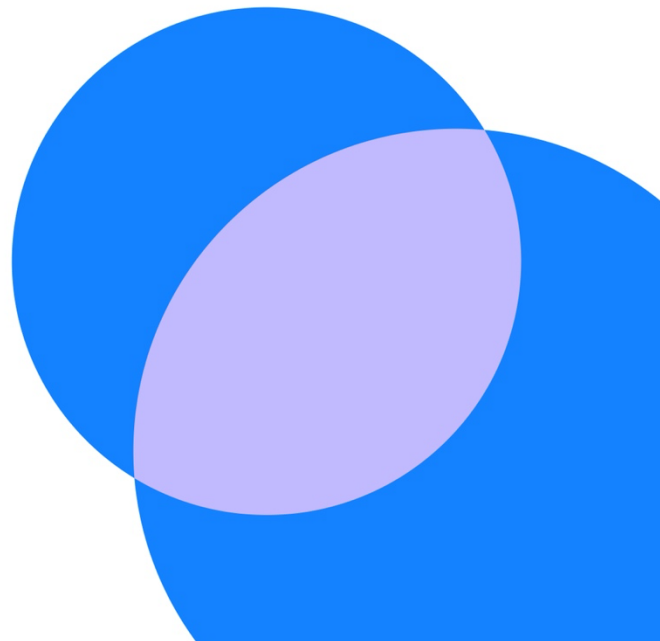![CityFibre logo]

BDUK WHOLESALE

Infrastructure Product Specification

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Access to CityFibre's wholesale
infrastructure products are subject to
entry into CityFibre's contract terms
and to RSP satisfying CityFibre's
customer onboarding processes.

CONTENTS

1.0 CHANGE LOG

Date	Version	Comments
01/03/2024	1.0	Document Creation

2.0 ABBREVIATIONS

BDUK   Building Digital UK
DNO   Distribution Network Operator
ENNI   External Network to Network Interface
FAC   Fibre Active Cabinet
FEx   Fibre Exchange
FFN   Full Fibre Network
FTTP   Fibre to the Premises
ODF   Optical Distribution Frame
PIA   Physical Infrastructure Access
PN   Primary Node
RFS   Ready For Service
RSP   Retail Service Provider
SLA   Service Level Agreement
SN   Secondary Node

3.0 INTRODUCTION

This document provides Retail Service Providers (RSPs) an overview of CityFibre's wholesale products available in BDUK-funded areas.

RSPs that are interested in utilising CityFibre wholesale infrastructure or wish to discuss other wholesale queries should download the application form from www.cityfibre.com/wholesale. Completed application forms should be sent to bduk.office@cityfibre.com

CityFibre wholesale infrastructure products may only be used to supply Public Electronic Communications Services and / or Public Electronic Communications Network (both of which are defined in the Communications Act 2003) and as set out in Ofcom's statement in June 2019.

CityFibre's wholesale infrastructure products may be integrated with other third-party physical infrastructure. Any access to third-party passive infrastructure and the associated charges are the responsibility of the RSP.

This document should be read in conjunction with other wholesale reference documents available at www.cityfibre.com/wholesale.

4.0 ACCREDITATIONS

An accreditation standard will be agreed between CityFibre and the RSP as part of the framework before any works are undertaken on the CityFibre network. This will include sub duct, cabling, core drilling, civils work, splicing and testing activity.

RSPs will be asked to provide proof of accreditation for the relevant work before commencing any activity on CityFibre infrastructure and their employees, agents and contractors must carry proof of the required accreditation on their person at all times.

5.0 CITYFIBRE ACTIVE INFRASTRUCTURE

5.1 Active Product Overview

CityFibre offers two Local Access products, Consumer FTTP Local Access 1Gb and Business FTTP Local Access 1Gb.

5.2 Consumer FTTP Local Access Product 1000/1000

Our Active Wholesale Consumer FTTP Local Access 1Gb product is a non-transparent Ethernet access circuit that features:

- Symmetric speeds up to 1,000Mbps between the ENNI and Optical Network Termination endpoint.
- Layer 2 end-to-end fibre optic connection presented at aggregation head end and handed over via an ENNI within the boundary of CityFibre's FEx.
- End of next working day repair.
- Meets Gigabit Gold Standard of Wholesale Access Products.

