



Chorus UFB Services Agreement

Direct Fibre Access Service: Service Description for
Bandwidth Fibre Access Service

Reference Offer

June 2017

1. Interpretation

- 1.1 References to clauses or sections are references to clauses or sections in this Service Description unless expressly provided otherwise. The definitions set out in the General Terms and the Operations Manual apply to this Service Description unless expressly provided otherwise.
- 1.2 References to the Operations Manual are references to the operations manual for Direct Fibre Access Services and references to the Service Level Terms are references to the Service Level Terms for Direct Fibre Access Services. Except as varied by this Service Description any references to Direct Fibre Access Service in either the Operations Manual or the Service Level Terms shall include the Bandwidth Fibre Access Service.
- 1.3 This Service Description covers the provision of the Bandwidth Fibre Access Service in all areas (including within the Chorus UFB Zone, the RBI Zone and the Voluntary Zones). The LFC will regularly update the zone maps at www.chorus.co.nz/ournetwork to show the boundaries of the various zones.
- 1.4 The General Terms in the Chorus Reference Offer apply to provision of the Bandwidth Fibre Access Service subject to any modifications, exclusions and clarifications:
- 1.4.1 set out in clause 1.5 below; and
 - 1.4.2 that are necessary to ensure the General Terms are appropriate to the provision of the Bandwidth Fibre Access Service as notified by the LFC to the Service Provider on 40 Business Days' notice.
- 1.5 the Bandwidth Fibre Access Service:
- 1.5.1 may be withdrawn by the LFC on 12 months' notice. Clauses 5.2 (a) and 5.2 (b) of the General Terms do not apply to the withdrawal of the Bandwidth Fibre Access Service. Any instance of the Bandwidth Fibre Access Service that is subject to a Minimum Service Term that expires after the 12 month notice of withdrawal, shall continue to be provided by the LFC on the terms of the relevant Service Order until the expiry of that Minimum Service Term; and
 - 1.5.2 is not subject to a Price Cap. Changes to the Bandwidth Fibre Access Service Core Charges and Ancillary Charges shall be treated as if the changes were under a Price Cap for the purposes of clauses 24.4 (a) and 24.5(a) of the General Terms and therefore CFH approval for such changes is not required.
- 1.6 This Service Description may be changed by the LFC using the process for Agreement Changes set out in the General Terms except that:
- 1.6.1 the Change Management Forum's prior approval of any such proposed Agreement Change under clauses 24.1 and 25 of the General Terms is not required;
 - 1.6.2 CFH approval of any such proposed Agreement Change will not be required under clauses 24.1(d)(ii) and 24.8 of the General Terms; and
 - 1.6.3 the Service Provider may not propose any Agreement Change in relation to this Service Description in accordance with clause 24.1(b) of the General Terms.

2. The Bandwidth Fibre Access Service

- 2.1 The Bandwidth Fibre Access Service is a throughput managed fibre based service suitable for the delivery of complex business grade applications requiring point-to-point fibre access. It enables access to, and interconnection with, the LFC Network.

- 2.2 The Bandwidth Fibre Access Service is currently available in three speed options 1 Gbps and 10 Gbps (the 1 Gbps service can be throttled to 100Mbps if required).
- 2.3 The Bandwidth Fibre Access Service is built in two configurations providing either an optical or electrical interface on the NID at End User Premises, Service Provider Premises or NBAP to meet the Service Provider's requirements.
- 2.4 The LFC will install equipment at a point (or points) in the Bandwidth Fibre Access Service to manage the throughput. Some Bandwidth Fibre Access Service configurations will provide the ability for the LFC to analyse faults remotely.
- 2.5 A diagram of the configuration for the Bandwidth Fibre Access Service is set out in Appendix A. The Bandwidth Fibre Access Service consists of the provision of an Ethernet service from the connector or OFDF or NID at the End User Premises, Service Provider Premises or NBAP (as applicable) to either:
- 2.5.1 the MOFDF at the LFC Central Office; or
 - 2.5.2 where the Service Provider is taking the Central Office and POI Co-location Service, a NID or an LCA Connector on an OFDF at the Service Provider's Footprint at the relevant LFC Central Office, via the MOFDF at the relevant LFC Central Office.
- 2.6 The Bandwidth Fibre Access Service is an input service which the Service Provider can use as a building block to combine with other LFC services (or with the Service Provider's own network or wholesale services provided by other providers) to provide fibre based telecommunications services to End Users.

