on the London Underground for the purposes of this Agreement, it only undertakes such work during Engineering Hours, unless otherwise agreed in advance with TTL.
GRT4(f)	Operate	The Concessionaire shall design and operate the Services so as to minimise the need to install Third Party Infrastructure on TTL Assets (except in respect of Streetscape Assets).
GRT4(g)	Operate	In addition to obtaining Low Level Design Approval or Assurance (as applicable), the Concessionaire shall ensure that it does not install any Third Party Infrastructure on TTL Assets (except in respect of Streetscape Assets) without the prior written approval of TTL.
GRT4(h)	Operate	<p>Within one hundred and twenty (120) Working Days of the Effective Date, the Concessionaire shall establish and maintain an accurate Configuration Management Database (CMDB) which shall:</p> <ul style="list-style-type: none"> <li>(a) contain the configuration of all Telecommunications Infrastructure including cross references to the relevant Customer Products; and</li> <li>(b) provide the Concessionaire with the ability to determine the impact of Operational Changes on the Telecommunications Infrastructure and Customer Products.</li> </ul>
GRT4(i)	Operate	The Concessionaire shall ensure that TTL, within one hundred and twenty (120) Working Days of the Effective Date, has online read-only access to the CMDB with availability levels no worse than those provided to Concessionaire Personnel.

<b>No.</b>	<b>Topic</b>	<b>Requirement</b>
GRT5	Innovate	Within two (2) years of the Effective Date, the Concessionaire shall establish and fund a research and development function to identify new technology developments, to contribute to the development of new Customer Products and to improve existing Customer Products.
<b>GRT6</b>	<b>Asset and Infrastructure Management</b>	
GRT6(a)	Asset and Infrastructure Management	The Concessionaire shall manage the Telecommunications Infrastructure according to a lifecycle process compliant with ISO 55001.
GRT6(b)	Asset and Infrastructure Management	Where the Concessionaire has not achieved ISO 55001 accreditation prior to the Effective Date, the Concessionaire shall produce and deliver to TTL within sixty (60) Working Days of the Effective Date, a plan for achieving such accreditation within five (5) years from the Effective Date.
GRT6(c)	Asset and Infrastructure Management	Throughout the Term, the Concessionaire shall prepare and maintain on an on-going basis an accurate set of As-Built Records in respect of each Service Line.
GRT6(d)	Asset and Infrastructure Management	In maintaining the As-Built Records, the Concessionaire shall ensure that any changes to the physical installation or configuration of the Telecommunications Infrastructure is accurately captured and reflected in the As-Built Records in accordance with the time period set out in requirement GRT6(i).
GRT6(e)	Asset and Infrastructure Management	Following any Change which changes the Telecommunications Infrastructure, the Concessionaire shall, as part of the change process: <ul style="list-style-type: none"> <li>(a) update the As-Built Records;</li> <li>(b) verify the accuracy and completeness of the As-Built Records;</li> <li>(c) provide to TTL evidence of such updates and verification as TTL should reasonably require; and</li> <li>(d) operate a system that links each version of the As-Built Records and cross references to any Change.</li> </ul>
GRT6(f)	Asset and Infrastructure Management	The Concessionaire shall ensure the As-Built Records are comprehensive and clearly reflect and trace all modifications to the Services.
GRT6(g)	Asset and Infrastructure Management	The Concessionaire shall ensure the As-Built Records shall include in respect of the Telecommunications Infrastructure: <ul style="list-style-type: none"> <li>(a) the relevant Designs;</li> <li>(b) all relevant configuration settings not included in the Designs;</li> </ul>

No.	Topic	Requirement
		<p>(c) for any configurable Telecommunications Infrastructure not described in the Designs, a document detailing the specific configuration settings that have been applied to the Telecommunications Infrastructure;</p> <p>(d) any software (including embedded software and firmware), including;</p> <p>(i) the major and minor version numbers;</p> <p>(ii) the patches applied;</p> <p>(iii) all configuration settings; and</p> <p>(iv) a record of passwords (held securely);</p> <p>(e) installation drawings; and</p> <p>(f) test results (including radio surveys where relevant).</p> <p>For the purposes of Paragraph (e), each installation drawing shall be of a size and format that allows the information to be presented clearly, be readily understood and is appropriate for the intended use.</p>
GRT6(h)	Asset and Infrastructure Management	Where applicable, on completion of the relevant Milestone or Key Milestone, the Concessionaire shall provide TTL with access (via the Document Management System) to the relevant As-Built Record specified in the relevant Milestone Criteria.
GRT6(i)	Asset and Infrastructure Management	The Concessionaire shall, unless otherwise agreed with TTL, ensure that the As-Built Records are updated within thirty (30) Working Days of the completion of the Testing of the Milestone Deliverables.
GRT6(j)	Asset and Infrastructure Management	<p>Within one hundred and twenty (120) Working Days of the Effective Date, the Concessionaire shall establish and maintain an accurate register (the "<b>Infrastructure Register</b>") which shall include the following information for all Telecommunications Infrastructure and Spares (as applicable):</p> <p>(a) a unique identifier;</p> <p>(b) a description which shall include the Telecommunications Infrastructure classification, type and duty;</p> <p>(c) a record of whether the Telecommunications Infrastructure is Active Infrastructure or Passive Infrastructure;</p> <p>(d) version control information;</p>

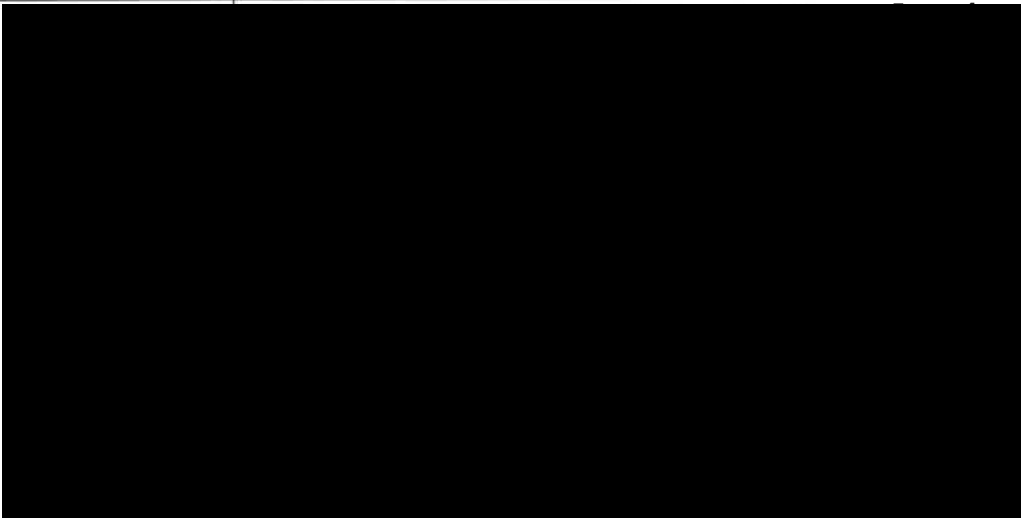
No.	Topic	Requirement
		<ul style="list-style-type: none"> <li>(e) manufacturer details (including manufacturer name and specification);</li> <li>(f) location details (to a level of detail sufficient to identify the location of the Telecommunications Infrastructure);</li> <li>(g) a field to identify whether the Telecommunication Infrastructure is installed on TTL Assets;</li> <li>(h) wayleave reference;</li> <li>(i) maintenance and warranty information;</li> <li>(j) reference to As-Built Records;</li> <li>(k) for Active Infrastructure: <ul style="list-style-type: none"> <li>(i) the period of time the Concessionaire has Standard Manufacturer's Support in place and/or how long Standard Manufacturer's Support will be available for; and</li> <li>(ii) evidence from the relevant manufacturer of such Standard Manufacturer's Support;</li> </ul> </li> <li>(l) identification of whether the Telecommunications Infrastructure is part of Service Critical Infrastructure;</li> <li>(m) the Service Lines for which the Telecommunications Infrastructure is used;</li> <li>(n) initial installation costs (to include Telecommunications Infrastructure purchase cost and installation costs);</li> <li>(o) the purchase date;</li> <li>(p) the age as at the purchase date;</li> <li>(q) the useful economic life applied for accounting purposes on the Concessionaire's audited balance sheet;</li> <li>(r) a field indicating whether the Telecommunications Infrastructure is a Spare;</li> <li>(s) the Elexon Charge Code;</li> <li>(t) a field indicating whether the Telecommunications Infrastructure is Re-Charged Infrastructure;</li> </ul>

No.	Topic	Requirement
		<p>(u) for Re-Charged Infrastructure:</p> <p>(i) the fee paid by the Concessionaire; and</p> <p>(ii) the date ownership transferred from TTL to the Concessionaire; and</p> <p>(v) identification of whether the Telecommunications Infrastructure is used only for the provision of ESN Coverage.</p>
GRT6(k)	Asset and Infrastructure Management	The Concessionaire shall, within one hundred and twenty (120) Working Days of the Effective Date, ensure that TTL has online read-only access to the Infrastructure Register with availability levels no worse than those provided to Concessionaire Personnel.
GRT6(l)	Asset and Infrastructure Management	The Concessionaire shall provide TTL with an electronic copy of the Infrastructure Register on the six (6) month anniversary of the Effective Date and every six (6) months thereafter throughout the Term in a file format agreed between the Parties, or in the absence of such agreement an electronic comma separated file with a row for each item of Telecommunications Infrastructure and with each bullet in GRT6(j) as a separate field using blanks if data is missing.
GRT6(m)	Asset and Infrastructure Management	The Concessionaire shall only install Telecommunications Infrastructure on TTL Assets that are necessary for the delivery of the Services.
GRT6(n)	Asset and Infrastructure Management	The Concessionaire shall, unless advised otherwise by TTL, remove any Concessionaire Infrastructure or Third Party Infrastructure that has been decommissioned or is no longer required for the provision of Services from TTL Assets as soon as reasonably practical. The Concessionaire shall provide TTL with sixty (60) Working Days' notice prior to the planned removal of any such Telecommunications Infrastructure.
GRT6(o)	Asset and Infrastructure Management	If the Concessionaire fails to remove any Concessionaire Infrastructure or Third Party Infrastructure in accordance with requirement GRT6(n), TTL reserves the right to remove such Concessionaire Infrastructure or Third Party Infrastructure. The Concessionaire shall reimburse TTL for all TTL's costs associated with the removal and disposal of such Concessionaire Infrastructure or Third Party Infrastructure.
GRT6(p)	Asset and Infrastructure Management	<p>The Concessionaire shall ensure that the Designs identify:</p> <p>(a) all spare parts required to meet the specifications of Customer Products and enable the Concessionaire to comply with the obligations in the Customer Contracts ("<b>Spares</b>"); and</p> <p>(b) the location of such Spares to meet the Customer Products specifications and any service levels specified in the Customer Contracts.</p>

No.	Topic	Requirement
GRT6(q)	Asset and Infrastructure Management	The Concessionaire shall ensure that it holds the Spares prescribed by the Designs.
<b>GRT7</b>	<b>Documents and Records management</b>	
GRT7(a)	Documents and Records management	<p>The Concessionaire shall create and throughout the Term maintain a comprehensive set of Records detailing the technical infrastructure and operating procedures through which the Concessionaire provides the Services. These Records shall be at a sufficient level of detail:</p> <ul style="list-style-type: none"> <li>(a) to enable the Concessionaire to comply with its obligations under Schedule 8.5 (Exit Management);</li> <li>(b) to permit TTL and/or a Replacement Concessionaire to understand how the Concessionaire provides the Services; and</li> <li>(c) to enable the smooth transition of the Services (or any part of the Services) to TTL and/or a Replacement Concessionaire with the minimum level of disruption to the Services.</li> </ul>

## 2 Specific Requirements – Commercial Mobile Services

### 2.1 Commercial

No.	Topic	Requirement
CMC1		
CMC2	Product Roadmap	The Concessionaire shall deliver, maintain and continually evolve Customer Products that meet Mobile Network Operator requirements through investment in the Commercial Mobile Services.

CMC3	Risk Management	The Concessionaire shall ensure that any strategic risks identified which specifically relate to the Commercial Mobile Services are captured in the Strategic Risk and Issues Register.
------	-----------------	---

## 2.2 Technical

No.	Topic	Requirement
<b>CMT1</b>	<b>Requirements and design</b>	
CMT1(a)	Requirements and design	<p>Within twenty (20) Working Days of the Effective Date, the Concessionaire shall either:</p> <ul style="list-style-type: none"> <li>(a) confirm to TTL in writing that the Mobile High Level Design does not require amendment; or</li> <li>(b) prepare and submit to TTL for Approval an updated version of the Mobile High Level Design.</li> </ul>
CMT1(b)	Requirements and design	<p>Throughout the Term, the Concessionaire shall:</p> <ul style="list-style-type: none"> <li>(a) update the Mobile High Level Design to reflect any changes to a Low Level Design produced in accordance with requirement CMT1(k); and</li> <li>(b) submit the updated Mobile High Level Design to TTL for Approval.</li> </ul>
CMT1(c)	Requirements and design	The Concessionaire shall design a Neutral Host Cellular Solution that will allow all Mobile Network Operators to deliver a service to End Users in all public areas of the Stations and Tunnel Sections.
CMT1(d)	Requirements and design	The Concessionaire shall extend the Neutral Host Cellular Solution to cover the below-ground public areas within any future expansion of the London Underground during the Term, including the Planned Stations and Planned Tunnel Sections and shall update the Mobile High Level Design accordingly. The Concessionaire shall ensure that each Milestone in respect of a Planned Station or Planned Tunnel Section is Achieved on or before its Milestone Date, which shall be no later than eighteen (18) months after the date on which TTL notifies the Concessionaire that such Planned Station or Planned Tunnel Section is available for use by the Concessionaire.
CMT1(e)	Requirements and design	Subject to any deviations documented in Schedule 4.1 (Concessionaire Solution) the initial implementation of the Concessionaire Solution shall comply with the requirements of the JOTS V4.1 specification. The Concessionaire shall comply with updates from time to time for LTE and any additions for 5G requirements. Future changes to LTE requirements shall be implemented by the Concessionaire in partnership with the Mobile Network Operators and the Concessionaire shall notify TTL as soon as reasonably practicable of the adoption of any modified and/or new LTE requirements.

