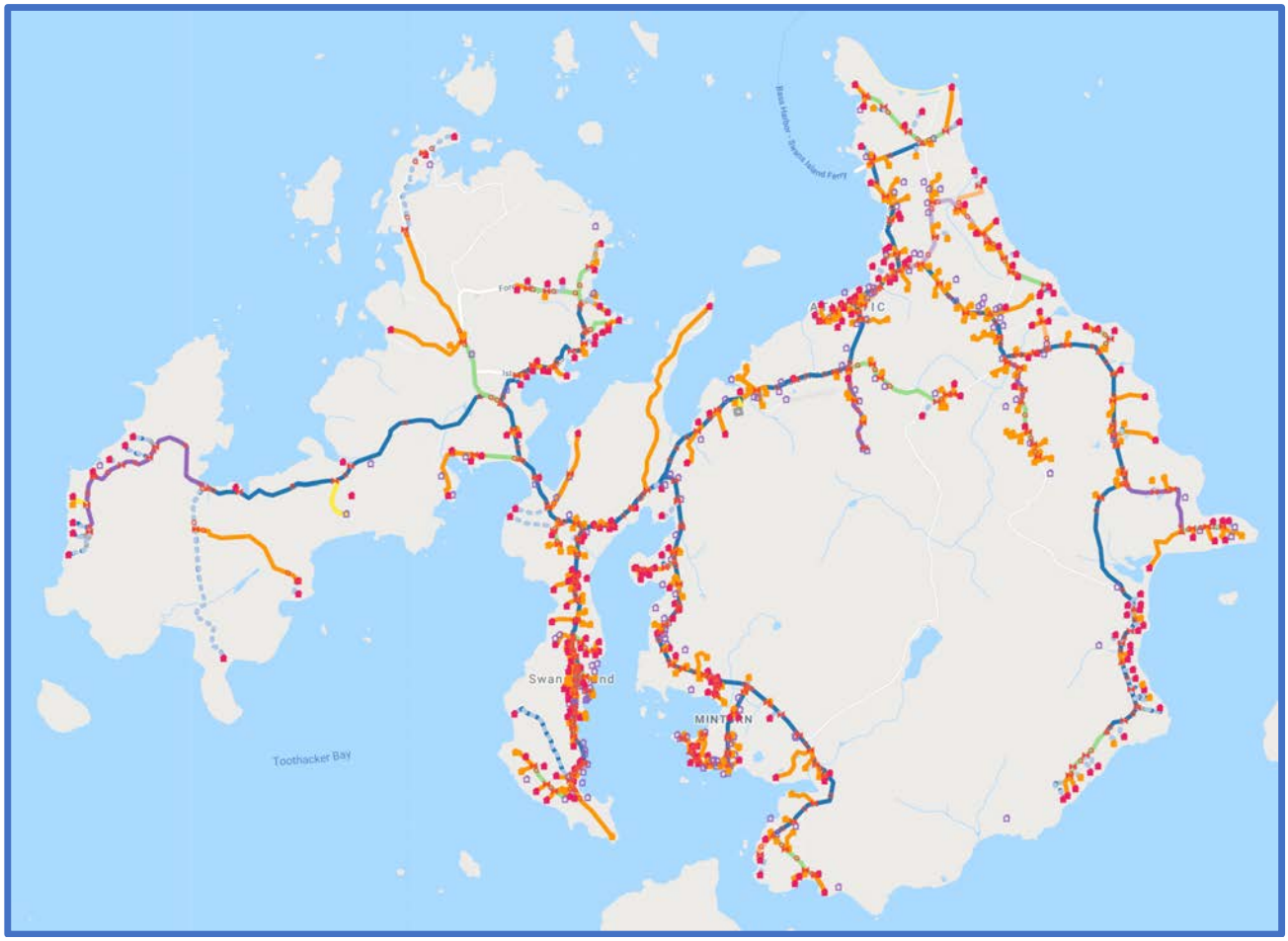
Casco Bay Advisors, LLC
Broadband/Telecom Consulting

Request for Proposal
Fiber Optic Construction Services
Microwave Development-Construction-Operations
&
Network Operator Services



Swan's Island Broadband

Prepared by

Casco Bay Advisors, LLC

JANUARY 26, 2020

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1 Overview

1.1 General Information

The Town of Swan's Island (Town) operating as Swan's Island Broadband (SIB) is seeking a fiber optic construction firm (Construction Contractor) to construct a Fiber-to-the-Premise (FTTP) Network (Network), a turn-key microwave development, construction and operating firm (Microwave Contractor) and a Network Operator to operate the Network to serve all potential subscriber locations on the island of Swan's Island.

Bidders are invited to submit proposals for both the Construction Contractor scope of work and the Microwave Contractor scope of work, as well as the Network Operator scope of work as a combined proposal, or individually for each of the three (3) scopes of work. Bidders are also invited to propose alternative bids that may not necessarily be anticipated in this RFP.

For bids consisting of teams of firms, one firm must identify itself as the Principal. The Principal shall be responsible for the scope of work proposed, as well as insurance and bonding.

1.2 RFP Schedule

All deadlines are 4:00 PM Eastern Time on the date listed.

RFP Schedule	
RFP Released	January 26, 2021
Pre-Bid Meeting via Zoom at 2:00 PM	February 8, 2021
Questions due	February 15, 2021
Notification of Intent to Respond (Mandatory)	February 22, 2021
Responses to Questions Posted Online	February 22, 2021
RFP Responses due	March 15, 2021
Finalists Named (Expected)	March 22, 2021
Bid Award Announced (Expected)	April 5, 2021

2 Background

SIB intends to build, own and operate a 23.5-mile FTTP network to serve 441 potential subscriber locations on the island. 186 of the potential subscriber locations are year-round residents or businesses, and 255 potential subscriber locations are seasonal residents. There are also 157 vacant structures. While we have sized the network backbone and laterals to provide service to these vacant structures in the future, we have not included any drops or optical electronics in the project to serve these locations.

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The network is intended to be configured as a Gigabit Passive Optical Network (GPON), with optional Active Ethernet (AE) where demand dictates.

The Central Office (CO) will be centrally located on the island at the southeast corner of Atlantic Road and Martin Road across from Mackerel Cove Road. A dedicated fiber has been engineered from each potential subscriber location to the CO, with close to 20% extra capacity for future growth and other future applications.

A new microwave system will be constructed to provide a connection to the mainland where backhaul to the Internet will be secured from another provider.

2.1 Project Implementation – Division of Responsibility

Project Implementation - Division of Responsibility	
Contractor	**Scope of Work**
Construction Contractor	Outside Plant - Construction
	Presubscribed Subscriber Drop Installation *(termination & activation by network operator)*
	Fiber Testing
	Fiber Optic Splicing
	On-call Restoration and Outside Plant Maintenance for 3 years post construction
Microwave Contractor	Site acquisition & permitting
	Survey, design & FCC coordination
	Site engineering & tower construction
	Equipment installation & activation
	Ongoing maintenance
Network Operator	Central Office GPON Equipment and Internet Connectivity - Installation & Turn-up
	Splice Diagrams
	Subscriber Drop Termination *(drop install by construction contractor)*
	ONT Installation & Subscriber Activation
	Ongoing maintenance
Owners Project Manager	RFP Process Administration
	Utility Pole Make-ready Project Management
	Construction Oversight & Project Management
	Construction Inspection
	Central Office & FDH Site Development - Project Management
	Central Office & FDH Structure - Acquisition & Delivery
	Subscriber Presubscription - Process Management
	Network Operator Oversight & Coordination

Casco Bay Advisors, LLC (Casco Bay) is SIB's engineering vendor and Owners Project Manager (OPM). The scope of work for each Contractor is further described in Sections 5 – 7 below.

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2.2 Island Logistics

Swan's Island is a vibrant year-round island community in Hancock County, Maine, located approximately six (6) miles off the coast of Mount Desert Island. The year-round population is approximately 350. In the summer, the population swells to approximately 1,000.

