



Request for Bid – Construction Services for Fiber Optic Improvement

Purpose

Request for Bid for the Construction and installation services to complete the fiber cable and duct installation for Fiber Optic Local Improvement District #1.

Release Date: August 26, 2022

Response Due Date: September 22, 2022

Contact: Tiffany Belt

Mailing Address: P.O. Box 10, Mountain Home ID 83647

Physical Address: 160 S 3rd East, Mountain Home ID 83647

Email: tbelt@mountain-home.us



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1.0 Project Overview

1.1 Background

The City of Mountain Home, Elmore County, Idaho herein after referred to as the 'city', has designed and intends to install a Fiber To The Home (FTTH) network in three no contiguous areas of the city as identified in this exhibit. The plan includes providing FTTH open access infrastructure to residents that have chosen to receive and installation.

The network is in the final stages of design and construction of the network is to begin immediately after the RFB selection is made. Network construction is expected to be completed within 18 months of construction start barring any unforeseen delays associated with supply chain problems.

1.2 Purpose

The City of Mountain Home is requesting responses to the Request for Bid (RFB) for outside plant construction, materials management, and technical services to construct a fiber to the home network for the areas identified in this exhibit.

1.3 Project Summary

The City of Mountain Home expects the selected Contractor to construct all outside plant infrastructure to support the connection of all homes in the identified neighborhoods. The Contractor will need to perform all splicing and fiber termination activities. The Contractor will be responsible for all placement of duct, handholes, fiber, MST's, outdoor slack storage boxes, indoor Customer Premise Equipment (CPE), grounding and general infrastructure. Drops will only be installed for the homes of the residents that have requested an installation.

The selected Contractor for outside plant construction will collaborate with the City of Mountain Home to complete the overall build. It is anticipated that the quantities included in the bid will fluctuate, but that the unit pricing bids shall be based on a close estimate of the actual quantities for the build-out. The Contractor shall proceed with construction in the order of priority determined by the City.

The Contractor will be required to complete the construction of the network using an optimal mix of techniques for outside plant (OSP) construction. This mix of approaches will be defined by the City according to the unique characteristics of each fiber route and location.

In general, the Contractor will have responsibility for all services required for the project to construction the cable plant infrastructure. This will include; directional boring of duct, trenching or plowing of duct, installation of handholes, placement of fiber optic feeder, distribution, Multi-Service Termination (MST) tail and drop cables, installation of MST's, grounding, marker posts and test station marker posts installation, slack storage enclosure, fiber splicing, termination, testing and indoor Customer Premise Equipment (CPE) installation.

The Contractor shall manage all materials used in construction of the network and provide tracking of material usage. The Contractor will be responsible for all permits required to complete the construction activities as well as one call / locate initiation for the planned construction area.

The project consists of building infrastructure to provide FTTH connectivity for the Hope Village neighborhood. The following map outlines the overall location of this neighborhood and the location that will serve as the access location.

