ITT Part 2:

Appendix 4 – Supplier Solution Document

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Version: 1

Status: Final

1.1. SUPPLIER SOLUTION DOCUMENT

1.1.1. A separate Supplier Solution Document (SSD) is required to be submitted for each Lot that a Supplier is bidding for, and this should be provided within the bid response document which if successful will form part of the Contract with the Local Body. The SSD is the principal technical and design document relating to the proposed network to be deployed.

1.1.1.1. The purpose of the SSD is to demonstrate the solution's compliance with:

i. the Local Body Requirements of the ITT Part 2; and

ii. the Local Body Service Requirements in Schedule 2 of the Template Contract; and

iii. support the requirements for State aid in terms of qualifying technology and NGA technical assessment as defined in BDUK NGA Technology Guidelines[1].

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[1] https://www.gov.uk/government/publications/2016-nbs-tech-guidelines

1.1.2.   If the same solution information is to be included in multiple Lots or bids, and in order to prevent repetition, then the Supplier may choose to provide the same SSD for each Lot which may contain common information, principles, methods and design rules.

1.1.3.   Information that is not common to multiple Lots or bid shall be included in the Supplier's answers to the Response Questions at Appendix 2 of Part 2 of the ITT. These answers shall specific to each Lot or bid and shall provide all the required additional detail not included in the SDD (e.g. regarding costs, coverage, maps, project specific architecture etc.). Furthermore, where any answers refer to the SSD, the reference shall be to a specific section of the SSD. Unclear references and vague generalisations will be marked down.

1.1.4.   Where a SSD is referenced there must be an unbroken linkage between each solution and requirements for each Lot or bid. For example, if NGA compliance relies upon adherence to a design rule stated in a SSD then the each Lot or bid response shall individually demonstrate clear adherence to that design rule.

1.1.5.   As a minimum the SSD shall contain the information outlined in Appendix A. Additional sections and references may be appended as required. The Supplier shall follow all directives in italics.

APPENDIX A – SSD STRUCTURE

CONTENTS:

1.   Introduction

2.   Solution Requirements

3.   Community Network Requirements

4.   Service Level Category

5.   Operations

6.   Project Delivery

7.   Solution Component Requirements

8.   Wholesale Access Products and Services

9.   Implementation

10.   Additional Sections

11.   List of References

12.   Glossary

13.   Appendices

1. **INTRODUCTION**

The Bidder MUST document its proposed organisation structure identifying Bidder and Supply chain structure.

2. **SOLUTION REQUIREMENTS**

2.1   NETWORK DESIGN & ARCHITECTURE

2.1.1.   The Bidder MUST provide a written explanation of its speed / coverage modelling, which MUST include:

- The methods and approaches the Bidder has used to model their solution coverage and speed performance, for both Upload and Download speeds this should include reference to the following granular level of speed performance to specifically address the requirement to achieve step change in speed performance.

- Detailed modelling assumptions used and the Bidder's explanation of these assumptions, including deriving Access Line Speed.

2.1.2.   The Bidder MUST describe how it will co-operate with the Supplier of any Lot, utility providers and the Authority to achieve an optimum solution.

2.2   DESIGN PRINCIPLES & RULES

2.2.1.   Specify all design rules and principles that are necessary to meet all of the original or derived requirements described above:
-   For each design rule, describe assessment criteria that would be used to confirm that a particular design implementation followed each rule.
-   Show how design rules comply with all regulatory and physical limitations.
-   Link design rules with industry standards and best practice where possible.
-   Include any formulae or calculations associated with design rules.

3. **COMMUNITY NETWORK REQUIREMENTS**

3.1.1.   The Bidder MUST provide details of its approach for other future local community projects, including:

- Engagement with specific communities to help them to understand the options available to them with associated benefits and risks.

- Governance arrangements with the Local Authority Programme and local community at all stages of a community project.

- Any dependencies that are critical in order to achieve the solution outcomes for each community project.

- How its solution facilitates the inclusion of community projects into the Local Body's project where additional funding has been secured after contract signature.

