Performance Work Statement (PWS)

For

Outside Plant Fiber Optic Cable Upgrade

Cheyenne Mountain Space Force Station (SFS), CO

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Table of Contents

1. SCOPE 4

2. REQUIREMENTS 4

2.1. GENERAL REQUIREMENTS 4
2.1.1. Safety Requirements 4
2.1.2. Site Coordination 4
2.1.2.1. Confined Space 4
2.1.2.2. Accident/Incident Reporting and Investigation 4
2.1.2.3. Work Area(s) 4
2.1.2.4. Traffic control 5
2.1.3. Security Requirements 5
2.1.3.1. Security Clearances 5
2.1.4. Environmental Compliance 5
2.1.5. Operations Security (OPSEC) Compliance 5
2.1.6. Permits 5
2.1.7. Integrated Process Team (IPT) 6
2.1.8. Quality Assurance 6
2.1.9. Contractor Personnel 6
2.1.9.1. Project Management 6
2.1.9.2. Site Point of Contact (POC) 6
2.1.9.3. Personnel Requirements 6
2.1.10. Warranty 6

2.2. SPECIFIC REQUIREMENTS 7
2.2.1. Maintenance Holes (MHs) and Hand Holes (HHs) 7
2.2.2. Measurements 7
2.2.3. Splice Conductors 7
2.2.4. Cable Racks and Cable Rack Supports 7
2.2.5. Labeling 8
2.2.6. Cable Tags 8
2.2.7. Pulling Tape 8
2.2.8. Cable Terminations 8
2.2.9. FOC Maintenance Loop(s) 8
2.2.10. Hand Holes (HH) (N/A) 8
2.2.11. Grounding 8
2.2.12. Underground Conduit System 9
2.2.12.1. Composition. 9
2.2.12.1.1. Typical Situations 9
2.2.12.1.2. Unique/Site Specific Situations 9
2.2.12.2. Installation 9
2.2.12.3. Bends and Sealing 9
2.2.12.4. Utility Separation 10
2.2.12.5. Spacers and Tracer Wire 10
2.2.12.6. Entrance Conduits into Existing Maintenance Holes 10
2.2.12.7. Excavation/Building Penetrations 10
2.2.13. Outside Plant Installation 10
2.2.13.1. Infrastructure Installation 10
2.2.13.1.1. Hand Holes (N/A) 10
2.2.13.1.2. Ductbank Infrastructure 11

2.2.13.1.3. Geo-textile Fabric Installation 12
2.2.13.2. Fiber Optic Cable Installation 12
2.2.13.2.1. Fiber Optic Cable Between ITB 308 and ITB 101 (CLIN 0001). 13
2.2.13.2.2. ITB 308 (CLIN 0001) 13
2.2.13.2.3. ITB 101 (CLIN 0001) 13
2.2.13.2.4. Fiber Optic Cable Between ITB 308 and EB 15 (CLIN 0001). 13
2.2.13.2.5. ITB 308 (CLIN 0001) 13
2.2.13.2.6. EB 15 (CLIN 0001) 13

2.2.13.2.7 Fiber Optic Cable Between ITB 3000 and ITB 308 (CLIN 0002). **13**

2.2.13.2.8 ITB 3000 (CLIN 0002) 13

2.2.13.2.9 ITB 308 (CLIN 0002) 14
2.2.14. Site Restoration/Debris Removal 14
2.2.15. Service Outages 14
2.2.16. Identification/Marking 14
2.2.17. Installation Schedules 14
2.2.18. Weekly Status Reports 14
2.2.19. As-Built Drawings 14
2.2.20. Test and Acceptance/Installation Test Plan 15
2.2.21. Acceptance/Installation Test Report 15
2.2.22. Final Acceptance 15
2.2.23. As-Built Documentation in CVC 15

3. GENERAL INFORMATION 15

3.1. Period of Performance **15**

3.2. Place of Performance **15**

3.3. Hours of Operation **15**

3.4. Holidays/Down Days **15**

3.5. Base Support **16**

3.6. Minimum Contractor Qualifications. **16**

3.7. Service Summary **16**

APPENDIX A: APPLICABLE STANDARDS 17

APPENDIX B: DELIVERABLES 18

APPENDIX C: LIST OF ACRONYMS 19

APPENDIX D: DRAWINGS 21

1. SCOPE

This PWS defines the requirement for the Contractor to engineer, furnish, install and test (EFI&T) Fiber optic cable for the following two CLINS:

CLIN 0001: 36-strand single mode (SM) fiber optic cable (FOC) from Information Transfer Building (ITB) 308 to ITB 101 and 12-strand SM FOC from ITB 308 to End Building (EB) 15 and associated terminating equipment.

CLIN 0002: 36-strand single mode (SM) fiber optic cable (FOC) from Information Transfer Building (ITB) 300F0 to ITB 308 and associated terminating equipment.

The Contractor shall provide all equipment, tools, materials, supplies, transportation, labor, supervision, management, and other incidentals necessary to meet the requirements as stated in this PWS. All electronics equipment, supplies, and materials to be installed shall be new and not refurbished.

2. REQUIREMENTS

2.1. GENERAL REQUIREMENTS

2.1.1. Safety Requirements

2.1.2. Site Coordination

The Contractor shall meet with the base safety officer immediately upon arrival on site for review of the specific safety requirements prior to installation.

2.1.2.1. Confined Space

The Contractors entering spaces on Cheyenne Mountain SFS are responsible for the safety of their personnel and for their own confined spaces permit program as outlined in DAFMAN 91-203. All confined space operations must be coordinated with the Base Safety Office prior to start of work.