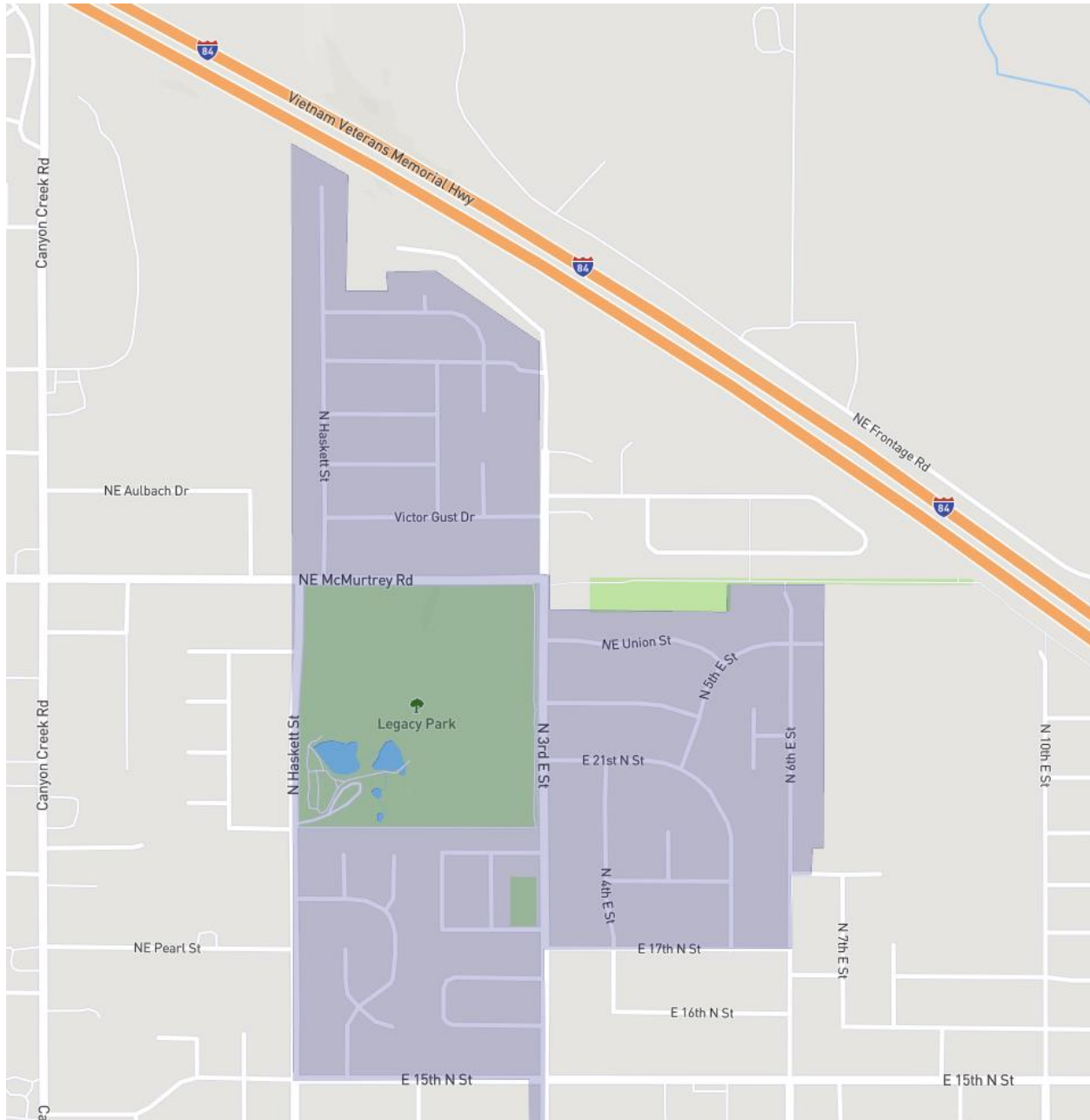


Figure 1.3-1 – Overview of northern neighborhoods to be built



Figure 1.3 - 2 – Overview of southern neighborhood to be built



City of Mountain Home

Table 1.3-1 summarizes the approximate number of homes and drops expected. In addition, **Figures 1.3-3 & 4** provide an overall design view of the neighborhoods. It is expected that as homeowners continue to sign up for service the quantity of drops could vary as much as 20%.

Area Description	Total Passings	Estimated Connections
Northern Neighborhoods	432	216
Southern Neighborhood	258	129
Projected Total	690	345