3. Bandwidth Fibre Access Service and implementation activities

Installation services

- 3.1 The Bandwidth Fibre Access Service includes a Standard Install as set out in the Operations Manual. The LFC will provide Non-Standard Installs as an ancillary service.

Termination Point

- 3.2 The Bandwidth Fibre Access Service termination points are set out in the Operations Manual.

Testing

- 3.3 The LFC will test the Bandwidth Fibre Access Service from the termination point in the Operations Manual to the MOFDF or Service Provider's Footprint NID, OFDF or LCA connector (as applicable) at the LFC Central Office to ensure it is within the technical specification for fibre set out in Appendix B.
- 3.4 The LFC testing is performed at 1625nm in accordance with ITU standards G.650 and T L.41, hence the Service Provider must not use that wavelength for any services.

Additional Services

- 3.5 If the Service Provider requires additional services such as:
- 3.5.1 a Non-Standard Install which includes (where required):
 - (a) the installation of the Fibre Lead-in where there is no existing fibre cabling and the installation is outside the parameters set out in the Operations Manual noting only the incremental work represents the non-standard; or
 - (b) installation specialised termination equipment in an NBAP; or
 - (c) installation of Fibre-Lead-in diversity at an End User Premises, Service Provider Premises or NBAP (as applicable) (from the FAP to the ETP or OFDF as applicable);
 - 3.5.2 provision of diversity to an End User Premises, Service Provider Premises or NBAP (as applicable) (when the second or subsequent instance of the Bandwidth Fibre Access Service is purchased);
 - 3.5.3 any premises wiring services; or
 - 3.5.4 installation and testing of Service Provider equipment and services,
- then the LFC may be able to provide items 3.5.3 and 3.5.4 on request subject to terms to be agreed between the LFC and the Service Provider, Items 3.5.1 and 3.5.2 are available on terms as set out in this Agreement.

Interconnection Requirements

- 3.6 To use the Bandwidth Fibre Access Service the Service Provider must have the capability to access and interconnect with Bandwidth Fibre Access Service, either by:
- 3.6.1 co-locating Service Provider equipment at the relevant LFC Central Office using a Footprint provided under the Central Office and POI Co-location Service; or
 - 3.6.2 where the Service Provider does not take the Central Office and POI Co-location Service at the relevant LFC Central Office, by taking the Jumpering Service and a backhaul service from the relevant LFC Central Office MOFDF to connect to Service Provider equipment (as defined in the Central Office and POI Co-location Service Description) elsewhere.

Additional Service Characteristics

- 3.7 The technical specification of the Bandwidth Fibre Access Service is set out in Appendix B.
- 3.8 The LFC will provide certain support and other assistance as part of the Bandwidth Fibre Access Service including:
- 3.8.1 an electronic facility for service requests;
 - 3.8.2 an electronic facility for fault notifications; and
 - 3.8.3 a tool to assist the Service Provider in determining the location and availability of the Bandwidth Fibre Access Service.
- 3.9 The Bandwidth Fibre Access Service specifically excludes:
- 3.9.1 provision or maintenance of any cabling or connection or active device beyond the Service Demarcation Points described in clauses 4.1 and 5.1;
 - 3.9.2 configuration, monitoring, operation, on-going support or maintenance of Service Providers' or End Users' applications, equipment or networks; and

- 3.9.3 supply of AC Mains & UPS Power, accommodation in a suitable environment for electronic equipment, heating, ventilation, air conditioning and facilities at the Central Office or End User Premises.