- The extent to which, and how, it is able to offer, on demand, ultrafast or gigabit services to End User Premises that request such services

- How the Bidder will be able to support any Local Body requests for connectivity to a point of presence, including the way such connectivity options can be funded, and the services that will be available from that point

- What products the Bidder will make available to align with the Local Body's objective to lower the cost of backhaul and other connectivity services to operators in the intervention area.

- Provide financial information including design, survey, solution and support costs (showing approach to calculation of applicable costs) where applicable.

4. **SERVICE LEVEL CATEGORY**

   4.1.1. The Bidder MUST provide details of the availability of the network and the wholesale products and services, justified with reference to aspects of the Bidder's solution design.

5. **OPERATIONS**

   5.1 **OSS & BSS PLATFORMS**

      5.1.1. Building on the Supplier Solution Document, the Bidder MUST describe its approach in respect of the Project to:

   - Technical operations and maintenance (including Retail Online Platform).

   - Customer service and care.

   - Key IT support systems.

   - Business continuity including Major Incident Management.

5.2   OSS / BSS SYSTEMS ARCHITECTURE

5.2.1.   Provide a diagram showing all the platforms, systems and software components comprising the OSS and BSS systems (hereafter OSS/BSS Platforms).

5.2.2.   Explain the functions of all OSS/BSS Platforms. Describe the relationships between the OSS/BSS Platform functions and any management framework used e.g. eTOM.

5.2.3.   Describe how the OSS/BSS Platforms support both retail and wholesale customers. What functions are available to support retail and wholesale customers respectively?

5.3   OSS / BSS PLATFORM SPECIFICATIONS

5.3.1.   Provide the key functional and performance specifications of each OSS/BSS Platform including customer capacity and maximum transaction rates.

5.4   OSS / BSS TECHNICAL INTERFACE SPECIFICATIONS

5.4.1.   Describe how RSPs could interface their own systems to the Supplier's OSS/BSS Platforms.

5.4.2.   Describe the processes and procedures for interconnecting the Supplier's and RSPs' OSS/BSS Platforms.

5.4.3.   Specify any operating processes and procedures that the RSP would be required to apply following OSS/BSS interconnection.

5.4.4.   Specify any software or data pre-requisites for connecting RSP systems to the Supplier's OSS/BSS platforms.

5.4.5.   For all RSP to Supplier OSS/BSS interfaces, provide interface and protocol specifications for all levels of the protocol stack from the physical layer to the application and service layers.

5.5   RSP INTEGRATION & TESTING

5.5.1.   Building upon the Supplier Solution, the Bidder MUST describe the Retail Service Providers approach it will adopt, including:

- listing the RSPs who currently use infrastructure provided by the Bidder, including the number of premises passed by the infrastructure and the speeds available.

- how it will monitor and manage the relationship with RSPs and the service received by end user customers.

- how long it will take for a RSP to mobilise to deliver services using the wholesale infrastructure (showing any variations within the intervention area), from the point that infrastructure is available.

- how it engages with RSPs to ensure its wholesale products satisfy customer needs and evolve to meet changing end user requirements.

5.5.2.   RESOURCES & ORGANISATION

5.5.2.1.   Specify the facilities, resources and equipment allocated to Retail Service Provider (RSP) integration**.**

5.5.2.2.   Where any facilities, resources or equipment are shared with retail service provision directly by the Supplier, fully describe the method of allocation of those facilities resources and equipment as well as their associated costs.

5.5.2.3.   Specify any organisation structure associated with RSP integration and service management, and indicate which part of the organisation would deal with requests for interconnection from RSPs.

5.5.3.   FACILITIES & POINTS OF INTERCONNECTION / HANDOVER

5.5.3.1.   For each active or passive wholesale product describe the physical points of interconnection, handover or access to be made available for RSP integration.

5.5.3.2.   Provide details of the location of these handover points on physical and/or logical network diagrams.

5.5.3.3.   Describe the location of any other facilities to be made available for RSP integration including backhaul links, network nodes, data centres or other facilities.

5.5.4.   TECHNICAL INTERFACE SPECIFICATIONS

5.5.4.1.   Describe the geographical and physical environment where points of interconnection, handover or access (hereafter Handover Points) are located whether above ground, below ground, or in-building. Where access to Supplier owned

structures or enclosures is available, describe the physical characteristics and dimensions of those structure or enclosures, and the space available to RSPs within.