2.1.2.2. Accident/Incident Reporting and Investigation

The Contractor shall record and report all available facts relating to each instance of injury to the Base Safety Office. The Contractor shall secure the scene of any accident and wreckage until released by the accident investigative authority through the Base POC. If the Government elects to conduct an investigation of the incident, the Contractor shall cooperate fully and assist the Government personnel until the investigation is completed.

2.1.2.3. Work Area(s)

At day's end, the Contractor shall remove all debris and surplus materials from the workplace. Safety barriers shall be in place to protect unfinished work sites at the end of the day. All open holes or trenches shall be completely enclosed by flexible orange construction safety fencing, or other safety barriers, at the end of the workday. Equipment and materials required to complete the work effort may remain on site as long as they are organized/stored in a manner that does not cause a safety hazard.

2.1.2.4. Traffic control

In the event base vehicular traffic is to be disrupted by trenching or horizontal directional boring, the Contractor shall make appropriate notifications NLT 10 calendar days in advance to 21 CS/SCXC of the planned disruptions.

2.1.3. Security Requirements

The Contractor shall process and provide a Site Visit Request Letter to 21 CS/SCXC within 5 calendar days after contract award. This spreadsheet shall identify the names (as shown on the driver's license), driver's license numbers and state of issue, and birth date of the personnel who will be performing work under this PWS, company name, address, phone number and contract number, start date and end date. This information is required to grant access to the base. If requested, the Contractor shall provide identification badges for their employees. All Contractor personnel shall wear these badges while on duty on the Government site. The badges shall identify the individual, company name, and be clearly and distinctly marked as Contractor and be in accordance with base regulations.

2.1.3.1. Security Clearances

Stated work and associated products shall be performed at the UNCLASSIFIED level. However, some of this work will take place in secure areas where Contractor employees must be always escorted or have a SECRET clearance. Contractor employees working on 2.2.13.2.7 (CLIN 0002) must have a SECRET clearance. The Contractor must coordinate access to secure areas at least 48 hours ahead of time with the 21 CS/SCX PM.

2.1.4. Environmental Compliance

The Contractor shall comply with the most stringent environmental federal, state, and local laws and regulations, and Air Force policies, instructions, and plans. The federal Government is not exempt from compliance with environmental regulations. The contractor shall maintain an awareness of changing environmental regulatory requirements to avoid environmental deficiencies for activities on Cheyenne Mountain SFS.

2.1.5. Operations Security (OPSEC) Compliance

All contractors must complete the annual OPSEC training and comply with OPSEC requirements in AFI 10-701 and the SBD1 OPSEC Plan.

2.1.6. Permits

The Contractor shall complete, and process all permits required to complete the installation prior to any trenching, or modifications to a facility, maintenance hole or hand hole; for example, the Base Civil Engineering Work Clearance Request, a digging permit, (AF Form 103) and Base Civil Engineer Work Request (AF Form 332). AF Form 103 and AF Form 332 shall be submitted at IAW local procedures. All utility markings, flags, etc. shall be maintained by the contractor after the responsible work center/shop identifies/locates them. If a utility is severed or damaged due to neglect or if attributed to the fault of the contractor, then the contractor shall repair and return the utility back to the same condition it was in prior to the damage. The form(s)/permits shall be submitted within 10 calendar days after award.

2.1.7. Integrated Process Team (IPT)

The Contractor shall chair a weekly IPT meeting that includes Contractor representatives, the 38 ES Cyberspace Integrator-Base (CSI-B), the 38 ES System Engineer (SE), 38 ES Project Manager, the 21 CS/SCXC Project Manager (PM), and other base personnel as required. The Contractor shall provide an agenda and a worldwide "Meet Me" teleconference capability for the duration of the project. The purpose of the IPT meeting is to discuss project progress, problems being encountered, and other information necessary/beneficial to ensure success and timely completion of contract requirements. The Contractor shall record meeting minutes and distribute to the attendees listed above within 3 business days of the IPT.

2.1.8. Quality Assurance

The Contractor shall provide Quality Assurance Support for the life of the project. The Contractor's quality assurance evaluator shall assist the Government representative in performing random spot checks and system acceptance tests. The Contractor shall be responsible for identifying system and outside plant deficiencies and /or discrepancies throughout the life of the project. A weekly report (soft copy) shall be submitted indicating progress/status and listing any deficiencies/discrepancies found and actions to correct them.

2.1.9. Contractor Personnel

2.1.9.1. Project Management

The Contractor shall provide a Project Manager (PM) and alternate(s) responsible for contract performance and continuity. The Contractor shall identify the Project Manager's or alternate's range of authority to act for the Contractor relating to daily contract operation.

2.1.9.2. Site Point of Contact (POC)

The Contractor shall designate the Contractor's on-site team leader and alternate(s) as the Site POC for individual projects in their Site Visit Request Letter. The Site POC or alternate(s) shall be on site during duty hours until project completion and shall oversee all facets of the installation tasks. The Site POC shall be the interface for all work site communications with the Government, including quality, safety, and discrepancy matters.

2.1.9.3. Personnel Requirements

The Project Manager, Site POC, and respective alternate(s) shall be able to read, write, speak, and understand English. All reporting and documentation shall be in English.

2.1.10. Warranty

The Contractor shall provide a one-year warranty or manufacturer's standard commercial warranty, whichever is longer. This warranty shall include a one-year workmanship warranty. The warranty period shall start from the date of system and/or project acceptance. The Contractor shall provide written procedures and required information for warranty services at or prior to site acceptance.