5.3 Business FTTP Local Access Product 1000/1000

As the Consumer specification above, except Business FTTP Local Access 1Gb product has an eight-business hour repair SLA.

Further details of both products are in the Wholesale Product template, along with a description of our future variant National Access Product.

5.4 Extended, Complex and Non-Standard Installations

The classification of Extended, Complex and Non-Standard will be determined on or before the date on which such premises are declared Ready For Service (RFS).

- Extended installs relate to installations where an additional survey, route planning or wayleaves may be required.
- Non-standard is where an installation cannot be completed via a standard or extended install. For example, to connect complex business premises or premises with a long driveway of between 15-50 metres.
- Complex is where an installation requires more than c. 75 metres of cabling from the boundary of the property to the inside of the home. They will be subject to survey and agreeing an install fee with the RSP.

When RSPs order a product requiring survey or where RSPs require CityFibre to attend site and undertake a joint site visit, for example to assess a special engineering difficulty, CityFibre will classify the home as a Complex install.

6.0 CITYFIBRE PASSIVE INFRASTRUCTURE

CityFibre's products are offered on a wholesale only 'open access' basis. Underpinning our products is our Full Fibre Network (FFN) comprising duct, fibre and node infrastructure from a Fibre Exchange (FEx) to the Secondary Node position.

6.1 Passive Product Overview

The CityFibre passive network architecture utilises a mixture of third-party infrastructure and self-built network. Openreach PIA Infrastructure has been used extensively for underground and overhead network deployment where existing PIA infrastructure is suitable for use. Due to this, CityFibre often does not own contiguous end-to-end passive physical infrastructure to support FFN deployments.

CityFibre passive wholesale access allows RSPs to utilise duct space and blown fibre tubing within self-built network sections. Dark Fibre is also offered between different Points of Flexibility in the CityFibre FFN. CityFibre Spine, Core and Distribution cables have been dimensioned to include additional dark fibre capacity for other RSPs to utilise in accordance with BDUK requirements.

RSPs must ensure that all work performed on CityFibre's physical infrastructure, whether ducts or poles, complies with CityFibre's Engineering Principles demonstrated in their suite of field guidance and specification items. Good Industry Practice, and all applicable laws and regulations, including health and safety and street works.
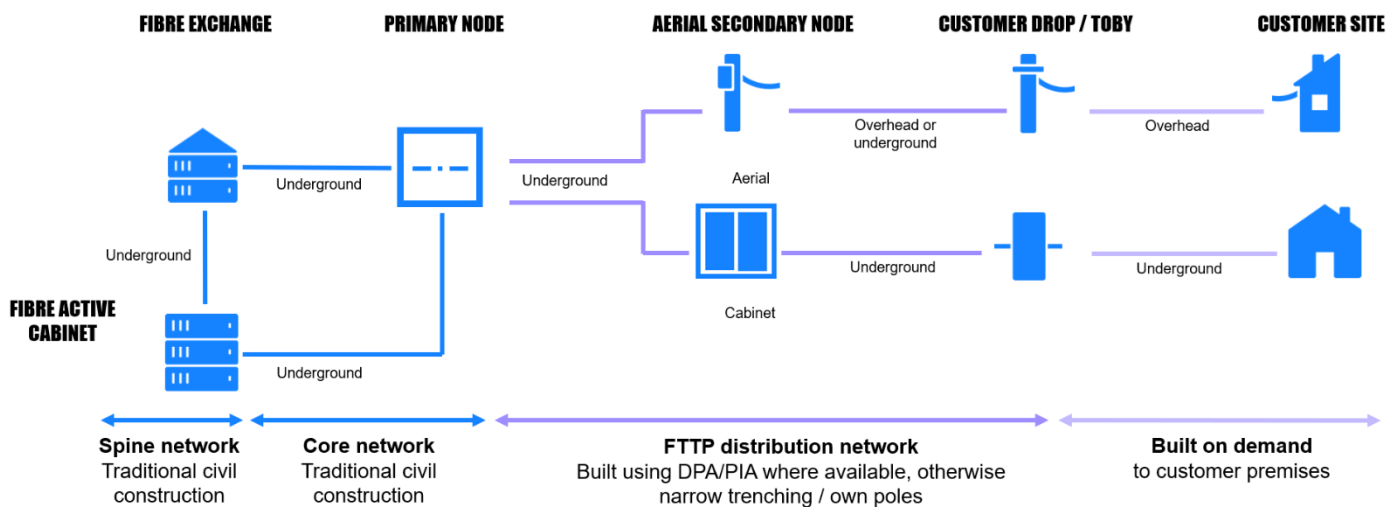