5.5.4.2. Where RSP would be required to provide additional equipment, structures or enclosures to gain access to a Handover Point, specify and requirements or limitations associated with any such equipment.

5.5.4.3. Describe how RSP equipment would connect to Handover Points e.g. direct physical access, in-building or external fibre or copper links, wireless links etc. Provide any specifications for any links required together with detailed or standardised interface specifications.

5.5.4.4. Provide the electrical specifications of power supplies to be made available to RSPs at handover points.

5.5.4.5. For passive and active access products, provide all electrical and/or optical specifications for any necessary interconnects or links.

5.5.4.6. For active products, provide interface and protocol specifications for all levels of the protocol stack from the physical layer to the application and service layers.

5.5.4.7. For active products specify all computing hardware, software and configuration data (e.g. VLAN identifiers) required to interconnect at a Handover Point.

5.5.4.8. Describe any installation and/or commissioning procedures that RSP would be required to follow in order to access and/or deploy equipment at a Handover Point.

5.5.4.9. Specify any approvals or authorisations that a RSP would require in order to access and/or deploy equipment at a Handover Point, or an End User's premises.

5.5.5. ORDER HANDLING & FULFILMENT

5.5.5.1. Describe any prerequisites for a RSP to interconnect to a Handover Point.

5.5.5.2. Describe any prerequisites for a RSP to access an End User's premises.

5.5.5.3. Describe the process by which a RSP would request and obtain interconnection to a Handover Point. Describe any forms or software tools used for this purpose. Confirm that any forms or tools are based upon standard office

document formats and Internet technology, and that access to specialised hardware or software would not be required.

5.5.5.4.   For each type of active or passive wholesale product, describe the process steps from receipt of a connection order from an End User to provision of full commercial service to that End User an the RSP. Identify the process steps were the Supplier needs to be involved, and those where it does not.

5.5.5.5.   Describe the process steps from receipt of a RSP integration request to commercial operation by the RSP at Handover Points and End User premises.

5.5.5.6.   Describe any prerequisites or approvals required at each process step.

5.5.5.7.   Describe the processes, procedures, tools and systems that support efficient order handling and fulfilment.

5.5.5.8.   Specify the Supplier's maximum response time at each process step, including all survey, design and preparatory work.

5.5.5.9.   Describe the complaint handling and escalation procedure for the RSP to follow if the Supplier fails to meet its maximum response time for any process step.

5.5.6.   CHANGE MANAGEMENT

5.5.6.1.   Describe the change management process and procedures for engineering changes at Handover Points. Describe all process steps.

5.5.6.2.   Describe the change management process and procedures for RSP customer connection changes (including Moves, Adds, Changes, and Disconnections). Describe all process steps for each change type.

5.5.6.3.   Specify the Supplier's maximum response time at each process step, including all survey, design and preparatory work. Identify the process steps were the Supplier needs to be involved, and those where it does not.

5.5.7.   FAULT MANAGEMENT

5.5.7.1.   Describe the preventative maintenance and reactive fault management processes and procedures for the network.

5.5.7.2.   Describe how and when any faults or outages, whether planned or not, are reported to RSPs.

5.5.7.3.   Describe any software tools available for fault identification, reporting and management. Describe what access, if any, RSPs would have to such software tools.

5.5.7.4.   Describe the procedures for handling and resolving faults reported to Supplier by RSPs.

5.5.8.   SERVICE MANAGEMENT

5.5.8.1.   Describe any frameworks, methods, tools, processes and procedures used for service management.

5.5.8.2.   Describe the network Key Performance Indicators (KPIs) that would be used to monitor network and service performance.

5.5.8.3.   Define all necessary interactions between the Supplier and the RSP required by to support service management.

5.5.8.4.   Describe all network performance and service reporting by the Supplier to RSPs on both a regular and exception basis.