Table 1.3-1 – Properties and Estimated Drops

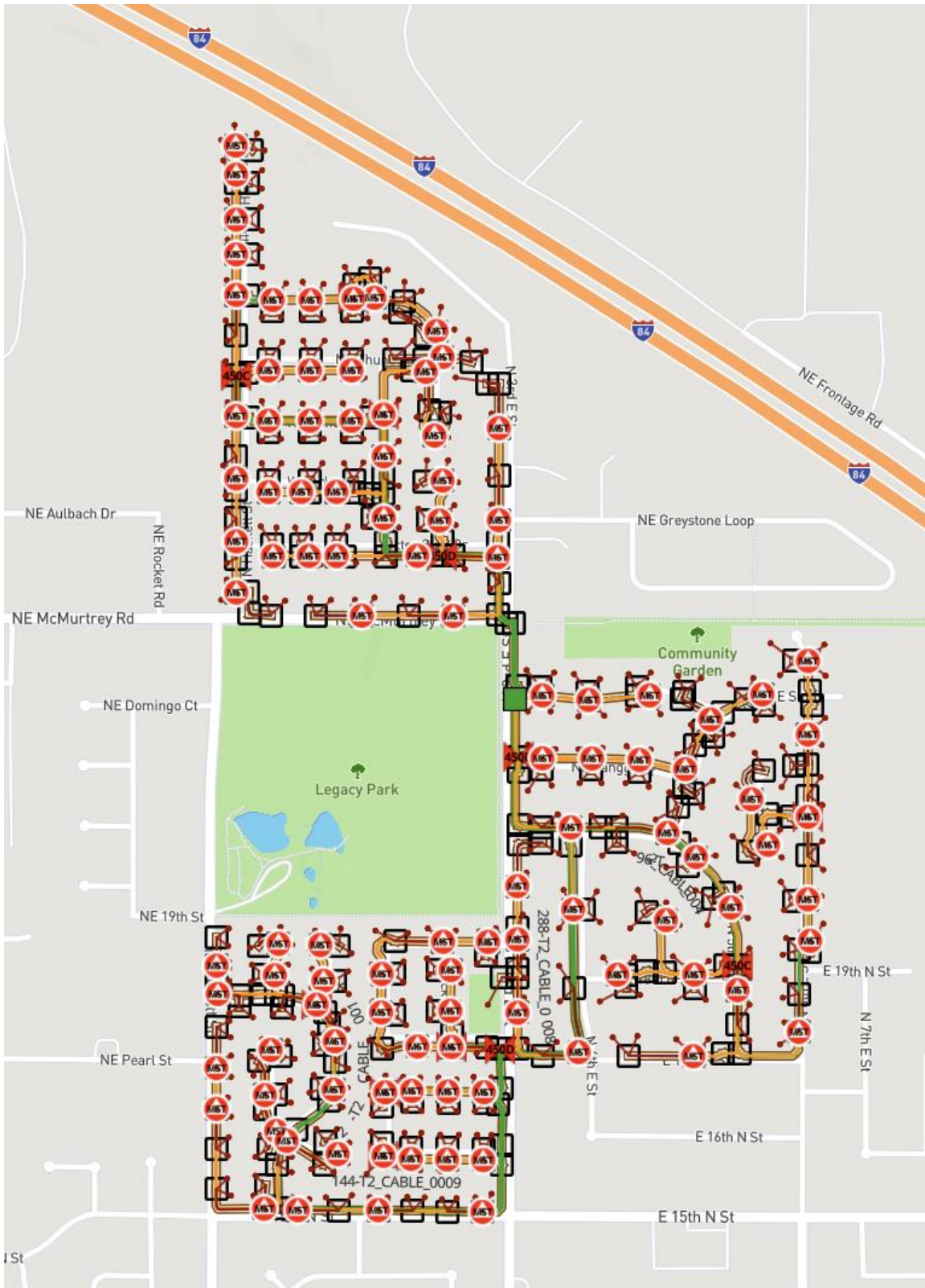


Figure 1.3-2 – Northern Neighborhoods

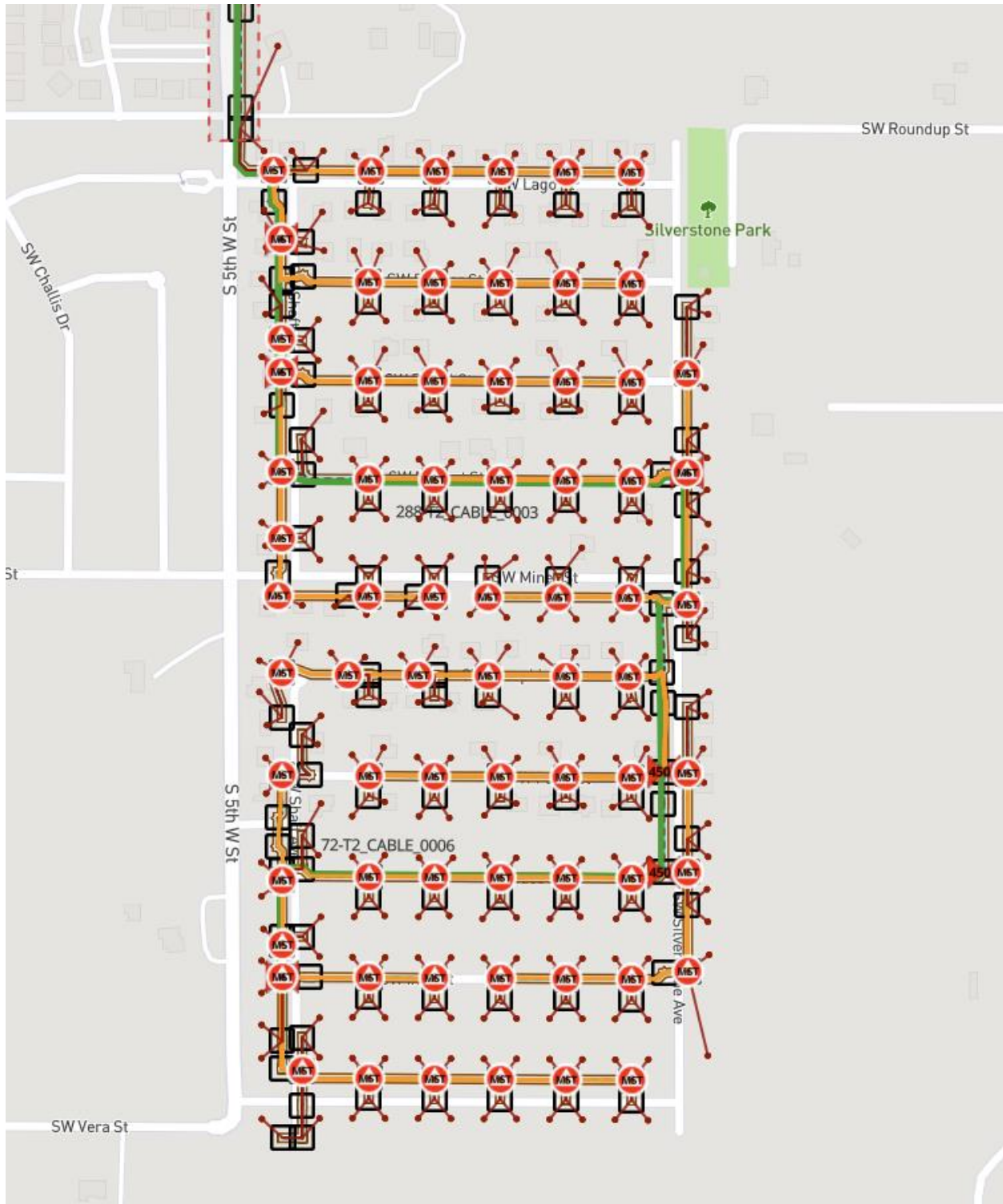


Figure 1.3-2 – Southern Neighborhood



The City of Mountain Home has a high-level design available for review by prospective respondents to this RFB either online or in standard Geospatial Information Systems (GIS) file formats. Respondents may request access to these designs by contacting: Tiffany Belt via email at tbelt@mountain-home.us

2.0 Bid Submission

2.1 Project completion dates:

The City expects the project to be completed within a 18 month period, but understands that the market is currently experiencing supply volatility. Bids must include an estimated completion date. The winner Bidder(s) will be required to maintain clear communication with the City regarding supply chain problems or delays to the schedule. The City reserves the right to adjust project components or contracts if such adjustments would reduce costs or improve the timeline.

2.2 Bid Due Date

Bids must be received no later than: September 22, 2022 by 3:00 p.m. local time.

2.3 Bid Submission Requirements

Sealed bids must be returned to:

City of Mountain Home
ATTN: Tiffany Belt
Address: 160 South 3rd East Mountain Home, Idaho 83647

Pricing must be completed and returned in the included Excel workbook.

Other qualification and bid information can be submitted in PDF or Word format.

Late bids will not be accepted. It is the responsibility of the offeror to ensure that the bid is received by the City of Mountain Home on or before the bid due date and time.

2.4 Information Required

2.4.1 Cover

The cover of the bid shall include the following information:

- Company Name
- RFP Number
- RFP Title
- Due Date and Time

2.4.2 Cover Letter

Include a cover letter introducing your company, summarizing your qualifications, and detailing any exceptions to this RFB (please note that significant exceptions may make your bid non-responsive).

2.4.3 Use of Subcontractors

There may be areas for use of subcontractors in this project. If you are utilizing this approach, your bid must list the subcontractors, their area(s) of expertise, and include all other applicable information herein

requested for each subcontractor/partner. Please understand that the City is contracting solely with your company, therefore any subcontractors remain your sole responsibility.

2.4.4 Company Information

Please provide the following items:

- A. Company Name, Address, Phone Number and Names of Principals.
- B. Identify the year in which your company was established and began providing construction services.
- C. List your firm's Standard & Poor's or AM Best (or comparable and applicable) rating.
- D. Describe any pending plans to sell or merge your company.
- E. Idaho Public Works Contractors License – A copy of the Bidder's General Contractor License and all applicable documentation to do work in Idaho.
- F. Experience in Network Construction – the Bidder must provide at least three (3) references from other projects of similar scope that were completed within the last five (5) years. Documentation will highlight similar network systems that it has constructed, including the project name, location, size, architecture, and name and phone numbers for reference contacts. References documenting experience working with public sector organizations are preferred.
- G. Financial Stability – the Bidder shall submit its two most recent annual financial statements in order to permit analysis of its financial resources. If the Bidder is part of a team, the two most recent annual financial statements for each team member should be submitted. In addition, the selected Contractor or Contractor Team shall provide a bond in the amount of the bid to guarantee satisfactory completion of the project. Appropriate insurance shall also be provided by Contractor and any subcontractors.