Figure 1 - CityFibre Full Fibre Network Architecture

All CityFibre Passive Wholesale Products have been designed to meet BDUK requirements and only apply in areas where public funding has been used. Please note that CityFibre's standard passive access contract terms apply to CityFibre passive wholesale access products which are listed in CityFibre - BDUK Wholesale Products – Reference Offer Pricing – March 24.

CityFibre Passive Access product range is offered on a wholesale only Open Access basis between Points of Flexibility. Figure 2 provides an illustration of the Points of Flexibility in the CityFibre network.
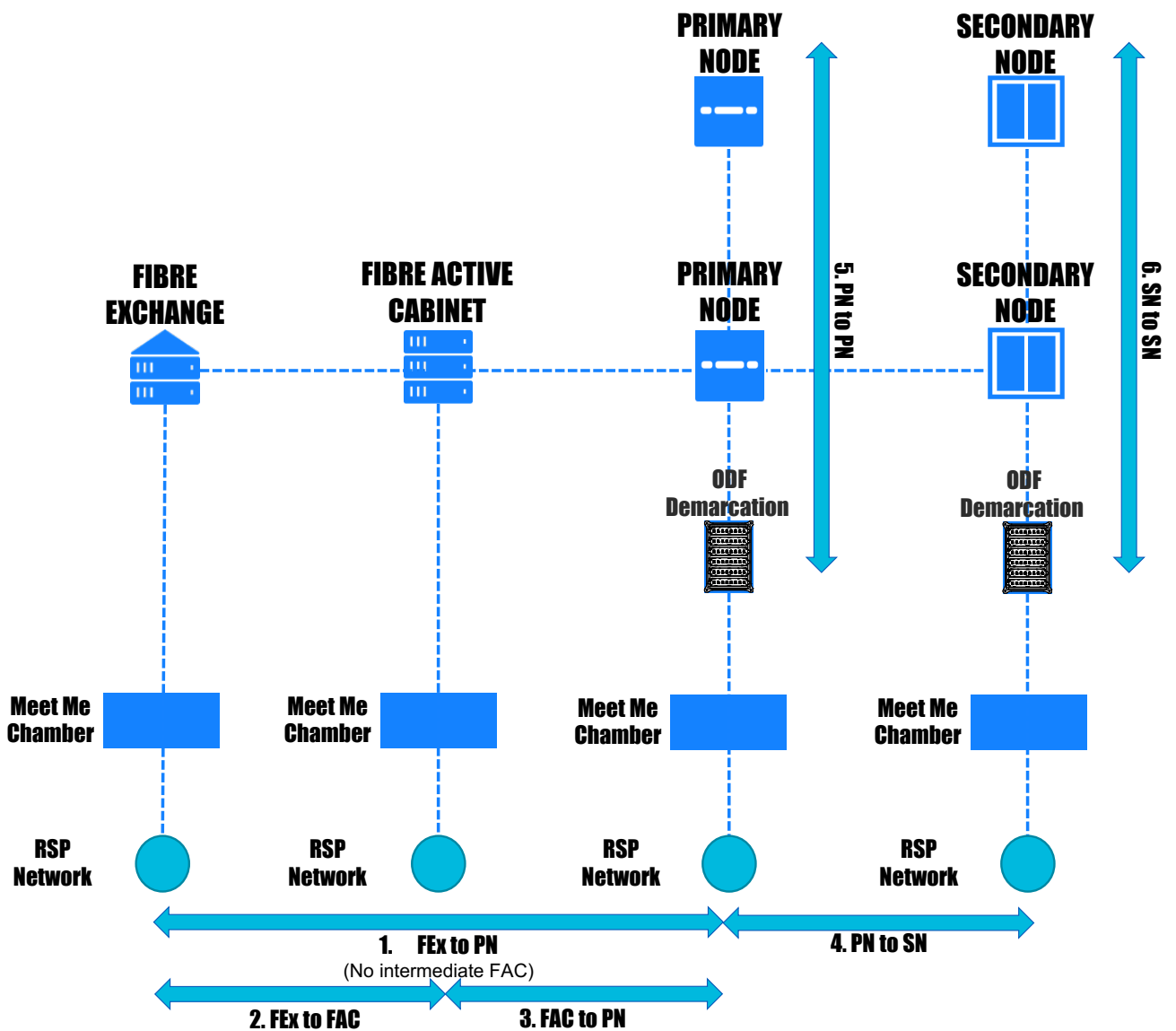
Figure 2 - Points of Flexibility in CityFibre Network