5.5.9.   BILLING

5.5.9.1.   List all products and services that could be chargeable to a RSP.

5.5.9.2.   Identify any other possible charges to a RSP.

5.5.9.3.   Itemise the pricing for each product and service.

5.5.9.4.   Where a fixed price is not available, provide a formula for how it would be calculated.

5.5.9.5.   Describe the billing and payment arrangements for RSPs.

5.5.10.   DISPUTE RESOLUTION & ESCALATION

5.5.10.1.   Describe the dispute handling procedures for all categories of customers and stakeholders.

5.5.10.2.   Identify the response timescales for each category and level of complaint.

5.5.10.3.   Specify the escalation path for each category of complaint from the working level, to the Supplier's Project Lead, to the Project Lead's superiors, and ultimately to the Supplier's chief executive.

6. PROJECT DELIVERY

6.1   PROJECT ORGANISATION

6.1.1.   Detail the relevant technical and professional resources available in your organisation to enable provision of the services covered by this contract (e.g. staff qualifications including details of your staff training programmes, for each of the following staff groups – back office staff, supervisors, Enforcement Agents), the number of staff & managerial staff available, measures for ensuring quality etc.), how do you ensure that these resources are maintained?

6.1.2.   Provide a (hierarchical) organisation chart that identifies all authorities, responsibilities and escalation paths within the project.

6.1.3.   List the accountabilities and responsibilities for each project stage and activity.

6.1.4.   Describe the governance and decision-making structures within the Project.

6.1.5.   Identify any decision-making committees that include voting members not employed by the Supplier. Identify all voting members on such committees.

6.1.6.   Document its approach to maintaining the Key Personnel, as set out in Bidder's proposed Schedule 3.4, during the life of the contract.

6.1.7.   Document its approach to recruiting Key Personnel post contract award and how the Supplier will follow the Key personnel Candidates Process set out in Schedule 3.4.

6.1.8.   How Key Sub Contractors will maintain the Key Personnel, as set out in Bidder's proposed Schedule 3.4, during the life of the contract.

6.1.9.   How Key Sub Contractors will approach recruiting Key Personnel post contract award and how Key Sub Contractors will follow the Key personnel Candidates Process set out in Schedule 3.4.

6.2   PROJECT METHODOLOGY

6.2.1   Include a description of any industry-standard frameworks and models to be used e.g. PRINCE 2.

6.2.2   Describe the tools and methods used for programme planning.

6.2.3   Describe how the Supplier's existing programme and project management processes and procedures will be applied to the Project.

6.2.4   Identify and describe any new process and procedures that will need to be developed to meet the requirements of the Project. State when these new processes and procedures will be introduced.

6.2.5   Describe how decisions will be made on the project. Describe all procedures where multiple stage approvals are required for decisions.

6.2.6   Provide an example of a similar project(s) where the project methodology has been applied if possible. This may be included in a case study in an appendix and referenced from this section.

6.3   STAKEHOLDER MANAGEMENT

6.3.1   Identify all national, local, community, industrial, environmental and other stakeholders.

6.3.2   Describe the planned communications with each stakeholder.

6.3.3   Describe any planned consultations and publications including Internet and social media communications.

6.3.4   Describe the complaint handling and escalation procedure for stakeholders.

6.4   SUPPLIER MANAGEMENT

6.4.1   Provide a chart that identifies all sub-contractors and suppliers in the supply chain.

6.4.2   Identify which roles and stages are to be undertaken by sub-contractors or other third parties.

6.4.3   Describe all key activities to be performed by sub-contractors. Exclude non-critical activities which account for a negligible part of the Project cost.

6.4.4   Describe the qualifications and experience of sub-contractors performing key activities.

6.4.5   Describe the management processes and procedures covering sub-contractors.

6.4.6   Describe how non-conforming sub-contractor products or services will be handled and rectified.

6.5   COST CONTROL & BUDGET MANAGEMENT

6.5.1   Describe the processes and procedures for project budget setting and management.

6.5.2   Describe the process and procedures for ongoing cost optimisation and value engineering.

6.5.3.   Define all assumptions used to calculate the level of public sector subsidy required and the sensitivity of these assumptions.