2.4.5 Past Performance

The Contractor shall provide a minimum of three references of projects with similar scope of work and size. The list of references must be submitted with the bid and shall include the name of each project and contact information of the owner or owner's representative.

2.4.6 Pricing

Provide a complete price estimate for the project. A pricing worksheet has been provided for Bidders to use for the cost estimate. Response forms for materials and labor are included as attachments to this RFB. These pricing worksheets must be used for submission of the cost estimates by respondents.

Please complete the price sheet for the proposed completion dates identified in this RFB.

The rates submitted shall be considered valid for 60 days after the RFB due date and shall be considered valid throughout the project if the bidder is selected. The pricing asked for is unit based pricing and work is expected to be performed on a unit base. The quantities provided are only for a rough order of magnitude and the City shall not be bound to those quantities. The City reserves the right to purchase as many or few quantities of the priced units as they deem necessary.

3.0 Contractor Responsibilities

3.1 Meetings and Staff Coordination

The Contractor shall be required to attend progress meetings as requested by the City of Mountain Home, but in no case less than once a week. The Contractor shall be required to attend up to 10 meetings with Jurisdictional Authorities or other third parties as requested by the City of Mountain Home.

3.2 Adherence to Plans and Specifications

To provide for acceptable design flexibility while also minimizing confusion between the Contractor and the City, the City intends to work from a single electronic design that will be available to all parties online. It is expected that this methodology will allow the Parties to coordinate minor design adjustments to align with conditions found in the field by the Contractor for the benefit of both Parties. The Contractor shall adhere to the primary components of this Design and shall execute the work in accordance with the Specifications and all local, state, and federal specifications, requirements, and codes. The Contractor shall notify the City of Mountain Home if deviations from the design by adjusting the online design to reflect minor adjustments made in the field as a part of Construction. Notifications of such adjustments or changes shall be made and approved within the Online Design System prior to commencement of any work related to those deviations.

3.3 Redlines

It is expected that utilizing the Online Design System will negate the need for Redline drawings, as any changes to the Design will be maintained natively as a part of the construction process. It shall be the responsibility of the Contractor to notify the City of any adjustments to the Design within the provided system and obtain approval from the City for any deviations within the same system prior to commencing any work that deviates from the currently posted design. Once such deviations are approved, the Online Design System shall reflect those changes as a part of the currently approved Design.

3.4 Rights of Way

It shall be the Contractor's responsibility to determine the location of Right-of-Way lines, and utility easements as a part of Construction. Any damage incurred to private property by the Contractor shall be paid for at the Contractor's expense. The Contractor shall be responsible for the safety and protection of the public and of public and private property on and around the construction sites. The Contractor shall notify the City of Mountain Home immediately of any injury to persons or damage to any public or private properties on or around construction sites. The Contractor shall abide by any and all applicable rules and regulations of the Jurisdictional Authorities concerning working on the right-of-way. Any penalties and/or fines for violations incurred while working on the right-of-way shall be the sole responsibility of the Contractor.

3.5 Permitting

The Contractor will be responsible for obtaining all necessary permits prior to proceeding with construction work. The City expects to expedite permitting for the Contractor and waive all costs for permitting where possible. If a specific payment cannot be waived, separate payment will not be made for the acquisition of any such permits but shall be considered incidental to other items for which payment shall be made.

3.6 Utility Locates

The locations of existing underground utilities shown within the Online Design are approximate and may not reflect actual field conditions. It is the Contractor's sole responsibility to locate any and all utilities in the work area prior to any construction activities. Separate payment will not be made for utility locates, potholing and other verification means, but shall be considered incidental to other items for which payment shall be made.

3.7 Materials

The Contractor may provide costs for any or all materials as part of Contractor's response. The City of Mountain Home reserves the right to separately provide all fiber optic cable, innerduct (¾", 1.25", and 2" HDPE), connectorized hardened drop cables, handholes, splice closures, slack storage enclosures, ground wire for splice handholes and test station marker posts and MST's (Multiport Service Terminals) required for the project. If such materials are provided separately from the Contractor, it shall not be Contractor's responsibility to track such materials. Winning Bidder's for materials shall have the responsibility to provide and track these materials as required by the Contractor. The Contractor shall be provided tracking information that is regularly updated by any materials suppliers for the duration of the project. The Contractor will be completely responsible for any materials picked up from such suppliers until acceptance of the installation by the City. The Contractor will be responsible for any materials that are required to complete the project not listed above. The Contractor's responsibility for these secondary materials relates to ordering, purchasing, and tracking in order to meet the project schedule. Any damage that occurs to the cable, after the Contractor has taken responsible charge of the reel(s), shall be replaced in-kind by the Contractor at the Contractor's sole expense. The city can assist with identifying and providing city properties in close proximity to construction areas for materials storage. It shall be the contractor's responsibility to secure any materials stored on city properties.

3.8 Traffic Control

The Contractor shall conduct his operations in such a manner as to leave all streets, access roads and driveways open to traffic at all times. The Contractor shall place and maintain proper barricades, lights, signs, and other required safeguards around obstructions as required by local, state, and federal guidelines and codes. All traffic control devices and plans shall adhere to the Manual on Traffic Control Devices (MUTCD) and all applicable codes. It is the Contractor's responsibility to obtain all necessary traffic control permits from the agency having jurisdiction. Separate payment will not be made for Traffic Control, but shall be considered incidental to other items for which payment shall be made.