2.2. SPECIFIC REQUIREMENTS

CLIN 0001: The Contractor shall EFI&T one 36-strand SM FOC from ITB 308 to ITB 101 and 12-strand SM FOC from ITB 308 to EB 15 along with associated fiber optic distribution panels (FODP) in ITB 308, ITB 101, and EB 15 plus all associated splicing and terminations. In addition to support the installation of the SM FOC to these buildings, the Contractor shall install approximately 2305 feet of one 4" conduit and 2455 feet of one 3X3" (Total of 3) Geo-textile fabrics.

CLIN 0002: The Contractor shall EFI&T one 36-strand SM FOC from ITB 3000 to ITB 308 along with associated fiber optic distribution panels (FODPs) in ITB 3000 and ITB 308 plus all associated splicing and terminations. In addition to support the installation of the SM FOC to these buildings, the Contractor shall install approximately 770 feet of one 4" PVC conduit, 125 feet of 2" EMT conduit, and 770 feet of one 3X3" (Total of 3) Geo-textile fabrics.

2.2.1. Maintenance Holes (MHs) and Hand Holes (HHs)

The Contractor shall pump out water as required. Water shall be drained IAW BCE and base environmental requirements. The contractor is responsible for entry into maintenance holes and hand holes, with covers ranging from 50 to 300 pounds.

2.2.2. Measurements

Any distances provided in this PWS are approximations and should NOT be used for ordering materials or determining duct lengths. The contractor is responsible for validation distances during site visit to be completed within 15 days of contract award.

2.2.3. Splice Conductors

All fiber splicing shall be performed in accordance with RUS Bulletin 1735F-401, Standards for Splicing Copper and Fiber Cable. The fusion splice method shall be used for all splicing and terminations of fiber optic cable. Fiber optic cables shall be terminated via fusion splice to pigtails with LC connectors.

2.2.4. Cable Racks and Cable Rack Supports

Cable racks shall be installed in maintenance holes and hand holes. Splices shall not be supported by the cables that enter each end of the splice case. The splices shall be supported by cable hooks under the splice case. Telecommunications industry standard cable hooks of the appropriate length shall be provided to support cables and splice cases. The cable hooks shall be secured using cable rack locking clips. All cables shall be supported using racking clips, cable racks, and cable hooks, and be provided by the contractor.

2.2.5. Labeling

The Contractor shall label all equipment and cables they install, and cables identified for re-use IAW TIA-606-B-2012, and as directed by the base communications organization. New ducts shall be permanently labeled on the wall of each building/maintenance hole indicating the connecting building/maintenance hole at the other end of the duct (for example, "To MH-200"). Tagging and labeling of new cables shall be IAW the following:

A48L8.3F
FO 1234-5678, 1-48

Line One: A = Armored Sheath (otherwise leave blank) 48 = Fiber Count. L = Loose Tube Buffer or T = Tight Tube Buffer. 8.3 = Single Mode. F = Filled core (otherwise leave blank).

Line Two: 1234-5678 = From-To Building numbers. 1-148 = Cable/strand Count.

2.2.6. Cable Tags

All tags shall be permanently labeled, easily visible and corrosion resistant. Install cable tags in all maintenance holes/hand holes, cable vaults, pull boxes and building entrance terminal locations. When cables pass through a Maintenance Hole, put a tag on the cable, approximately 2 feet from each duct entrance. Information on the cable tag shall identify cable by size, type, cable number and count. See Para 2.2.5 (above) for nomenclature for tagging.

2.2.7. Pulling Tape

All newly installed ducts left vacant shall be provided with a waterproof, corrosion resistant, pre-lubricated flat woven polyester pull tape with sequential footage markings (1250 lb. pulling strength) for future cable installations. The pull tape shall extend into the maintenance holes/hand holes and be secured to a cable rack or pulling iron, etc.

2.2.8. Cable Terminations

Fiber optic cables shall be terminated via fusion splice to pigtails with LC connectors. The pigtails shall be sized the same as the OSP fiber they are spliced to, i.e., 125/8.3 micron to 125/8.3 micron. The pigtails shall be duplex (or simplex) unless otherwise agreed to by 21 CS/SCXC.

2.2.9. FOC Maintenance Loop(s)

The Contractor shall install a minimum of a 50-foot fiber optic cable maintenance loop at the first MH from the building, at every splice point MH location and at every 3rd MH in the route. The maintenance loop slack shall be properly labeled, securely supported to the cable ladder and off the MH floor.

2.2.10. Hand Holes (HH) (N/A)

Unless otherwise stated, HH shall have a minimum interior dimension of 4 feet W x 4 feet L x 4 feet H. HH shall be furnished with cable racks and a grounding system. HH shall meet the requirements of TIA -758A, paragraph 4.2.2.

2.2.11. Grounding

Grounding hardware such as corrosion resistant wire, bonding ribbon, clamps, ground rod, etc. necessary to properly bond/ground the cable in MHs/HHs shall be provided by the Contractor. Reference ANSI/TIA 607.

2.2.12. Underground Conduit System

2.2.12.1. Composition.

2.2.12.1.1. Typical Situations

The ducts shall be 4-inch inside diameter (I.D.) round or metric equivalent. The ducts shall be made of EPC-40 Polyvinyl Chloride (PVC) (Schedule 40) IAW NEMA TC-2. The ducts shall be appropriately labeled indicating the composition material. Ducts shall have a sleeve or bell-end type coupling and shall be watertight when assembled. In addition, the Contractor shall adhere to any additional Host Base/site specific requirements.

2.2.12.1.2. Unique/Site Specific Situations

The ducts shall be 4-inch inside diameter (I.D.) round or metric equivalent. The ducts shall be made of EPC-80-PVC (Schedule 80) IAW NEMA TC-2; high density polyethylene (HDPE) SIDR 13.5, Galvanized Iron Pipe (GIP) or “thickwall” stainless steel. Schedule 80 PVC shall be limited to risers, all above ground conduit and under the roadway/parking pavement. High density polyethylene (HDPE) SIDR 11.5 shall be used when directional boring is used. GIP or stainless steel shall be used under major roadways, taxiways, and runways. The ducts shall be appropriately labeled indicating the composition material. Ducts shall have a sleeve or bell-end type coupling and shall be watertight when assembled. In addition, the Contractor shall adhere to any additional Host Base/site specific requirement.

