Attachment 2

PERFORMANCE WORK STATEMENT (PWS)

FOR

Fiber Optic Install – Multiple Buildings

Francis E. Warren Air Force Base, Wyoming

22 Feb 24

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1. Description of Services.

This contract is a single award 3-year Indefinite Delivery, Indefinite Quantity (IDIQ) contract.
Total Contract Period Minimum award amount: The total amount for the WGF Fiber Run to be issued as first task order at time of award.
Total Contract Period Maximum award amount: The total amount of all fiber runs as modified throughout the contract period, limited only to contract scope.
All work performed under this contract will be done under issued task orders from this contract. The Contractor shall follow the procedures for task order issuance as defined in Attachment 2e – Task Order Proposal Instructions.

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. The Contractor shall comply with the current Telecommunication Industry Association (TIA) telecommunication installation and testing commercial standards and base installation standards within this PWS and regulations referenced. All equipment, supplies, and materials provided shall be new and not refurbished. The Government reserves the right to test and validate newly installed grounds to ensure they meet compliance.

1.1. Specific Services.

The contractor shall engineer, furnish, install, and test (EFI&T) armored single mode fiber optic cable (FOC) to upgrade and enhance the fiber optic cable connectivity for the following routes at F. E. Warren AFB:

- Information Transfer Building (ITB) 333/232 to Weapons Generation Facility (WGF)
- WGF to ITB 232 (Primary)
- ITB 333 to building 305
- ITB 1501 to ITB 65
- ITB 34 to ITB 1501,
- ITB 1501 to Helo-Ops
- ITB 34 to building 217
- ITB 1284 to building 356
- ITB 65 to building 916
- ITB 232 to building 324

This list of fiber run locations is complete as of the time of this solicitation; however, it is reasonably anticipated that some deletions, changes and/or additional runs of single mode FOC may be added to this contract during the performance period of this contract.

1.1.1. Underground Cables, Maintenance Holes/Hand-Holes (MH/HH), Conduit, and Inner-duct Installation Requirements.

1.1.1.1. Contractor shall design and install Customer-Owned outside Plant Telecommunications Infrastructure to integrate seamlessly with existing F. E. Warren AFB communications infrastructure plant and shall meet or exceed all standards available in Attachment 2a - 90 CS Telecommunications Installation Criteria (90 CS TIC) and ANSI/TIA-758-B. Each cable installation shall be coordinated with the COR so that any impact on the building's users is properly coordinated. See Attachment 2b - Installation Pictures for reference and estimated distances of existing and proposed infrastructure and cable routes.

1.1.2. Outside Plant Requirements.

1.1.2.1. Existing Maintenance Holes. The contractor shall pump out water as required into the storm drain system. Water may be drained through the pavement or grass area where a storm drain is not available. If necessary, the Contractor shall be responsible for removing mud, debris, etc. from maintenance holes/hand-holes to the extent necessary for the contractor to perform work in the space.

1.1.2.2. Measurements. Any distances provided in Attachment 2b – Installation pictures are approximations and shall NOT be used for ordering materials or determining duct lengths.

1.1.2.3. Underground Utilities Markings. The Contractor shall coordinate with base agencies to ensure markings are placed over existing base infrastructure prior to digging or horizontal directional boring and shall take precautions to protect existing infrastructure. The Contractor is responsible for repair of any damage caused during installation when the infrastructure is clearly marked. The Contractor is responsible for maintaining all markings.

1.1.2.4. Closures for Cable Splicing Maintenance Holes. Intermediate fiber optic cable splices shall be minimized and consist of core alignment method fusion splices in a high-quality polypropylene re-enterable splice closure. Only splice closures intended for underground applications shall be used in the underground system. The Contractor shall use standard re-enterable fiber splice closures. The closures shall have adequate strength to protect the splice and maintain cable shield electrical continuity in the below ground environment. The Government quality inspector shall have the opportunity to inspect the inside of the splice case before closure pressure testing and encapsulation is performed.