Transportation: The State of Maine operates a ferry service to the island from Bass Harbor in the Town of Tremont seven (7) days per week, with multiple trips per day. For ferry schedule, capacity and costs, please refer to: https://www.maine.gov/mdot/ferry/swansisland/.

Barge Service: For vehicles or loads that exceed the capacity of the Ferry, barge service is available from Southwest Boat Marine Services http://www.islandwebinc.net/swb/neptune.html or from The Island Transporter www.islandtransporter.com.

Lodging: The island has a one four (4) room Inn https://www.swansisland.com/ and numerous rental properties to lodge construction crews.

Stores & Restaurants: There are no restaurants on the island and just a single market, The Island Market & Supply http://tims-swans-island.com/.

Fuel: Fuel, both gas and diesel are available at the Fisherman's Coop.

2.3 Project Commencement

Based on the responses to this RFP and the expense of its OPM contract; SIB will seek approval to proceed with the project at its annual or special Town Meeting, to be schedule no later than June 30, 2021. **Contracts arising from this RFP will be conditionally awarded and executed, with payment and performance obligations subject to Town Meeting approval of the contract price.**

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3 General Information

3.1 Response Information

3.1.1 Single Point of Contact

All communications concerning this Request for Proposal (RFP) are to be sent by email to:

Tom Ploch – SIB Committee Chair
Town of Swan's Island
125 Harbor Road
Swan's Island, ME 04685
Thomas@ploch.com

3.1.2 Mandatory Pre-Bid Meeting

Each Proposer to this RFP must attend the mandatory pre-bid meeting via Zoom at the date/time listed in Section 1.2. Those wishing to attend the pre-bid meeting should email the Single Point of Contact for the Zoom link. SIB disclaims any and all responsibility for injury to Proposers, their agents or others while examining the site or at any other time. Proposers are responsible for all of their costs in preparing and submitting proposals hereunder.

3.1.3 Questions and Answers

Questions about the RFP and the proposal contents need to be in writing and submitted to the Single Point of Contact on or before the date listed in Section 1.2. All questions and answers will be answered in writing and posted to the Town website at a location to be determined.

3.1.4 Revisions to RFP

If SIB determines that it is necessary to revise any part of this RFP, or if additional data is necessary to clarify any of its provisions, a supplement will be posted to the Town website. SIB reserves the right to amend the RFP at any time prior to the deadline for submission of responses and will notify all bidders who are on the mandatory pre-bid meeting attendance sheet.

3.1.5 Bid Deposit

All bidders responding to the Construction Contractor or Microwave Contractor scope of work must submit a bid deposit in an amount equal to 5% of the bid amount in the form of a bid bond or certified check made payable to the Town of Swan's Island. Bid deposits shall be returned upon the signing of a contract, which shall be signed, if at all, no later than (90) days after the opening of bids, and also shall

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be returned in the event that SIB rejects all bids. Should a bidder withdraw its proposal prior to the signing of a contract between the successful bidder and SIB, the bidder's deposit shall be forfeited to the Town.

3.1.6 Proposal Deadline

Please provide SIB with an original plus eight (8) copies of the firm's proposal in a sealed envelope, marked "Swan's Island Broadband Proposal", addressed to the SIB Single Point of Contact on or before the date and time listed in Section 1.2. Proposals must be submitted in hardcopy form and supplemented with an electronic copy within the sealed bid envelope. Proposals received after that date and time will not be considered. *Please be aware that due to the remote nature of the island, normal deliveries via USPS, UPS, Fedex, and others may not arrive at the Town Office on the date promised by the delivery service. As such, bidders should make every effort to secure delivery well in advance of the date and time listed in Section 1.2.*

3.1.7 Bid Opening

Bids shall be opened by the SIB Single Point of Contact, or their designee, in public at a stated location and specific time to be determined, but no later than seven (7) calendar days after the Proposal Deadline. A tabulation of all received bids will be made available for public inspection.

3.2 Other Preparation Information

3.2.1 Proposal Acceptance

SIB reserves the right to accept or reject any or all proposals, in whole or in part, as deemed to be in the best interest of SIB. SIB may elect to negotiate with multiple entities prior to making final decisions.

3.2.2 Business Good Standing

To be awarded a contract by SIB, a Respondent must demonstrate that it is authorized to conduct business in Maine as evidenced by a certificate of good standing from the Maine Secretary of State's Office.

3.2.3 Costs of Preparation

The Respondent shall be solely responsible for all expenses incurred in the preparation of a response to this RFP and shall be responsible for all expenses associated with any presentations or demonstrations associated with this request and/or any proposals made.

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3.2.4 Other Response Information

Unless otherwise specified in the RFP, all communications responses, and documentation must be in English, and all cost proposals or figures in U.S. currency. All responses must be submitted in accordance with the specific terms of this RFP.

SIB may provide reasonable accommodations, including providing material in an alternative format, for qualified Respondents with disabilities or other hardships. Respondents requiring accommodations shall submit requests in writing, with supporting documentation justifying the accommodations, to SIB.

3.3 Contract Award Information

SIB may award one or more contracts and reserves the right to make additional awards to the same bidder at any time during the contract term if such award is deemed to be in the best interest of SIB.

3.4 Contract Evaluation

SIB intends to evaluate all submitted proposals as quickly as possible. Upon completion of the evaluation process, SIB may select one or more Contractors with which to simultaneously execute contracts, based on the evaluation findings and other criteria deemed relevant for ensuring that the decision made is in the best interest of SIB.

3.5 Standard Terms and Conditions

The successful Proposer(s) shall be required to sign a Contract with the Town. Bidders shall provide a template of such proposed contract as part of their proposal.

3.6 Public Records

The successful response will become part of the contract file and will become a matter of public record as will all other responses received.

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4 Information on the Network

4.1 Proposed Network

Construction drawings (maps) of the proposed network are contained as individual PDF files as Attachments to this RFP. Drawings are separated into three (3) separate packages including Strand, Backbone/Lateral and Subscriber drops.

4.2 Pole Attachment Licensing

At the time of this RFP issuance, while the utility pole data *(coordinates, owner IDs, street and town)* has been collected and incorporated into the VETRO system, SIB has not commenced the process of licensing pole attachments on the utility poles. At the time of contract negotiations between SIB and Construction Contractor, SIB will advise as to status.

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5 Construction Contractor - Scope of Work

5.1 Construction Scope

5.1.1 Utility Pole Make-ready

A total of 962 existing Versant-owned poles will be utilized with no new additional poles to be set, although we expect there to be a number of replacement poles required. Anchors and down guys will be specified during the make-ready process. For planning purposes, assume average requirements based upon prior projects.

5.1.2 Network Strand / Duct – Backbone & Laterals

Strand has been designed as either "network strand" or "drop strand". Network strand has been defined as strand to a serving pole where two (2) or more potential subscriber are served, with 100% of the network strand to be constructed as part of this scope of work. Network strand and duct construction for the backbone and laterals totals 23.51 miles, with just 824 feet of the amount underground. There is also 235 feet of dual 4" duct to be placed as diverse routes into the central office.

Down guys and anchors are to be placed in accordance with the engineering design and the pole attachment licenses issued by TDS and Versant Power. Placement of down guys and anchors should be included in the respondents pricing on a unit basis. Actual quantities of down guys and anchors will not be known until final make-ready quotes are received from the pole owners.

5.1.3 Network Fiber

The network is designed with a fiber dedicated to each potential subscriber location, plus a design goal of 20% excess capacity for future growth. 32:1 PON splitters will be located in the CO. The fiber design is comprised of SMF-28e+ fiber for all of the fiber routes.

The total backbone and lateral fiber footage is 149,175 feet, which is 25,059 feet greater than the strand/duct footage for the backbone and laterals. The difference in length is accounted for as follows:

- One route segment of approximately 2,500 feet with two (2) parallel backbone cables - *(2) 120 count cables*
- One route segment of approximately 3,000 feet with two (2) parallel backbone cables - *(1) 288 count and (1) 36 count cable*
- One route segment of approximately 3,000 feet with three (3) parallel backbone cables - *(2) 120 count cables and (1) 144 count cable*
- *220 slack locations with 65 feet each for a total of 11,000 feet of slack*

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The design uses a Splice Case with a red triangle symbol to denote locations with change in fiber count or lateral splice. All other splice locations are symbolized with a FAT. Slack is generally located on either side of a splice case and between FAT locations. Locations for slack will be finalized with Construction Contractor.