2.2.12.2. Installation

Installation of underground conduits/ducts shall be IAW RUS Bulletin 1751F-643 and RUS Bulletin 1753F-151. Ducts installed beneath roads, sidewalks, parking areas, other paved surfaces or areas to be paved, etc. shall be installed a minimum of 36" below grade. In a MH with knockouts, ducts shall start at the bottom knockout, allowing for upward expansion in the MH. All ducts not installed under roads, sidewalks, parking areas, or areas to be paved, etc. shall have a minimum of 36 inches ground cover, where possible. The Contractor shall provide other protective measures, concrete cap, etc., in those areas where the minimum ground cover cannot be achieved. Grading of ducts shall be accomplished IAW RUS Bulletin 1751F-643. All conduits shall be continuous between MH/HHs (i.e., no breaks or separations in the conduit runs between MH/HHs).

2.2.12.3. Bends and Sealing

All bends between MHs shall be a minimum of ten times (10X) the diameter of the duct size (i.e., 4-inch duct = 40 inches) with the sum of bends in all directions not exceeding a total of 90 degrees, where practical. Coordinate with 21 CS/SCXC if runs have bends that total more than 90 degrees is required. Ducts shall have bell-ends and enter a MH perpendicular to the surface of the wall through which it is entering. All ducts/inner-ducts entering MH shall be sealed. Universal duct plugs or removable putty sealants may be used. Upon completion of conduit sections, a rigid 12” long test mandrel ¼” (6.4mm) smaller than the inside diameter of the conduit shall be pulled through two diagonally opposite ducts to ensure proper alignment. In addition, all ducts shall be cleared of loose materials such as concrete, mud, dirt, stones, etc.

2.2.12.4. Utility Separation

When communications ducts cross either power duct or buried power cable, maintain a minimum separation of 3 inches of concrete or 12 inches of well-tamped earth between the two or 12 inches of well tamped earth when parallel; for pipes (e.g., gas, water, oil) maintain 6 inches when crossing or 12 inches when parallel.

2.2.12.5. Spacers and Tracer Wire

Along the length of the duct run, if the ducts are installed by trenching, spacers shall be placed at five (5) foot intervals and cable warning tape shall be buried one (1) foot below the surface and shall follow the duct route. The tape shall be a minimum of three inches wide and orange in color with the appropriate warning message. At least one duct shall have tracer wire or be otherwise locatable from the surface.

2.2.12.6. Entrance Conduits into Existing Maintenance Holes

When new entrance conduits/ducts or sleeves are required, the Contractor shall bore and install the necessary holes and install the ducts or sleeves, if a knockout does not exist. Penetration shall not be in such a location through the wall as to block use of existing ducts in the maintenance hole. New ducts will be a minimum of 18 inches from either the maintenance hole floor or ceiling, if practical. The minimum bending radius for entry conduit/ducts shall be no less than 10 times the inside diameter of the conduit. Ducts and openings around ducts shall be sealed to prevent moisture from entering the maintenance holes.

2.2.12.7. Excavation/Building Penetrations

All wall penetrations, including inside buildings, shall be restored to meet the required base fire ratings in accordance with references in Appendix A.

2.2.13. Outside Plant Installation

This section describes the underground cables, flexible geotextile multiple cell fabric, innerduct and MH/HH plus conduit system installation requirements. The Contractor shall design and install Customer-Owned Outside Plant Telecommunications Infrastructure in accordance with ANSI/TIA-758-A. Each cable installation shall be coordinated with 21 CS/SCXC so that the impact on the building users is properly coordinated. The sequence of installation is at the Contractor's discretion.

2.2.13.1. Infrastructure Installation

CLIN 0001: The Contractor shall install the following new infrastructure; one 4" conduit approximately 2303 feet, one 3 X 3" Geo-textile fabrics approximately 2455 feet, two (2) 36 ports FODPs, and two (2) 12 ports FODPs. (Coordinate exact location with 21 CS/SCXC).

CLIN 0002: The Contractor shall install the following new infrastructure; one 4" conduit approximately 770 feet, one 2" EMT conduit approximately 125 feet, one 3 X 3" Geo-textile fabrics approximately 770 feet, and two (2) 36 ports FODPs. (Coordinate exact location with 21 CS/SCXC).

2.2.13.1.1. Hand Holes (N/A)

2.2.13.1.2. Ductbank Infrastructure

Install 4” PVC and/or HDPE SIDR 11.5 duct banks IAW the following Table:

From Maintenance Hole	To Maintenance Hole/Building	Quantity	Size (inches)	Approx. Distance (Feet)	Figure	Comment
HH 24	HH 44	1	4	160	1	Install 40 feet of schedule 80 PVC 4” conduit and 120 feet of schedule 40 PVC 4” conduit.
MH 46	Though MH 47, MH 48, and MH 48A to MH 49	1	4	2145	1	Install 235 feet of schedule 80 PVC 4” conduit and 1910 feet of schedule 40 PVC 4” conduit.
MH-3F	MH-3G	1	4	240	1	Install 240 feet of schedule 40 PVC 4” conduit.
MH-3G	HH-30	1	4	530	1	Install 40 feet of schedule 80 PVC 4” conduit and 490 feet of schedule 40 PVC 4” conduit.
Building entrance	Building 3000 Comm Room	1	2	125	1	Install 125 feet of 2” EMT conduit from the building entrance to the Comm Room of building 3000.