4. Service Demarcation Point at Premises or NBAP

- 4.1 The Service Demarcation Points for the Bandwidth Fibre Access Service at the End User Premises, Service Provider Premises or NBAP (as applicable) is the termination point described in the Operations Manual.
- 4.2 The Bandwidth Fibre Access Service excludes the End User Premises', Service Provider Premises' or NBAP's wiring. If a fault reported by the Service Provider is found to be caused by the End User Premises', Service Provider Premises' or NBAP's (as applicable) equipment (CPE) or the wiring at the End User Premises, Service Provider Premises or NBAP (as applicable) beyond the service demarcation point, then the Service Provider may be charged the "No fault found" Ancillary Charge in the Price List. Note the wiring should comply with the industry standard Premises wiring requirements which are available at www.tcf.org.nz.

5. LFC Service Demarcation Point

- 5.1 The Service Demarcation Point for the Bandwidth Fibre Access Service at the LFC Central Office is the termination point as described in the Operations Manual.

6. Tie Cable Connection

- 6.1 Where required, the LFC will provide a Tie Cable between the MOFDF and the Service Provider's LCA connector on the Service Provider's OFDF in its Central Office and POI Co-location Service Footprint. If the number of fibres requested in the Tie Cable is less than 48, the Tie Cable to the Footprint will be a connectorised pigtail to the Service Providers equipment rather than to an OFDF in the Footprint.

7. Capacity and geographic availability

- 7.1 The LFC will supply the Bandwidth Fibre Access Service where there is sufficient capacity in the LFC Network.

8. Service Provider Responsibilities

- 8.1 Other Service Provider responsibilities are detailed in the General Terms and Operations Manual.
- 8.2 The Service Provider will be responsible for all of the design, specification and commissioning of their equipment and plant (both active and passive) connected to the Bandwidth Fibre Access Service.

9. Fibre Diversity

- 9.1 The Bandwidth Fibre Access Service provides a single circuit between the LFC Central Office and the End User Premises, Service Provider Premises or NBAP (as applicable).
- 9.2 Diversity (a second or subsequent instance of the Bandwidth Fibre Access Service between the Fibre Access Point and the Central Office) may be available as an option for some but not all Premises. Standard Installation Charges and Service Levels do not apply to the provision of diversity products that involve diverse access to the End User Premises, Service Provider Premises or NBAP (as applicable) or access to a Central Office that is not the local Central Office. Each instance of the Bandwidth Fibre Access Service, primary and diverse, will be treated as an individual line for the purpose of availability Service Levels.
- 9.3 The diverse optical paths will be in separate fibre cable sheaths, and if requested in separate cable routes. The diverse cable routes will be a minimum of the width of a street apart, and should not share any manholes or access points. Separate entries into the Central Office will be used where available.
- 9.4 Service Providers can also request diverse access to End User Premises, Service Provider Premises or NBAP (as applicable), or access to diverse Central Offices as part of a Non-Standard Install, however this will not be available in all cases.
- 9.5 There may be practical limitations to providing full physical diversity to some sites. The provision of a separate entry to an LFC Central Office will have unique site specific engineering considerations and may attract additional costs.