Each of the backbone and lateral fiber cables have been sized to reflect with the maximum fiber quantity necessary to serve the potential subscriber locations passed, plus 20%, increasing in count from the far end to the CO, without regard to the quantity of butt splicing required. Bidders are encouraged to consider value engineering opportunities by increasing the fiber counts on certain segments in order to reduce the amount of butt splicing required depending upon their own costs to splice versus increased cable count costs.

All serving terminals will be placed eighteen (18) inches to the right of the serving pole. The only exceptions will be dead end poles and road crossings, where the terminal will be placed eighteen (18) inches to the left of the serving pole. During the construction process, all terminal locations will require sixty-five (65) feet of slack to enable all splicing to occur on the ground. Remaining slack not used for splicing will be lashed to the strand with one or more snowshoes. All terminals will require proper labeling inside the terminal, such as fiber direction, cables, fiber assignments, etc. Outside plant labeling and naming standards will be developed by the Network Operator in collaboration with the Construction Contractor and OPM.

Each restoration slack loop is to be one-hundred and fifty (150) feet in length and placed per the design. Slack loops have been strategically placed throughout the network where sufficient terminal slack is not available for use in the event of restoration efforts. There is a specific slack symbol within the design maps to identify proper placement.

5.1.4 Drop Strand / Duct / Subscriber Drops

Drop strand is designed for those potential subscriber serving poles where there is only one (1) potential subscriber location served. Drop strand should be included in the respondents pricing on a unit basis and will only be constructed as part of this scope of work if the potential subscriber contracts for service during a presubscription phase completed prior to the commencement of construction. Drop strand is illustrated on the strand maps in Section 9 – Attachments, in the color red.

Presubscribed subscriber drops will be installed and spliced at the serving terminal with the subscriber end of the drop coiled and temporarily attached to the subscriber structure for the Network Operator to terminate at the Network Operator installed Optical Network Terminal (ONT). Placement of subscriber drops should be included in the respondents pricing on a unit basis and will only be constructed as part of this scope of work if the potential subscriber contracts for service during a presubscription phase completed prior to the commencement of construction.

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A total of 11.28 miles of strand to support subscriber drops served aerially or via a hybrid aerial underground drop have been calculated separately. An additional 4,959 feet of 2" duct to support multiple drops in 2 routes and a total of 6.73 miles of drop duct is specified separately as well. The amount of strand and duct to support the installation of drops will be subject to a subscriber presubscription process. Budgetary pricing for subscriber drops should be priced on a unit basis.

Subscribers will be responsible for providing pull rope in existing duct and placing any new duct as their expense. Budgetary pricing on a unit basis should be provided should the subscriber select the construction contractor to perform this work. Placement of duct will be underground to the best of the reasonable ability of the contractor. The island is extremely rocky, and ledge is present throughout. As a result, a minimum depth is not being required and there will be instances where the duct must be placed on the ground surface. Mapped routes for subscriber drop duct are our best effort but we recognize actual placement may differ depending upon conditions in the field. Contractor may adjust routes as deemed appropriate.

We believe 336 of the potential subscribers may be served with an aerial attachment based upon our visual survey. 79 locations will require placement of new duct, 11 will utilize existing duct, 11 will be served via a hybrid aerial / underground with new duct and 4 locations can be served with an existing hybrid aerial / duct. Some subscribers who have been defined as being served aerially may object and prefer underground. As such, the quantities for each arrangement discussed above may change.

Drop duct size / type to be recommended by Construction Contractor.

Subscriber drop lengths are summarized in the table below. Actual lengths to be verified by Construction Contractor. All underground drops to be tonable, either as integrated into the drop cable or by running a separate copper conductor.

Subscriber Drops		
	Length	
Quantity	Feet	Feet
52	25	100
120	100	200
100	200	300
64	300	400
40	400	500
23	500	600
18	600	700
8	700	800
4	800	900
5	900	1,000
4	1,000	1,200
5	1,200	1,400
3	1,500	2,000
7	2,000	5,600

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5.1.5 Central Office

The CO structure is designed as 10' x 16' prefabricated concrete shelter supplied and installed by the Owners Project Manager (OPM) under a separate contract and is not included in the Construction Contractor scope of work.

5.2 Installation Materials

The construction phase of this project will consist of all materials. The Construction Contractor shall be responsible for procuring both major and minor materials, and providing warranty for all of the major materials, which are listed in Appendix B: Bill of Materials – Network Construction, or their functional equivalents. Any and all substitutes made to the bill of materials must meet or exceed warranty specifications of the materials listed in Appendix B.

For reference purposes only, we have included the Bill of Materials for the Central Office and GPON Equipment, which will be supplied by others, in the Appendix.

The Construction Contractor is held responsible for all materials through SIB's acceptance of the network. If the materials supplied by the Construction Contractor are found to be defective, or do not conform to the specifications upon testing, SIB reserves the right to have the Construction Contractor immediately replace the materials at the Construction Contractor's expense, and through its procurement process. Excess materials purchased but not used during the construction will be property of SIB upon acceptance of the network.

5.3 Staging Areas

The location for a staging area for the outside plant construction will be determined in collaboration between the Construction Contractor, OPM and Town at a later date.

5.4 Installation Requirements

The Construction Contractor shall be experienced in outside plant facilities installation on utility poles and conduits. The Construction Contractor shall install fiber optic cable and associated items according to the following:

1. As designed in Section 9 – Attachments 1 – 3.
2. All fiber optic cable to be installed along the aerial pole line and in conduit shall be outside plant fiber optic cables as listed in Appendix B.
3. All fiber optic cable shall be installed as per manufacturer's best practices and tensioned as per manufacturer's specifications.

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4. The Construction Contractor is responsible for installing all necessary pole hardware suitable for the provided cable.
5. High visibility cable tags or markings containing the SIB contact information shall be installed at every pole, splice enclosure and riser guard, and be visible while standing on the ground.
6. All fiber optic cable installed, or to be installed in a building must be riser rated cable.
7. Industry approved cable lubrication shall be used as required during the cable placement in innerduct or conduits.
8. All conduits shall be weather sealed at both ends.
9. Serving terminals are to be installed approximately 18 inches to the right of the pole, and drop ports are to be installed on the left side of the terminal.
10. A 65-foot slack loop shall be placed at all serving terminal locations for splicing. The remaining slack not used for splicing is to be over-lashed to the strand and supported by snowshoe(s).
11. Labeling of the cable sizes and direction is required. All fiber strands spliced will be tagged and identified per terminal splice design.

The Construction Contractor shall follow the cable manufacturer's installation recommendations and guidelines. At a minimum, fiber optic cables shall be installed and tested in accordance with NECA/FOA 301, *Standard for Installing and Testing Fiber Optic Cables*.

All Work shall conform to the current National Electrical Code, National Electrical Safety Code and all state and local codes and ordinances. ANSI/TIA/EIA Standards shall be adhered to during all installation activities.

5.5 Splicing Requirements

1. All fibers and connector assemblies shall be fusion spliced.
    a. All splices are to be organized and secured within an approved fiber optic splice closure.
    b. The Construction Contractor shall follow the manufacturer's recommended cable preparation and routing procedures for cable entry into the provided fiber optic splice closure.
2. All splicing shall be completed as per splice details provided prior to the start of construction for each identified splice location. Any changes shall be approved by the OPM prior to completion.
3. The Construction Contractor shall maintain a Splice Log Book for each splice enclosure.
    a. Each splice enclosure will have a unique identifier as per the design prints and shall be large enough to be visible from the ground.
    b. The Splice Log Book shall include a copy of the original splice detail sheet, a red-lined copy of the as-built detail, LID readings from the fusion splicer, Optical Time Domain Reflectometer (OTDR) test results of the fibers spliced at that location, pictures of the organization and layout of the interior of the enclosure, and pictures of the enclosure on the cable or strand.
    c. The Splice Log Book shall also include any additional pertinent information not listed.