2.2.13.1.3. Geo-textile Fabric Installation

Install Geo-textile fabrics IAW the following Table:

From Maintenance Hole	To Maintenance Hole/Building	Quantity	Approx. Distance (Feet)	Figure	Comment
HH 24	HH 44	1	160	1	Install one-3x3" Geo-textile fabrics (a detectable type) in the new 4" conduit.
MH 45	MH 46	1	90	1	Install one-3x3" Geo-textile fabrics (a detectable type) in an existing 4" conduit with 3 innerducts and a pull rope.
MH 46	Though MH 47, MH 48, and MH 48A to MH 49	1	2145	1	Install one-3x3" Geo-textile fabrics (a detectable type) in the new 4" conduit.
MH 49	EB 15	1	60	1	Install one-3x3" Geo-textile fabrics (a detectable type) in an existing 4" conduit with a couple of FOC.
MH-3F	MH-3G	1	240	1	Install one-3x3" Geo-textile fabrics (a detectable type) in the new 4" conduit.
MH-3G	HH-30	1	530	1	Install one-3x3" Geo-textile fabrics (a detectable type) in the new 4" conduit.

2.2.13.2. Fiber Optic Cable Installation

Install outside plant FOC as described in the following paragraphs. The cable shall be all dielectric, loose buffer tube, water blocked, single mode, outside plant (OSP) cable suitable for underground applications. The Contractor shall coordinate each cable installation with the 21 CS/SCXC to minimize the impact on building users. The intent is to install the cable in one continuous length, to the extent that it is practical. The Contractor shall determine whether or not there is some practical reason for an intermediate splice in the cable at some maintenance hole/hand hole between the cable end points. If an underground splice is necessary, it shall be accomplished IAW commonly accepted telecommunications industry practices for fusion splicing optical fiber cable and sealed with a splice case suitable for the application. If a splice case is installed in a maintenance hole/hand hole it shall be pressure tested IAW the manufacturer's instructions. If a splice case leaks, it shall be reinstalled and retested. A coil of 50 feet of cable shall be provided on each cable entering or leaving a splice case in a maintenance hole or hand hole.

2.2.13.2.1. Fiber Optic Cable Between ITB 308 and ITB 101 (CLIN 0001).

The Contractor shall install approximately 2455 feet of 36-strand SM FOC from ITB 308 through HH 21, HH 20, MH 18, MH 17, HH 39, HH 29, MH 12, and HH 13 to ITB 101. See Figure 1.

2.2.13.2.2. ITB 308 (CLIN 0001)

The Contractor shall install one (1) 36-port Fiber Optic Distribution Panel (FODP) on an existing rack in the Comm. Room of ITB 308. Terminate the 36-strand SM FOC to the FODP using fusion splice to pigtails with LC type connectors. Verify the locations of the equipment rack and the FODP with 21 CS/SCXC.

2.2.13.2.3. ITB 101 (CLIN 0001)

The Contractor shall install one (1) 36-port Fiber Optic Distribution Panel (FODP) on an existing rack in the Comm. Room of ITB 101. Terminate the 36-strand SM FOC to the FODP using fusion splice to pigtails with LC type connectors. Verify the locations of the rack and the FODP with 21 CS/SCXC.

2.2.13.2.4. Fiber Optic Cable Between ITB 308 and EB 15 (CLIN 0001).

The Contractor shall install approximately 3370 feet of 12-strand SM FOC from ITB 308 through HH 21, HH 23, HH 24, HH 44, MH 45, MH 46, MH 47, MH 48, MH 48A, and MH 49 to EB 15. See Figure 1.

2.2.13.2.5. ITB 308 (CLIN 0001)

The Contractor shall install one (1) 12-port Fiber Optic Distribution Panel (FODP) on an existing rack in the Comm. Room of ITB 308. Terminate the 12-strand SM FOC to the FODP using fusion splice to pigtails with LC type connectors. Verify the locations of the equipment rack and the FODP with 21 CS/SCXC.

2.2.13.2.6. EB 15 (CLIN 0001)

The Contractor shall install one (1) 12-port Fiber Optic Distribution Panel (FODP) on an existing backboard in the Comm. Room of EB 15. Terminate the 12-strand SM FOC to the FODP using fusion splice to pigtails with LC type connectors. Verify the locations of the backboard and the FODP with 21 CS/SCXC.

2.2.13.2.7 Fiber Optic Cable Between ITB 3000 and ITB 308 (CLIN 0002).

The Contractor shall install approximately 8450 feet of 36-strand SM FOC from ITB 3000 through MH-1, MH-2, MH-3, MH-3A, MH-3B, MH-C, MH-3D, MH-3E, MH-3F, MH-3G, HH-30, HH-31, HH-32, HH-33, HH-34, HH-35, HH-36, MH-36A, and HH-21 to ITB 308. See Figure 2.

2.2.13.2.8 ITB 3000 (CLIN 0002)

The Contractor shall install one (1) 36-port Fiber Optic Distribution Panel (FODP) on an existing rack in the Comm. Room of ITB 3000. Terminate the 36-strand SM FOC to the FODP using fusion splice to pigtails with LC type connectors. Verify the locations of the equipment rack and the FODP with 21 CS/SCXC.

2.2.13.2.9 ITB 308 (CLIN 0002)

The Contractor shall install one (1) 36-port Fiber Optic Distribution Panel (FODP) on an existing rack in the Comm. Room of ITB 308. Terminate the 36-strand SM FOC to the FODP using fusion splice to pigtails with LC type connectors. Verify the locations of the rack and the FODP with 21 CS/SCXC.