<b>No.</b>	<b>Topic</b>	<b>Requirement</b>
CMT1(f)	Requirements and design	Subject to the Customer Contracts with the Mobile Network Operators, the Concessionaire shall work with the Mobile Network Operators to keep the Telecommunications Infrastructure updated in line with the reasonable requirements of the Mobile Network Operators.
CMT1(g)	Requirements and design	The Concessionaire shall ensure that the Customer Product specifications and the Designs shall include specific maintenance provisions, minimising the need for physical access to the Telecommunications Infrastructure.
CMT1(h)	Requirements and design	The Concessionaire shall ensure that all Active Infrastructure shall be remotely managed and monitored and that the software and firmware on such Active Infrastructure is remotely upgradeable.
CMT1(i)	Requirements and design	The Concessionaire shall ensure that any Remote Units have the capability to be upgraded to satisfy the reasonably foreseeable requirements of the Mobile Network Operators, including the capability to modularly add additional capacity, frequency ranges and functionality.
CMT1(j)	Requirements and design	Subject to the Customer Contracts with the Mobile Network Operators, the Concessionaire shall provide access to areas for the Mobile Network Operators to host their Telecommunications Infrastructure, and create a clear demarcation point for the Mobile Network Operators to connect to the Active Distributed Antenna System.
CMT1(k)	Requirements and design	<p>The Concessionaire shall prepare and submit to TTL for Approval a Low Level Design for:</p> <ul style="list-style-type: none"> <li>(a) each Station; and</li> <li>(b) each Tunnel Section;</li> </ul> <p>to meet the associated Milestones by the relevant Milestone Dates set out in the Mobile Services Detailed Implementation Plan.</p>
CMT1(l)	Requirements and design	The Concessionaire shall prepare and submit to TTL for Assurance a Low Level Design for each Base Station Hotel included in the Mobile High Level Design to meet the associated Milestones by the relevant Milestone Dates set out in the Mobile Services Detailed Implementation Plan.
<b>CMT2</b>	<b>Planning, build and test</b>	
CMT2	Planning, build and test	The Concessionaire shall work with each Mobile Network Operator to test the interface between the Active Distributed Antenna System and the applicable Third Party Telecommunications Infrastructure in accordance with its commercial agreement with the applicable Mobile Network Operator.
<b>CMT3</b>	<b>Operate</b>	



No.	Topic	Requirement
CMT3(a)	Operate	The Concessionaire shall operate the Commercial Mobile Services in such a way that ensures all Mobile Network Operators are treated on a fair and consistent basis. In particular no Mobile Network Operator shall have any form of veto of change or other control over the service delivery of another Mobile Network Operator.
CMT3(b)	Operate	When notified by TTL in accordance with Paragraph 8.3 of Schedule 8.2 (Change Control Procedure), the Concessionaire shall suspend the implementation of any Operational Changes during an Operational Change Freeze Period.
CMT3(c)	Operate	The Concessionaire shall delay the implementation of an Operational Change if reasonably requested to do so by TTL.
<b>CMT4</b>	<b>Pilot</b>	
CMT4(a)	Pilot	<p>The Concessionaire acknowledges that:</p> <ul style="list-style-type: none"> <li>(a) Capita Business Services Ltd is providing the Existing Pilot Service until 14 March 2022; and</li> <li>(b) unless otherwise agreed with TTL, the earliest date that the Concessionaire can use Pilot Assets for the Commercialised Service or the Replacement Pilot Service (as applicable) is 14 September 2021.</li> </ul>
CMT4(b)	Pilot	By no later than 14 September 2021, the Concessionaire shall provide TTL with details of information and assistance it requires from Capita Business Services Ltd in order to transition from the Existing Pilot Service to the Commercialised Service or Replacement Pilot Service (as applicable).
CMT4(c)	Pilot	<p>To the extent that the Concessionaire is not using the Pilot Assets for the Commercialised Service by 14 March 2022, the Concessionaire shall use reasonable endeavours to:</p> <ul style="list-style-type: none"> <li>(a) provide a Replacement Pilot Service until such time that the Commercialised Service is in place in respect of the Pilot Assets; and</li> <li>(b) ensure that there are suitable arrangements in place with Mobile Network Operators to provide the Replacement Pilot Service.</li> </ul>
CMT4(d)	Pilot	<p>The Concessionaire shall use reasonable endeavours to minimise any downtime when transitioning between (as applicable) the:</p> <ul style="list-style-type: none"> <li>(a) Existing Pilot Service and Commercialised Service; or</li> <li>(b) Existing Pilot Service and Replacement Pilot Service; and</li> </ul>

No.	Topic	Requirement
		(c) Replacement Pilot Service and Commercialised Service.

### 3 Specific Requirements – Fibre Services

#### 3.1 Commercial

No.	Topic	Requirement
FSC1	Risk Management	The Concessionaire shall ensure that any strategic risks identified which specifically relate to the Fibre Services are captured in the Strategic Risk and Issues Register.
FSC2	Product Roadmap	The Concessionaire shall deliver, maintain and continually evolve Customer Products that meet Customer requirements through investment in the Fibre Services.

#### 3.2 Technical

No.	Topic	Requirement
<b>FST1</b>	<b>Requirements and design</b>	
FST1(a)	Requirements and design	The Concessionaire shall design a full fibre based network with a minimum number of fifty (50) Points of Presences (PoP) on TTL Assets, such PoPs to include the PoPs used in the Works Funded By Grants Services by the Milestone Date for the Key Milestone FS4.
FST1(b)	Requirements and design	<p>The Concessionaire shall prepare and submit to TTL for Approval a Low Level Design for:</p> <ul style="list-style-type: none"> <li>(a) each PoP to be installed on TTL Assets included in the Fibre High Level Design to meet the associated Milestones by the relevant Milestone Dates set out in the Fibres Services Detailed Implementation Plan;</li> <li>(b) each Station;</li> <li>(c) each Tunnel Section; and</li> <li>(d) all other locations set out in the Fibre High Level Design that require Telecommunications Infrastructure to be installed on TTL Assets.</li> </ul>
FST1(c)	Requirements and design	Subject to the Customer Contracts, the Concessionaire shall work with the Customers to keep the Telecommunications Infrastructure updated in line with the reasonable requirements of the Customers.
FST1(d)	Requirements and design	The Concessionaire shall ensure that any Active Infrastructure installed for the Fibre Service Line is capable of remote management and monitoring and firmware is remotely upgradable.

## 4 Specific Requirements – Streetscape Services

### 4.1 Commercial

No.	Topic	Requirement
SSC1	GLA Group And London Borough Assets	The Concessionaire shall, where available, use the Streetscape Assets of London Boroughs and other members of the GLA Group to enhance its market offering.
SSC2	Product Roadmap	The Concessionaire shall deliver, maintain and continually evolve Customer Products that meet Customer requirements through investment in the Streetscape Services.
SSC3	Risk Management	The Concessionaire shall ensure that any strategic risks identified which specifically relate to the Streetscape Services are captured in the Strategic Risk and Issues Register.

### 4.2 Technical

No.	Topic	Requirement
<b>SST1</b>	<b>Requirements and design</b>	
SST1(a)	Requirements and design	The Concessionaire shall use Streetscape Assets for the deployment of Concessionaire Infrastructure and/or Third Party Infrastructure.
SST1(b)	Requirements and design	<p>The Concessionaire shall prepare and submit to TTL for Approval a Low Level Design for:</p> <ul style="list-style-type: none"> <li>(a) each Streetscape Asset located on TTL Assets in the Streetscape High Level Design to meet the associated Milestones by the relevant Milestone Dates set out in the Streetscape Services Detailed Implementation Plan; and</li> <li>(b) all other locations set out in the Streetscape High Level Design that require Telecommunications Infrastructure to be installed on TTL Assets.</li> </ul>
SST1(c)	Requirements and design	The Concessionaire shall design a solution to meet its Customer Product specifications.
SST1(d)	Requirements and design	On request from TTL, the Concessionaire shall ensure the effective removal and replacement of Telecommunications Infrastructure and in doing so shall minimise service disruption to Customers.
SST1(e)	Requirements and design	Subject to the Customer Contracts, the Concessionaire shall work with the Customers to keep the Telecommunications Infrastructure updated in line with the reasonable requirements of the Customers.
SST1(f)	Requirements and design	The Concessionaire shall ensure that any Active Infrastructure installed for the Streetscape Services is capable of remote management and monitoring and firmware is remotely upgradable.

No.	Topic	Requirement
<b>SST2</b>	<b>Operate</b>	
SST2(a)	Operate	The Concessionaire shall be responsible for the management of all Telecommunications Infrastructure, including any Third Party Infrastructure, acting on behalf of the Customers, fixed to Streetscape Assets.
SST2(b)	Operate	The Concessionaire shall maintain all Telecommunications Infrastructure including any Third Party Infrastructure, acting on behalf of the Customers, fixed to Streetscape Assets such that it complies with the relevant Designs and any reasonable additional requests from TTL.
SST2(c)	Operate	The Concessionaire shall relocate Telecommunications Infrastructure from one Streetscape Asset to an adjacent one if TTL notify the Concessionaire that the Streetscape Asset is to be removed or otherwise altered.

## 5 Specific Requirements – Public Wi-Fi Services

### 5.1 Commercial

No.	Topic	Requirement
WFC1	Service Transition	<p>The Concessionaire shall co-operate with Virgin Media Business to ensure:</p> <ul style="list-style-type: none"> <li>(a) the seamless transition of the services provided under the Virgin Agreement on expiry of the Virgin Agreement on 31 March 2023; and</li> <li>(b) the uninterrupted provision of Public Wi-Fi Services to End Users in the Public Wi-Fi Services Locations during the transition to the Concessionaire.</li> </ul>
WFC2	Risk Management	The Concessionaire shall ensure that any strategic risks identified which specifically relate to the Public Wi-Fi Services are captured in the Strategic Risk and Issues Register.

### 5.2 Technical

No.	Topic	Requirement
<b>WFT1</b>	<b>Requirements and design</b>	
WFT1(a)	Requirements and design	<p>The Concessionaire shall prepare and submit to TTL for Approval a Low Level Design for:</p> <ul style="list-style-type: none"> <li>(a) the Authentication Service;</li> <li>(b) the Internet Service; and</li> <li>(c) the Content Filter Service,</li> </ul>

No.	Topic	Requirement
		to meet the associated Milestones by the relevant Milestone Dates set out in Public Wi-Fi Services Detailed Implementation Plan.
WFT1(b)	Requirements and design	From the Milestone Date for Key Milestone WF1, the Concessionaire shall support a commercial EAP-Method service for all Mobile Network Operators.
WFT1(c)	Requirements and design	The Concessionaire shall deliver a public Wi-Fi Customer Product, which shall be available direct to End Users at no cost to the End Users (the " <b>Open Access Customer Product</b> ").
WFT1(d)	Requirements and design	The Concessionaire shall ensure that the Open Access Customer Product shall not require each End User to have any agreement with a third party in order to gain access to the Wi-Fi in the Public Wi-Fi Services Locations.
WFT1(e)	Requirements and design	The Concessionaire shall ensure that the Open Access Customer Product shall be provided to End Users either via: <ul style="list-style-type: none"> <li>(a) an anonymous login; or</li> <li>(b) a registration managed by the Concessionaire,</li> </ul> (the " <b>Authentication Service</b> ").
WFT1(f)	Requirements and design	The Concessionaire shall ensure that the Open Access Customer Product shall provide End Users with Internet access once they have been authenticated in accordance with the Authentication Service (the " <b>Internet Service</b> ").
WFT1(g)	Requirements and design	The Concessionaire shall design and operate the Public Wi-Fi Services so as to ensure compliance with Clauses 3.4(l) and 3.4(m) (Warranties).
WFT1(h)	Requirements and design	The Concessionaire shall ensure the Authentication Service shall provide the capability for End Users of the Open Access Customer Product to register for access either from a mobile device when at a Public Wi-Fi Services Location or via an online pre-registration portal prior to using the Open Access Customer Product.
WFT1(i)	Requirements and design	The Concessionaire shall filter unsuitable content in accordance with the codes of practice (as amended) issued in accordance with Digital Economy Act 2017 (the " <b>Content Filter Service</b> ").
WFT1(j)	Requirements and design	The Concessionaire shall ensure that all Customer Products provided as part of the Public Wi-Fi Services meet the W3C web content accessibility guidelines (WCAG) 2.0 (or any updated version) with a compliance level of AA.
WFT1(k)	Requirements and design.	The Concessionaire shall ensure that the End User experience shall support: <ul style="list-style-type: none"> <li>(a) device operating systems, browsers and accessibility standards as advised by Government Digital Services from time to time; and</li> </ul>

No.	Topic	Requirement
		(b) assistive technologies for mobile devices as advised by Government Digital Services from time to time.
WFT1(l)	Requirements and design	The Concessionaire shall use the terms and conditions (as updated from time to time) provided by TTL for End Users' use of the Public Wi-Fi Services (the <b>"Wi-Fi Terms and Conditions"</b> ).
WFT1(m)	Requirements and design	The Concessionaire shall ensure that all End Users of the Open Access Customer Product explicitly agree to the Wi-Fi Terms and Conditions for use of the Public Wi-Fi Services prior to being granted access.
WFT1(n)	Requirements and design	The Concessionaire shall ensure that End Users explicitly agree to any new, updated or amended Wi-Fi Terms and Conditions provided by TTL in order to continue to use the Public Wi-Fi Services.
WFT1(o)	Requirements and design	For the design and build of the Authentication Service the Concessionaire shall use: <p>(a) the TTL defined user experience design; and</p> <p>(b) the TTL provided front-end UI code and UI assets.</p> <p>The Concessionaire shall update the user interface at TTL's request, which shall be requested no more than four (4) times per Contract Year.</p>
<b>WFT2</b>	<b>Planning, build and test</b>	
WFT2(a)	Planning, build and test	The Concessionaire shall test the Public Wi-Fi Services in accordance with the specification in Schedule 6.2 (Testing and Assurance).
WFT3	Operate	The Concessionaire shall monitor the Public Wi-Fi Services and provide monthly usage statistics in accordance with the Public Wi-Fi Usage Report (WIF1) as set out in Annex 2 (Reports) Schedule 8.1 (Governance).
WFT4	Data	Within sixty (60) Working Days after 30 September 2022, the Concessionaire shall provide TTL with a proposal for the delivery of advertising. No adverts may be shown until TTL Approves the proposals. This includes sponsorship such as branding in the SSIDs or associating the Public Wi-Fi Services with brands or promotions.

## 6 Specific Requirements – Works Funded By Grants Services

### 6.1 Technical

No.	Topic	Requirement
<b>WGT1</b>	<b>Organisation</b>	
WGT1(a)	Organisation	If requested by TTL in accordance with Clause 6.36 (Works Funded By Grants Services), the Concessionaire shall supply Gigabit-capable Customer Products to the addresses specified in the Works Funded by Grants Group.
WGT1(b)	Organisation	The Concessionaire shall deliver the scope of work defined by future grant agreements to which TTL is a party on terms to be agreed between the Parties.
<b>WGT2</b>	<b>Requirements and design</b>	
WGT2(a)	Requirements and design	The Concessionaire may use a mixture of new ducts, Ducts and third party ducts to supply Gigabit-capable Customer Products to the addresses specified in the Works Funded by Grants Group.
WGT2(b)	Requirements and design	The Concessionaire shall present the Gigabit-capable Customer Products inside the premises at the addresses specified in the Works Funded by Grants Group.
WGT2(c)	Requirements and design	The Concessionaire may not use infrastructure funded through grants for commercial use. Any commercial fibre delivery within the same area shall require additional and separate investment.
WGT3	Requirements and design	The Concessionaire shall make available a minimum of two (2) Internet Service Providers to serve each address specified in the Works Funded By Grants Group, one (1) of which can be the Concessionaire. For schools, one (1) of the Internet Service Providers must be London Grid for Learning.
WGT4	Operate	The Concessionaire shall provide break/fix services on the Telecommunications Infrastructure used to provide the Works Funded By Grants Services.