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   d. The Splice Log Book shall be delivered to the OPM electronically upon request and at the end of the project.
4. All splicing shall be monitored with an OTDR and tested to ensure acceptable splice loss values are achieved.
5. Labeling of cable sizes and direction is required. All fiber strands spliced will be tagged and identified per terminal splice design.
6. All tools and equipment used shall be in excellent working order.
   a. The Construction Contractor's cleaving, splicing and cable preparation equipment will be reviewed and approved by the OPM prior to the beginning of any splicing work.
   b. All splicing equipment shall be calibrated within 6-months of use on this project. Certificates of calibration for splice equipment shall be submitted to the OPM for review and approval.

5.6 Testing Requirements

1. The Construction Contractor shall test all optical fiber cables upon receipt at the project site prior to installation.
2. Optical fiber cables shall be tested while on reels with an OTDR to verify the cable length and locate cable defects, splices, and abnormalities, recording the loss value of each.
3. The Construction Contractor shall compare all pre-installation reel test data with factory results provided by the cable manufacturer and report any deficiencies to the OPM.
4. The Construction Contractor shall retain pre-installation reel test data and include in the record with as-built data.
5. All completed fiber spans shall be acceptance tested to determine cable length and splice attenuation using an OTDR. Each strand shall be tested bi-directionally @ 1310nm and 1550nm.
6. Each strand shall be tested for end-to-end dB loss and continuity using a Single mode light source and power meter @ 1310nm and 1550nm.
7. Optical fiber end-to-end link tests shall be performed in accordance with TIA/EIA-568-B.1 and TIA/EIA-568-B.3.
8. The Construction Contractor shall prepare loss budget calculations for each circuit. The loss budget shall itemize expected dB loss. The following formulas shall be used:

   i. Measuring at a wavelength of 1310 nm:
   ii. _____ km X .35 dB/km = _____
   iii. _____ SC connectors X 0.4 dB/mated pair = _____
   iv. _____ Splices X 0.05 dB = _____
   v. _____ Total maximum (end-to-end) loss = _____

   vi. Measuring at a wavelength of 1550 nm:
   vii. _____ km X .25 dB/km = _____
   viii. _____ SC connectors X 0.4 dB/mated pair = _____

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ix. _____ Splices X 0.05 dB = _____
x. _____ Total maximum (end-to-end) loss = _____

9. Strands shall meet current EIA/TIZ-568 specifications.
10. Attenuation test results shall be less than that calculated according to equation in TIA/EIA-568-B.1.
11. The Construction Contractor shall correct any fiber strands that demonstrate excessive attenuation due to breaks, bends, bad splices, defective connectors and bad installation practices.
12. The Construction Contractor shall submit test results in electronic format and in hard copy to the OPM for acceptance and sign off. The Construction Contractor shall perform any repair required by the OPM to correct any deficiencies, at no additional cost to SIB.

5.7 Documentation Requirements

The Construction Contractor will provide an as-built package by updating the network design using the VETRO FiberMap Fiber Management and Design system (VETRO) at the completion of this project. This package shall include at a minimum the following items:

- Updated splice documentation consisting of:
  - Network
  - CO
  - Splice cases
  - Terminals
- Fiber span footages
- Terminal splice locations
- Strand grounding locations
- Slack loop locations
- Routes of all strand/cables installed

The Construction Contractor shall also provide:

- Test results for optical fiber testing
- Warranty Package to include dates (Product Warranty)
- Certificate of Acceptance (pre- and post-installation)
- Summary sheet of test results for quick reference

5.8 Job Completion

Job completion of the network construction or microwave construction occurs when the Construction Contractor or Microwave Contractor:

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1. Submits last invoice
2. Notifies the OPM that construction is complete
3. Final inspection has occurred
4. All punch list items have been completed
5. All equipment and materials warranties have been transferred to SIB
6. All construction materials and fiber reels have been returned to the staging area with a list of remaining items
7. All the documentation for the project is submitted

5.9 Safety Requirements

The Contractors shall provide all safeguards, safety devices and protective equipment and take any other needed actions to reasonably protect the public and private property in connection with the performance of the work covered by the contract.

The Contractors shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the work. The Contractors shall at all times comply with the regulations set forth by Federal, State or local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations and standards.

5.10 Warranty Requirements

1. The Construction Contractor shall warrant that all materials furnished shall be new, and free from defects.
2. The Construction Contractor shall warrant that the materials and workmanship used in the installation are as herein specified and shall provide all material and labor required to make good any defects due to faulty materials or workmanship which becomes apparent within a one-year period from completion.
3. The equipment and materials manufacturers are expected to recognize that they are responsible for the failure of their products to perform in accordance with data furnished by them or their authorized representatives, as well as misrepresentations of such data. When the products have been installed in accordance to the manufacturer's published or written instructions and recommendations, and such products fail, then the Construction Contractor and the manufacturers are responsible for replacement of the products and all associated work and materials without additional cost to SIB.
4. Warranty information is required for all materials supplied by the Construction Contractor.
5. Damage by vandals, fire, traffic accidents or "acts of God" is excluded from warranty.

5.11 Schedule Requirements

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The contract period is expected to begin on or around October 2021 and extend through the close-out of the project in July 2022

	Date
Selection Notification	*See Section 1.2*
Contract Execution	30 days after notification
Begin Construction	when utility pole make-ready is complete
Complete Construction	6 months after begin construction
OPM's Acceptance of System	Coincident with construction complete

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6 Network Operator - Scope of Work

6.1 Pre-operation Support

With the Network Operator responsible for all aspects of the continuing operation of the Network, it is imperative the Network Operator have the opportunity to collaborate with SIB, the OPM and the Construction Contractor and Microwave Contractor as decisions are made that will impact the operation of the Network. For this Pre-operation Support phase of the Scope of Work, bidders should expect to provide support services on a time and expense basis, provide a schedule of hourly rates and provide an estimate of the overall cost of providing such support. The type of support services anticipated are described below.

6.1.1 Collaboration with Construction Contractor and OPM

The Network Operator will be expected to review all Construction Contractor change orders and provide comments and/or recommendations to the OPM regarding change order requests.

6.1.2 Collaboration with SIB and OPM during Presubscription

A subscriber presubscription period of at least 90 days will be conducted prior to construction commencement in an effort to maximize the quantity of subscriber drops installed as part of the initial Construction contract. The Network Operator will be expected to collaborate with SIB and the OPM to develop a marketing plan and participate in the marketing efforts of the presubscription period.

6.1.3 Splice documentation

While the Construction Contractor will be responsible for all splicing up to and including the presubscribed subscriber drops, the Network Operator will be required to provide instructions to the Construction Contractor regarding the splice plan and documentation requirements for each splice point. The Network Operator will be required to configure the splicing plan within SIB's instance of its VETRO FiberMap Fiber Management and Design system (VETRO).

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6.2 Product

6.2.1 Internet

All Broadband Internet service shall be configured as 1Gbps symmetrical service for all subscribers. The Network Operator shall have capability to provide virtual local area network (VLAN) per subscriber or equivalent protections for the separation of subscribers traffic from inappropriate interception.

The Town will invoice subscribers for this Internet Service on an annual basis. The Network Operator will not be expected to be involved in the billing and collections process for the Internet product.

6.2.2 IP Address and Domain Name Service

The Network Operator shall have the capacity to provide subscribers with dynamic addressing by default, and a permanent static IP address if requested by the subscriber. The Network Operator shall have the ability to manage DNS in such a way that all assigned IP addresses have fully consistent forward and reverse lookups.

6.2.3 Net Neutrality

The Network Operator shall demonstrate understanding and commitment to abiding by the provisions in Maine revised statutes Sec. 1. 35-A MRSA c. 94 – BROADBAND INTERNET ACCESS SERVICE CUSTOMER PRIVACY and Sec. 1. 5 MRSA c. 143 §1541-B-NET NEUTRALITY and shall assure all regulatory agency compliance.