1.1.2.5. Splice Connectors. All fiber splicing shall be performed IAW RUS Bulletin 1735F-401, Standards for Splicing Copper and Fiber Cable. The Core Alignment fusion splice method shall be used for fiber optic cable.

1.1.2.6. Labeling. The Contractor shall label all equipment and cables they install IAW with TIA-606 and as directed by the base communications organization. New ducts shall be permanently labeled on the wall of each building/MH indicating the connecting building/MH at the other end of the duct (for example, “To MH-200”). If applicable, Contractor shall label rack and ground wires. Rack shall be labeled on the front and rear in plain view. Preferred locations for labels are the top and bottom on a permanent part of the cabinet or rack IAW ANSI/TIA 606. The cover of all new fiber optic distributions (FODPs) shall be labeled to conform to the system used by local maintenance personnel to identify FODPs that terminate fiber. If the FODP manufacturer has not identified the sequence in which the ports are counted, the contractor shall provide designation labels/strips to identify the sequence in which the ports are counted.

Example: FODP 34
FO 34-65, 1-36

Note: The same information shall appear on the Contractor’s completed As-Built-Drawings IAW 1.2.3.1.

1.1.2.7. Shield Bonding Connectors. Shield bonding connectors, bond bars, braids, ribbons, clamps, etc., shall be provided to maintain cable shield continuity at splices and at ground connections. Bonding

connectors shall be provided IAW RUS Bulletin 345-65 (PE-33). Cable shields shall be bonded and continuous throughout the cable distribution system.

1.1.2.8. Grounding. The contractor shall ground new cable shields to the Telecommunication Main Ground Busbar (TMGB), in or near the new service entrance box located on the outside of each building. The contractor is required to provide one 6'' x 4'' copper ground bar and ground it to the existing ground point IAW with J-STD-607-A-2002, sections 5 and 6, unless a TMGB already exists.

1.1.2.9. Cable Tags. All tags shall be permanently labeled, easily visible, and corrosion resistant. Install cable tags in all MHs/HHs, cable vaults, pull boxes and building entrance terminal locations. When cables pass through a MH, put a tag on the cable, approximately two (2) feet from each duct entrance. Information on the cable tag shall identify cable by size, type, cable number and count. Tagging and labeling of new cables shall be IAW the following:

A36L8.3F
FO 34-65, 1-36

Line One: A = Armored Sheath (otherwise leave blank) 12 = Fiber Count. L = Loose Tube Buffer or (T) Tight Tube Buffer. 8.3 = Single Mode. F = Filled core (otherwise leave blank).
Line Two, Three, Four: 1284-34 = From-To Building numbers. 1-36 = Cable/strand Count.

1.1.2.10. Cable Terminations. Fiber optic cables shall be terminated on new fiber optic distribution panels using Lucent Connector (LC) fusion splice direct connectors (AFL fuse connect or equivalent) or fiber optic pigtails with LC connectors. Distribution panels shall be designed for wall or rack mounting in 19-in (48 cm) racks. Panels shall be sized accordingly to cable and method of termination. Fiber Optic Distribution panels shall be compatible with F. E. Warren's existing fiber optic distribution panels.

1.1.2.11. Fiber Optic Cable (FOC) Maintenance Loop. The Contractor shall install a minimum of a 50 feet fiber optic cable maintenance loop at each Communication Electronics Room (CER), at each splice point MH location and every third MH in the run. The maintenance loop shall be properly labeled and securely supported by two cable hooks. Cable hooks are to be positioned so the highest one supports the underside of the top of the coil and the bottom hook supports the underside of the bottom of the coil.