## Part B – Specific Requirements - ESN Implementation Services

### 1 Specific Requirements - ESN Implementation Services

No.	Topic	Requirement
ESN1(a)	Requirements and design	The Concessionaire shall prepare and submit to TTL for Approval a Low Level Design for each ESN Annex 3 Location.
ESN1(b)	Requirements and design	<p>The Concessionaire shall ensure that the ESN Designs can meet the following requirements of the ESN Coverage Supplier:</p> <ul style="list-style-type: none"> <li>(a) provide coverage to be available in all areas (public and private), up to the physical perimeter of each ESN Location (except in respect of each Base Station Hotel); and</li> <li>(b) meets or exceed the Accessibility Target of eighty seven per cent (87%) with the following capacity targets; <ul style="list-style-type: none"> <li>(i) shall provide a minimum uplink data rate of fifty (50) kbits/second per ESN Device to support Voice services;</li> <li>(ii) shall provide a minimum downlink data rate of fifty (50) kbits/second per ESN Device to support Voice services;</li> <li>(iii) shall provide a minimum average uplink data rate (measured over a rolling thirty (30) second period) of one hundred and fifty (150) kbits/second per ESN Device to support Video services;</li> <li>(iv) shall provide a minimum average downlink data rate (measured over a rolling thirty (30) second period) of one (1) Mbit/second per ESN Device to support general data transfer services;</li> <li>(v) shall provide a minimum of forty (40) simultaneous active RRC connections to ESN Devices evenly distributed throughout each platform of a Station;</li> <li>(vi) shall provide a minimum of forty (40) simultaneous active RRC connections to ESN Devices evenly distributed throughout the concourse and connecting passenger tunnels of each Station; and</li> </ul> </li> </ul>



No.	Topic	Requirement
		(vii) shall provide a minimum of forty (40) simultaneous active RRC connections to ESN Devices evenly distributed throughout each Tunnel Section.
ESN1(c)	Requirements and design	<p>The Concessionaire shall ensure that the ESN Designs for Active Infrastructure:</p> <ul style="list-style-type: none"> <li>(a) do not permit any single outage to affect more than fifteen per cent (15%) of the total ESN Locations;</li> <li>(b) have no two (2) adjacent Stations hosting Remote Units that are connected using common fibre optic cable;</li> <li>(c) provide the following for all Active Infrastructure which is powered via the existing LU Power Supply: <ul style="list-style-type: none"> <li>(i) thirty (30) minutes uninterrupted power supply; and</li> <li>(ii) Near Real Time and in any event less than thirty (30) seconds delay, remote monitoring and alerting of power quality, availability and consumption; and</li> </ul> </li> <li>(d) provide the following for all Active Infrastructure which is powered via the local Distribution Network Operator rather than the LU Power Supply: <ul style="list-style-type: none"> <li>(i) four (4) hour uninterrupted power supply backup; and</li> <li>(ii) Near Real Time and in any event less than thirty (30) seconds delay, remote monitoring and alerting of power quality, availability and consumption.</li> </ul> </li> </ul>
ESN1(d)	Requirements and design	<p>The Concessionaire shall ensure that the Low Level Designs for Base Station Hotels providing ESN Coverage:</p> <ul style="list-style-type: none"> <li>(a) do not permit any single outage to affect more than fifteen per cent (15%) of the total ESN Locations;</li> <li>(b) provide a secure working environment accessible twenty four (24) hours a day seven (7) days a week;</li> <li>(c) includes secure access systems (including intercom access and remote door release) to</li> </ul>

No.	Topic	Requirement
		<p>enable secure keyless entry that are appropriate for a typically unattended 'lights-out' facility;</p> <p>(d) provides that all tenants' equipment can be separated in secure, locked cages, access to which are company-based;</p> <p>(e) includes access controls and locks which are monitored in real-time, with events / alarms able to be managed via remote monitoring tools;</p> <p>(f) includes dualised and redundant services (including the Concessionaire's or ESN Coverage Supplier's circuits, power, telecommunications cabling, and fibre optic cable) in accordance with the ESN High Level Design are routed to the Base Station Hotel point of ingress / egress through paths that are separated physically by at least four (4) metres (except if location topography prevents this, in which case the Concessionaire shall propose an alternative Low Level Design for Assurance);</p> <p>(g) includes dualised and redundant services (e.g. the Concessionaire's or ESN Coverage Supplier's circuits, power, telecommunications cabling, and fibre optic cable) in accordance with the ESN High Level Design do not share the same physical ducting or cabling at any point within the Base Station Hotel;</p> <p>(h) includes redundant power supplies based on an uninterrupted power supply capable of supporting three (3) days continuous operation of those elements of the Base Station Hotel (and associated Active Infrastructure) providing ESN Coverage and with automatic switchover of power between supplies (in both directions), without external intervention, which does not interrupt service, and provides remote real-time monitoring and alerting of power quality, availability and consumption. For the avoidance of doubt, the uninterrupted power shall be capable of supporting the associated cooling system serving those elements of the Base Station Hotel and Active Infrastructure (including that installed by the ESN Coverage Supplier) providing ESN Coverage;</p> <p>(i) includes sealed windows and "N+1" cooling resiliency (which shall ensure that the failure of a single cooler is compensated for by spare</p>

No.	Topic	Requirement
		<p>coolers) and remote real-time monitoring and alerting of temperature;</p> <p>(j) includes sufficient power and HVAC services to support all Active Infrastructure; and</p> <p>(k) clearly defines the wiring and gauge requirements, cable lengths and connector and termination types.</p>
ESN1(e)	Requirements and design	The Concessionaire shall identify all single points of failure that have the potential to affect five per cent (5%) or more of ESN Locations, and shall ensure that the ESN Designs address service continuity management ('disaster recovery') with a solution that will restore ESN Coverage within forty eight (48) hours.
ESN1(f)	Requirements and design	<p>The Concessionaire shall ensure that the Low Level Designs for Base Station Hotels providing ESN Coverage provide the following interfaces:</p> <p>(a) a dry contact telemetry interface (via a Concessionaire-supplied distribution panel) to permit Base Station Hotel events including, environmental, HVAC and power status to be remotely monitored by the ESN Coverage Supplier's network operations centre;</p> <p>(b) a precision time protocol service to permit synchronised inter-operation with the ESN Coverage Supplier's network in accordance with the Low Level Designs; and</p> <p>(c) test interfaces to assist in fault diagnosis and performance measurement.</p>
ESN1(g)	Requirements and design	<p>The Concessionaire shall design and implement a solution for Base Station Hotels providing ESN Coverage that subsequently permits the ESN Coverage Supplier to install, integrate and commission their infrastructure and equipment including:</p> <p>(a) secure racking;</p> <p>(b) one (1) or more LTE eNodeB;</p> <p>(c) power equipment;</p> <p>(d) dual-routed backhaul fibre optic or other transmission equipment; and</p> <p>(e) telemetry interfaces.</p>
ESN1(h)	Requirements and design	Where a Base Station Hotel (required for both the Commercial Mobile Services and ESN Coverage requirements) can not be delivered within the timescales set out in Schedule 6.1 (Implementation Plans) then the Concessionaire shall provide

No.	Topic	Requirement
		sufficient Interim Base Station Hotels in order to meet the relevant Milestones and Key Milestones.
<b>ESN2</b>	<b>Planning, build and test</b>	
ESN2(a)	Planning, build and test	<p>The Concessionaire shall:</p> <ul style="list-style-type: none"> <li>(a) ensure that modified ESN Designs are submitted to TTL for Assurance; and</li> <li>(b) include up to date ESN Designs with the As-Built Records.</li> </ul>
ESN2(b)	Planning, build and test	The Concessionaire shall support TTL obtaining the ESN Coverage Supplier's assurance of the Low Level Designs for each Base Station Hotel providing ESN Coverage by attending engagement meetings with the ESN Coverage Supplier, as requested by TTL.
ESN2(c)	Planning, build and test	<p>The Concessionaire shall perform testing in accordance with the:</p> <ul style="list-style-type: none"> <li>(a) agreed Mobile Services Detailed Implementation Plan;</li> <li>(b) the requirements of Schedule 6.2 (Testing and Assurance); and</li> <li>(c) the ESN High Level Design.</li> </ul> <p>The Concessionaire shall make available the test results to the Home Office and the ESN Coverage Supplier following the successful completion of the testing of each Tunnel Section, Station and Base Station Hotel providing ESN Coverage.</p>
ESN2(d)	Planning, build and test	<p>The Concessionaire shall support the ESN Coverage Supplier in installing and commissioning their equipment in each Base Station Hotel providing ESN Coverage in accordance with the ESN Designs, including:</p> <ul style="list-style-type: none"> <li>(a) providing the ESN Coverage Supplier access to the Base Station Hotel, and the allocated secure equipment cages;</li> <li>(b) verifying (by observation) that the ESN Coverage Supplier's equipment has been installed in accordance with the agreed Low Level Designs;</li> <li>(c) verifying (by observation) that the ESN Coverage Supplier's equipment has been installed safely and in accordance with applicable standards and working practices;</li> <li>(d) assuring that the ESN Coverage Supplier has connected correctly to the defined interfaces and</li> </ul>

No.	Topic	Requirement
		<p>these have been tested prior to powering up any equipment;</p> <p>(e) verifying (by observation) that all ESN Coverage Supplier equipment and cabling has been labelled correctly and that documentation required by the Concessionaire has been made available and / or updated accordingly; and</p> <p>(f) ensuring all waste packaging material has been removed.</p>
ESN2(e)	Planning, build and test	The Concessionaire shall manage the transition from an Interim Base Station Hotel provided solely for the purpose of supporting ESN Coverage to a permanent Base Station Hotel, ensuring that there is no interruption of ESN Coverage unless agreed with TTL in advance in writing. The Concessionaire shall repeat system integration testing as required.
ESN2(f)	Planning, build and test	The Concessionaire shall ensure that any strategic risks identified which specifically relate to the ESN Implementation Services are captured in the Strategic Risk and Issues Register.

## Annex 1 – Commercial Mobile Services Coverage

### 1 Stations

Station	Lines	Category
Aldgate	Metropolitan Circle	Metro
Aldgate East	Hammersmith & City District	Metro
Angel	Northern	Metro
Archway	Northern	Metro
Arsenal	Piccadilly	Metro
Baker Street	Metropolitan Circle Bakerloo Jubilee Hammersmith & City	Destination
Balham	Northern	Metro
Bank	Waterloo & City Northern Central	Destination
Barbican	Metropolitan Circle Hammersmith & City	Metro
Bayswater	District Circle	Metro
Belsize Park	Northern	Metro
Bermondsey	Jubilee	Metro
Bethnal Green	Central	Metro
Blackfriars	District Circle	Metro
Blackhorse Road	Victoria	Metro
Bond Street	Central Jubilee	Destination
Borough	Northern	Metro
Bounds Green	Piccadilly	Metro
Bow Road	District Hammersmith & City	Metro
Brixton	Victoria	Metro
Caledonian Road	Piccadilly	Metro
Camden Town	Northern	Destination
Canada Water	Jubilee	Destination
Canary Wharf	Jubilee	Destination
Cannon Street	District Circle	Metro
Chalk Farm	Northern	Metro
Chancery Lane	Central	Metro
Charing Cross	Bakerloo Northern	Destination
Clapham Common	Northern	Metro
Clapham North	Northern	Metro
Clapham South	Northern	Metro
Colliers Wood	Northern	Metro
Covent Garden	Piccadilly	Metro
Earl's Court	District Piccadilly	Destination

Station	Lines	Category
Edgware Road	Bakerloo	Metro
Elephant & Castle	Northern Bakerloo	Destination
Embankment	District Bakerloo Northern Circle	Destination
Euston	Northern Victoria	Gateway
Euston Square	Metropolitan Circle Hammersmith & City	Metro
Finsbury Park	Piccadilly Victoria	Destination
Fulham Broadway	District	Metro
Gants Hill	Central	Metro
Gloucester Road	District Piccadilly Circle	Destination
Goodge Street	Northern	Metro
Great Portland Street	Metropolitan Circle Hammersmith & City	Metro
Green Park	Piccadilly Victoria Jubilee	Destination
Hampstead	Northern	Metro
Hatton Cross	Piccadilly	Metro
Heathrow Terminals 1, 2, 3	Piccadilly	Gateway
Heathrow Terminal 4	Piccadilly	Metro
Highbury & Islington	Victoria	Destination
Highgate	Northern	Metro
High Street Kensington	District Circle	Metro
Holborn	Central Piccadilly	Destination
Holland Park	Central	Metro
Holloway Road	Piccadilly	Metro
Hounslow West	Piccadilly	Metro
Hyde Park Corner	Piccadilly	Metro
Kennington	Northern	Metro
Kentish Town	Northern	Metro
Kilburn Park	Bakerloo	Metro
King's Cross St. Pancras	Metropolitan Northern Piccadilly Circle Victoria Hammersmith & City	Gateway
Knightsbridge	Piccadilly	Metro
Lambeth North	Bakerloo	Metro
Lancaster Gate	Central	Metro
Leicester Square	Piccadilly Northern	Destination
Liverpool Street	Metropolitan Central Circle	Gateway

Station	Lines	Category
	Hammersmith & City	
London Bridge	Northern Jubilee	Destination
Maida Vale	Bakerloo	Metro
Manor House	Piccadilly	Metro
Mansion House	District Circle	Metro
Marble Arch	Central	Metro
Marylebone	Bakerloo	Metro
Mile End	District Hammersmith & City Central	Metro
Monument	District Circle	Destination
Moorgate	Metropolitan Northern Circle Hammersmith & City	Destination
Mornington Crescent	Northern	Metro
North Greenwich	Jubilee	Destination
Notting Hill Gate	District Central Circle	Destination
Old Street	Northern	Metro
Oval	Northern	Metro
Oxford Circus	Central Bakerloo Victoria	Destination
Paddington	Hammersmith & City District Circle Bakerloo	Gateway
Piccadilly Circus	Bakerloo Piccadilly	Destination
Pimlico	Victoria	Metro
Queensway	Central	Metro
Redbridge	Central	Metro
Regent's Park	Bakerloo	Metro
Russell Square	Piccadilly	Metro
St. James's Park	District Circle	Metro
St. John's Wood	Jubilee	Metro
St. Paul's	Central	Metro
Seven Sisters	Victoria	Metro
Shepherd's Bush	Central	Metro
Sloane Square	District Circle	Metro
South Kensington	District Piccadilly Circle	Destination
South Wimbledon	Northern	Metro
Southgate	Piccadilly	Metro
Southwark	Jubilee	Metro
Stepney Green	District Hammersmith & City	Metro
Stockwell	Northern	Metro



Station	Lines	Category
	Victoria	
Swiss Cottage	Jubilee	Metro
Temple	District Circle	Metro
Tooting Bec	Northern	Metro
Tooting Broadway	Northern	Metro
Tottenham Court Road	Central Northern	Destination
Tottenham Hale	Victoria	Metro
Tower Hill	District Circle	Metro
Tufnell Park	Northern	Metro
Turnpike Lane	Piccadilly	Metro
Vauxhall	Victoria	Metro
Victoria	District Circle Victoria	Gateway
Walthamstow Central	Victoria	Metro
Wanstead	Central	Metro
Warren Street	Northern Victoria	Metro
Warwick Avenue	Bakerloo	Metro
Waterloo	Waterloo & City Bakerloo Northern Jubilee	Destination
Westminster	District Circle Jubilee	Destination
Wood Green	Piccadilly	Metro

## 2 Tunnel Sections

ID	Description
B052 NB	Kensal Green to Willesden Junction
B052 SB	Willesden Junction to Kensal Green
B062 NB	Kilburn Park to Queens Park
B062 SB	Queens Park to Kilburn Park
B064 NB	Maida Vale to Kilburn Park
B064 SB	Kilburn Park to Maida Vale
B066 NB	Warwick Avenue to Maida Vale
B066 SB	Maida Vale to Warwick Avenue
B068 NB	Paddington (Bloo) to Warwick Avenue
B068 SB	Warwick Avenue to Paddington (Bloo)
B072 NB	Edgware Road (Bloo) to Paddington (Bloo)
B072 SB	Paddington (Bloo) to Edgware Road (Bloo)
B074 NB	Marylebone to Edgware Road (Bloo)
B074 SB	Edgware Road (Bloo) to Marylebone
B076 NB	Baker Street to Marylebone
B076 SB	Marylebone to Baker Street
B108 NB	Swiss Cottage to Finchley Road