6.6   QUALITY CONTROL

6.6.1.   Describe the frameworks, tools, process and methods for quality control and assurance.

6.6.2.   Specify any relevant certifications and accreditations held by the Supplier and sub-contractors.

6.6.3.   Describe how non-conforming products or services will be handled and rectified.

6.6.4.   Describe the complaint handling and escalation procedure for customers.

6.6.5.   Specify the circumstances when quality variances, or non-conforming products or services, would be reported to the Procuring Authority, and when they would not.

6.7   RISK & ISSUE MANAGEMENT

6.7.1.   Describe the frameworks, tools, process and methods for risk and issue identification and management.

6.7.2.   Describe when and how risk and issues would be reported to the Procuring Authority.

7. SOLUTION COMPONENT REQUIREMENTS

Provide description and summaries for current and planned future solution component together with any additional solution components that must be delivered as part of an Open Access or Reduced Access bid.

7.1   CURRENT SOLUTION COMPONENTS

Describe the proposed Solution Components in full identifying solution sub-components where applicable. Describe the extent to which and how the infrastructure can be expanded to accommodate future access requests. Also describe and define what a "Structure" represents for each current and future Solution Component. A Structure should represent a component element of the Network which is used to connect End User Premises to the Network.

7.1.1   CURRENT SOLUTION COMPONENT #1

7.1.1.1   SOLUTION COMPONENT DEFINITION

Define the solution component considering in terms of:

- Network and configuration diagrams
- Technology descriptions
- Implementation descriptions
- Functional and performance specifications
- Physical specifications
- Equipment configurations
- Deployment methods
- Interface specifications
- Applicable standards
- Performance and capacity calculations e.g. link budgets
- Customer experience descriptions
- Planned upgrades and future capacity expansion
- Structure definition
- Any other relevant information

7.1.1.2   SOLUTION COMPONENT SUMMARY TABLE

Summarise and complete the following worksheet for each solution component. Collate all worksheets in a single spreadsheet file to include here.

Solution Component
Template.xlsx

7.1.2   CURRENT SOLUTION COMPONENT #2

7.1.2.1   SOLUTION COMPONENT DEFINITION

Define the solution component considering in terms of:

- Network and configuration diagrams
- Technology descriptions
- Implementation descriptions
- Functional and performance specifications
- Physical specifications
- Equipment configurations
- Deployment methods
- Interface specifications
- Applicable standards
- Performance and capacity calculations e.g. link budgets
- Customer experience descriptions
- Planned upgrades and future capacity expansion
- Structure definition
- Any other relevant information

7.1.2.2   SOLUTION COMPONENT SUMMARY TABLE

Summarise and complete the following worksheet for each solution component. Collate all worksheets in a single spreadsheet file to include here.

Solution Component
Template.xlsx

7.1.3   CURRENT SOLUTION COMPONENT #N

7.1.3.1. SOLUTION COMPONENT DEFINITION

Add additional component sub-headings as required.

7.2   FUTURE SOLUTION COMPONENTS

Describe the proposed future Solution Components while highlighting any uncertainties, limitations and risks.

7.2.1   FUTURE SOLUTION COMPONENT #1

7.2.1.1 SOLUTION COMPONENT DEFINITION

Define the solution component considering in terms of:

- Network and configuration diagrams
- Technology descriptions
- Implementation descriptions
- Functional and performance specifications
- Physical specifications
- Equipment configurations
- Deployment methods

- Interface specifications
- Applicable standards
- Performance and capacity calculations e.g. link budgets
- Customer experience descriptions
- Planned upgrades and future capacity expansion
- Structure definition
- Any other relevant information

7.2.1.2   SOLUTION COMPONENT SUMMARY TABLE

Summarise and complete the following worksheet for each solution component. Collate all worksheets in a single spreadsheet file to include here.

Solution Component
Template.xlsx

7.2.2   FUTURE SOLUTION COMPONENT #2

7.2.2.1   SOLUTION COMPONENT DEFINITION

Define the solution component considering in terms of:

- Network and configuration diagrams
- Technology descriptions
- Implementation descriptions
- Functional and performance specifications
- Physical specifications
- Equipment configurations
- Deployment methods
- Interface specifications
- Applicable standards
- Performance and capacity calculations e.g. link budgets
- Customer experience descriptions
- Planned upgrades and future capacity expansion
- Structure definition
- Any other relevant information

7.2.2.2   SOLUTION COMPONENT SUMMARY TABLE

Summarise and complete the following worksheet for each solution component. Collate all worksheets in a single spreadsheet file to include here.