3.9 Daily Project Clean-Up Requirements

The Contractor shall maintain a clean and hazard free work area including but not limited to daily removal of all spoils, excess material, waste and sweeping of all affected roadway and sidewalk areas. Contractor shall remove from the site and dispose of all spoil, waste, and other unused excavated materials in accordance with all Jurisdictional Authorities. Where excavation is required in paved areas, restoration shall be completed immediately and prior to removal of traffic control. The Contractor shall not leave any sections of the trench open during non-work hours. The Contractor shall backfill all segments of the trench in adherence with the trench typicals and associated permits. The Contractor shall store all equipment, tools, material, etc. in a manner so as not to inhibit traffic flow or parking during working or non-working hours. All staging areas must receive final approval from the City of Mountain Home and

other Jurisdictional Authorities. The City of Mountain Home shall assume no responsibility for the Contractor's equipment or materials. Security for the job areas is the responsibility of the Contractor. The Contractor shall comply with the security requirements of the right-of-way owners or other Jurisdictional Authorities.

3.10 Contractor's Construction Schedule

The Contractor shall submit a detailed resource-loaded construction schedule such as a Gant chart or excel spreadsheet detailing the appropriate tasks to track and manage the project for the City of Mountain Home's approval within 5 days of contract award. All schedules shall include the planned construction method(s), by location, with the associated quantities, manpower, equipment, and planned production rates to complete the work. The Contractor's construction schedule shall be prepared in Microsoft Project or other City of Mountain Home approved format. The Contractor shall provide the City of Mountain Home a softcopy of this schedule. All schedule versions shall contain sufficient detail to ensure that The City of Mountain Home can measure the Contractor's progress on a daily basis throughout the project duration. The Contractor shall provide updates to the schedule on a weekly basis or as required by the City of Mountain Home. If the Contractor fails to achieve the scheduled progress, the Contractor shall provide a "recovery schedule" indicating additional resources or acceleration efforts to maintain the contracted completion date. Full compliance with this section is a condition precedent to payment.

3.11 Inspection and Acceptance

All work shall be subject to the inspection and approval of the City of Mountain Home, and the Jurisdictional Authorities. The Contractor shall schedule the Work and provide adequate notifications to comply with any and all requirements for inspection. The City of Mountain Home's representatives shall inspect workmanship and progress of work being performed. Where workmanship or installation deficiencies are observed, the City of Mountain Home's representative shall discuss them immediately with the Contractor's supervisors. The Contractor shall take measures to immediately and expeditiously correct any deficiencies to the satisfaction of the City of Mountain Home without impacting the installation schedule and at no additional cost to the City of Mountain Home. The City of Mountain Home's representative shall have the right to stop work upon the Contractors refusal to immediately correct installation deficiencies. The Contractor shall be solely responsible for the costs to repair any deficient duct installation. Upon notification to the City of Mountain Home by the Contractor of completion of the work, a City of Mountain Home representative, the Contractor's representative, and a representative of the Jurisdictional Authorities shall jointly perform a "walk through" inspection of the work. The City of Mountain Home Representative shall, during this inspection, prepare a punch list of observed deficiencies. Upon receipt of the punch list, the Contractor shall correct all deficiencies in a timely manner not to exceed fourteen (14) days. Acceptance shall be granted when all deficiencies have been corrected to the satisfaction of the City of Mountain Home and all Jurisdictional Authorities.

3.12 Environmental Considerations

The Contractor shall install erosion control prior to construction activities. the Contractor shall be responsible for all erosion and sediment controls as mandated by the Jurisdictional Authorities. The Contractor shall immediately notify the City of Mountain Home if hazardous or contaminated materials are uncovered, encountered, revealed, or introduced at the job site. Following the notification, the Contractor shall provide a written report of the discovery. The Contractor shall immediately stop all work

in the area affected by the condition and not resume work in the affected areas unless instructed in writing to do so by the City of Mountain Home. When corrective action or remediation of hazardous or contaminated material is made necessary or is caused by the Contractor's fault or through negligence, the Contractor shall be responsible for all costs associated with the contamination. Cost responsibility shall include all costs relating to the identification of the contamination, testing, determination of remedial actions, removal and corrective measures associated with the encountered toxic or hazardous materials, and any other costs associated with the cleanup of the contamination. Delays resulting from the Contractor introducing hazardous material to work sites shall not become the basis for an extension of time or additional compensation to complete the Contract. The Contractor is not responsible for disposal of hazardous waste materials not introduced by the Contractor.

3.13 Guarantee

Contractor shall warrant the Work and everything incorporated in the Work for one (1) year from Completion and repair and/or replace defective work or materials during such time at no cost to the City.

4.0 Detailed Description of Work

EXHIBIT 4.0-1 outlines detailed installation standards to be applied to a typical neighborhood. This includes expected duct size, cable type, splice closures, and vault sizes. The following sections define the various construction types that are to be priced in the pricing section of this RFB and **EXHIBIT 4.0-2** and **EXHIBIT 4.0-3** provide a set of Construction Typical to be followed during construction activity.

4.1 OSP Specifications and Requirements

4.1.2 Slack Loops

Fiber optic cable slack loops shall be placed as identified in the Online Design. It is expected that no less than 8' MST tail slack loops shall be placed in all MST handholes (17"x30"x24").

4.1.4 Fiber Sizes being used

Single armor, single jacket cables with loose tube construction, in counts of 864, 576, 432, 288, 144, 96, 72, 48 and 24, will be installed on this project. The fiber optic cable will adhere to ITU-T G.652D. 6-port MST's (Multiport Service Terminals) with variable-length tails, up to 2000', will be installed on this project. Flat single-fiber, single-mode, hardened SC APC connectorized (connectorized on MST end only) dielectric drop cable with incorporated 24AWG locator wire will be installed on this project. The splicing of the MST tails to the feeder/distribution cables and the connectorized drop cables to the CPE (Customer Premise Equipment) at the house will be completed by the Contractor.