6.2.4 Voice Telephone Service

Voice telephone service, voicemail and optional calling features shall be provided as an optional service in addition to the Broadband Internet service. Voice services will not be offered on a standalone basis. Voice service shall include the capacity to provide “Plain Old Telephone Service” (POTS) connectivity utilizing the subscriber’s built-in connections for premise copper wire connections and retention of existing telephone numbers. The Network Operator shall have the ability to manage routing of telephone calls throughout the public switched telephone network (PSTN) and interconnection points of the PSTN. The marketing, sales, provisioning, maintenance, billing and collections for voice services will be the full responsibility of the Network Operator and any revenue derived from voice services will be retained by the Network Operator.

6.2.5 Additional Services

The Network Operator may be required to offer additional services as may be mutually agreed by SIB and the Network Operator on a case-by-case basis.

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6.3 Presubscription Turn-up

During the Outside Plant construction phase performed by the Construction Contractor, the Network Operator will be responsible for providing and installing the Central Office equipment necessary to activate the subscriber services, termination of the drops installed by the Construction Contractor, and installation, activation and testing of the customer premise equipment. Those responsibilities are further described below.

6.3.1 Central Office equipment

The OPM will be responsible for managing the acquisition, delivery and placement of the Central Office and all peripheral equipment, including but not limited to, frames and ironwork, DC power distribution panels, rectifiers, batteries, transfer switches, generator and fiber management / cross-connect frames. The Network Operator will be responsible for providing and installing the ADTRAN TA5000 Multi Service Access Platform, or equivalent.

6.3.2 Internet Capacity

SIB will be responsible for contracting for sufficient upstream Internet capacity from a 3rd party provider at the microwave tower location in Bass Harbor. The Network Operator will be responsible for coordinating the interconnection, maintenance, repair and restoration of such capacity with the Microwave System Operator and the 3rd party Internet provider at both the Bass Harbor and Swan's Island tower locations.

6.3.3 Customer Premise Equipment

The Network Operator will be responsible for managing the acquisition, installation, activation and testing of all materials installed at the presubscribed subscriber location, including termination of the drop installed by the Construction Contractor. Those responsibilities are further described below. Any service or equipment provided beyond the ONT Network Interface Device (NID) is not included in this Scope of Work for the Network Operator, and if offered by the Network Operator, shall not be performed under the terms of the Network Operator contract.

6.3.3.1 Drop termination

The Construction Contractor will be responsible for placing and splicing all presubscribed drop cables and coiling sufficient drop cable slack as specified by the Network Operator on the side of the subscriber structure. The Network Operator will be responsible for terminating the drop cable into either an exterior or interior ONT configuration.

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6.3.3.2 ONT installation

The majority of ONT installations are intended to be installed on the exterior of the structure. Exceptions to this policy with the ONT installed on the inside of the structure will be made on a case-by-case basis by the OPM or SIB. All subscribers who subscribe to voice services shall have a battery backup installed on the interior of the structure. Wireless routers shall be provided as an option by the Network Operator.

6.3.3.3 Service activation and testing

The Network Operator will be responsible for all service activation and testing.

6.4 Network Operation – Post Construction

At the completion of the Construction Contractors scope of work, the operation of the Network will be the responsibility of the Network Operator. For purposes of this RFP, it is assumed that many of the presubscribed customers will have been activated prior to completion by the Construction Contractor and the remainder of the presubscribed customers will be activated as soon as possible after the commencement of operation of the Network by the Network Operator. Following is an itemization of responsibilities of the Network Operator post construction.

6.4.1 On-Island Technician

The Network Operator will be responsible for providing an on-island technician, either as an employee of the Network Operator or via a contractor to respond to service requests, repair and maintenance issues. SIB will assist the Network Operator in identifying potential candidates from the year-round residents of the island to fill this role. SIB has identified one qualified candidate thus far and believes other candidates can be identified.

SIB plans to provide a bucket truck and tools on the island to equip this technician and for use by the Network Operator.

The on-island technician shall also be available for use by the Microwave Contractor for the maintenance of the microwave system.

6.4.2 Service Activation

The Network Operator will be responsible for activation of all services in the same manner as described in the Presubscription Turn-up process described in Section 6.3 above. The Network Operator will also be responsible for installation of subscriber drop cables not installed as part of the Presubscription drops by the Construction Contractor after the initial construction has been completed.

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6.4.3 Subscriber - Service Level Agreements

The Network Operator shall collaborate with SIB to develop clearly defined service level agreements as part of subscriber contracts, covering every aspect of subscriber service, including an acceptable use policy.

6.4.4 Network Operator – Service Level Agreement

The Network Operator will be required to enter into a Service Level Agreement (SLA) with SIB, which shall be negotiated as part of the Network Operator contract. Such SLA will include subscriber satisfaction and network performance metrics.

6.4.5 Network Monitoring

The Network Operator will be responsible for providing 24 hour per day / 7 day per week proactive monitoring of the network.

6.4.6 Repair & Restoration

The Network Operator will be responsible for providing 24 hour per day / 7 day per week, timely and efficient subscriber troubleshooting and technical support.

6.4.7 Outside Plant Maintenance Coordination

The Network Operator will be responsible for coordinating all Outside Plant maintenance, repair, pole transfers and pole attachment rearrangements.

6.4.8 VETRO

The Network has been engineered using VETRO FiberMap (VETRO). All splice documentation and as-built information is required to be updated by the Construction Contractor within this application. The Network Operator will be required to maintain the Network within this application.

6.4.9 Backups

The Network Operator will be responsible for maintaining backup configurations of all network elements and provide such backups to SIB on a monthly basis or as otherwise agreed, in a format approved by SIB.

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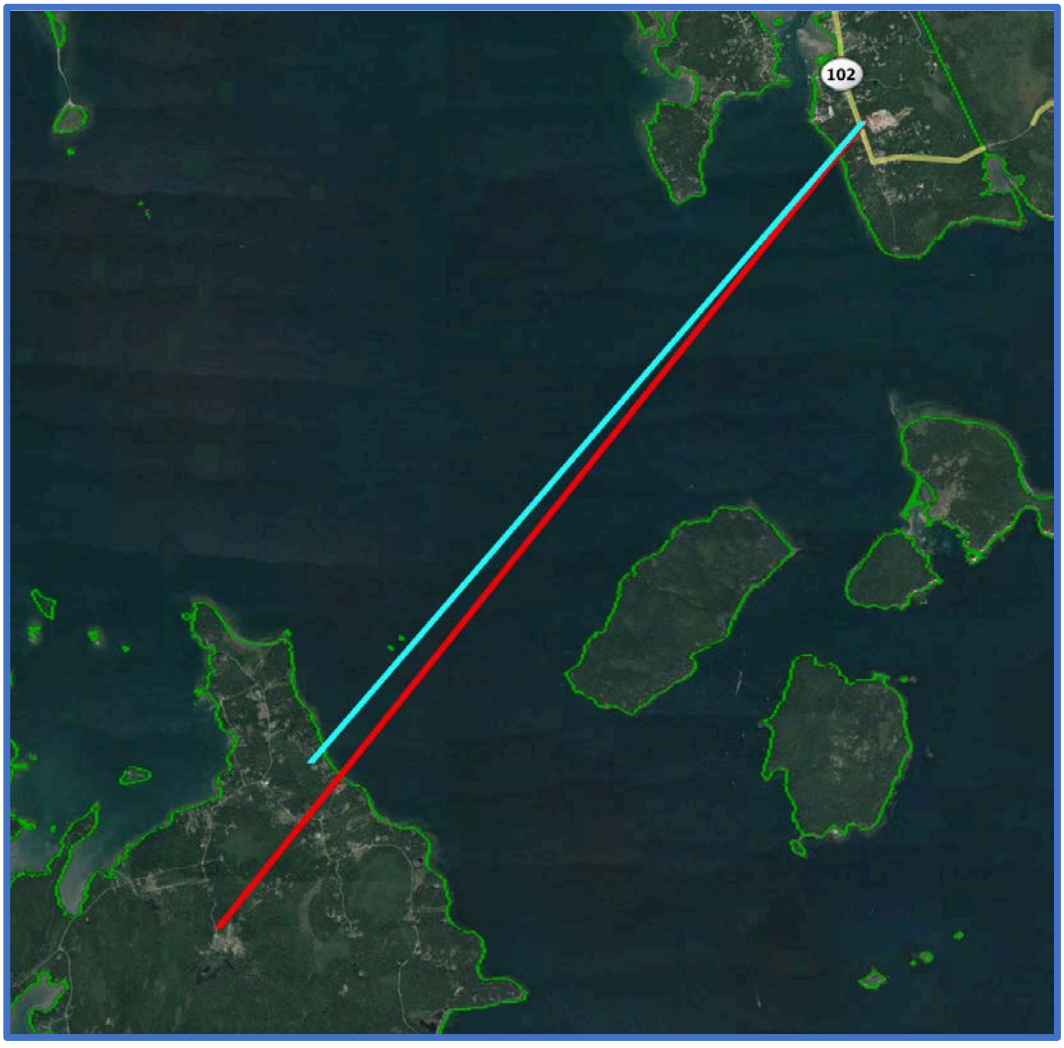
7 Microwave Contractor – Scope of Work