ID	Description
B108 SB	Finchley Road to Swiss Cottage
B112 NB	St John's Wood to Swiss Cottage
B112 SB	Swiss Cottage to St John's Wood
B114 NB	Baker Street to St John's Wood
B114 SB	St John's Wood to Baker Street
B122 NB	Regent's Park to Baker Street
B122 SB	Baker Street to Regent's Park
B124 NB	Oxford Circus to Regent's Park
B124 SB	Regent's Park to Oxford Circus
B126 NB	Piccadilly Circus to Oxford Circus
B126 SB	Oxford Circus to Piccadilly Circus
B128 NB	Charing Cross to Piccadilly Circus
B128 SB	Piccadilly Circus to Charing Cross
B132 NB	Embankment to Charing Cross
B132 SB	Charing Cross to Embankment
B134 NB	Waterloo to Embankment
B134 SB	Embankment to Waterloo
B136 NB	Lambeth North to Waterloo
B136 SB	Waterloo to Lambeth North
B138 NB	Elephant & Castle to Lambeth North
B138 SB	Lambeth North to Elephant & Castle
C068 EB	Gants Hill to Newbury Park
C068 WB	Newbury Park to Gants Hill
C072 EB	Redbridge to Gants Hill
C072 WB	Gants Hill to Redbridge
C074 EB	Wanstead to Redbridge
C074 WB	Redbridge to Wanstead
C076 EB	Leytonstone to Wanstead
C076 WB	Wanstead to Leytonstone
C084 EB	Stratford to Leyton
C084 WB	Leyton to Stratford
C092 EB	Mile End to Stratford
C092 WB	Stratford to Mile End
C094 EB	Bethnal Green to Mile End
C094 WB	Mile End to Bethnal Green
C096 EB	Liverpool Street to Bethnal Green
C096 WB	Bethnal Green to Liverpool Street
C102 EB	Bank to Liverpool Street
C102 WB	Liverpool Street to Bank
C104 EB	Waterloo to Bank
C104 WB	Bank to Waterloo
C112 EB	St Paul's to Bank
C112 WB	Bank to St Paul's
C114 EB	Chancery Lane to St Paul's
C114 WB	St Paul's to Chancery Lane
C116 EB	Holborn to Chancery Lane
C116 WB	Chancery Lane to Holborn
C118 EB	Tottenham Court Road to Holborn
C118 WB	Holborn to Tottenham Court Road

ID	Description
C122 EB	Oxford Circus to Tottenham Court Road
C122 WB	Tottenham Court Road to Oxford Circus
C124 EB	Bond Street to Oxford Circus
C124 WB	Oxford Circus to Bond Street
C126 EB	Marble Arch to Bond Street
C126 WB	Bond Street to Marble Arch
C128 EB	Lancaster Gate to Marble Arch
C128 WB	Marble Arch to Lancaster Gate
C132 EB	Queensway to Lancaster Gate
C132 WB	Lancaster Gate to Queensway
C134 EB	Notting Hill Gate to Queensway
C134 WB	Queensway to Notting Hill Gate
C136 EB	Holland Park to Notting Hill Gate
C136 WB	Notting Hill Gate to Holland Park
C138 EB	Shepherd's Bush to Holland Park
C138 WB	Holland Park to Shepherd's Bush
C142 EB	White City to Shepherd's Bush
C142 WB	Shepherd's Bush to White City
D052 EB	Mile End to Bow Road
D052 WB	Bow Road to Mile End
D054 EB	Stepney Green to Mile End
D054 WB	Mile End to Stepney Green
D056 EB	Whitechapel to Stepney Green
D056 WB	Stepney Green to Whitechapel
D062 EB	Aldgate East to Whitechapel
D062 WB	Whitechapel to Aldgate East
D072 EB	Tower Hill to Aldgate East
D072 WB	Aldgate East to Tower Hill
D074 EB	Aldgate to Liverpool Street
D074 WB	Liverpool Street to Aldgate
D076 EB	Tower Hill to Aldgate
D076 WB	Aldgate to Tower Hill
D078 EB	Monument to Tower Hill
D078 WB	Tower Hill to Monument
D082 EB	Cannon Street to Monument
D082 WB	Monument to Cannon Street
D084 EB	Mansion House to Cannon Street
D084 WB	Cannon Street to Mansion House
D086 EB	Blackfriars to Mansion House
D086 WB	Mansion House to Blackfriars
D092 EB	Temple to Blackfriars
D092 WB	Blackfriars to Temple
D094 EB	Embankment to Temple
D094 WB	Temple to Embankment
D096 EB	Westminster to Embankment
D096 WB	Embankment to Westminster
D102 EB	St James's Park to Westminster
D102 WB	Westminster to St James's Park
D104 EB	Victoria to St James's Park

ID	Description
D104 WB	St James's Park to Victoria
D106 EB	Sloane Square to Victoria
D106 WB	Victoria to Sloane Square
D108 EB	South Kensington to Sloane Square
D108 WB	Sloane Square to South Kensington
D112 DORMA	254PTS to Gloucester Rd
D112 EB	Gloucester Road (Dist) to South Kensington
D112 WB	South Kensington to Gloucester Road (Dist)
D114 EB	High Street Kensington to Gloucester Road (Dist)
D114 WB	Gloucester Road (Dist) to High Street Kensington
D116 EB	High Street Kensington to Notting Hill Gate
D116 WB	Notting Hill Gate to High Street Kensington
D118 EB	Notting Hill Gate to Bayswater
D118 WB	Bayswater to Notting Hill Gate
D122 EB	Bayswater to Paddington (Dist)
D122 WB	Paddington (Dist) to Bayswater
D124 EB	Paddington Suburban to 27 Points
D124 IRLO	Edgware Road to Paddington
D124 OR	Paddington P2 to Edgware Rd P1
D124 WB	26Pts - Paddington Sub
D132 EB	Earl's Court (Dist) to Gloucester Road (Dist)
D132 WB	Gloucester Road (Dist) to Earl's Court (Dist)
D134 EB	Earl's Court (Dist) to High Street Kensington
D134 WB	High Street Kensington to Earl's Court (Dist)
D136 EB	Kensington (Olympia) to Earl's Court (Dist)
D142 EB	West Brompton to Earl's Court (Dist)
D142 WB	Earl's Court (Dist) to West Brompton
D142 WB MA	27PTS Earls Court to 24PTS West Brompton
D152 EB	Fulham Broadway to West Brompton
D152 WB	West Brompton to Fulham Broadway
D154 EB	Parsons Green to Fulham Broadway
D154 WB	Fulham Broadway to Parsons Green
D164 EB	Southfields to East Putney
D164 WB	East Putney to Southfields
D172 EB	West Kensington to Earl's Court (Dist)
D172 WB	Earl's Court (Dist) to West Kensington
D228 EB	Hatton Cross to Hounslow West
D228 WB	Hounslow West to Hatton Cross
D232 EB	Heathrow T123 to Hatton Cross
D232 WB	Hatton Cross to Heathrow T123
D234 EB	Heathrow T123 to Heathrow T4
D236 WB	Hatton Cross to Heathrow T4
F042 NB	Bond Street to Baker Street
F042 SB	Baker Street to Bond Street
F044 NB	Green Park to Bond Street
F044 SB	Bond Street to Green Park
J006 EB	North Greenwich to Canning Town
J006 WB	Canning Town to North Greenwich
J008 EB	Canary Wharf to North Greenwich

ID	Description
J008 WB	North Greenwich to Canary Wharf
J012 EB	Canada Water to Canary Wharf
J012 WB	Canary Wharf to Canada Water
J014 EB	Bermondsey to Canada Water
J014 WB	Canada Water to Bermondsey
J016 EB	London Bridge to Bermondsey
J016 WB	Bermondsey to London Bridge
J018 EB	Southwark to London Bridge
J018 WB	London Bridge to Southwark
J022 EB	Waterloo to Southwark
J022 WB	Southwark to Waterloo
J024 EB	Westminster to Waterloo
J024 WB	Waterloo to Westminster
J026 NB	Westminster to Green Park
J026 SB	Green Park to Westminster
M100 NB	Baker Street to Finchley Road
M100 SB	Finchley Road to Baker Street
M114 EB	Baker Street to Great Portland Street
M114 WB	Great Portland Street to Baker Street
M116 EB	Great Portland Street to Euston Square
M116 WB	Euston Square to Great Portland Street
M118 EB	Euston Square to King's Cross
M118 WB	King's Cross to Euston Square
M122 EB	King's Cross to Farringdon
M122 WB	Farringdon to King's Cross
M132 EB	Farringdon to Barbican
M132 WB	Barbican to Farringdon
M134 EB	Barbican to Moorgate
M134 WB	Moorgate to Barbican
M142 EB	Moorgate to Liverpool Street
M142 WB	Liverpool Street to Moorgate
M144 EB	Liverpool Street to Aldgate East
M144 WB	Aldgate East to Liverpool Street
M168 EB	Edgware Road (Met) to Baker Street
M168 WB	Baker Street to Edgware Road (Met)
N026 NB	Hendon Central to Colindale
N026 SB	Colindale to Hendon Central
N042 NB	Hampstead to Golders Green
N042 SB	Golders Green to Hampstead
N044 NB	Belsize Park to Hampstead
N044 SB	Hampstead to Belsize Park
N046 NB	Chalk Farm to Belsize Park
N046 SB	Belsize Park to Chalk Farm
N048 NB	Camden Town to Chalk Farm
N048 SB	Chalk Farm to Camden Town
N074 NB	Highgate to East Finchley
N074 SB	East Finchley to Highgate
N076 NB	Archway to Highgate
N076 SB	Highgate to Archway

ID	Description
N082 NB	Tufnell Park to Archway
N082 SB	Archway to Tufnell Park
N084 NB	Kentish Town to Tufnell Park
N084 SB	Tufnell Park to Kentish Town
N086 NB	Camden Town to Kentish Town
N086 SB	Kentish Town to Camden Town
N092 NB	Mornington Crescent to Camden Town (E)
N092 NB	Mornington Crescent to Camden Town (I)
N092 SB	Camden Town to Mornington Crescent (F)
N092 SB	Camden Town to Mornington Crescent (J)
N094 NB	Euston to Mornington Crescent
N094 SB	Mornington Crescent to Euston
N096 NB	Euston to Camden Town
N096 SB	Camden Town to Euston
N098 NB	Warren Street to Euston
N098 SB	Euston to Warren Street
N102 NB	Goodge Street to Warren Street
N102 SB	Warren Street to Goodge Street
N104 NB	Tottenham Court Road to Goodge Street
N104 SB	Goodge Street to Tottenham Court Road
N106 NB	Leicester Square to Tottenham Court Road
N106 SB	Tottenham Court Road to Leicester Square
N108 NB	Charing Cross to Leicester Square
N108 SB	Leicester Square to Charing Cross
N112 NB	Embankment to Charing Cross
N112 SB	Charing Cross to Embankment
N114 NB	Waterloo to Embankment
N114 SB	Embankment to Waterloo
N116 NB	Kennington to Waterloo
N116 SB	Waterloo to Kennington
N122 NB	King's Cross to Euston
N122 SB	Euston to King's Cross
N124 NB	Angel to King's Cross
N124 SB	King's Cross to Angel
N126 NB	Old Street to Angel
N126 SB	Angel to Old Street
N128 NB	Moorgate to Old Street
N128 SB	Old Street to Moorgate
N132 NB	Bank to Moorgate
N132 SB	Moorgate to Bank
N134 NB	London Bridge to Bank
N134 SB	Bank to London Bridge
N136 NB	Borough to London Bridge
N136 SB	London Bridge to Borough
N138 NB	Elephant & Castle to Borough
N138 SB	Borough to Elephant & Castle
N142 NB	Kennington to Elephant & Castle
N142 SB	Elephant & Castle to Kennington
N144 NB	Oval to Kennington Fast (G)

ID	Description
N144 NB	Oval to Kennington Local (E)
N144 SB	Kennington to Oval Fast (H)
N144 SB	Kennington to Oval Local (F)
N146 NB	Stockwell to Oval
N146 SB	Oval to Stockwell
N152 NB	Clapham North to Stockwell
N152 SB	Stockwell to Clapham North
N154 NB	Clapham Common to Clapham North
N154 SB	Clapham North to Clapham Common
N162 NB	Clapham South to Clapham Common
N162 SB	Clapham Common to Clapham South
N164 NB	Balham to Clapham South
N164 SB	Clapham South to Balham
N166 NB	Tooting Bec to Balham
N166 SB	Balham to Tooting Bec
N168 NB	Tooting Broadway to Tooting Bec
N168 SB	Tooting Bec to Tooting Broadway
N172 NB	Colliers Wood to Tooting Broadway
N172 SB	Tooting Broadway to Colliers Wood
N174 NB	South Wimbledon to Colliers Wood
N174 SB	Colliers Wood to South Wimbledon
N176 NB	Morden to South Wimbledon
N176 SB	South Wimbledon to Morden
P014 EB	Southgate to Oakwood
P014 WB	Oakwood to Southgate
P016 EB	Arnos Grove to Southgate
P016 WB	Southgate to Arnos Grove
P022 EB	Bounds Green to Arnos Grove
P022 WB	Arnos Grove to Bounds Green
P024 EB	Wood Green to Bounds Green
P024 WB	Bounds Green to Wood Green
P026 EB	Turnpike Lane to Wood Green
P026 WB	Wood Green to Turnpike Lane
P028 EB	Manor House to Turnpike Lane
P028 WB	Turnpike Lane to Manor House
P032 EB	Finsbury Park to Manor House
P032 WB	Manor House to Finsbury Park
P042 EB	Arsenal to Finsbury Park
P042 WB	Finsbury Park to Arsenal
P044 EB	Holloway Road to Arsenal
P044 WB	Arsenal to Holloway Road
P046 EB	Caledonian Road to Holloway Road
P046 WB	Holloway Road to Caledonian Road
P048 EB	King's Cross to Caledonian Road
P048 WB	Caledonian Road to King's Cross
P052 EB	Russell Square to King's Cross
P052 WB	King's Cross to Russell Square
P054 EB	Holborn to Russell Square
P054 WB	Russell Square to Holborn

ID	Description
P056 EB	Covent Garden to Holborn
P056 WB	Holborn to Covent Garden
P058 EB	Leicester Square to Covent Garden
P058 WB	Covent Garden to Leicester Square
P062 EB	Piccadilly Circus to Leicester Square
P062 WB	Leicester Square to Piccadilly Circus
P064 EB	Green Park to Piccadilly Circus
P064 WB	Piccadilly Circus to Green Park
P066 EB	Hyde Park Corner to Green Park
P066 WB	Green Park to Hyde Park Corner
P068 EB	Knightsbridge to Hyde Park Corner
P068 WB	Hyde Park Corner to Knightsbridge
P072 EB	South Kensington to Knightsbridge
P072 WB	Knightsbridge to South Kensington
P074 EB	Gloucester Road (Picc) to South Kensington
P074 WB	South Kensington to Gloucester Road (Picc)
P076 EB	Earl's Court (Picc) to Gloucester Road (Picc)
P076 WB	Gloucester Road (Picc) to Earl's Court (Picc)
P078 EB	Barons Court to Earl's Court (Picc)
P078 WB	Earl's Court (Picc) to Barons Court
V022 NB	Blackhorse Road to Walthamstow Central
V022 SB	Walthamstow Central to Blackhorse Road
V024 NB	Tottenham Hale to Blackhorse Road
V024 SB	Blackhorse Road to Tottenham Hale
V026 NB	Seven Sisters to Tottenham Hale
V026 SB	Tottenham Hale to Seven Sisters
V028 NB	Finsbury Park to Seven Sisters
V028 SB	Seven Sisters to Finsbury Park
V032 NB	Highbury & Islington to Finsbury Park
V032 SB	Finsbury Park to Highbury & Islington
V034 NB	King's Cross to Highbury & Islington
V034 SB	Highbury & Islington to King's Cross
V036 NB	Euston to King's Cross
V036 SB	King's Cross to Euston
V038 NB	Warren Street to Euston
V038 SB	Euston to Warren Street
V042 NB	Oxford Circus to Warren Street
V042 SB	Warren Street to Oxford Circus
V044 NB	Green Park to Oxford Circus
V044 SB	Oxford Circus to Green Park
V046 NB	Victoria to Green Park
V046 SB	Green Park to Victoria
V052 NB	Pimlico to Victoria
V052 SB	Victoria to Pimlico
V054 NB	Vauxhall to Pimlico
V054 SB	Pimlico to Vauxhall
V056 NB	Stockwell to Vauxhall
V056 SB	Vauxhall to Stockwell
V058 NB	Brixton to Stockwell



ID	Description
V058 SB	Stockwell to Brixton

### 3 Planned Stations

Station	Line	Category	Date Available
Battersea Power Station	Northern	Metro	31/10/2021
Bond Street	Elizabeth	Destination	31/01/2022
Canary Wharf	Elizabeth	Destination	31/01/2022
Farringdon	Elizabeth	Metro	31/01/2022
Liverpool Street	Elizabeth	Gateway	31/01/2022
Nine Elms	Northern	Metro	31/10/2021
Paddington	Elizabeth	Gateway	31/01/2022
Tottenham Court Road	Elizabeth	Destination	31/01/2022
Whitechapel	Elizabeth	Metro	31/01/2022
Woolwich	Elizabeth	Metro	31/01/2022