5.0 Detailed Specification of Unit Pricing Line Items

5.1 Innerduct/Conduit Installation

5.1.1 Directional Bore One (1) .75", 1-1.25" and 2" HDPE (SDR 11) Innerduct with Restoration

Payment at the contract unit price per linear foot for "Directional Bore One (1) - .75", 1.25" or 2" HDPE (SDR 11) Innerduct of various sizes with Restoration" shall be full compensation for all labor, tools, and equipment necessary or incidental to complete the work as shown on the Online Design. The Contractor is responsible for the location/potholing of any/all utilities in the work corridor. Separate payment will not be made for utility potholing/locating and shall be considered incidental to other items for which

payment shall be made. The Contractor shall provide and install all necessary duct plugs and duct couplers. Placement of these items shall be by generally accepted industry standards. Separate payment will not be made for duct plugs and duct couplers and shall be considered incidental to other items for which payment shall be made. The Contractor shall have the full responsibility to ensure tie ins and duct couplings be made to ensure that elevations remain straight as possible and that the duct and conduit couplers provide an airtight seal. All innerduct shall have a minimum depth of 30". No bore pits or potholes shall be left open overnight without the approval of the City of Mountain Home Public Works Department. Upon approval, all open bore pits or potholes shall be properly guarded or barricaded to prevent damage or injury. The Contractor shall restore the work area to original or better condition following the completion of the work. The Contractor is to use proper dewatering and containment methods for removal and disposal of bore water and any and all additives for wall stabilization. Mule tape or pull rope shall be placed in all vacant innerduct for future use by the City of Mountain Home. Separate payment will not be made for the installation of mule tape or pull rope. The Contractor shall in his prebid survey determine soil conditions. If rock is encountered that will prohibit the installation of conduit at the proper depth, the conditions must be reviewed with the City of Mountain Home and possible relief for depth of cover may be granted.

5.1.2 Directional Bore Two (2) -.75", 1.25" and/or 2" HDPE (SDR 11) Innerducts with Restoration

Payment at the contract unit price per linear foot for "Directional Bore Two (2) HDPE (SDR 11) Innerduct of various sizes with Restoration" shall be full compensation for all labor, tools, and equipment necessary or incidental to complete the work as shown on the Online Design. The Contractor is responsible for the location/potholing of any/all utilities in the work corridor. Separate payment will not be made for utility potholing/locating and shall be considered incidental to other items for which payment shall be made. The Contractor shall provide and install all necessary duct plugs and duct couplers. Placement of these items shall be by generally accepted industry standards. Separate payment will not be made for duct plugs and duct couplers and shall be considered incidental to other items for which payment shall be made. The Contractor shall have the full responsibility to ensure tie ins and duct couplings be made to ensure that elevations remain straight as possible and that the duct and conduit couplers provide an airtight seal. All innerduct shall have a minimum depth of 30". No bore pits or potholes shall be left open overnight without the approval of the City of Mountain Home. Upon approval, all open bore pits or potholes shall be properly guarded or barricaded to prevent damage or injury. The Contractor shall restore the work area to original or better condition following the completion of the work. The Contractor is to use proper dewatering and containment methods for removal and disposal of bore water and any and all additives for wall stabilization. Mule tape or pull rope shall be placed in all vacant innerduct for future use by the City of Mountain Home. Separate payment will not be made for the installation of mule tape or pull rope. The Contractor shall in his prebid survey determine soil conditions. If rock is encountered that will prohibit the installation of conduit at the proper depth, the conditions must be reviewed with the City of Mountain Home and possible relief for depth of cover may be granted.

5.1.3 Directional Bore Three (3) -.75", 1.25", and/or 2" HDPE (SDR 11) Innerduct with Restoration

Payment at the contract unit price per linear foot for "Directional Bore Three (3) HDPE (SDR 11) Innerduct of various sizes with Restoration" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design. The Contractor is responsible for the location/potholing of any/all utilities in the work corridor. Separate payment will not be made for utility

potholing/locating and shall be considered incidental to other items for which payment shall be made. The Contractor shall provide and install all necessary duct plugs and duct couplers. Placement of these items shall be by generally accepted industry standards. Separate payment will not be made for duct plugs and duct couplers and shall be considered incidental to other items for which payment shall be made. The Contractor shall have the full responsibility to ensure tie ins and duct couplings be made to ensure that elevations remain straight as possible and that the duct and conduit couplers provide an airtight seal. All innerduct shall have a minimum depth of 30". No bore pits or potholes shall be left open overnight without the approval of the City of Mountain Home. Upon approval, all open bore pits or potholes shall be properly guarded or barricaded to prevent damage or injury. The Contractor shall restore the work area to original or better condition following the completion of the work. The Contractor is to use proper dewatering and containment methods for removal and disposal of bore water and any and all additives for wall stabilization. Mule tape or pull rope shall be placed in all vacant innerduct for future use by the City of Mountain Home. Separate payment will not be made for the installation of mule tape or pull rope. The Contractor shall in his prebid survey determine soil conditions. If rock is encountered that will prohibit the installation of conduit at the proper depth, the conditions must be reviewed with the City of Mountain Home and possible relief for depth of cover may be granted.

5.2 Handhole Placement

5.2.1 Install 30"x60"x30" Traffic Rated Split-Lid Handhole in Grass with Restoration

Payment at the contract unit price per each for "Install 30"x60"x30" Traffic Rated Spit-Lid Handhole in Grass with Restoration" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown in the details on the Online Design and at the locations shown on the Online Design. All handholes shall be bedded on an 3"(minimum) base of ¾"crushed stone or pea gravel. All handholes shall be backfilled with clean native soils and compacted to 95% of the maximum dry density and optimum moisture content per ASTM D 698 (Standard Proctor). The Contractor shall furnish and install a 1/2" x 5' copper clad ground rod in each splice location handhole with a locate pedestal. Separate payment shall not be made for the ground rod and lug. The Contractor shall provide a lug on the end of each exposed ground rod for attachment of ground wire by City of Mountain Home. All disturbed areas shall be seeded or sodded at the City of Mountain Home's discretion. All innerduct shall enter the handhole at an angle not to exceed 20 degrees from the horizontal for ease of access and cable placement. The innerduct should be stubbed into the handhole at a sufficient length to allow for proper cable storage and placement of splice closures.