The Microwave Contractor will be responsible for providing a "turn-key" microwave solution to provide connectivity between SIB and the mainland at Bass Harbor. By "turn-key" we mean providing a total solution that will be owned by SIB but built and operated on an ongoing basis by the Microwave Contractor.

7.1 Tower Location Options

The RED path in the image below represents the existing TDS microwave path between Swan's Island and Bass Harbor. As mentioned below, we have been told that the towers supporting this path do not have sufficient space or structural integrity to enable additional equipment.

The BLUE path in the image below is an alternative path that can be created by installing new towers.



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The landowner in Bass Harbor has indicated a willingness to lease land adjacent to the existing tower. The land surrounding the existing tower on Swan's Island is owned by the Town and the Town has expressed a willingness to permit the construction of a new tower on that land. The landowner on Swan's Island for the alternative path noted in BLUE has also expressed a willingness to lease land for a new tower. Images for each of the potential end points are noted below.

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7.2 Microwave Capacity

The minimum microwave capacity required is 2.5Gbps. We would also like to have options for up to 10Gbps capacity. Our desired availability is 99.999%.

7.3 Site Acquisition, Planning, Permitting & Engineering

7.3.1 Existing Towers

There is an existing microwave system serving the island that is owned and operated by TDS. We are told that no additional equipment can be added to these towers due to space and structural limitations. The Microwave Contractor will be expected to validate these claims. If it is determined to be feasible to utilize the existing towers either as is or with modifications, the Microwave Contractor will be responsible for all tasks required to enable their use, including, but not limited to:

- Architectural and Engineering Drawings – Zone Drawings
- Architectural and Engineering Drawings – Construction Drawings
- Leasing – Lease Agreement w/ Memorandum of Lease
- Regulatory – NEPA Package – Tower Colocation
- Regulatory – 1A Letter – New state-stamped letter
- Regulatory – Tower Application to Tower Owner
- Structural – Structural Analysis – Full PE/SE-stamped document
- Zoning – Building Permit

7.3.2 New Towers

Should the use of the existing towers not be feasible, the Microwave Contractor will be responsible for all tasks required to assist SIB with site acquisition and development for new 80' steel monopoles *(height to be validated by Microwave Contractor),* including, but not limited to:

- Architectural and Engineering Drawings – Zone Drawings
- Architectural and Engineering Drawings – Construction Drawings
- Design – Utility Site Visit
- Leasing – Utility Easement
- Leasing – SNDA (Subordination Non-Disturbance Agreement)
- Leasing – Lease Agreement w/ Memorandum of Lease
- Regulatory – NEPA Package – Tower Raw Land
- Regulatory – SHPA Submission
- Regulatory – THPO Submission
- Regulatory – Phase 1 Environmental Analysis

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- Regulatory – 1A Letter – New state-stamped letter
- Structural – Structural Opinion Letter – Full PE/SE-stamped document
- Structural – Soil Boring Set-up & Boring
- Structural – Geotechnical Analysis (Soils Analysis)
- Structural – Foundation Design
- Structural – Tower Drawings
- Zoning – Zoning Approval – Public Hearings
- Zoning – Building Permit

7.3.3 Survey – Design – FCC

The Microwave Contractor will be responsible for all tasks required to establish the microwave path, including, but not limited to:

- Path Survey and Design
- Frequency Determination/Coordination
- FCC Licensing
- Closeout Report

7.4 Construction

- Excavate, install foundation and backfill based on foundation design
- Site grading and drainage
- Install grounding for microwave equipment
- Install poles
- Commercial power
- Generator and automatic transfer switching
- Fuel tank installation
- Security fencing

7.4.1 Equipment Installation

- Supply and install
    - Equipment enclosures
    - Radio equipment
    - Microwave dishes and mounting brackets
    - Coaxial cable, connectors, weatherproofing and cable fastening
    - Commercial power installation coordination and activation
    - Run fiber from SIB demarcation point to equipment enclosure

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7.4.2 Commissioning & Activation

- Path Alignment, Configuration, Commissioning
  - Commission ODU to IDU
  - Align path of microwave dishes
  - Close out and activation package
  - End-to-end turn-up and testing in collaboration with Network Operator

7.5 Operation

The Microwave Contractor will be responsible for all maintenance, troubleshooting, repair and restoration of the microwave system and towers. Bidders should submit pricing and sample 5-year operating contract for operation as part of their proposal.

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8 Proposal Requirements

Each Proposal must answer each of the following sections to be considered for evaluation. If a Respondent fails to meet any material terms, conditions, requirements or procedures, its response may be deemed unresponsive and disqualified.

8.1 Company Information

1. Provide your company information, including legal name, state of incorporation, year of incorporation, type of entity, all contact information, and a list of affiliated companies or other names you have done business as.
2. Please identify whether you are currently authorized to operate in the State of Maine and whether you maintain a physical presence within the state.
3. What other states or locations, if any, do you maintain an office or operations?
4. How many employees comprise your workforce: a) full time; b) part time; c) contract?
5. Please identify awards or recognition received by your company in the past 3 years.
6. Please list any licenses, certifications or accreditations awarded to your company.
7. Are you currently under contract or negotiations for a contract with the State of Maine? Any other state or municipality? Please list.
8. If selected as a vendor of choice, how soon can your company begin providing services for SIB?
9. Please provide evidence that you are capable of complying with the bond and insurance requirements of this project.

8.2 Industry Experience

Please provide the following for your company and all sub-Construction Contractors:

1. Please provide three (3) customer/client references including name, email, address, project timeline, and description of work
2. Please list the training certifications that your technicians hold and any experience with standards such as NECA 301 Standard and OTDR/loss testing.
3. Please provide your company's safety program, as well as any OSHA reportables within the past 3 years.
4. Which activities of the Scope of Work will your company sub-contract?
5. Are your technicians trained and experienced with NECA 301 standards?
6. Are your technicians trained in OTDR/Loss testing?
7. Do your technicians hold certifications for splicing?

8.3 Insurance Requirements

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Proof of insurance is required upon notification of award. The successful bidder shall provide proof of workers compensation insurance, comprehensive general liability insurance, and comprehensive automobile insurance in their response.

8.4 Conformance to Requirements

Please identify how your company will conform to all requirements identified in the Scope of Work. Please identify any subsections you do not believe you can or will conform to. Please identify any particular subsections that you do not believe are necessary or will change your proposal.

8.5 Value Engineering

Respondents are invited and encouraged to submit an alternative design or operating model on all or part of this RFP for SIB's review that provides equal or greater function at lower cost.