1.1.2.12. New Maintenance Holes/Hand-holes. MHs installed shall have an American Association of State Highway and Transportation Officials (AASHTO) rating of H-20 or equivalent. Unless otherwise stated, MHs shall have a minimum interior dimension of 6'W x 8'L x 7'H. Manholes shall have a ladder, cable racks hardware, pulling irons, a sump, water resistance gaskets, bonding ribbon, and a grounding system. MH shall meet the requirements of TIA-758-B, paragraph 5.2.1. Prefabricated MHs are preferred. It is understood that some MHs are precast with bonding ribbons or some similar connection, to the manhole rebar and therefore do not require a ground rod. This method of grounding in lieu of a ground rod is satisfactory just as long as the achieved impedance to ground is 25 ohms or less.
Unless otherwise stated, HHs shall have a minimum interior dimension of 3'W x 5'L x 4'H (width, length, height) and shall be provided with a hinged torsion assisted rectangular cover. HHs shall be furnished with cable racks and a grounding system. HHs shall meet the requirements of TIA -758-B, paragraph 5.2.2. Prefabricated HHs are preferred. *MHs/HHs shall be installed so that they are reasonably level on a gravel bed of 6 inches to allow drainage of water from the walls. The gravel bed shall extend 8 inches to 12 inches beyond the outer edges of the MH/HH. MH/HH covers shall be labeled with 1/8" raised letters stating "COMMUNICATIONS".*

1.1.2.12.1. Cable Racks and Cable Rack Supports. Cable racks shall be installed in MHs and hand holes as required - this includes new and existing MHs/HHs. 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.
The Contractor shall install (if applicable) cable ladders for continuous cable support IAW 90 CS TIC. Where cable trays cannot be utilized, 2-inch J- Hooks may be used with a maximum spacing of 4 feet to not exceed cabling capacity.

1.1.2.12.2. 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 TIA 607.

1.1.2.13. Underground Conduit System. The Contractor shall be responsible for any required trenching and/or boring necessary to lay the duct system. Contractor is also responsible for backfilling ditch lines and compaction of fill materials with appropriate compaction tools. Provide a minimum of 12-inch cover of clean fill above the conduit. Backfill material shall be clean and free from all organic material, clay, marl or unstable materials, debris, lumps, or broken paving. No rocks or stones larger than three (3) inches in diameter shall be allowed in backfill. Material for backfill may be material resulting from excavation if it meets the above requirements. Directional drilling will be used for major road crossings. Otherwise, crossing of paved surfaces may be performed by pavement cuts and resurfacing with appropriate matching road material. This does not prevent the contractor from using directional drilling if it is more cost effective.

1.1.2.13.1. Composition. The ducts shall be corrosion resistant and 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. For unique situations the ducts shall be EPC-80-PVC (Schedule 80) IAW NEMA TC-2, high density polyethylene (HDPE) SDR 13.5, Galvanized Iron Pipe (GIP) or “thick wall” stainless steel. Schedule 80 PVC shall be limited to risers, all above ground conduit and under the roadway/parking pavement. High density polyethylene (HDPE) SDR 13.5 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.

1.1.2.13.2. 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 inches below grade. All ducts installed beneath any paved surfaces shall be installed by means of horizontal directional boring beneath the paved surface so as not to damage the existing pavement, unless not physically possible due to geographical or man-made obstructions. In MH with knockouts, ducts shall start at the bottom knockout, allowing for upward expansion in the MH. All ducts not installed across 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.

1.1.2.13.3. 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 90 CS/PM 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/innerducts entering MH shall be sealed. Sealing is the operation of plugging or closing the ends of the duct run IAW Attachment 2d - AF T.O. 31W3-10-22. Universal duct plugs or removable putty sealants may be used. Upon completion of conduit sections, a rigid test mandrel ¼ inch (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.

1.1.2.13.4. 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.