5.2.2 Install 30"x48"x24" Traffic Rated Split-Lid Handhole in Grass with Restoration

Payment at the contract unit price per each for "Install 30"x48"x24" Traffic Rated Spit-Lid Handhole in Grass with Restoration" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown in the details on the Online Design and at the locations shown on the Online Design. All handholes shall be bedded on an 3"(minimum) base of ¾"crushed stone or pea gravel. All handholes shall be backfilled with clean native soils and compacted to 95% of the maximum dry density and optimum moisture content per ASTM D 698 (Standard Proctor). The Contractor shall furnish and install a 1/2" x 5' copper clad ground rod in each splice location handhole with a locate pedestal. Separate payment shall not be made for the ground rod and lug. The Contractor shall provide a lug on the end of each exposed ground rod for attachment of ground wire by City of Mountain Home. All disturbed areas shall be seeded or sodded at the City of Mountain Home's discretion. All innerduct shall

enter the handhole at an angle not to exceed 20 degrees from the horizontal for ease of access and cable placement. The innerduct should be stubbed into the handhole at a sufficient length to allow for proper cable storage and placement of splice closures.

5.2.3 Install 17"x30"x24" Light Traffic Rated Handhole in Grass with Restoration

Payment at the contract unit price per each for "Install 17"x30"x24" Non-Traffic Rated Handhole in Grass with Restoration" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown in the details on the Online Design and at the locations shown on the Online Design. All handholes shall be bedded on an 3" (minimum) base of ¾" crushed stone or pea gravel. All handholes shall be backfilled with clean native soils and compacted to 95% of the maximum dry density and optimum moisture content per ASTM D 698 (Standard Proctor). The Contractor shall install MST's (Multiport Service Terminals) at all locations shown on the Online Design using MST manufacturer's mounting brackets and adhering to manufacturer's installation specifications. All disturbed areas shall be seeded or sodded at the City of Mountain Home's discretion. All innerduct shall enter the handhole at an angle not to exceed 20 degrees from the horizontal for ease of access and cable placement. The innerduct should be stubbed into the handhole at a sufficient length to allow for proper cable storage and placement of MST's.

5.2.4 Install 14" x19" x12" Non-Traffic Rated Handhole in Grass with Restoration

Payment at the contract unit price per each for "Install 14" x19" x12" Handhole in Grass with Restoration" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design. The handholes will be provided by the City of Mountain Home. All handholes shall be bedded on an 3" (minimum) base of ¾" crushed stone or pea gravel. All handholes shall be backfilled with clean native soils and compacted to 95% of the maximum dry density and optimum moisture content per ASTM D 698 (Standard Proctor). These handholes will be used for terminating drop duct and pulling drop cables only.

5.3 Cable Placement

5.3.1 Place Fiber Optic Cable in .75", 1.25", and 2" HDPE Innerduct

Payment at the contract unit price per linear foot for "Place Fiber Optic Cable" in various HDPE Innerduct shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design. All cable for this project will be supplied by the City of Mountain Home. The cable shall be installed per manufacturer's specifications. Each reel of fiber optic cable will be tested at the factory. The Contractor may, at their discretion, reel test the fiber cable prior to installation and at the time of acceptance of the reel from the City of Mountain Home. The Contractor assumes responsibility of the fiber cable upon receipt until Acceptance by The City of Mountain Home. The Contractor shall maintain comprehensible two-way radio communication among crew members at all times during fiber optic cable installation. The Contractor shall, to the best of their ability, install the fiber optic cable in the most consistent manner throughout the duct system. This shall include, but is not limited to, installation within the same color or location of duct. This includes, but is not limited to, storage of the cable prior to installation, overnight protection because the entire cable was not installed prior to stopping Work for the day, and during transportation to the jobsite. If the cable is left overnight in the field, the Contractor shall provide by a City of Mountain Home Construction Manager approved means of protection such as steel reel cans or night watchman. The Contractor shall also not continue work after dark without proper

lighting that is approved by the City of Mountain Home Construction Manager. The Contractor shall leave slack coils as shown on the Online Design and/or as directed by the City of Mountain Home's field representative. Cable slack coils shall have a radius no smaller than ten (10) times the outside diameter of the cable unless more stringent guidelines are recommended by the manufacturer. The Contractor shall leave cable slack coiled in handholes that will be utilized for splicing as shown on the Online Design or as specified by the City of Mountain Home's field representative. In all other handholes, the Contractor shall leave slack as shown in the Online Design, or as directed by the City of Mountain Home. All cable slack shall be neatly coiled and secured with zip ties or black electrical tape. The Contractor shall furnish and install simplex duct plugs upon cable installation. Duct plugs shall be installed to ensure watertight seal between the cable and the conduit. The Contractor shall avoid bends of small radii and twists that may damage the fiber optic cable. During installation, the Contractor shall not bend cable in a radius less than twenty (20) times the outside diameter of the cable. The Contractor shall utilize pulleys, sheaves, radius wheels, or other devices to meet this requirement. The Contractor shall not pull the cable with more than six hundred (600) pounds of dynamic tension and shall use a breakaway swivel. The Contractor shall use safeguards such as adjustable slip clutch capstan winches or pulling dynamometers. The Contractor shall be responsible for proving that all safeguards have been calibrated and demonstrate their functionality. The Contractor shall utilize cable lubrication to reduce pulling tension using Polywater F, or a City of Mountain Home approved equivalent. The Contractor shall install the cable into the conduit system without splices in the fiber optic cable except where noted on the Online Design. The Contractor shall not cut the fiber optic cable without prior written approval from the City of Mountain Home. Any and all damages to the cable caused by or discovered by the Contractor shall be immediately reported to the City of Mountain Home's field representative. Upon notification, the City of Mountain Home will instruct the Contractor as to action necessary for cable repair or replacement. The Contractor shall dispose of all reels in an appropriate manner. Any unused cable shall be returned to the City of Mountain Home as directed by the City of Mountain Home's field representative. The Contractor shall properly dispose of any cable determined to be "unusable" by the City of Mountain Home. No figure eight (8) machines shall be used to place fiber optic cable. The Contractor shall maintain any design changes in the Online Design System.