CityFibre's Passive Access product range covers:

- **Dark Fibre**
    - Including dark fibre access per section and supporting patching services
- **Ducts**
    - Access to CityFibre owned sub duct available in the spine and between Points of Flexibility. Ducted sections of network may require the RSP to install sub duct for their own use
- **Poles**
    - Access to CityFibre owned poles including rental for mounting cables and pole top equipment
- **FAC Colocation**
    - Provision of Active Cabinet Colocation services at the FAC (on a case-by-case basis, subject to all necessary planning consents)
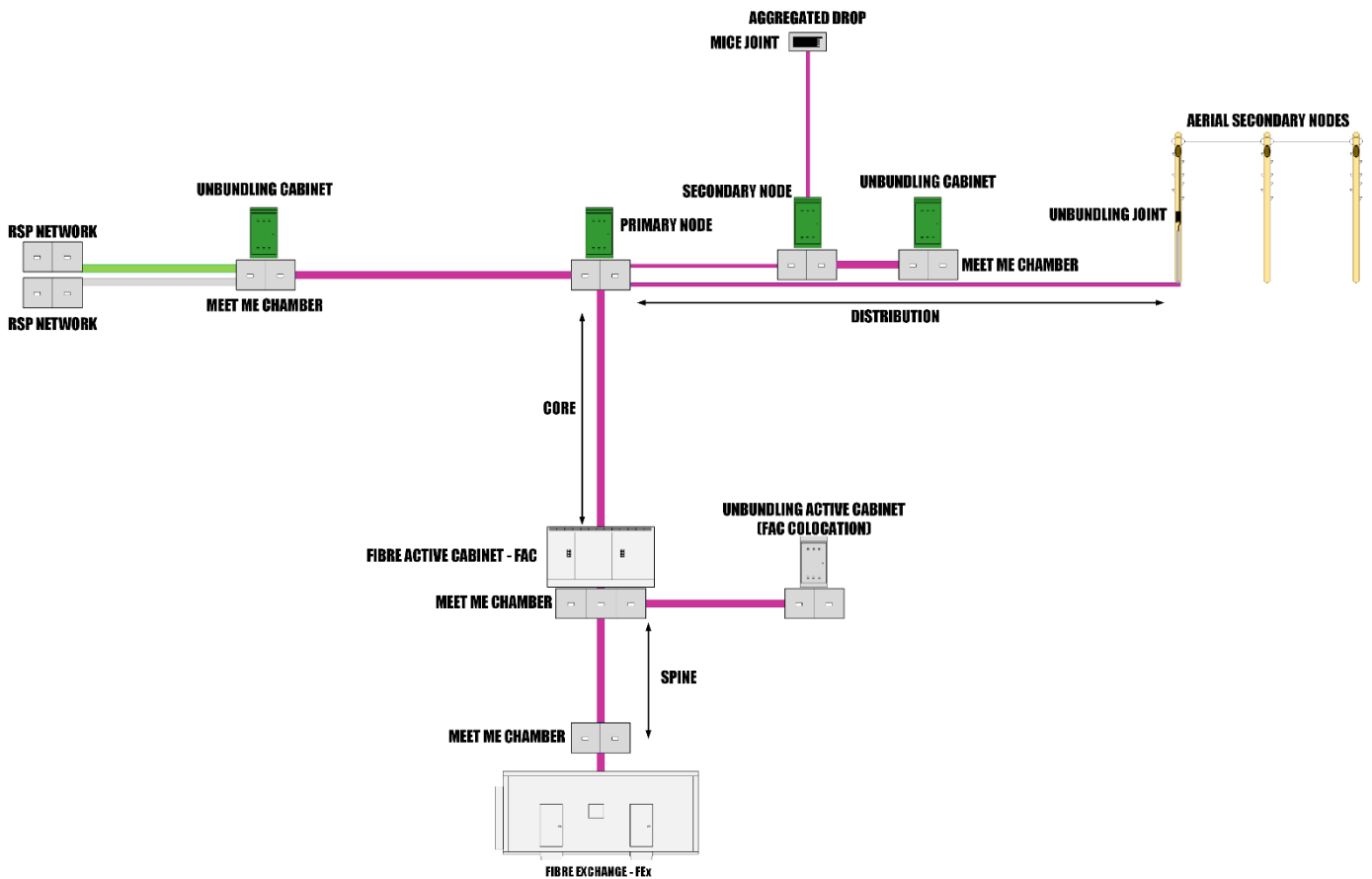
Figure 3 - CityFibre Passive Wholesale Access including Dark Fibre access, Duct access, Pole Access and FAC Colocation