2.2.14. Site Restoration/Debris Removal

The Contractor shall restore all disturbed grounds to the "as found" condition or better after installation. Base grounds restoration requirements shall be complied with. Common use areas shall be restored to their original condition. The Contractor shall be responsible for disposing of all residues from this project off base and in accordance with Federal, state and base environmental laws and regulations. All residue produced by directional drilling operations (i.e., slurry) shall be disposed of off base on the same day the residue is produced, at an appropriate disposal facility at the contractor's expense, IAW federal, state, local and Cheyenne Mountain SFS environmental laws and regulations. Under no circumstances will the contractor stage or store boring residue in slurry ponds or other containment areas on Cheyenne Mountain SFS.

2.2.15. Service Outages

The Contractor shall be responsible for preventing any unscheduled (i.e. cutting or disabling any in-service cables or equipment.), Contractor-caused, interruptions of communications capabilities that are properly identified. The Contractor shall coordinate planned outages with the site POC at least 10 calendar days in advance of the outage if the implementation necessitates disruption of service, (e.g., communications, electrical, or other utilities).

2.2.16. Identification/Marking

The Contractor shall clearly mark all Contractor-Furnished Property and Equipment (CFP/CFE) with their company's name. The Contractor shall place an easily read, very visible, sign (minimum 8.5 inches x 11 inches) on large containers, construction equipment, or un-manned rental vehicles while on the Government installation indicating the company name and both the Contractor and Site POC's names and local telephone numbers.

2.2.17. Installation Schedules

The Contractor shall provide a complete milestone schedule that denotes project activities to include time-phased start and completion dates for the project and sub-projects associated with the installation of the components and system no later than 30 days after contract award.

2.2.18. Weekly Status Reports

The Contractor shall prepare a Weekly Status Report in English and shall distribute to the IPT members. The purpose of the report is to inform IPT members of project progress, problems encountered, and other topics necessary/beneficial to ensure success and timely completion of the contract requirements.

2.2.19. As-Built Drawings

The Contractor shall submit red line drawings showing the "as-built" configuration in both AutoCAD .dwg and pdf formats. The base communications squadron will provide baseline drawings. The Contractor shall provide As-Built Rack Elevation, Inside Cable Plant and Outside Cable Plant drawings and distribute.

2.2.20. Test and Acceptance/Installation Test Plan

The Contractor shall provide a test plan as to how the system shall be pre-tested, in-progress-tested and post-tested to demonstrate to the Government that the system is fully operational ready to be placed into service. The Contractor shall test the system to demonstrate to the Government quality assurance representative. These tests shall be accomplished prior to the system being placed into service.

2.2.21. Acceptance/Installation Test Report

The Contractor shall provide an installation test report of the results of the testing accomplished under the installation test plan.

2.2.22. Final Acceptance

The Contractor shall schedule a final project walk-through with the 21 CS/SCXC. This should be scheduled 10 calendar days prior to acceptance.

2.2.23. As-Built Documentation in CVC

The Contractor shall record geospatial data and provide as-built documentation (shape files) of all new installed hand hole system components (including metadata) compatible with the Cyberspace Infrastructure Planning System (CIPS) Visualization Component (CVC) drawing system. Data points shall be recorded at the center of each manhole/hand hole lid and at intervals not to exceed 25 feet along cable routes. Sufficient data points shall be recorded to capture any change in direction along the route. All GPS coordinates shall have +/- 3 feet accuracy for all readings. The government is responsible for providing the Contractor with a copy of the installation's most current GeoBase Common Installation Picture (CIP), and current CVC drawings of the areas of interest. The government will review the shape files in CVC and transcribe the information to the CVC system. Shape files shall be delivered upon project completion.

3. GENERAL INFORMATION

3.1. Period of Performance

The period of performance for the project shall be determined based on the proposed schedule and actual contract award date.

3.2. Place of Performance

The place of performance is Cheyenne Mountain SFS, CO.

3.3. Hours of Operation

The Contractor shall routinely work during normal duty hours of the site. However, mission requirements may necessitate work outside normal hours (nights and/or weekends), especially if existing service must be interrupted. Any site work requested by the Contractor to be performed outside of normal duty hours shall be coordinated with the 21 CS/SCXC and approved by the COR at least 10 calendar days in advance.

3.4. Holidays/Down Days

The Contractor shall not perform under this contract on federal holidays or site-unique down-days unless expressly authorized by the COR and coordinated with the 21 CS/SCXC Project Manager.

3.5. Base Support

The Contractor shall identify any base support requirements (for example, laydown and storage areas) necessary to complete this project in their proposal. The contractor shall return all government furnished lay-down and storage areas to their original condition upon completion of the project.

3.6. Minimum Contractor Qualifications.

All work shall be performed by an experienced Telecommunications Contractor. The Contractor shall have a minimum of 3 years of experience in Telecommunications Systems installations.