### 4 Planned Tunnel Sections

ID	Description	Line	Date Available
N204 NB	Battersea Power Station to Nine Elms	Northern	31/10/2021
CR082 WB	Bond Street to Paddington	Elizabeth	31/01/2022
CR084 EB	Bond Street to Tottenham Court Road	Elizabeth	31/01/2022
CR144 EB	Canary Wharf to Victoria Dock Portal	Elizabeth	31/01/2022
CR142 WB	Canary Wharf to Whitechapel	Elizabeth	31/01/2022
CR088 EB	Farringdon to Liverpool Street	Elizabeth	31/01/2022
CR086 WB	Farringdon to Tottenham Court Road	Elizabeth	31/01/2022
N202 SB	Kennington to Nine Elms	Northern	31/10/2021
CR088 WB	Liverpool Street to Farringdon	Elizabeth	31/01/2022
CR092 EB	Liverpool Street to Whitechapel	Elizabeth	31/01/2022
N204 SB	Nine Elms to Battersea Power Station	Northern	31/10/2021
N202 NB	Nine Elms to Kennington	Northern	31/10/2021
CR146 EB	Custom House to Woolwich	Elizabeth	31/01/2022
CR082 EB	Paddington to Bond Street	Elizabeth	31/01/2022
CR076 WB	Paddington to Royal Oak Portal	Elizabeth	31/01/2022
CR148 WB	Plumstead Portal to Woolwich	Elizabeth	31/01/2022
CR094 WB	Pudding Mill Lane Portal to Whitechapel	Elizabeth	31/01/2022
CR076 EB	Royal Oak Portal to Paddington	Elizabeth	31/01/2022
CR084 WB	Tottenham Court Road to Bond Street	Elizabeth	31/01/2022

ID	Description	Line	Date Available
CR086 EB	Tottenham Court Road to Farringdon	Elizabeth	31/01/2022
CR144 WB	Victoria Dock Portal to Canary Wharf	Elizabeth	31/01/2022
CR142 EB	Whitechapel to Canary Wharf	Elizabeth	31/01/2022
CR092 WB	Whitechapel to Liverpool Street	Elizabeth	31/01/2022
CR094 EB	Whitechapel to Pudding Mill Lane Portal	Elizabeth	31/01/2022
CR146 WB	Woolwich to Custom House	Elizabeth	31/01/2022
CR148 EB	Woolwich to Plumstead Portal	Elizabeth	31/01/2022

## Annex 2 – Public Wi-Fi Services Coverage

### 1 Public Wi-Fi Services Locations

Station	Line
Acton Town	District Piccadilly
Aldgate	Metropolitan Circle
Aldgate East	Hammersmith & City District
Alperton	Piccadilly
Amersham	Metropolitan
Angel	Northern
Archway	Northern
Arnos Grove	Piccadilly
Arsenal	Piccadilly
Baker Street	Metropolitan Bakerloo Circle Jubilee Hammersmith & City
Balham	Northern
Bank	Waterloo & City Northern Central
Barbican	Metropolitan Circle Hammersmith & City
Barking	District Hammersmith & City
Barkingside	Central
Barons Court	District Piccadilly
Bayswater	District Circle
Becontree	District
Belsize Park	Northern
Bermondsey	Jubilee
Bethnal Green	Central
Blackfriars	District Circle
Blackhorse Road	Victoria
Bond Street	Central Jubilee
Borough	Northern
Boston Manor	Piccadilly
Bounds Green	Piccadilly
Bow Road	District Hammersmith & City
Brent Cross	Northern

Station	Line
Brixton	Victoria
Bromley-by-Bow	District Hammersmith & City
Buckhurst Hill	Central
Burnt Oak	Northern
Caledonian Road	Piccadilly
Camden Town	Northern
Canada Water	Jubilee
Canary Wharf	Jubilee
Canning Town	Jubilee
Cannon Street	District Circle
Canons Park	Jubilee
Chalfont & Latimer	Metropolitan
Chalk Farm	Northern
Chancery Lane	Central
Charing Cross	Bakerloo Northern
Chesham	Metropolitan
Chigwell	Central
Chiswick Park	District
Chorleywood	Metropolitan
Clapham Common	Northern
Clapham North	Northern
Clapham South	Northern
Cockfosters	Piccadilly
Colindale	Northern
Colliers Wood	Northern
Covent Garden	Piccadilly
Croxley	Metropolitan
Dagenham East	District
Dagenham Heathway	District
Debden	Central
Dollis Hill	Jubilee
Ealing Broadway	District Central
Ealing Common	District Piccadilly
Earl's Court	District Piccadilly
East Acton	Central
East Finchley	Northern
East Ham	District Hammersmith & City
East Putney	District
Eastcote	Metropolitan Piccadilly
Edgware	Northern
Edgware Road	Bakerloo

Station	Line
Edgware Road	Hammersmith & City District Circle
Elephant & Castle	Northern Bakerloo
Elm Park	District
Embankment	District Bakerloo Northern Circle
Epping	Central
Euston	Northern Victoria
Euston Square	Metropolitan Circle Hammersmith & City
Fairlop	Central
Farringdon	Metropolitan Circle Hammersmith & City
Finchley Central	Northern
Finchley Road	Metropolitan Jubilee
Finsbury Park	Piccadilly Victoria
Fulham Broadway	District
Gants Hill	Central
Gloucester Road	District Piccadilly Circle
Golders Green	Northern
Goldhawk Road	Hammersmith & City Circle
Goodge Street	Northern
Grange Hill	Central
Great Portland Street	Metropolitan Circle Hammersmith & City
Greenford	Central
Green Park	Piccadilly Victoria Jubilee
Gunnersbury	District
Hainault	Central
Hammersmith	District Piccadilly

Station	Line
Hammersmith	Hammersmith & City Circle
Hampstead	Northern
Hanger Lane	Central
Harlesden	Bakerloo
Harrow & Wealdstone	Bakerloo
Harrow-on-the-Hill	Metropolitan
Hatton Cross	Piccadilly
Heathrow Terminals 1, 2, 3	Piccadilly
Heathrow Terminal 4	Piccadilly
Heathrow Terminal 5	Piccadilly
Hendon Central	Northern
High Barnet	Northern
Highbury & Islington	Victoria
Highgate	Northern
High Street Kensington	District Circle
Hillingdon	Metropolitan Piccadilly
Holborn	Central Piccadilly
Holland Park	Central
Holloway Road	Piccadilly
Hornchurch	District
Hounslow Central	Piccadilly
Hounslow East	Piccadilly
Hounslow West	Piccadilly
Hyde Park Corner	Piccadilly
Ickenham	Metropolitan Piccadilly
Kennington	Northern
Kensal Green	Bakerloo
Kensington (Olympia)	District
Kentish Town	Northern
Kenton	Bakerloo
Kew Gardens	District
Kilburn	Jubilee
Kilburn Park	Bakerloo
Kingsbury	Jubilee

Station	Line
King's Cross St. Pancras	Metropolitan Northern Piccadilly Circle Victoria Hammersmith & City
Knightsbridge	Piccadilly
Ladbroke Grove	Hammersmith & City Circle
Lambeth North	Bakerloo
Lancaster Gate	Central
Latimer Road	Hammersmith & City Circle
Leicester Square	Piccadilly Northern
Leyton	Central
Leytonstone	Central
Liverpool Street	Metropolitan Central Circle Hammersmith & City
London Bridge	Northern Jubilee
Loughton	Central
Maida Vale	Bakerloo
Manor House	Piccadilly
Mansion House	District Circle
Marble Arch	Central
Marylebone	Bakerloo
Mile End	District Hammersmith & City Central
Mill Hill East	Northern
Monument	District Circle
Moorgate	Metropolitan Northern Circle Hammersmith & City
Moor Park	Metropolitan
Morden	Northern
Mornington Crescent	Northern
Neasden	Jubilee

Station	Line
Newbury Park	Central
North Acton	Central
North Ealing	Piccadilly
North Greenwich	Jubilee
North Harrow	Metropolitan
North Wembley	Bakerloo
Northfields	Piccadilly
Northolt	Central
Northwick Park	Metropolitan
Northwood	Metropolitan
Northwood Hills	Metropolitan
Notting Hill Gate	District Central Circle
Oakwood	Piccadilly
Old Street	Northern
Osterley	Piccadilly
Oval	Northern
Oxford Circus	Central Bakerloo Victoria
Paddington	Hammersmith & City District Circle Bakerloo
Park Royal	Piccadilly
Parsons Green	District
Perivale	Central
Piccadilly Circus	Bakerloo Piccadilly
Pimlico	Victoria
Pinner	Metropolitan
Plaistow	District Hammersmith & City
Preston Road	Metropolitan
Putney Bridge	District
Queen's Park	Bakerloo
Queensbury	Jubilee
Queensway	Central
Ravenscourt Park	District
Rayners Lane	Metropolitan Piccadilly
Redbridge	Central



Station	Line
Regent's Park	Bakerloo
Richmond	District
Rickmansworth	Metropolitan
Roding Valley	Central
Royal Oak	Hammersmith & City Circle
Ruislip	Metropolitan Piccadilly
Ruislip Gardens	Central
Ruislip Manor	Metropolitan Piccadilly
Russell Square	Piccadilly
St. James's Park	District Circle
St. John's Wood	Jubilee
St. Paul's	Central
Seven Sisters	Victoria
Shepherd's Bush	Central
Shepherd's Bush Market	Hammersmith & City Circle
Sloane Square	District Circle
Snaresbrook	Central
South Ealing	Piccadilly
South Harrow	Piccadilly
South Kensington	District Piccadilly Circle
South Kenton	Bakerloo
South Ruislip	Central
South Wimbledon	Northern
South Woodford	Central
Southfields	District
Southgate	Piccadilly
Southwark	Jubilee
Stamford Brook	District
Stanmore	Jubilee
Stepney Green	District Hammersmith & City
Stockwell	Northern Victoria
Stonebridge Park	Bakerloo

Station	Line
Stratford	Central Jubilee
Sudbury Hill	Piccadilly
Sudbury Town	Piccadilly
Swiss Cottage	Jubilee
Temple	District Circle
Theydon Bois	Central
Tooting Bec	Northern
Tooting Broadway	Northern
Tottenham Court Road	Central Northern
Tottenham Hale	Victoria
Totteridge & Whetstone	Northern
Tower Hill	District Circle
Tufnell Park	Northern
Turnham Green	District Piccadilly
Turnpike Lane	Piccadilly
Upminster	District
Upminster Bridge	District
Upney	District
Upton Park	District Hammersmith & City
Uxbridge	Metropolitan Piccadilly
Vauxhall	Victoria
Victoria	District Circle Victoria
Walthamstow Central	Victoria
Wanstead	Central
Warren Street	Northern Victoria
Warwick Avenue	Bakerloo
Waterloo	Waterloo & City Bakerloo Northern Jubilee
Watford	Metropolitan
Wembley Central	Bakerloo
Wembley Park	Metropolitan Jubilee

Station	Line
West Acton	Central
West Brompton	District
West Finchley	Northern
West Ham	District Hammersmith & City Jubilee
West Hampstead	Jubilee
West Harrow	Metropolitan
West Kensington	District
West Ruislip	Central
Westbourne Park	Hammersmith & City Circle
Westminster	District Circle Jubilee
White City	Central
Whitechapel	District Hammersmith & City
Willesden Green	Jubilee
Willesden Junction	Bakerloo
Wimbledon	District
Wimbledon Park	District
Wood Green	Piccadilly
Wood Lane	Hammersmith & City Circle
Woodford	Central
Woodside Park	Northern
Victoria Coach Station	Not applicable

## 2 Public Wi-Fi Services Locations – Planned Stations

Station	Line
Abbey Wood	Elizabeth
Battersea Power Station	Northern
Bond Street	Elizabeth
Canary Wharf	Elizabeth
Custom House	Elizabeth
Farringdon	Elizabeth
Liverpool Street	Elizabeth
Nine Elms	Northern
Paddington	Elizabeth
Tottenham Court Road	Elizabeth
Whitechapel	Elizabeth
Woolwich	Elizabeth

## Annex 3 – Additional Coverage Locations for ESN

### 1 ESN Stations

Station	Line
Cutty Sark	Docklands Light Railway
Heathrow Terminal 5	Piccadilly
Island Gardens	Docklands Light Railway
Rotherhithe	London Overground
Shadwell	London Overground
Wapping	London Overground
Woolwich Arsenal	Docklands Light Railway
Aldwych	Piccadilly

### 2 ESN Tunnel Sections

ID	Description
B152 NB	Elephant & Castle (Overrun) to Elephant & Castle
B152 SB	Elephant & Castle to Elephant & Castle (Overrun)
C056 WB	Grange Hill to Chigwell
D238 EB	Heathrow T5 to Heathrow T123
D238 WB	Heathrow T123 to Heathrow T5
D239 RD01	Heathrow T5 to Heathrow T5 Sidings (21 Road)
D239 RD02	Heathrow T5 Sidings to Heathrow T5 (22 Road)
F046 NB	Charing Cross to Green Park
F046 SB	Green Park to Charing Cross
F048 NB	Charing Cross (Overrun) to Charing Cross
F048 SB	Charing Cross to Charing Cross (Overrun)
M152 NB (E018 DN)	Shoreditch High St to Whitechapel
M152 SB (E018 UP)	Whitechapel to Shoreditch High St
M154 NB (E020 UP)	Shadwell to Whitechapel
M154 SB (E020 DN)	Whitechapel to Shadwell
M156 NB (E022 UP)	Wapping to Shadwell
M156 SB (E022 DN)	Shadwell to Wapping
M158 NB (E024 UP)	Rotherhithe to Wapping
M158 SB (E024 DN)	Wapping to Rotherhithe
M193 NB (E026 UP)	Canada Water to Rotherhithe
M193 SB (E026 DN)	Rotherhithe to Canada Water
M199 NB (E028 UP)	Surrey Quays to Canada Water
M199 SB (E028 DN)	Canada Water to Surrey Quays
N192 OB	Kennington Loop to Kennington Loop
P122 WB	Holborn to Aldwych
T560 NB	Island Gardens to Mudchute
T560 SB	Mudchute to Island Gardens
T570 NB	Cutty Sark to Island Gardens
T570 SB	Island Gardens to Cutty Sark
T580 NB	Cutty Sark to Greenwich
T580 SB	Greenwich to Cutty Sark
T750 NB	Woolwich Arsenal to King George V

ID	Description
T750 SB	King George V to Woolwich Arsenal
T860 NB	Stratford Plat 16 to Stratford Int
T860 SB	Stratford Int to Stratford Plat 17
V018 NB	Walthamstow Central Overrun
V018 SB	Walthamstow Central Overrun
V028 MA	Finsbury Park to Seven Sisters
V029 NB	Seven Sisters to Northumberland Park Depot
V029 SB	Northumberland Park Depot to Seven Sisters
V062 NB	Brixton Overrun Tunnel
V062 SB	Brixton Overrun Tunnel
X906 NB	London Road Depot to Lambeth North
X907 EB	White City (Sidings) to White City

### 3 Emergency Intervention Points (EIP)

ID	EIP Name
C096	Bishopsgate
W001	Bull & Bush (Disused Station)
J006	Canning Town Portal
F048	Southampton Street (Charing Cross Station - Disused Jubilee)
W003	City Road (Disused Station)
W012	Down Street
J009	Downtown Road
J016	Druid Street
J012	Durands Wharf
V042	Great Titchfield St
DD134	Cromwell Road (Triangle Sidings) Earl's Court St. & Gloucester Road St.
D233	Heathrow Picc Ex
CR052	Heathrow T5C
D238	Heathrow T5 Sidings
C096	Hollybush Gardens (Fan Shaft)
P042	Isledon Road
M122	Kings Cross
N134	London Bridge
W050	Lords
W042	Mark Lane Subway (And disused Tower Hill Station)
W031	Marlborough Rd
C068	Middleton Gardens 22 & 24
V028	Netherton Rd
C092	Old Ford (Detraining)
V046	Palace St
J007	Pioneer Wharf
J008	Prestons Road
C074	Redbridge
D235	Sanctuary Rd
W002	South Kentish Town
W041	St Marys