6.2 Dark Fibre

Dark Fibre is offered between different Points of Flexibility which act as the demarcation in the CityFibre FFN. CityFibre FEx to FAC Spine, Core and Distribution cables have been dimensioned to include additional dark fibre capacity for other RSPs to utilise in accordance with BDUK requirements.

6.3 Duct Access

Typically, CityFibre deploy ducts in its Spine and Core Network, defined in the Architecture as the section of network between the Fibre Exchange and FAC Cabinet (Spine) or Fibre Exchange / Fibre Active Cabinet to Primary Node (Core). Within the ducts is space to install additional subducts for BDUK wholesale access in accordance with BDUK requirements.

The subducts used within the duct access product may be up to a maximum of 14mm diameter and must be circular in cross-section.

Note – Some Spine and Core Network may have been installed utilising narrow trenching or mole ploughed techniques. In this instance, 14/10mm subducts will have been installed along the full section and accessible at either end using chambers where the BDUK specification requires this. These sections may not be contiguous in their length across multiple routes. For the Distribution segment, and where BDUK requirements specify, 14/10mm subducts will have been installed for CityFibre wholesale duct access products.

6.4 Pole Access

CityFibre erects its own poles to enhance and make third-party pole networks usable and in some cases to deploy FFN where third-party poles are already in situ.

CityFibre provides RSPs with access, where space exists, to mount equipment upon and span cable from a CityFibre-owned pole.

6.5 FAC Colocation

CityFibre can provide RSPs with space and/or power in a CityFibre FAC Colocation cabinet to house equipment, subject to planning consent, in locations adjacent to any overground cabinets containing active and optical equipment built with BDUK funding.

Inside the cabinet is a 19" Rack. DNO power supply and battery backup options are available but may be subject to DNO restrictions.

The Colocation cabinet is installed upon service request and must be sited near to an existing CityFibre FAC. Colocation Cabinets are subject to CityFibre cabinet siting guidelines and local authority approval.

CityFibre may provide duct or cable access to the Colocation cabinet in addition to power if required.

RSPs may order space in the Colocation cabinet in 1U increments.

7.0 WHOLESALE PASSIVE INFRASTRUCTURE ORDERING

7.1 Order Process

CityFibre wholesale infrastructure products are available at all Points of Flexibility within BDUK funded build and will become more available as the network build advances.

Order and delivery of wholesale infrastructure products requires communication between both CityFibre and RSPs for enquiry, product definition, quotation and order acceptance prior to providing access to the wholesale passive infrastructure.