5.4 Multiport Service Terminal (MST) Installation

5.4.1 Install MST in Handhole

Payment at the contract unit price per each for "Install MST in Handhole" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design. The Contractor shall install each MST in the handhole by use of the supplied factory brackets. Installation shall be by strict manufacturer's specifications. The MST's shall be affixed to the interior walls of the handhole with screws and included mounting bracket. The MST's are manufactured with various lengths of tails.

5.5 Drop Duct Installation

5.5.1 Plow, trench, or bore 3/4" HDPE (SDR 13.5) Innerduct with Restoration

Payment at the contract unit price per linear foot for "Plow 3/4" HDPE (SDR 13.5) Innerduct with Restoration" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design. The Contractor is responsible for the

location/potholing of any/all utilities in the work corridor. Separate payment will not be made for utility potholing/locating and shall be considered incidental to other items for which payment shall be made. The Contractor MUST coordinate with the City of Mountain Home to notify the individual homeowner the construction activities will take place on their property. The Contractor shall familiarize himself with the property and note the location of all sprinkler lines/heads and any other obstacles in the path of the plow. Any and all damages that occur to the homeowner's property as a result of the Contractor's work shall be quickly restored to original or better condition at the Contractor's sole expense. The 3/4" HDPE innerduct shall be placed at a minimum depth of 18" from the handhole to the house. At the face of the house, the innerduct shall be gradually swept upward for attachment to the protector conduit to be placed on the side of the house.

5.6 Connectorized Drop Cable Installation

5.6.1 Place Hardened Drop Cable in 3/4" HDPE Innerduct and Terminate with a Mechanical SCAP Connector

Payment at the contract unit price each for "Place Connectorized, Hardened Drop Cable in 3/4" HDPE Innerduct" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design. The pulling eye on the connector cap is designed for a maximum of 100 pounds of pulling tension. The Contractor shall plug each connectorized end of drop cable into MST port and route cable through 3/4" HDPE innerduct to house. The connectorized cables are manufactured in varying lengths that will require trimming to length and terminate with an SCAP mechanical connector to be provided by the Contractor and Approved by the City of Mountain Home.

5.7 Marker Posts

5.7.1 Install Standard Marker Post

Payment at the contract unit price per each for "Install Standard Marker Post" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design and in accordance with the details shown on the Online Design. The Contractor shall install the standard marker posts in strict accordance with the manufacturer's specifications and guidelines. The Contractor shall exercise care when placing the marker posts as not to damage existing cabal infrastructure and other utilities.

5.7.2 Install Test Station Marker Post

Payment at the contract unit price per each for "Install Test Station Marker Post" shall be full compensation for all labor, tools and equipment necessary or incidental to complete the work as shown on the Online Design and in accordance with the details shown on the Online Design. The Contractor shall install the test station marker posts in strict accordance with the manufacturer's specifications and guidelines. The Contractor shall exercise care when placing the marker posts as not to damage existing cabal infrastructure and other utilities. The Contractor shall install all ground wires/lead wires and busses as shown in the details on the Online Design based on the location and number of cables entering and exiting the handhole. The Contractor shall place a 1.25" HDPE (SDR 11) from handhole to test station marker post and terminate all lead wires on lexan test station insert at the top of the marker post. The contractor shall provide sufficient lengths of ground/lead wire in the handhole for connection to the splice case and ground rod by City of Mountain Homes forces. The wires shall be neatly coiled and taped with electrical tape.

5.8 Building Entrances

5.8.1 Mountain Home Network Nodes, N 3rd and Mc Murtrey, and 795 S 5th West Street

Building entrances will be coordinated as necessary between Contractor and the City of Mountain Home. Contractor will be responsible for bringing ducts into the existing vault at the edge of the street and then pulling fiber into the vault and coiling up approximately 1200 feet.

5.9 Other OSP work Items

5.9.1 Proofing Duct

Contractor shall have the option to proof duct prior to cable installation, or install cable in lieu of proofing. If Contractor or the City requires proofing the integrity of the conduit and duct system may be tested for continuity by use of a mandrel. Mandrels shall be approximately six inches (6") long with a diameter equal to eighty-five percent (85%) of the nominal duct diameter. Each end of the mandrel shall be fashioned with rubber washers. The mandrel enables Contractor to ensure continuity from point to point as well as delineating any deficiencies (e.g., kinks, separations) in the conduit system. All testing will be performed after the trench has been properly backfilled and compacted. Contractor shall purge the duct prior to testing to remove any accumulated debris (e.g., rocks, soil) and/or water. Contractor shall provide 24 hours' notice to The City of Mountain Home prior to proofing. The Contractor may proof any duct by pulling or jetting the mandrel through the duct from one access point (handhole or manhole) to the next access point. Contractor will repair any deficiencies in the conduit system detected by the testing process. Once the deficiency has been repaired, Contractor will perform the testing process until continuity has been established or the required cable is correctly installed. During the proofing process, Contractor will install Jet-line or equivalent in conduits or ducts to facilitate cable placement.

Upon completion of the proofing process and mule tape/pull rope installation, all ducts shall be plugged with duct plugs/caps and mule tape/Jet-line shall be tied off. Once cable has been installed, a simplex duct plug shall be installed. Separate payment will not be made for duct proofing, but shall be considered incidental to other items for which payment shall be made.