ID	EIP Name
J026	Storeys Gate
J018	Wardens Grove
D234	Wessex Rd
W011	York Road

#### 4 Planned Emergency Intervention Points

ID	EIP Name
	Blackwall Way Shaft (Elizabeth Line)
	Eleanor Street Shaft (Elizabeth Line)
	Fisher Street Shaft (Elizabeth Line)
	Hanbury Street Shaft (Elizabeth Line)
	Hertsmere Road Shaft (Elizabeth Line)
	Hyde Park Shaft (Elizabeth Line)
	Lowell Street Shaft (Elizabeth Line)
	Mile End Park Shaft (Elizabeth Line)
	Park Lane Shaft (Elizabeth Line)
	Westbourne Bridge Shaft (Elizabeth Line)
	Stepney Green Shaft 1 (Elizabeth Line)
	Stepney Green Shaft 2 (Elizabeth Line)
	Kennington Green (Northern Line Extension)
	Kennington Park (Northern Line Extension)

## Annex 4 – Existing Agreements

Type	3rd Party Supply Name	Contract Start date	Contract Expiry date	Total Meterage	Summary
Tramduct	CD01 UKPN - Internal Order 1901563	01/06/2012	31/05/2022	22,205 m	Fibre running through a series of tramducts in South London namely Tower Bridge Road, A215, B222, A200 Everlyn St, A203 Broxton Hill, Battersea Park Rd.
Tramduct	CD06 Virgin - Internal Order 1901565	30/09/2009	Renewal being drafted	92,639 m	Fibre running through tramduct running along A1205 Burdon Road & A13 East India Dock Rd.
Wayleave	CD9 Vodafone - Internal Order 1901566	05/02/2021	04/02/2026	16,569 m	Fibre running along LU rails primarily on the District - Park Royal to Bromley-by-Bow; Northern - High Barnet to Elephant & Castle; Bakerloo - Paddington to Elephant & Castle; small sections on Central & Piccadilly Lines.
Wayleave	CD19 Verizon - Internal Order 1901567	12/07/2018	11/07/2023	23,491 m	Fibre running along LU estate on the Bakerloo Line from Hillingdon & West Ruislip to North Acton & Central Line North Acton to Notting Hill Gate.
Wayleave	CD25 TeliaSonnera - Internal Order 1901569	16/02/2021	15/02/2026	31,462 m	Fibre running along LU rails primarily on the District Line from Upminster to South Kensington; Central Line from Mile End to Holborn; Piccadilly Line from Holborn to South Kensington.

Type	3rd Party Supply Name	Contract Start date	Contract Expiry date	Total Meterage	Summary
Tramduct	CD29 Vodafone - Internal Order 1901570	11/11/1997	11/11/2022	5,126 m	Small sections of fibre running along tramducts from Tooting Broadway to Morden on Northern Line. Fibre present in tramducts at Hammersmith; Farringdon: Camden Town; Angel; Old St & Euston Stations.
Wayleave	CD35 Century Link - Internal Order 1901571	24/04/1998	23/04/2023	15,110 m	Small sections of fibre running along LU rails from Bromley-by-Bow to Moorgate on H&C Line & Moorgate to Old St on the Northern Line also Aldgate Station.
Wayleave	CD38 Century Link - Internal Order 1901573	30/03/1994	29/03/2045	32,670 m	Small sections of fibre running along LU rails on the Metropolitan Line from Amersham to Harrow-on-the-Hill; District Line from Victoria to Blackfriars & Northern Line from King's Cross St Pancras to Liverpool St.
Tramduct	CD39 Virgin - Internal Order 1901574	30/09/2009	Renewal being drafted	1,999 m	Fibre running through tramducts primarily in Greenwich along the A205 South Circular Rd, Powis St & A206 Plumstead Rd.
Tramduct	CD62 LB Hounslow - Internal Order 1901576	28/02/2012	27/02/2022	1,999 m	Fibre running through a tramduct along the Kingsley Road, Hounslow.
Tramduct	CD73 Easynet - Internal Order 1901574	13/07/2003	12/07/2028	2,291 m	Fibre running through a tramduct from Aldgate, Whitechapel High St to Bow Rd.



Type	3rd Party Supply Name	Contract Start date	Contract Expiry date	Total Meterage	Summary
Master Site Agreement for Macrosites	Cornerstone Telecoms Infrastructure	05/08/2014	04/08/2034	N/a	Overarching agreement of terms & conditions for installation of macro & microcell 4G & 5G equipment on TfL estate, supported by individual site specific leases

## Annex 5 – TTL Infrastructure Re-Charges and Availability

### 1 TTL Infrastructure (excluding Pilot Infrastructure)

ID	Type	Description	Infrastructure Available Date		
	Station	Aldgate	01/03/2021		
	Station	Archway	01/05/2021		
	Station	Baker Street	01/09/2021		
	Station	Bayswater	01/04/2021		
	Station	Blackfriars	01/05/2021		
	Station	Bond Street	01/07/2021		
	Station	Borough	01/06/2021		
	Station	Cannon Street	01/04/2021		
	Station	Chancery Lane	01/05/2021		
	Station	Charing Cross	01/11/2021		
	Station	Clapham North	01/04/2021		
	Station	Edgware Road	01/08/2021		
	Station	Embankment	01/12/2021		
	Station	Euston	01/07/2021		

ID	Type	Description	Infrastructure Available Date		
	Station	Euston Square	01/08/2021		
	Station	Fulham Broadway	01/04/2021		
	Station	Goode Street	01/04/2021		
	Station	Green Park	01/06/2021		
	Station	Highbury & Islington	01/05/2021		
	Station	Highgate	01/04/2021		
	Station	Holland Park	01/04/2021		
	Station	Hyde Park Corner	01/05/2021		
	Station	Kentish Town	01/04/2021		
	Station	Kings Cross	01/06/2021		
	Station	Knightsbridge	01/08/2021		
	Station	Lambeth North	01/05/2021		
	Station	Lancaster Gate	01/05/2021		
	Station	Leicester Square	01/11/2021		
	Station	Liverpool Street	01/07/2021		
	Station	Manor House	01/06/2021		

ID	Type	Description	Infrastructure Available Date		
	Station	Mansion House	01/04/2021		
	Station	Marble Arch	01/05/2021		
	Station	Marylebone	01/06/2021		
	Station	Mile End	01/05/2021		
	Station	Moorgate	01/07/2021		
	Station	Old Street	01/05/2021		
	Station	Oval	01/05/2021		
	Station	Oxford Circus	01/07/2021		
	Station	Paddington	01/08/2021		
	Station	Piccadilly Circus	01/11/2021		
	Station	Pimlico	01/06/2021		
	Station	Queensway	01/05/2021		
	Station	Regents Park	01/06/2021		
	Station	Seven Sisters	01/05/2021		
	Station	Shepherds Bush	01/04/2021		
	Station	Sloane Square	01/04/2021		

ID	Type	Description	Infrastructure Available Date		
	Station	St James Park	01/04/2021		
	Station	St John's Wood	01/06/2021		
	Station	St Pauls	01/05/2021		
	Station	Stockwell	01/06/2021		
	Station	Swiss Cottage	01/06/2021		
	Station	Temple	01/03/2021		
	Station	Tottenham Court Road	01/07/2021		
	Station	Tottenham Hale	01/06/2021		
	Station	Tower Hill	01/03/2021		
	Station	Vauxhall	01/06/2021		
	Station	Victoria	01/06/2021		
B052 NB	Tunnel	Kensal Green to Willesden Junction	31/07/2021		
B052 SB	Tunnel	Willesden Junction to Kensal Green	31/07/2021		
B062 NB	Tunnel	Kilburn Park to Queens Park	31/03/2021		
B062 SB	Tunnel	Queens Park to Kilburn Park	31/03/2021		
B064 NB	Tunnel	Maida Vale to Kilburn Park	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
B064 SB	Tunnel	Kilburn Park to Maida Vale	31/03/2021		
B066 NB	Tunnel	Maida Vale to Warwick Avenue	31/03/2021		
B066 SB	Tunnel	Warwick Avenue to Maida Vale	31/07/2021		
B068 NB	Tunnel	Paddington (Bloo) to Warwick Avenue	31/07/2021		
B068 SB	Tunnel	Warwick Avenue to Paddington (Bloo)	31/03/2021		
B072 NB	Tunnel	Edgware Road (Bloo) to Paddington (Bloo)	31/03/2021		
B072 SB	Tunnel	Paddington (Bloo) to Edgware Road (Bloo)	31/03/2021		
B074 NB	Tunnel	Marylebone to Edgware Road (Bloo)	31/03/2021		
B074 SB	Tunnel	Edgware Road (Bloo) to Marylebone	31/03/2021		
B076 NB	Tunnel	Baker Street to Marylebone	31/03/2021		
B076 SB	Tunnel	Marylebone to Baker Street	31/03/2021		
B108 NB	Tunnel	Swiss Cottage to Finchley Road	31/07/2021		
B108 SB	Tunnel	Finchley Road to Swiss Cottage	31/07/2021		
B112 NB	Tunnel	St John's Wood to Swiss Cottage	31/07/2021		
B112 SB	Tunnel	Swiss Cottage to St John's Wood	31/07/2021		
B114 NB	Tunnel	Baker Street to St John's Wood	31/07/2021		



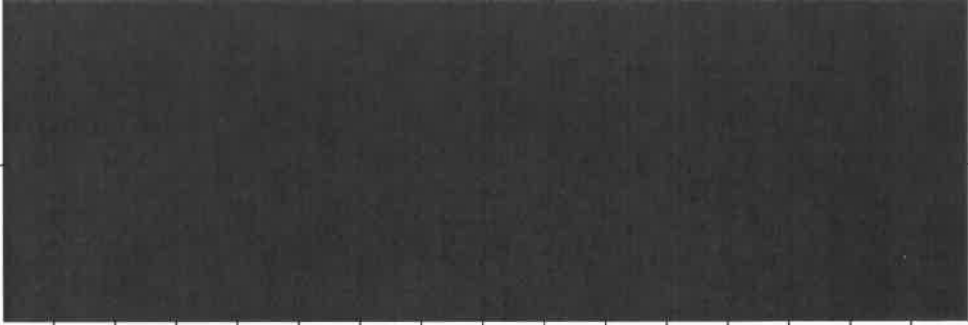
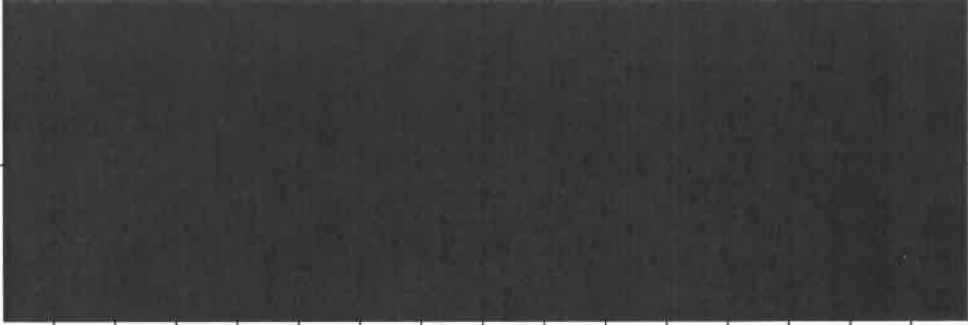
ID	Type	Description	Infrastructure Available Date		
B114 SB	Tunnel	St John's Wood to Baker Street	31/07/2021		
B122 NB	Tunnel	Regent's Park to Baker Street	31/07/2021		
B122 SB	Tunnel	Baker Street to Regent's Park	31/03/2021		
B124 NB	Tunnel	Oxford Circus to Regent's Park	31/03/2021		
B124 SB	Tunnel	Regent's Park to Oxford Circus	31/07/2021		
B126 NB	Tunnel	Piccadilly Circus to Oxford Circus	31/07/2021		
B126 SB	Tunnel	Oxford Circus to Piccadilly Circus	31/03/2021		
B128 NB	Tunnel	Charing Cross to Piccadilly Circus	31/07/2021		
B128 SB	Tunnel	Piccadilly Circus to Charing Cross	31/03/2021		
B132 NB	Tunnel	Embankment to Charing Cross	31/03/2021		
B132 SB	Tunnel	Charing Cross to Embankment	31/03/2021		
B134 NB	Tunnel	Waterloo to Embankment	31/07/2021		
B134 SB	Tunnel	Embankment to Waterloo	31/03/2021		
B136 NB	Tunnel	Lambeth North to Waterloo	31/03/2021		
B136 SB	Tunnel	Waterloo to Lambeth North	31/03/2021		
B138 NB	Tunnel	Elephant & Castle to Lambeth North	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
B138 SB	Tunnel	Lambeth North to Elephant & Castle	31/03/2021		
B142 NB	Tunnel (ESN)	Elephant & Castle (Overrun) to Elephant & Castle	31/07/2021		
B142 SB	Tunnel (ESN)	Elephant & Castle to Elephant & Castle (Overrun)	31/07/2021		
C056 WB	Tunnel (ESN)	Grange Hill to Chigwell	31/03/2021		
C068 EB	Tunnel	Gants Hill to Newbury Park	31/03/2021		
C068 WB	Tunnel	Newbury Park to Gants Hill	31/03/2021		
C072 EB	Tunnel	Redbridge to Gants Hill	31/03/2021		
C072 WB	Tunnel	Gants Hill to Redbridge	31/03/2021		
C074 EB	Tunnel	Wanstead to Redbridge	31/03/2021		
C074 WB	Tunnel	Redbridge to Wanstead	31/03/2021		
C076 EB	Tunnel	Leytonstone to Wanstead	31/03/2021		
C076 WB	Tunnel	Wanstead to Leytonstone	31/03/2021		
C084 EB	Tunnel	Stratford to Leyton	31/07/2021		
C084 WB	Tunnel	Leyton to Stratford	31/07/2021		
C092 EB	Tunnel	Mile End to Stratford	31/03/2021		



ID	Type	Description	Infrastructure Available Date		
C092 WB	Tunnel	Stratford to Mile End	31/03/2021		
C094 EB	Tunnel	Bethnal Green to Mile End	31/03/2021		
C094 WB	Tunnel	Mile End to Bethnal Green	31/03/2021		
C096 EB	Tunnel	Liverpool Street to Bethnal Green	31/03/2021		
C096 WB	Tunnel	Bethnal Green to Liverpool Street	31/03/2021		
C102 EB	Tunnel	Bank to Liverpool Street	31/03/2021		
C102 WB	Tunnel	Liverpool Street to Bank	31/03/2021		
C104 EB	Tunnel	Waterloo to Bank	31/03/2019		
C104 WB	Tunnel	Bank to Waterloo	31/07/2021		
C112 EB	Tunnel	St Paul's to Bank	31/03/2021		
C112 WB	Tunnel	Bank to St Paul's	31/03/2021		
C114 EB	Tunnel	Chancery Lane to St Paul's	31/03/2021		
C114 WB	Tunnel	St Paul's to Chancery Lane	31/03/2021		
C116 EB	Tunnel	Holborn to Chancery Lane	31/03/2021		
C116 WB	Tunnel	Chancery Lane to Holborn	31/03/2021		
C118 EB	Tunnel	Tottenham Court Road to Holborn	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
C118 WB	Tunnel	Holborn to Tottenham Court Road	31/03/2021		
C122 EB	Tunnel	Oxford Circus to Tottenham Court Road	31/03/2021		
C122 WB	Tunnel	Tottenham Court Road to Oxford Circus	31/03/2021		
C124 EB	Tunnel	Bond Street to Oxford Circus	31/03/2021		
C124 WB	Tunnel	Oxford Circus to Bond Street	31/03/2021		
C126 EB	Tunnel	Marble Arch to Bond Street	31/03/2021		
C126 WB	Tunnel	Bond Street to Marble Arch	31/03/2021		
C128 EB	Tunnel	Lancaster Gate to Marble Arch	31/03/2021		
C128 WB	Tunnel	Marble Arch to Lancaster Gate	31/03/2021		
C132 EB	Tunnel	Queensway to Lancaster Gate	31/03/2021		
C132 WB	Tunnel	Lancaster Gate to Queensway	31/03/2021		
C134 EB	Tunnel	Notting Hill Gate to Queensway	31/03/2021		
C134 WB	Tunnel	Queensway to Notting Hill Gate	31/03/2021		
C136 EB	Tunnel	Holland Park to Notting Hill Gate	31/03/2021		
C136 WB	Tunnel	Notting Hill Gate to Holland Park	31/03/2021		
C138 EB	Tunnel	Shepherd's Bush to Holland Park	31/03/2021		