Solution Component
Template.xlsx

7.2.3 FUTURE SOLUTION COMPONENT #N
7.2.3.1 SOLUTION COMPONENT DEFINITION
Add additional component sub-headings as required.

7.3 TEST AND ACCEPTANCE PLAN

7.3.1 RESOURCES AND ORGANISATION

7.3.1.1 Identify the resources in Section 2.1 Project Organisation responsible for test and acceptance of the solution.t Used – response to be provided as part of Bidder Response Document.

7.3.1.2 Define or clarify all roles and responsibilities for test and acceptance.

8. WHOLESALE ACCESS PRODUCTS AND SERVICES

8.1.1. Bidders must complete the Wholesale Product Template contained below for all active and passive wholesale products to meet the requirements of the Commission Decision and ensure that all Solution Components are included.

Supplier Solution
Document - Wholesal

8.1.2 Provide outline wholesale product descriptions and technical specifications to describe the proposed products. As a minimum, the following aspects should be included for each product:

- Product feature descriptions, including options and variants.
- Describe the extent to which the solution provides opportunities for Ultrafast and/or Gigabit on demand (e.g. FTTP-on demand product).
- Solution Components comprising each product
- CPE requirements including interface requirements for access seeker supplied CPE.
- Handover points and technical interface specifications WITH Retail Service Providers.
- Survey and information request procedure for physical assets.
- Methodology for determining and allocating network or asset capacity
- Specifications for new installations or use of all physical assets
- Quality of Service specifications including committed data rates, availability etc.
- All limitations related to technology, regulation, environmental or third party factors.
- All other specifications: physical, technical, information security, health and safety etc.

8.1.3. Provide details of the choice of price benchmarks and describe how the wholesale products chosen are comparable to the wholesale products being delivered.

8.1.4. In the event that the Supplier is vertically integrated and intends to offer retail services over the network, describe how suppliers seeking access to sell retail services will be able to compete on an equivalent and non-discriminatory basis.

8.1.5. Describe how the requirements for accounting separation between the wholesale operation and the retail provision will be met.

9. IMPLEMENTATION

9.1 IMPLEMENTATION

9.1.1. Describe the implementation approach including how the processes will refine the model survey assumptions into planned structure output and the correlation between build costs and planning output costs.

9.1.2. Describe the approach to liaison with local planning authorities, including ensuring compliance with their requirements and co-ordinating street works to avoid unnecessary local disruption.

9.1.3. Describe how the planning approach and approach to wayleaves and power way leaves will mitigate against issues such as delays to achieving planning permission, road closure orders etc.

9.1.4. Describe the approach to addressing 'whole communities'.

9.2 TESTING & ACCEPTANCE

9.2.1. Describe the frameworks, tools, process and methods for testing and acceptance.

9.2.2. Describe any linkage with Quality Control processes and procedures.

9.3 HANDOVER TO OPERATIONS

9.3.1. Following acceptance, describe the process and procedures for handing over the network or sub-networks to the internal or external organisations responsible for commercial operations.

9.3.2. Specify what facilities, resources, equipment, training and manuals will be provided as part of the handover.

9.3.3. Identify any pre-requisites or external dependencies for handover.

10. ADDITIONAL SECTIONS

This section is optional and may be retitled or deleted. More than one additional sections may be added and the following sections renumbered accordingly.

11. LIST OF REFERENCES

This section is optional and may be deleted if, for example, footnotes have been used instead.

All references shall be included with the document either as separate clearly-named files or fully qualified Internet URLs.

All references however provided shall be in data formats stipulated by the ITT which are typically Microsoft Office, Adobe PDF and HTML formats.

12. GLOSSARY

All terms and acronyms that are not in standard English shall be defined in either upon first use or in this section. If all terms are defined upon first use then this section is optional.

13. APPENDICES

This section is optional and may be deleted.