10. Service Levels

- 10.1 Service Levels for the Direct Fibre Access Service in the Chorus Reference Offer (as updated from time to time) shall apply to the provision of the Bandwidth Fibre Access Service subject to any modifications, exclusions and clarifications:
- 10.1.1 set out in this clause 10; and
- 10.1.2 that are necessary to ensure the Service Level Terms are appropriate to the provision of the Bandwidth Fibre Access as notified by the LFC to the Service Provider on 40 Business Days' notice.
- 10.2 Clauses 1.2 and 1.3 of Appendix 1 to the Direct Fibre Access Service - Service Level Terms do not apply and the following new clauses 1.2 and 1.3 will apply to the Bandwidth Fibre Access Service instead:
- 1.2 *Subject to clause 1.3 of this Appendix, the LFC will complete the Standard Installation for Connections to all classes of premises as follows:*
- (a) *To all classes of Premises where a change of configuration of equipment is required:*
- Each installation of a Connection must be completed within ten Business Days following receipt of all necessary permissions and consents contemplated by clauses 10.2(c), 12.2 and 12.3 of the General Terms (as the case may require) (or such later date as agreed between the Service Provider and the relevant End User).*
- (b) *For Residential and Business Premises where only splicing or connection of network fibre or internal building fibre (including work in 1.2(a) if appropriate) is required:*
- Each installation of a Connection must be completed within twenty Business Days following receipt of all necessary permissions and consents contemplated by clauses 10.2(c), 12.2 and 12.3 of the General Terms (as the case may require) (or such later date as agreed between the Service Provider and the relevant End User).*

- (c) *For Residential and Business Premises where only installation of network fibre into existing duct or trenching (including work in 1.2(a) and 1.2(b) if appropriate) is required:*

Each installation of a Connection must be completed within thirty Business Days following receipt of all necessary permissions and consents contemplated by clauses 10.2(c), 12.2 and 12.3 of the General Terms (as the case may require) (including road opening notices) (or such later date as agreed between the Service Provider and the relevant End User).

- (d) *For Residential and Business Premises where installation of network fibre into new duct or trenching (including work in 1.2(a), 1.2(b) and 1.2(c) if appropriate) is required:*

Each installation of a Connection must be completed within thirty Business Days following receipt of all necessary permissions and consents contemplated by clauses 10.2(c), 12.2 and 12.3 of the General Terms (as the case may require) (including road opening notices) (or such later date as agreed between the Service Provider and the relevant End User).

- (e) *NBAP – Fibre Connection:*

Each installation of an NBAP Connection must be completed within 60 Business Days following receipt of all necessary permissions and consents contemplated by clauses 10.2(c), 12.2 and 12.3 of the General Terms (as the case may require) (or such later date as agreed between the Service Provider and the relevant End User).

1.3 *Any time period:*

- (a) *during which any Force Majeure Event prevents installation of a Bandwidth Fibre Access Connection or prevents restoration of a Bandwidth Fibre Access Connection which is subject to Downtime; or*
- (b) *during which the LFC is, due to a Force Majeure Event, unable to safely access any location or premises where physical access is required to install a Bandwidth Fibre Access Service Connection or restore a Bandwidth Fibre Access Service Connection which is subject to Downtime; or*
- (c) *which reflects any minimum notice requirements or access constraints contained in any existing arrangements referred to in clause 12.2(b) of the General Terms and which contain the permissions or consents that are relied upon,*

will be added to the periods specified in 1.2(a), 1.2 (b), 1.2 (c), 1.2 (d) and 1.2 (e) as applicable.