<b>ID</b>	<b>Type</b>	<b>Description</b>	<b>Infrastructure Available Date</b>		
C138 WB	Tunnel	Holland Park to Shepherd's Bush	31/03/2021		
C142 EB	Tunnel	White City to Shepherd's Bush	31/03/2021		
C142 WB	Tunnel	Shepherd's Bush to White City	31/07/2021		
D052 EB	Tunnel	Mile End to Bow Road	31/03/2021		
D052 WB	Tunnel	Bow Road to Mile End	31/03/2021		
D054 EB	Tunnel	Stepney Green to Mile End	31/03/2021		
D054 WB	Tunnel	Mile End to Stepney Green	31/03/2021		
D056 EB	Tunnel	Whitechapel to Stepney Green	31/07/2021		
D056 WB	Tunnel	Stepney Green to Whitechapel	31/07/2021		
D062 EB	Tunnel	Aldgate East to Whitechapel	31/07/2021		
D062 WB	Tunnel	Whitechapel to Aldgate East	31/03/2021		
D072 EB	Tunnel	Tower Hill to Aldgate East	31/03/2021		
D072 WB	Tunnel	Aldgate East to Tower Hill	31/07/2021		
D074 EB	Tunnel	Aldgate to Liverpool Street	31/07/2021		
D074 WB	Tunnel	Liverpool Street to Aldgate	31/03/2021		
D076 EB	Tunnel	Tower Hill to Aldgate	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
D076 WB	Tunnel	Aldgate to Tower Hill	31/07/2021		
D078 EB	Tunnel	Monument to Tower Hill	31/03/2021		
D078 WB	Tunnel	Tower Hill to Monument	31/03/2021		
D082 EB	Tunnel	Cannon Street to Monument	31/07/2021		
D082 WB	Tunnel	Monument to Cannon Street	31/07/2021		
D084 EB	Tunnel	Mansion House to Cannon Street	31/03/2021		
D084 WB	Tunnel	Cannon Street to Mansion House	31/03/2021		
D086 EB	Tunnel	Blackfriars to Mansion House	31/03/2021		
D086 WB	Tunnel	Mansion House to Blackfriars	31/03/2021		
D092 EB	Tunnel	Temple to Blackfriars	31/07/2021		
D092 WB	Tunnel	Blackfriars to Temple	31/07/2021		
D094 EB	Tunnel	Embankment to Temple	31/03/2021		
D094 WB	Tunnel	Temple to Embankment	31/03/2021		
D096 EB	Tunnel	Westminster to Embankment	31/03/2021		
D096 WB	Tunnel	Embankment to Westminster	31/03/2021		
D102 EB	Tunnel	St James's Park to Westminster	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
D102 WB	Tunnel	Westminster to St James's Park	31/07/2021		
D104 EB	Tunnel	Victoria to St James's Park	31/03/2021		
D104 WB	Tunnel	St James's Park to Victoria	31/03/2021		
D106 EB	Tunnel	Sloane Square to Victoria	31/07/2021		
D106 WB	Tunnel	Victoria to Sloane Square	31/07/2021		
D108 EB	Tunnel	South Kensington to Sloane Square	31/07/2021		
D108 WB	Tunnel	Sloane Square to South Kensington	31/07/2021		
D112 DORMA	Tunnel	254PTS to Gloucester Rd	31/07/2021		
D112 EB	Tunnel	Gloucester Road (Dist) to South Kensington	31/03/2021		
D112 WB	Tunnel	South Kensington to Gloucester Road (Dist)	31/03/2021		
D114 EB	Tunnel	High Street Kensington to Gloucester Road (Dist)	31/03/2021		
D114 WB	Tunnel	Gloucester Road (Dist) to High Street Kensington	31/03/2021		
D116 EB	Tunnel	High Street Kensington to Notting Hill Gate	31/07/2021		
D116 WB	Tunnel	Notting Hill Gate to High Street Kensington	31/03/2021		
D118 EB	Tunnel	Notting Hill Gate to Bayswater	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
D118 WB	Tunnel	Bayswater to Notting Hill Gate	31/03/2021		
D122 EB	Tunnel	Bayswater to Paddington (Dist)	31/03/2021		
D122 WB	Tunnel	Paddington (Dist) to Bayswater	31/03/2021		
D124 EB	Tunnel	Paddington (Met) to Edgware Road (Met)	31/03/2021		
D124 IRLO	Tunnel	Paddington (Dis) to Edgware Road (Dis)	31/03/2021		
D124 OR	Tunnel	Paddington P2 to Edgware Rd P1	31/03/2021		
D124 WB	Tunnel	26Pts - Paddington Sub	31/03/2021		
D132 EB	Tunnel	Earl's Court (Dist) to Gloucester Road (Dist)	31/07/2021		
D132 WB	Tunnel	Gloucester Road (Dist) to Earl's Court (Dist)	31/07/2021		
D134 EB	Tunnel	Earl's Court (Dist) to High Street Kensington	31/03/2021		
D134 WB	Tunnel	High Street Kensington to Earl's Court (Dist)	31/07/2021		
D136 EB	Tunnel	Kensington (Olympia) to Earl's Court (Dist)	31/07/2021		
D142 EB	Tunnel	West Brompton to Earl's Court (Dist)	31/07/2021		
D142 WB MA	Tunnel	27PTS Earl's Court to 24PTS West Brompton	31/03/2021		
D142 WB	Tunnel	Earl's Court (Dist) to West Brompton	31/03/2021		
D152 EB	Tunnel	Fulham Broadway to West Brompton	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
D152 WB	Tunnel	West Brompton to Fulham Broadway	31/03/2021		
D154 EB	Tunnel	Parsons Green to Fulham Broadway	31/07/2021		
D154 WB	Tunnel	Fulham Broadway to Parsons Green	31/07/2021		
D164 EB	Tunnel	Southfields to East Putney	31/07/2021		
D164 WB	Tunnel	East Putney to Southfields	31/07/2021		
D172 EB	Tunnel	West Kensington to Earl's Court (Dist)	31/07/2021		
D172 WB	Tunnel	Earl's Court (Dist) to West Kensington	31/03/2021		
D228 EB	Tunnel	Hatton Cross to Hounslow West	31/07/2021		
D228 WB	Tunnel	Hounslow West to Hatton Cross	31/03/2021		
D232 EB	Tunnel	Heathrow T123 to Hatton Cross	31/03/2021		
D232 WB	Tunnel	Hatton Cross to Heathrow T123	31/03/2021		
D234 WB	Tunnel	Heathrow T123 to Heathrow T4	31/03/2021		
D236 WB	Tunnel	Hatton Cross to Heathrow T4	31/03/2021		
D238 EB	Tunnel (ESN)	Heathrow T5 to Heathrow T123	31/07/2021		
D238 WB	Tunnel (ESN)	Heathrow T123 to Heathrow T5	31/07/2021		
D239 RD01	Tunnel (ESN)	Heathrow T5 to Heathrow T5 Sidings (21 Road)	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
D239 RD02	Tunnel (ESN)	Heathrow T5 Sidings to Heathrow T5 (22 Road)	31/07/2021		
F042 NB	Tunnel	Bond Street to Baker Street	30/09/2021		
F042 SB	Tunnel	Baker Street to Bond Street	30/09/2021		
F044 NB	Tunnel	Green Park to Bond Street	30/09/2021		
F044 SB	Tunnel	Bond Street to Green Park	30/09/2021		
F046 NB	Tunnel (ESN)	Charing Cross to Green Park	31/07/2021		
F046 SB	Tunnel (ESN)	Green Park to Charing Cross	31/07/2021		
F048 NB	Tunnel (ESN)	Charing Cross (Overrun) to Charing Cross	31/07/2021		
F048 SB	Tunnel (ESN)	Charing Cross to Charing Cross (Overrun)	31/07/2021		
J026 NB	Tunnel	Westminster to Green Park	30/09/2021		
J026 SB	Tunnel	Green Park to Westminster	30/09/2021		
M100 NB	Tunnel	Baker Street to Finchley Road	31/07/2021		
M100 SB	Tunnel	Finchley Road to Baker Street	31/07/2021		
M114 EB	Tunnel	Baker Street to Great Portland Street	31/07/2021		
M114 WB	Tunnel	Great Portland Street to Baker Street	31/03/2021		
M116 EB	Tunnel	Great Portland Street to Euston Square	31/07/2021		



ID	Type	Description	Infrastructure Available Date		
M116 WB	Tunnel	Euston Square to Great Portland Street	31/07/2021		
M118 EB	Tunnel	Euston Square to King's Cross	31/03/2021		
M118 WB	Tunnel	King's Cross to Euston Square	31/03/2021		
M122 EB	Tunnel	King's Cross to Farringdon	31/03/2021		
M122 WB	Tunnel	Farringdon to King's Cross	31/03/2021		
M132 EB	Tunnel	Farringdon to Barbican	31/03/2021		
M132 WB	Tunnel	Barbican to Farringdon	31/07/2021		
M134 EB	Tunnel	Barbican to Moorgate	31/03/2021		
M134 WB	Tunnel	Moorgate to Barbican	31/03/2021		
M142 EB	Tunnel	Moorgate to Liverpool Street	31/03/2021		
M142 WB	Tunnel	Liverpool Street to Moorgate	31/03/2021		
M144 EB	Tunnel	Liverpool Street to Aldgate East	31/03/2021		
M144 WB	Tunnel	Aldgate East to Liverpool Street	31/03/2021		
M152 NB (E018 DN)	Tunnel (ESN)	Shoreditch High St to Whitechapel	31/07/2021		
M152 SB (E018 UP)	Tunnel (ESN)	Whitechapel to Shoreditch High St	31/07/2021		
M154 NB (E020 UP)	Tunnel (ESN)	Shadwell to Whitechapel	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
M154 SB (E020 DN)	Tunnel (ESN)	Whitechapel to Shadwell	31/07/2021		
M156 NB (E022 UP)	Tunnel (ESN)	Wapping to Shadwell	31/07/2021		
M156 SB (E022 DN)	Tunnel (ESN)	Shadwell to Wapping	31/07/2021		
M158 NB (E024 UP)	Tunnel (ESN)	Rotherhithe to Wapping	31/07/2021		
M158 SB (E024 DN)	Tunnel (ESN)	Wapping to Rotherhithe	31/07/2021		
M168 EB	Tunnel	Edgware Road (Met) to Baker Street	31/03/2021		
M168 WB	Tunnel	Baker Street to Edgware Road (Met)	31/03/2021		
M193 NB (E026 UP)	Tunnel (ESN)	Canada Water to Rotherhithe	31/07/2021		
M193 SB (E026 DN)	Tunnel (ESN)	Rotherhithe to Canada Water	31/07/2021		
M199 NB (E028 UP)	Tunnel (ESN)	Surrey Quays to Canada Water	31/07/2021		
M199 SB (E028 DN)	Tunnel (ESN)	Canada Water to Surrey Quays	31/07/2021		
N026 NB	Tunnel	Hendon Central to Colindale	31/07/2021		
N026 SB	Tunnel	Colindale to Hendon Central	31/07/2021		
N042 NB	Tunnel	Hampstead to Golders Green	31/07/2021		
N042 SB	Tunnel	Golders Green to Hampstead	31/07/2021		
N044 NB	Tunnel	Beisize Park to Hampstead	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
N044 SB	Tunnel	Hampstead to Belsize Park	31/03/2021		
N046 NB	Tunnel	Chalk Farm to Belsize Park	31/07/2021		
N046 SB	Tunnel	Belsize Park to Chalk Farm	31/07/2021		
N048 NB	Tunnel	Camden Town to Chalk Farm	31/07/2021		
N048 SB	Tunnel	Chalk Farm to Camden Town	31/07/2021		
N074 NB	Tunnel	Highgate to East Finchley	31/07/2021		
N074 SB	Tunnel	East Finchley to Highgate	31/07/2021		
N076 NB	Tunnel	Archway to Highgate	31/07/2021		
N076 SB	Tunnel	Highgate to Archway	31/07/2021		
N082 NB	Tunnel	Tufnell Park to Archway	31/03/2021		
N082 SB	Tunnel	Archway to Tufnell Park	31/07/2021		
N084 NB	Tunnel	Kentish Town to Tufnell Park	31/07/2021		
N084 SB	Tunnel	Tufnell Park to Kentish Town	31/07/2021		
N086 NB	Tunnel	Camden Town to Kentish Town	31/03/2021		
N086 SB	Tunnel	Kentish Town to Camden Town	31/07/2021		
N092 NB	Tunnel	Morningson Crescent to Camden Town (E)	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
N092 NB	Tunnel	Mornington Crescent to Camden Town (I)	31/07/2021		
N092 SB	Tunnel	Camden Town to Mornington Crescent (F)	31/07/2021		
N092 SB	Tunnel	Camden Town to Mornington Crescent (J)	31/07/2021		
N094 NB	Tunnel	Euston to Mornington Crescent	31/03/2021		
N094 SB	Tunnel	Mornington Crescent to Euston	31/03/2021		
N096 NB	Tunnel	Euston to Camden Town	31/07/2021		
N096 SB	Tunnel	Camden Town to Euston	31/07/2021		
N098 NB	Tunnel	Warren Street to Euston	31/07/2021		
N098 SB	Tunnel	Euston to Warren Street	31/03/2021		
N102 NB	Tunnel	Goodge Street to Warren Street	31/03/2021		
N102 SB	Tunnel	Warren Street to Goodge Street	31/03/2021		
N104 NB	Tunnel	Tottenham Court Road to Goodge Street	31/03/2021		
N104 SB	Tunnel	Goodge Street to Tottenham Court Road	31/07/2021		
N106 NB	Tunnel	Leicester Square to Tottenham Court Road	31/03/2021		
N106 SB	Tunnel	Tottenham Court Road to Leicester Square	31/03/2021		
N108 NB	Tunnel	Charing Cross to Leicester Square	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
N108 SB	Tunnel	Leicester Square to Charing Cross	31/07/2021		
N112 NB	Tunnel	Embankment to Charing Cross	31/03/2021		
N112 SB	Tunnel	Charing Cross to Embankment	31/03/2021		
N114 NB	Tunnel	Waterloo to Embankment	31/07/2021		
N114 SB	Tunnel	Embankment to Waterloo	31/07/2021		
N116 NB	Tunnel	Kennington to Waterloo	31/03/2021		
N116 SB	Tunnel	Waterloo to Kennington	31/07/2021		
N122 NB	Tunnel	King's Cross to Euston	31/03/2021		
N122 SB	Tunnel	Euston to King's Cross	31/03/2021		
N124 NB	Tunnel	Angel to King's Cross	31/03/2021		
N124 SB	Tunnel	King's Cross to Angel	31/07/2021		
N126 NB	Tunnel	Old Street to Angel	31/03/2021		
N126 SB	Tunnel	Angel to Old Street	31/03/2021		
N128 NB	Tunnel	Moorgate to Old Street	31/07/2021		
N128 SB	Tunnel	Old Street to Moorgate	31/03/2021		
N132 NB	Tunnel	Bank to Moorgate	30/06/2021		