3.7. Service Summary

Performance Objective	Standard	Threshold
The Contractor Complies with all safety, site coordination, confined space, accident/incident reporting, work area, traffic control, security requirements, security clearances, OPSEC, environmental, permits, IPT, QA, project management, Site POC, Personnel, qualifications, SAM, warranty and manuals/practices as outlined in PWS	The contractor shall comply with all General Requirements throughout the project PO as outlined in this PWS. PWS para 2 and 3 and all Sub-Paras.	95% compliance, issues resolved within 48 hours, 5% remaining issues resolved within 24 hours
The Contractor complies with all installation and testing of new equipment, cabling and/or any associated termination equipment for upgrade of network OSP infrastructure/premise wiring fiber optic cable, cable racks, cable rack supports, as applicable IAW PWS.	The contractor shall comply with all specific requirements throughout the project POP as outlines in para 2 and all Sub-Paras.	95% compliance; issues resolved within 72 hours; 5% remining issues resolved within 24 hours

APPENDIX A: APPLICABLE STANDARDS

The following list is not all-exclusive. The Contractor shall comply with applicable commercial code and standards

AFI 91-203 – Air Force Consolidated Occupational Safety Instruction

OSHA CFR 29 Part 1910-268 – Telecommunications

NEMA TC 2- Electrical Polyvinyl Chloride (PVC) Tubing and Conduit

ANSI/TIA-606-B Administration Standard for Telecommunications Infrastructure

TIA-568-C Commercial Building Telecommunications (568C.1, 568C.2, 568C.3) Cabling Standard

ANSI/TIA-607-B Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications

TIA-569-C - Commercial Building Standard for Telecommunications Pathways and Spaces

TIA-570-C –Residential Telecommunications Infrastructure Standard

TIA-758 B - Customer-owned Outside Plant Telecommunication Infrastructure Standard

BICSI TDM Manual - Building Industries Consulting Services International Telecommunications Distribution Methods (TDM) Manual

BICSI – Outside Plan Design Reference Manual

RUS Bulletin 1751F-643 - Underground Plant Design

RUS Bulletin 1751F-644 - Underground Plant Construction Telecommunications Engineering Shield Continuity and Construction Manual (TE&CM) 451.2

RUS Bulletin 1751F-801 – Electrical Protection Fundamentals

RUS Bulletin 1753F-151 (515b) - Specifications and Drawings for Underground Cable Installation

NFPA 70 - National Electric Code

FGDC-STD-007.3-1998 - Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy

Unified Facilities Criteria 3-260-01

APPENDIX B: DELIVERABLES

All deliverables are subject to Government acceptance and approval. They shall meet professional standards and the requirements set forth in this PWS. All deliverables shall be produced using recommended software tools/versions as accepted by the Government.

APPENDIX C: LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
AFM	Airfield Management (BaseOPS)
Approx	Approximately
ATC	Air Traffic Control Tower
ATCALS	Air Traffic Control and Landing Systems
BCE	Base Civil Engineering
CDRL	Contract Deliverable
CFE	Contractor-Furnished Equipment
CFP	Contractor-Furnished Property
CIP	Common Installation Picture
CIPS	Cyberspace Infrastructure Planning System
CMA	Controlled Movement Area
CMHDS	Communications Maintenance Hole Duct System
CO	Contracting Officer
Comm	Communications
CS	Communications Squadron
CSI-B	Cyberspace Integrator-Base
CVC	CIPS Visualization Component
EFI&T	Engineer, Furnish, Install and Test
FOC	Fiber Optic Cable
FODP	Fiber Optic Distribution Panels
FOUO	For Official Use Only
FY	Fiscal Year
HDPE	High Density Polyethylene
HH	Hand Hole
IAW	In Accordance With
ID	Inside Diameter
ILS	Instrument Landing System
IPT	Integrated Process Team
LMR	Land Mobile Radio
MH	Maintenance Hole
MHDS	Maintenance Hole Duct System
NLT	No Later Than
NPDES	National Pollution Discharge Elimination System
OEM	Original Equipment Manufacturer
OPSEC	Operational Security
OSHA	Occupational Safety & Health Administration
OSP	Outside Plant
OSS	Operations Support Squadron
OTDR	Optical Time Domain Reflectometer
PDF	Portable Document Format
PM	Project Manager
POC	Point of Contact
Prime	Prime Contractor
PSI	Pounds per Square Inch

PVC	Polyvinyl Chloride
QAE	Quality Assurance Evaluator
QCM	Quality Control Manager
Qty	Quantity
RUS	Rural Utilities Service Bulletin
SAM	System for Award Management
SCOW	Supply Chain Operations Wing
SCX	Scheduler Planner
SE	System Engineer
SM	Single Mode
PWS	Statement of Objectives
Sub	Sub-Contractor
SWPPP	Storm Water Pollution Prevention Plan
TIA	Telecommunications Industry Association
TMGB	Telecommunication Main Ground Bus-Bar
TRD	Technical Requirements Document