1.1.2.13.5. Spacers and Tracer Wire. Along the length of the duct run, if the ducts are installed by trenching, spacers shall be placed at an interval of four (4) spacers per 20 feet. At least one duct or roll pipe shall have tracer wire or be otherwise locatable from the surface. All new tracer wire installed for this project needs to have a wire nut and label installed at all wire ends, and those wire ends secured but not connected to grounds. The tracer wire shall be exposed; free from the conduit and capped (insulated). The tracer shall be secured and routed to the MH or hand-hole neck to a point where maintenance personnel may access the wire without having to enter the MH/HH and tagged with a label so indicating it as a "Duct Tracer Wire to xxx – Do Not Remove (where xxx is the other end of the wire)." Tracer wires shall not be connected to any grounding system. Tracer wire shall be pulled back from building entrances until it is underground to prevent lightning damage.

1.1.2.13.6. Warning Tape. Cable warning tape shall be buried one 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.

1.1.2.13.7. 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 knockout does not exist. Penetration shall not be in such a location through the wall as to block use of existing ducts in the MH. New ducts will be a minimum of 18 inches from either the MH floor or ceiling, if practical. Ducts shall have bell ends and enter the MH perpendicular to the surface of the wall through which it is entering and shall be installed flush with the interior wall of the MH. Ducts and openings around ducts shall be sealed to prevent moisture from entering the MH.

1.1.2.13.8. Excavation/Building Penetrations. All wall penetrations, including inside buildings, shall be restored to meet NFPA 70 standards.

1.1.2.13.9. Conduit Bends or Sweeps. Where a bend or sweep is placed in PVC nonmetallic duct bank between MHs, the duct bank must be encased in concrete with a minimum compressive strength of 3000 pounds per square inch (psi).

1.1.2.13.10. Pulling Tape. All new vacant ducts shall be provided with a waterproof, corrosion resistant pre-lubricated flat woven polyester pull tape with sequential footage markings (1250 pound pulling strength) for future cable installation. The pull tape shall extend into the MH and be secured to the cable rack or pulling iron, etc.

1.1.3. Outside Plant Installation. This section describes the underground MH/conduit system, flexible geotextile multiple cell fabric inner-duct and fiber optic cable installation requirements. See Attachment 2b – Installation Pictures for reference and estimated distances of existing and quoted infrastructure requirements. The contractor shall install underground outside plant infrastructure as described below. The sequence of installation is at the contractor's discretion.

1.1.3.1. Infrastructure Installation. Install the following new infrastructure. All new locations and distances are approximate. (See Attachment 2b – Installation Pictures)

1.1.3.2. Duct bank/Innerduct Infrastructure. Install three (3) inch three 3-cell geotextile cloth innerduct (Max-Cell) from: From Information Transfer Building (ITB) 333/232 to WGF, from ITB WGF to ITB 232 (Primary), from ITB 333 to B305, from ITB 1501 to ITB 65, from ITB 34 to ITB 1501, from ITB 1501 to Helio Ops, from ITB 34 to B217, from ITB 1284 to B356, from ITB 65 to B916, from ITB 232 to B324. Each new 3-cell shall have a separate thread color with one cell being detectable.
NOTE: The Contractor shall utilize the existing max-cell in an existing duct where it is possible. Use of existing innerduct requires prior approval of the COR. Ensure COR reserves identified innerduct/max-cell for project. DO NOT INSTALL FOC IN AN EMPTY DUCT WITHOUT APPROVAL OF THE COR.

1.1.3.3. Fiber Optic Cable Installation. All FOC shall be armored and installed in an existing or newly installed inner duct or geotextile inner duct. All fiber terminations shall be accomplished using LC fusion splice direct connectors or fiber optic pigtails with LC connectors. (See Attachment 2c – Armored Single Mode Fiber Details)

1.2. Testing, Drawings, and Acceptance.

1.2.1. Acceptance/Installation Test Report. The Contractor shall provide a test plan for each fiber strand as to how the system shall be pre-tested, in-progress-tested, and post-tested to demonstrate to the COR that the system is fully operational and meets or exceeds the specified requirements and that the system is fully ready to be placed into service. The Contractor shall test the system to demonstrate to the Government quality assurance evaluation of the system. These tests shall be accomplished prior to the system being placed into service. Test plan shall be submitted to the COR prior to final acceptance.