8.6 Project Management

1. List what primary tools, equipment, software and hardware you use for project management.
2. Identify how you make your work effective and efficient.
3. Describe your recommended project management approach for coordination and communication.

8.7 Schedule Requirements

Describe the schedule you will meet for this project. Also, specifically describe how you intend to meet that schedule and what kind of guarantees or assurances you can provide.

8.8 Approvals and Certifications

Affirm that your proposal to the RFP will be valid for all parts of the network identified even if some of that work must be completed by a subcontractor.

8.9 Safety

The Construction Contractor, Microwave Contractor and Network Operator shall provide all safeguards, safety devices and protective equipment and take any other needed actions to reasonably protect the public and private property connection with the performance of the work covered by the contract.

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8.10 Warranty

Please describer how you will meet the minimum warranty requirements specified and appropriate within the document. Description must meet minimum requirements, but additional items or lengths of time will be viewed favorably.

8.11 Pricing

Please provide proposed pricing for the work described in the Scope of Work. The Town of Swan's Island is a municipal corporation organized and existing under the laws of the State of Maine. Our sales tax exemption number will be provided to the selected Contractors.

The table below provides a suggested format and components for pricing. If bidders have a proposed alternative format you would like to suggest, please submit the proposed format as a question prior to the question deadline identified in Section 1.2.

Suggested Pricing Breakdown	
	Pricing Type
Construction Contractor	
Fixed fee for entire project except the items noted below	Fixed
Down guy - installed	per unit
Anchor - installed	per unit
Drop cables - installed	per unit or per foot
Drop Risers - installed	per unit
Drop Duct - installed	per unit or per foot
Microwave Contractor	
Site Acquisition, Planning, Permitting & Engineering	Fixed with task breakdown
Construction	Fixed with task breakdown
Operation	Fixed & Hourly per function
Network Operator / Single Provider	
Pre-operation Support	Hourly per function
Splice documentation	per unit
Monthly or annual base operating fee	Fixed
Monthly per subscriber fee	per unit
Drop cables - installed	per unit or per foot
Drop Risers - installed	per unit
Drop Duct - installed	per unit or per foot
Exterior ONT installed	per unit
Interior ONT installed	per unit
Battery backup installed	per unit

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9 Proposal Evaluation Criteria

SIB will review the RFP responses in accordance with the submittal requirements and using the criteria generally described as follows. Criteria are not necessarily listed in order of importance.

1. The thoroughness and comprehensiveness of each response.
2. The ability to meet the construction requirements, network installation and testing requirements.
3. The qualifications, experience and knowledge of the Respondent and the proposed project personnel.
4. Ability to meet schedules and deadlines.
5. Price of the work.
6. Familiarity with the proposed project areas and areas of similar geography.
7. Ability to work in a safe manner.
8. Ability to control and minimize costs as demonstrated in the response and through experience in prior projects.

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10 Appendix

10.1 Appendix A: RESERVED

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10.2 Appendix B: Bill of Materials - Network Construction

Swan's Island Broadband						
Bill of Materials						
Quantity	Unit	Quantity	Unit	Description	Part Number	Manufacturer
Potential Subscribers						
186				Year-round		
255				Seasonal		
441				**Total**		
Backbone / Lateral - Strand / Duct						
123,057	Feet	23.3	Miles	1/4" Strand - Backbone / Lateral		
824	Feet	0.16	Miles	2" Duct - Backbone / Lateral		
235	Feet	0.04	Miles	(2) 4" Duct - Diverse Central Office Entrance		
124,116	**Feet**	**23.51**	**Miles**	**Total**		
2	per			2" Riser - 10 feet		
4	per			4" Riser - 10 feet		
0	per			Handholes (2' x 3') - Backbone		
962	poles			Existing poles		
Versant to determine	per			Anchors		
Versant to determine	per			Down guys		
Drop - Strand / Duct						
59,545	Feet	11.28	Miles	1/4" Strand		
4,959	Feet	0.94	Miles	2" Duct		
35,537	Feet	6.73	Miles	Drop Duct		
100,041	**Feet**	**18.95**	**Miles**	**Total**		
Drop - Construction Type						
336	Aerial					
79	Underground - new conduit					
11	Underground - existing conduit					
11	Hybrid - Aerial + new conduit					
4	Hybrid - Aerial + existing conduit					
441	**Total**					
Drop - Fiber						
3,730	Feet	0.71	Miles	Fiber - 12 Count Drop		
8,420	Feet	1.59	Miles	Fiber - 6 Count Drop		
157,773	Feet	29.88	Miles	Fiber - 1 Count Drop		
169,923	**Feet**	**32.18**	**Miles**	**Total**		
385	Feet	*Average per subscriber*				
Backbone / Lateral - Fiber						
6,829	Feet	1.29	Miles	288 Count		
3,212	Feet	0.61	Miles	168 Count		
7,357	Feet	1.39	Miles	144 Count		
31,042	Feet	5.88	Miles	120 Count		
2,618	Feet	0.50	Miles	96 Count		
1,426	Feet	0.27	Miles	72 Count		
9,889	Feet	1.87	Miles	48 Count		
31,266	Feet	5.92	Miles	36 Count		
18,760	Feet	3.55	Miles	24 Count		
32,854	Feet	6.22	Miles	12 Count		
3,922	Feet	0.74	Miles	6 Count		
149,175	**Feet**	**28.25**	**Miles**	**Total**		
Miscellaneous Materials						
36	per			Splice Case		
175	per			Fiber Access Terminal		
220	per			Slack Locations		
440	per			16" Snow Shoes		
962	per			Fiber Tags		

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10.3 Appendix C: RESERVED

10.4 Appendix D: RESERVED

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10.5 Appendix E: Bill of Materials - Central Office Structure

Thermo Bond Buildings quote # 2002-72 for a 10' x 16' pre-cast concrete equipment shelter.

SPECIFICATIONS:

- Floor Load: 200 psf
- Roof Load: 150 psf
- Walls: 150 mph

BUILDING SIZE:

- Outside (Nominal): 10'-0" W x 16'-0" L x 10'-6" H
- Outside (Overall): 10'-6" W x 17'-6" x 10'-6" H
- Equipment Room: 9'-0" W x 15'-0" L x 9'-0" H (Nominal)
- Estimated Module Weight: 45,000 lbs.

SHELL:

- Floor: 5 3/4" Solid concrete floor
- Walls: 4" Solid concrete
- Roof: Solid concrete 4" at eave and 5 1/2" at ridge
- Design: Step-joint design
- Tie down: (4) Tie down plates
- Bolts: Painted bolts to replace lifting lugs
- Concrete: 5000 psi lightweight concrete
- Reinforcing: Steel #4 and #6 bars, 60,000 psi (Grade 60 ASTM-615)
- Ratings: Walls to 2 hour fire rated
- Ballistics: Tested for UL-752, Level IV (HPR-30.06 point blank range)

EXTERIOR FINISH:

- Walls: Washed exposed aggregate and sealed
- Roof: Trowel surface and sealed, broom finish

INTERIOR FINISH:

- Floor: Covered with 1/8" x 12" x 12" white commercial tile and a 4" base cove
- Interior Walls: 5/8" APA Rated OSB covered with white embossed fiberglass reinforced plastic (FRP)
- Ceiling: 5/8" APA Rated OSB covered with white embossed fiberglass reinforced plastic (FRP)

INSULATION:

- Exterior Walls: R-11 Rigid Polyisocyanurate Insulation

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• Ceiling:	R-19 Rigid Polyisocyanurate Insulation

DOORS:

• Quantity/Size:	(1) 3'-0" x 7'-0"
• Door Type:	18 ga. Insulated metal door, painted to match exterior finish
• Frame Type:	16 ga. Painted galvanized metal frame
• Lockset:	Best brand deadbolt with cylinder, passage lever set (Class 1)
• Hinges:	NRP-SS hinges
• Weather Strip:	Magnetic weather stripping
• Threshold:	Saddle type threshold, mill finish aluminum
• Door Sweep:	Neoprene style, mill finish aluminum
• Anti-pick Plate:	Latch Guard or equal
• Closer:	Hydraulic door closer with hold-open
• Drip Cap:	Drip cap, mill finish aluminum