APPENDIX D: DRAWINGS

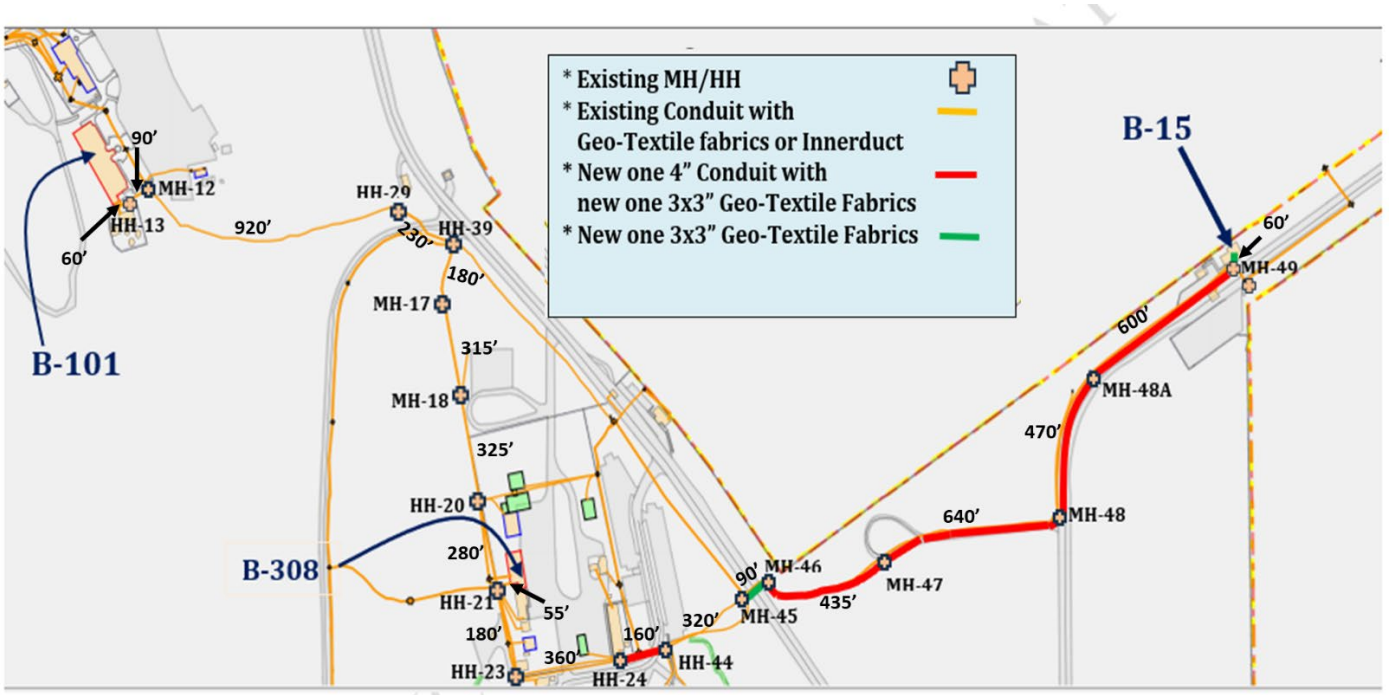

Figure 1: Fiber Optic Cable Route from ITB 308 to ITB 101 and ITB 308 to EB 15.

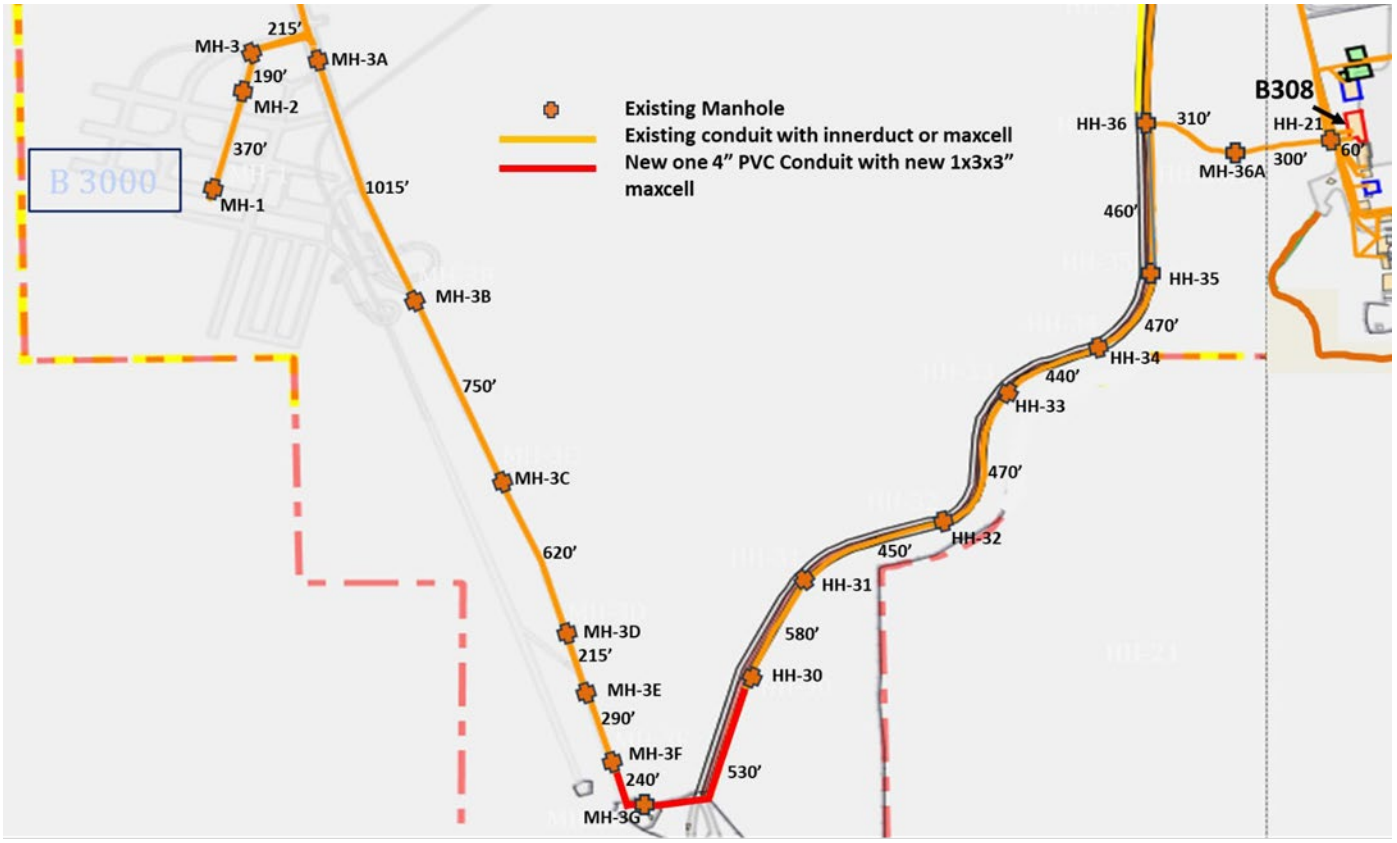

Figure 2: Fiber Optic Cable Route from ITB 3000 to ITB 308.