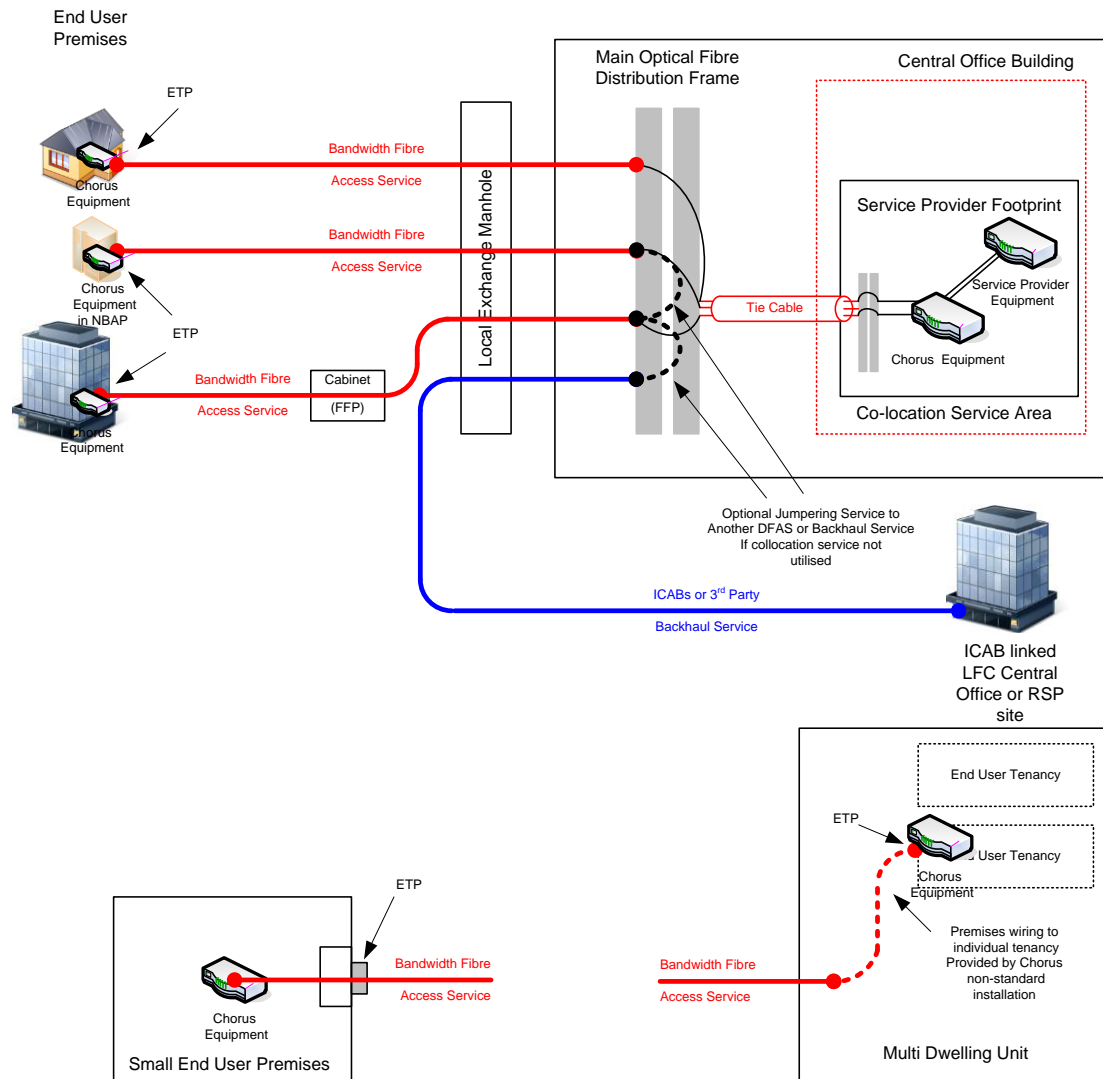
- 10.3 No Core Service Rebates will apply to installations for the Bandwidth Fibre Access Service. The LFC will however use commercially reasonable efforts to undertake Bandwidth Fibre Access Service Connections in a manner consistent with the Service Levels applicable to those Connections.