All requests are to be managed via email and are subject to the RSP entering into CityFibre's standard terms and satisfying CityFibre's customer onboarding processes.
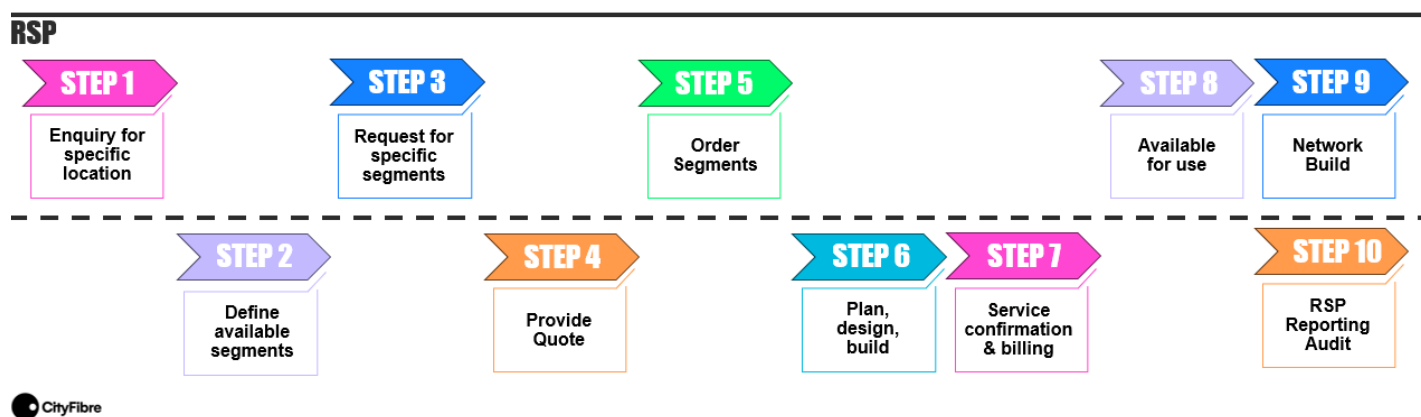

Figure 4 – Dark Fibre and Passive Infrastructure Order Process

7.1.1 Initial Enquiry and Product Availability

RSPs are to register interest utilising the CityFibre contact form. CityFibre will review the enquiry and subject to feasibility and compliance, will provide a list of potentially available sections of the network to the RSP in the area of interest if applicable.

All materials utilised by RSPs that reside in the CityFibre network or are attached to poles must be authorised for their use. Any materials must not cause any detrimental effect to the CityFibre infrastructure or cause a health and safety issue. An inventory of all RSP materials along with their datasheets must be provided, and a record of these will be held by CityFibre.

7.1.2 Pricing

Based on the information provided, the RSP may request pricing for specific sections. The RSP should specify the sections to be priced by CityFibre who will then calculate the cost of the RSP requirements and return a quote with any relevant standard business terms.

Note: where applicable, there is a cost to RSPs for the survey which is defined in CityFibre wholesale pricing documentation

7.1.2.1 Acceptance and Order

When the RSP accepts the provided quote, the RSP shall place an order subject to the RSP having entered into CityFibre's standard terms (including operational processes) and satisfied CityFibre's customer onboarding processes. CityFibre will then process the order to

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meet the specific requirements of the RSP in accordance with the product specification.

7.1.2.2 Plan to Build

CityFibre, on the receipt of the order will commence the survey (if applicable to product ordered), planning and design activities, leading to Network Build and as-built for inventory recording and assurance audits.

7.1.2.3 Confirmation and Billing

CityFibre will notify the RSP upon network build or service handover and will begin generating billing for the service.

7.1.2.4 RSP Reporting Audit

CityFibre have the right to visit the RSP network during and post build in order to undertake audits and confirm the correct utilisation of the CityFibre infrastructure.

7.2 Forecasting and Reporting

RSPs must submit a six-month build forecast, completed with reasonable accuracy, detailing their intended use of CityFibre Passive Infrastructure. This forecast helps ensure efficient delivery by CityFibre.

The forecast report should be submitted three months prior to the fixed period and should outline the intended construction plans for each calendar month within that period, specifying the services and their anticipated build dates. This breakdown should be categorised by service type and include volume details:

- Duct (m)
- Poles (Number of Poles)
- Locations of Services Required by way of an agreed GIS .shp file

On a monthly basis, RSPs will be required to submit details of their current build for all work in progress or completed on a template as defined by CityFibre.

8.0 APPENDIX 1

Accreditation and Engineering Principles will be provided as part of CityFibre's customer onboarding processes and entry into CityFibre's standard terms.

9.0 LIABILITY OF CITYFIBRE

Use of CityFibre's wholesale infrastructure products are subject to contract. Intellectual property rights in this document are owned by CityFibre and are not to be reproduced without CityFibre's authorisation and consent. Neither CityFibre nor its representatives shall be liable for the accuracy of the information provided in this document.

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