ID	Type	Description	Infrastructure Available Date		
N134 NB	Tunnel	London Bridge to Bank	Complete		
N136 NB	Tunnel	Borough to London Bridge	31/07/2021		
N136 SB	Tunnel	London Bridge to Borough	31/03/2021		
N138 NB	Tunnel	Elephant & Castle to Borough	31/03/2021		
N138 SB	Tunnel	Borough to Elephant & Castle	31/03/2021		
N142 NB	Tunnel	Kennington to Elephant & Castle	31/07/2021		
N142 SB	Tunnel	Elephant & Castle to Kennington	31/03/2021		
N144 NB	Tunnel	Oval to Kennington Fast (G)	31/07/2021		
N144 NB	Tunnel	Oval to Kennington Local (E)	31/07/2021		
N144 SB	Tunnel	Kennington to Oval Fast (H)	31/07/2021		
N144 SB	Tunnel	Kennington to Oval Local (F)	31/07/2021		
N146 NB	Tunnel	Stockwell to Oval	31/07/2021		
N146 SB	Tunnel	Oval to Stockwell	31/07/2021		
N152 NB	Tunnel	Clapham North to Stockwell	31/03/2021		
N152 SB	Tunnel	Stockwell to Clapham North	31/03/2021		
N154 NB	Tunnel	Clapham Common to Clapham North	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
N154 SB	Tunnel	Clapham North to Clapham Common	31/03/2021		
N162 NB	Tunnel	Clapham South to Clapham Common	31/07/2021		
N162 SB	Tunnel	Clapham Common to Clapham South	31/03/2021		
N164 NB	Tunnel	Balham to Clapham South	31/03/2021		
N164 SB	Tunnel	Clapham South to Balham	31/07/2021		
N166 NB	Tunnel	Tooting Bec to Balham	31/03/2021		
N166 SB	Tunnel	Balham to Tooting Bec	31/03/2021		
N168 NB	Tunnel	Tooting Broadway to Tooting Bec	31/03/2021		
N168 SB	Tunnel	Tooting Bec to Tooting Broadway	31/07/2021		
N172 NB	Tunnel	Colliers Wood to Tooting Broadway	31/07/2021		
N172 SB	Tunnel	Tooting Broadway to Colliers Wood	31/03/2021		
N174 NB	Tunnel	South Wimbledon to Colliers Wood	31/03/2021		
N174 SB	Tunnel	Colliers Wood to South Wimbledon	31/03/2021		
N176 NB	Tunnel	Morden to South Wimbledon	31/07/2021		
N176 SB	Tunnel	South Wimbledon to Morden	31/07/2021		
N192 OB	Tunnel (ESN)	Kennington Loop to Kennington Loop	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
P014 EB	Tunnel	Southgate to Oakwood	31/03/2021		
P014 WB	Tunnel	Oakwood to Southgate	31/03/2021		
P016 EB	Tunnel	Arnos Grove to Southgate	31/03/2021		
P016 WB	Tunnel	Southgate to Arnos Grove	31/03/2021		
P022 EB	Tunnel	Bounds Green to Arnos Grove	31/03/2021		
P022 WB	Tunnel	Arnos Grove to Bounds Green	31/07/2021		
P024 EB	Tunnel	Wood Green to Bounds Green	31/07/2021		
P024 WB	Tunnel	Bounds Green to Wood Green	31/03/2021		
P026 EB	Tunnel	Turnpike Lane to Wood Green	31/03/2021		
P026 WB	Tunnel	Wood Green to Turnpike Lane	31/03/2021		
P028 EB	Tunnel	Manor House to Turnpike Lane	31/07/2021		
P028 WB	Tunnel	Turnpike Lane to Manor House	31/07/2021		
P032 EB	Tunnel	Finsbury Park to Manor House	31/03/2021		
P032 WB	Tunnel	Manor House to Finsbury Park	31/07/2021		
P042 EB	Tunnel	Arsenal to Finsbury Park	31/07/2021		
P042 WB	Tunnel	Finsbury Park to Arsenal	31/07/2021		



ID	Type	Description	Infrastructure Available Date		
P044 EB	Tunnel	Holloway Road to Arsenal	31/03/2021		
P044 WB	Tunnel	Arsenal to Holloway Road	31/07/2021		
P046 EB	Tunnel	Caledonian Road to Holloway Road	31/03/2021		
P046 WB	Tunnel	Holloway Road to Caledonian Road	31/03/2021		
P048 EB	Tunnel	King's Cross to Caledonian Road	31/07/2021		
P048 WB	Tunnel	Caledonian Road to King's Cross	31/07/2021		
P052 EB	Tunnel	Russell Square to King's Cross	31/07/2021		
P052 WB	Tunnel	King's Cross to Russell Square	31/07/2021		
P054 EB	Tunnel	Holborn to Russell Square	31/07/2021		
P054 WB	Tunnel	Russell Square to Holborn	31/07/2021		
P056 EB	Tunnel	Covent Garden to Holborn	31/07/2021		
P056 WB	Tunnel	Holborn to Covent Garden	31/07/2021		
P058 EB	Tunnel	Leicester Square to Covent Garden	31/07/2021		
P058 WB	Tunnel	Covent Garden to Leicester Square	31/07/2021		
P062 EB	Tunnel	Piccadilly Circus to Leicester Square	31/03/2021		
P062 WB	Tunnel	Leicester Square to Piccadilly Circus	31/03/2021		

ID	Type	Description	Infrastructure Available Date		
P064 EB	Tunnel	Green Park to Piccadilly Circus	31/03/2021		
P064 WB	Tunnel	Piccadilly Circus to Green Park	31/07/2021		
P066 EB	Tunnel	Hyde Park Corner to Green Park	31/07/2021		
P066 WB	Tunnel	Green Park to Hyde Park Corner	31/07/2021		
P068 EB	Tunnel	Knightsbridge to Hyde Park Corner	31/07/2021		
P068 WB	Tunnel	Hyde Park Corner to Knightsbridge	31/07/2021		
P072 EB	Tunnel	South Kensington to Knightsbridge	31/07/2021		
P072 WB	Tunnel	Knightsbridge to South Kensington	31/07/2021		
P074 EB	Tunnel	Gloucester Road (Picc) to South Kensington	31/07/2021		
P074 WB	Tunnel	South Kensington to Gloucester Road (Picc)	31/07/2021		
P076 EB	Tunnel	Earl's Court (Picc) to Gloucester Road (Picc)	31/03/2021		
P076 WB	Tunnel	Gloucester Road (Picc) to Earl's Court (Picc)	31/07/2021		
P078 EB	Tunnel	Barons Court to Earl's Court (Picc)	31/07/2021		
P078 WB	Tunnel	Earl's Court (Picc) to Barons Court	31/07/2021		
T560 NB	Tunnel (ESN)	Island Gardens to Mudchute	31/07/2021		
T560 SB	Tunnel (ESN)	Mudchute to Island Gardens	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
T570 NB	Tunnel (ESN)	Cutty Sark to Island Gardens	31/07/2021		
T570 SB	Tunnel (ESN)	Island Gardens to Cutty Sark	31/07/2021		
T580 NB	Tunnel (ESN)	Cutty Sark to Greenwich	31/07/2021		
T580 SB	Tunnel (ESN)	Greenwich to Cutty Sark	31/07/2021		
T750 NB	Tunnel (ESN)	Woolwich Arsenal to King George V	31/07/2021		
T750 SB	Tunnel (ESN)	King George V to Woolwich Arsenal	31/07/2021		
T860 NB	Tunnel (ESN)	Stratford Plat 16 to Stratford Int	31/07/2021		
T860 SB	Tunnel (ESN)	Stratford Int to Stratford Plat 17	31/07/2021		
V018 NB	Tunnel (ESN)	Walthamstow Central Overrun	31/07/2021		
V018 SB	Tunnel (ESN)	Walthamstow Central Overrun	31/07/2021		
V022 NB	Tunnel	Blackhorse Road to Walthamstow Central	31/07/2021		
V022 SB	Tunnel	Walthamstow Central to Blackhorse Road	31/07/2021		
V024 NB	Tunnel	Tottenham Hale to Blackhorse Road	31/07/2021		
V024 SB	Tunnel	Blackhorse Road to Tottenham Hale	31/07/2021		
V026 NB	Tunnel	Seven Sisters to Tottenham Hale	31/07/2021		
V026 SB	Tunnel	Tottenham Hale to Seven Sisters	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
V028 MA	Tunnel (ESN)	Finsbury Park to Seven Sisters	31/07/2021		
V028 NB	Tunnel	Finsbury Park to Seven Sisters	31/07/2021		
V028 SB	Tunnel	Seven Sisters to Finsbury Park	31/07/2021		
V029 NB	Tunnel (ESN)	Seven Sisters to Northumberland Park Depot	31/07/2021		
V029 SB	Tunnel (ESN)	Northumberland Park Depot to Seven Sisters	31/07/2021		
V032 NB	Tunnel	Highbury & Islington to Finsbury Park	31/07/2021		
V032 SB	Tunnel	Finsbury Park to Highbury & Islington	31/07/2021		
V034 NB	Tunnel	King's Cross to Highbury & Islington	31/07/2021		
V034 SB	Tunnel	Highbury & Islington to King's Cross	31/07/2021		
V036 NB	Tunnel	Euston to King's Cross	31/07/2021		
V036 SB	Tunnel	King's Cross to Euston	31/07/2021		
V038 NB	Tunnel	Warren Street to Euston	31/07/2021		
V038 SB	Tunnel	Euston to Warren Street	31/07/2021		
V042 NB	Tunnel	Oxford Circus to Warren Street	31/07/2021		
V042 SB	Tunnel	Warren Street to Oxford Circus	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
V044 NB	Tunnel	Green Park to Oxford Circus	31/07/2021		
V044 SB	Tunnel	Oxford Circus to Green Park	31/07/2021		
V046 NB	Tunnel	Victoria to Green Park	31/07/2021		
V046 SB	Tunnel	Green Park to Victoria	31/07/2021		
V052 NB	Tunnel	Pimlico to Victoria	Complete		
V052 SB	Tunnel	Victoria to Pimlico	31/07/2021		
V054 NB	Tunnel	Vauxhall to Pimlico	31/07/2021		
V054 SB	Tunnel	Pimlico to Vauxhall	31/07/2021		
V056 NB	Tunnel	Stockwell to Vauxhall	Complete		
V056 SB	Tunnel	Vauxhall to Stockwell	Complete		
V058 NB	Tunnel	Brixton to Stockwell	Complete		
V058 SB	Tunnel	Stockwell to Brixton	Complete		
V062 NB	Tunnel (ESN)	Brixton Overrun Tunnel	31/07/2021		
V062 SB	Tunnel (ESN)	Brixton Overrun Tunnel	31/07/2021		
X906 NB	Tunnel (ESN)	London Road Depot to Lambeth North	31/07/2021		
X907 EB	Tunnel (ESN)	White City (Sidings) to White City	31/07/2021		

ID	Type	Description	Infrastructure Available Date		
		TOTAL			

2 Pilot Infrastructure

ID	Type	Description	Infrastructure Available Date			
	Station	Bermondsey	30/06/2021			
	Station	Canada Water	31/08/2021			
	Station	Canary Wharf	1/10/2021			
	Station	London Bridge	30/10/2021			
	Station	North Greenwich	1/10/2021			
	Station	Southwark	31/07/2021			
	Station	Waterloo	31/10/2021			
	Station	Westminster	1/12/2021			
J006 EB	Tunnel	North Greenwich to Canning Town	Complete			

ID	Type	Description	Infrastructure Available Date			
J006 WB	Tunnel	Canning Town to North Greenwich	Complete			
J008 EB	Tunnel	Canary Wharf to North Greenwich	Complete			
J008 WB	Tunnel	North Greenwich to Canary Wharf	Complete			
J012 EB	Tunnel	Canada Water to Canary Wharf	Complete			
J012 WB	Tunnel	Canary Wharf to Canada Water	Complete			
J014 EB	Tunnel	Bermondsey to Canada Water	Complete			
J014 WB	Tunnel	Canada Water to Bermondsey	Complete			
J016 EB	Tunnel	London Bridge to Bermondsey	Complete			
J016 WB	Tunnel	Bermondsey to London Bridge	Complete			
J018 EB	Tunnel	Southwark to London Bridge	Complete			
J018 WB	Tunnel	London Bridge to Southwark	Complete			
J022 EB	Tunnel	Waterloo to Southwark	Complete			
J022 WB	Tunnel	Southwark to Waterloo	Complete			
J024 EB	Tunnel	Westminster to Waterloo	Complete			
J024 WB	Tunnel	Waterloo to Westminster	Complete			
		<b>TOTAL</b>				

RECHARGE SUMMARY			
TTL Infrastructure (excluding Pilot Infrastructure)			
Pilot Infrastructure			
TOTAL			

### 3 Design Only

There is no specific Re-Charge allocated to the following Stations where a design only will be provided.

Type	Description	Design Available Date
Station	Angel	31/07/2021
Station	Bank	31/07/2021
Station	Barbican	31/07/2021
Station	Belsize Park	01/06/2021
Station	Blackhorse Road	01/06/2021
Station	Bow Road	01/06/2021
Station	Brixton	01/06/2021
Station	Camden Town	31/07/2021
Station	Chalk Farm	01/06/2021



Type	Description	Design Available Date
Station	Clapham Common	01/06/2021
Station	Clapham South	01/06/2021
Station	Covent Garden	01/06/2021
Station	Earl's Court	31/07/2021
Station	Elephant & Castle	31/07/2021
Station	Finsbury Park	01/06/2021
Station	Gants Hill	01/06/2021
Station	Gloucester Road	31/07/2021
Station	Great Portland Street	01/06/2021
Station	Hampstead	01/06/2021
Station	Hatton Cross	01/06/2021
Station	Heathrow Terminals 1, 2, 3	01/06/2021
Station	High Street Kensington	31/07/2021
Station	Kilburn Park	31/07/2021
Station	Maida Vale	01/06/2021
Station	Monument	31/07/2021
Station	Mornington Crescent	31/07/2021

Type	Description	Design Available Date
Station	Notting Hill Gate	31/07/2021
Station	Russell Square	31/07/2021
Station	Stepney Green	01/06/2021
Station	Turnpike Lane	01/06/2021
Station	Warren Street	01/06/2021



## Schedule 4.3 - Notified Key Sub-contractors

## CHANGE HISTORY

Version	Description	Author	Document Number
5.0	Execution version	TfL	75251337.7

**Contents**

<b>1</b>	<b>Notified Key Sub-contractors</b>	<b>4</b>
----------	-------------------------------------	----------

## 1 Notified Key Sub-contractors

- 1.1 In accordance with Clause 16.6 (Appointment of Key Sub-contractors), the Concessionaire is entitled to sub-contract its obligations under this Agreement to the Key Sub-contractors listed in the table below.
- 1.2 The Parties agree that they will update this Schedule promptly to record any Key Sub-contractors appointed by the Concessionaire with the consent of TTL after the Effective Date for the purposes of the delivery of the Services.

Key Sub-contractor name and address (if not the same as the registered office)	Registered office and company number	Scope of Key Sub-contract	Key Sub-contract price	Key role in delivery of the Services	Will this entity be performing the Principal Contractor role under the CDM Regulations? (Yes/No)	Will this entity be performing the Principal Designer role under the CDM Regulations? (Yes/No)
Installation Technology Limited 10 Headley Road East, Woodley, Reading, Berkshire, RG5 4SW	C/O Barwell Plc, Sterling House, 20 Renfield Street, Glasgow, G2 5AP.  (company Reg No. SC147188)	Design, installation and testing services		Key strategic supplier with established track record in working in London Underground environment on telecommunications infrastructure projects.	Yes	No