11. Operations Manual

- 11.1 The Operations Manual applies to provision of the Bandwidth Fibre Access Service subject to any modifications, exclusions and clarifications:
- 11.1.1 set out in this section 11; and
- 11.1.2 that are necessary to ensure the Operations Manual is appropriate to the provision of the Bandwidth Fibre Access as notified by the LFC on 40 Business Days' notice.
- 11.2 Forecasts for the Bandwidth Fibre Access Service are to be included in the forecast figures provided in accordance with Part 2 – FORECASTING of the Direct Fibre Access Service Operations Manual.
- 11.3 Clauses 7.20 and 7.21 of the Direct Fibre Access Service Operations Manual do not apply and the following replacement clauses 7.20 and 7.21 apply to the Bandwidth Fibre Access Service instead:
- 7.20 *The LFC will make the following business continuity forms available to the Service Provider:*
- 7.20.1 *Pre-qualification / Site Investigation form;*
- 7.20.2 *Bandwidth Fibre Access Service:*
- *New Connection form; and*
 - *Relinquishment form.*
- 7.21 *All business continuity forms submitted in accordance with this clause should come from a generic mailbox. This mailbox must include the Service Provider's name in the email subject line as below:*
- [BFAS Form Name] - [Service Provider Name] - [Service Provider reference number]*
- 11.4 Clauses 17.2 and 17.6 of the Direct Fibre Access Service Operations Manual do not apply and the following new clause 17.2 applies to the Bandwidth Fibre Access Service instead:
- 17.2 *Where practical the LFC may provide diversity if available for Premises. Provision of diverse Bandwidth Fibre Access Services will be a Non Standard Install.*
- 11.5 The following definitions apply to the Bandwidth Fibre Access Service in addition to those set out in the Direct Fibre Access Operations Manual, Appendix A – Glossary:

Term	Definition
Access Services	means any variant of the Direct Fibre Access Services or Bandwidth Fibre Access Services.
Chorus Reference Offer	means the UFB suite of documents posted on the Chorus website www.chorus.co.nz/ufbservices as updated from time to time.
Jumpering Service	means a fibre jumper on the MOFDF connecting an Access Service to another Access Service or to a backhaul service.

Appendix A – Diagram



This is a generic diagram showing the standard configuration and service demarcation points. It is not intended to represent every situation or detailed physical architecture. The following points should be noted:

- Bandwidth Fibre Access Service options provide for electrical or optical interface at termination points;
- a combination of engineering and interface requirements will determine equipment location;
- not all circuits will pass through a cabinet or FFP;
- the circuit will terminate within 5m of ETP (unless the Service Provider requests a Non Standard Install);
- in MDUs where the LFC has provided premises fibre cabling the termination point is as described in clause 3.16; and
- in an NBAP the termination point will be agreed between the LFC and the Service Provider as described in clause 3.20.

The diagram also shows the optional interconnection of Bandwidth Access Fibre Service and either a second Direct Access Fibre Service or Intra Candidate Area Backhaul Service or a commercial backhaul using the Jumpering Service.

Appendix B – Technical Specification**Technical Specification**

Fibre	<p>External fibre must comply with ITU-T specification G.652D or 657A.</p> <p>Internal building fibre cables must meet appropriate fire regulations i.e. be Flame-Retardant, Non Corrosive, Low Smoke, Zero Halogen (FRNC/LSZH).</p>
Connector Type	<p>For Electrical interface RJ45</p> <p>For Fibre terminations SC/APC type connectors (complying with the IEC 61754-4 standard) or alternatively LC/APC also known as LCA type connectors (complying with the IEC 61754-20 standard) as appropriate.</p>
Optic Path	<p>Laser types and path characteristics expected to be designed to a minimum standard which are contained in either IEEE 802.3 Section 5 standard or ITU-T G.984 standards.</p>
Service Demarcation Point	<p>RJ45 Electrical interface on NID or Optical Connector delivered within 5m of ETP or termination on End User OFDF at the Customer premise end</p> <p>RJ45 Electrical interface on NID or Optical Connector delivered to Customer's OFDF at the Local Exchange end or MOFDF.</p>
Ethernet	<ul style="list-style-type: none"> • IEEE 802.3 – 2005 802.1q supporting 4094 vlans MTU 9100 Bytes
UNI	<ul style="list-style-type: none"> • Electrical RJ45 <ul style="list-style-type: none"> ○ 100 Mbps = 100BaseT ○ 1 Gbps = 1000Base-T ○ 10 Gbps = 10GBase-T • Optical SC APC <ul style="list-style-type: none"> ○ 100 Mbps = 100Base-FX ○ 1 Gbps = 1000Base-LX