AIR CONDITIONING/HEATING:

▪ Quantity:	1
▪ Type:	Bard Wall Mount
▪ Model Number:	230/208V 1 phase 3 Ton unit with integrated 5kW heat strips, coastal package, time delay anti-short cycle timer, high and low pressure switch, low ambient control, and a one year parts and labor guarantee
▪ Temp. Control:	Digital Thermostat

ELECTRICAL:

• Service:	120/240V single phase
• Generator Receptacle:	Appleton AJA20034-200RS
• Manual Transfer Switch:	Ronk 7215
• Auto Transfer Switch:	200A, 2 Pole 120240V single phase, 2-Wire Start, Nema 1 Enclosure
• Surge Suppression:	Type 1 MOV, Raycap B82XPR Type 2 MOV, Raycap B82XRR
• Panel:	(1) 200A Panelboard with main breaker
• Receptacles:	(4) 120V 20A Duplex, Leviton CR20-I (4) 120V 20A Twist-locks
• GFCI Receptacle:	(1) Weatherproof GFCI receptacle on own circuit, mounted in the vicinity of the HVAC unit
• Note:	All electrical conduits to be galvanized EMT and fittings to be compression type. No set screw type permitted. Horizontal runs of EMT to be installed 7'-6" aff whenever possible. All flex conduit to be seal tight type. Wire-way, conduit and/or drop box will be properly de-rated for compliance with current adopted edition of NEC code.

LIGHTING:

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- Interior: (4) 4 ft., 2 bulb LED light fixtures
- Exterior: (1) 12W LED Light with Photocell
- Emergency: (1) Dual Head Emergency Light (Battery Operated)
- Wall Switch: (2) 20A Single pole switch, Leviton CS120-2I

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CABLE LADDER:

▪ One (1) Batch of 12" Cable Ladder per customer layout

GROUNDING:

▪ One (1) 4" x 20" master ground bar
▪ One (1) Halo ground, #6 copper stranded wire with green insulation
▪ # Lineup feeders with #6 taps to relay racks
▪ Dedicated grounds to DC plant positive bar

EQUIPMENT RACKS:

▪ Three (3) 23" standard relay racks

INTEGRATION:

▪ DC Plant (ELTEK)
- CC9I-ANN-VC Compact Power Shelf/ Rear wire, 200amp max
- 48V Negative output polarity
- 23" Rack / 2 RU / Mid mount / System Depth 15"
- Individual AC Input (LL AC Cord)
- Four (4) Rectifier positions
- Four (4) Distribution Circuit breaker positions (CBB Style) ¼" 20 Stud 5/8" Center
- Twenty (20) Distribution GMT Fuse positions
- BC20000-A01-10VC 48V, System controller w/Ethernet, next-gen, w/CLEI
- Three (3) V1250A-VC Rectifiers, 1400W, 53.5V, 25A

▪ Batteries: Five (5) Strings of 170AH batteries, Enersys SBS170F, 48V, Cabled back to DC Plant

- One (1) (NMI-184) NEBS seismic 5 Tier Rack, prewired 4/0ga, 100Amp 1 Pole Breaker 48Vdc

▪ (3) 23" x 7' Relay Racks
▪ (3) Telect HPGMT20 fuse panels
▪ (204) 3 Meter SC-SC Jumper
▪ (239) 5 Meter SC-SC Jumper
▪ (2) 6' 4x4 Fiber Mgmt.
▪ (2) 4" Hinged Cover
▪ (1) 4x4 Junction
▪ (2) 4x4 End Cover
▪ (3) 2x2 Exit Kit
▪ (3) 2x2 Vertical Kit
▪ (6) 45 Up Elbow

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- (6) 45 Down Elbow
- (9) 2x2 Junction
- (3) 5/8’ Threaded rod center bracket
- (3) 5/8’ New threaded rod back bracket
- (17) 1x32 PON Splitter Assembly
- (1) 24 Count Fiber Patch Panel
- (8) 1 RU Rack mounted fiber management system
- (3) 1x32 Splitter Chassis

MISCELLANEOUS:

- One (1) Alarm Package - Smoke, High/Low Temperature, Door Contact, Dry contact relays wired to 66 punch down block
- One (1) First Aid Kit, #4EY88
- One (1) Fire Extinguisher, 10 lb. C02, #4T889
- One (1) Telco Board, 4’ x 4’ plywood painted white
- One (1) Wall pocket for storage of documentation
- One (1) Complete set of construction drawings

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10.6 Appendix F: RESERVED

10.7 Appendix G: Bill of Materials - GPON Equipment

ADTRAN TA5000 MULTI SERVICE ACCESS PLATFORM - BILL OF MATERIALS			
QTY	MODEL	PART NUMBER	TA5000
1	TA5000 CHASSIS STARTER KIT	4187001L1	The TA 5000 Starter Kit includes the Total Access 5000 chassis, SMIO3, Fan Module and Filter.
1	TA5000 SCM F3	1187011F3	The TA5000 F3 Bridging SCM is the logical user interface for the system. The F3 Bridging SCM provides front and rear 10/100BaseT Ethernet connections. It also provides the capability to bridge an Ethernet interface with the Inband Network interface. The SCM is not in the data path.
2	TA5000 SM40 4-10G NO RG	1187040F1	The TA 5000 SM40 4x10G Switch Module is the switching engine for the system. It can be deployed either simplex or fully
1	TA5000 FIBER MANAGER 2ND	1187940G2	The Total Access 5000 Fiber Manager 2ND GEN provides additional capacity of up to 200 2.0mm fibers or 330 1.6mm fibers
2	SFP+ 10G 1310NM SMF 10KM	1442410G1	The 1310NM 10Gbps SFP+ is a 10 Gigabit Ethernet "Small Form Factor Pluggable" that operates on the 1310NM wavelength. It operates on single mode fiber and uses LC fiber connectors. It has a maximum range of 10 KM.
8	TA5000 AM BLANK DUAL SLOT	1187922E1	The TA5000 Access Module blank is a dual wide blank faceplate for an Access Module slot in the TA5000 chassis. This module is 5 of 6 RoHS compliant.
10	TA5000 AMIO2 BLANK	1187923G1	The TA5000 Access Module Input Output blank is a dual wide blank for the back of the card slot on the TA5000 chassis. RoHS Compliant.
			GPON
14	SFP GPON 2.5G 1.25G 30KM	1442530G1	The 30km GPON SFP is a "Small Form Factor Pluggable" single fiber SFP that operates on multiple wavelengths. It uses single mode fiber with a single SC fiber connector. It is Class B++ optics rated for GPON and has a maximum reach of 30KM.
2	TA5000 GPON OLT 8X SFP	1442530G1	8-Port GPON OLT with SFP interfaces. GPON SFPs (1442530G1) must be ordered separately or as part of a bundle (4187503G1)
			Outdoor ONT
441	ADTRAN 452 ONT 2P/2GE OD	1287802F1	ADTRAN 452 GPON/AE Outdoor ONT, 2POTS/2GE
441	ONT UPS, GPON	1187731G1	Uninterruptable power supply (UPS) for GPON SFU ONT. Features include: Buzzer on/off switch for utility failure and low battery; Communications to ONT for reporting On Battery, Replace battery, Battery missing, Low Battery alarms; User-replaceable 7.2 Ah 12VDC battery included
441	TA350 ONT NID HSG OPTITAP	1187771G1	Outdoor enclosure GPON ONTs. Supports Corning's Opti-Tap connectorized fiber.
441	GPON UPS CABLE, 50 FT	1187732G1	7-wire cable to be used with the UPS/BBU and the TA300 series of ADTRAN ONTs.

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11 Attachments – Construction Plans

11.1 Attachment 1: Swan's_Island_Strand_Map.pdf

11.2 Attachment 2: Swans_Island_Backbone_Lateral_Map.pdf

11.3 Attachment 3: Swan's_Island_Drop_Map.pdf

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