1.2.1.1. Testing. Contractor shall conduct on-site testing IAW Original Equipment Manufacturers (OEM) installation manuals, practices, and the appropriate vendor's test procedures. The Contractor shall furnish all test equipment and personnel required to conduct all required testing. During any testing phase, the Government reserves the right to perform any of the contractor performed inspections and tests to assure solutions conform to prescribed requirements. The Contractor shall provide on-site support during the acceptance testing. The Contractor shall participate with the Government in testing the complete communications system. When any system, subsystem, component, or requirement test fails to meet the requirements of the test, Government acceptance and payment will be withheld until such time as the cause of the failure is corrected to the Government's satisfaction. After appropriate corrective action has been taken, all tests including those previously completed, related to the failed test and the corrective action shall be repeated and successfully completed prior to Government acceptance.

1.2.1.2. In-progress Testing

1.2.1.2.1. Excavations. All excavations shall be inspected for compliance with applicable installation and safety directives, OSHA CFR 29 Part 1910 268 and installation plan procedures IAW OSHA Part 1926.651. After material is placed, the contractor shall inspect and document the installation prior to backfilling. In addition, the COR shall be allowed to inspect the installation prior to backfilling.

1.2.1.2.2. Splices. All splices shall be tested for cable faults and splicing errors as they are completed. All cable faults and/or splicing errors detected shall be corrected after the completion of each splice point test and prior to sealing the closure. The contractor's Quality Assurance Evaluator (QAE) and the COR shall inspect all splices prior to sealing the closure. If, for any reason, moisture contaminates a splice, all modules and/or connectors shall be replaced, and the entire splice retested. Reference RUS Bulletin 1751F-644 for budget loss calculations.

1.2.1.2.3. Fiber Optic Tests. All strands of all fiber optic cables shall be tested IAW with TIA 526-7 Measurement of Optical Power Loss of Installed Single-mode Fiber Cable Plant, or equivalent. As a minimum, the following tests shall be performed: Both Optical Time Domain Reflectometer (OTDR) and Optical Power Meter tests will be used for all end-to-end circuits. All fiber optic testing shall be performed in both directions, i.e. from A to Z and from Z to A. For incomplete circuits that end in manholes, only OTDR testing is required.

1.2.1.2.4. Optical Attenuation. End to end attenuation tests shall be conducted on all fiber optic cable strands. Tests shall be accomplished to ensure the installed cable is within the specified parameters.

1.2.1.2.5. Distance. Contractor shall test to determine the installed cable length between optical patch panels. All strands of all fiber optic cables shall be tested.

1.2.2. Acceptance/Installation Test Report. The Contractor shall provide an installation test report of the results of the testing accomplished under the installation test plan. The Contractor shall deliver all test reports to the COR within ten (10) calendar days of completion of each test in a Microsoft Office application.

1.2.3. Drawings.

1.2.3.1. As Built Drawings. Contractor shall submit red line drawings showing the "As-Built"

configuration in a format specified by COR. COR will provide baseline drawings, no later than ten (10) days prior to start, date depicting current cable, communications containers, and conduit routing. Contractor shall provide As-Built Rack Elevation, Inside Cable Plant, and Outside Cable Plant drawings and distribute within ten (10) calendar days of project completion to the COR.

1.2.3.1.1. Butterfly Drawings. The contractor shall record and submit butterfly, cable path, and building penetration drawing information for all new installations including butterfly drawings for all manholes, hand hole, and pull-boxes that contain new or reused FOC. Drawings shall record the path and arrangement of new and reused fiber optic cables, splices, and the arrangement duct banks, ducts, and inner duct. Drawings shall be submitted to the COR in an easily read electronic format such as pdf. Scanned data sheets or legible sketches are acceptable if the listed information is provided within 10 days of project completion.

1.2.3.1.2. Geospatial Deliverables. The contractor shall collect and record geospatial data and provide As-Built documentation (shape files) of all new installed MHDS components and new cable components (including metadata) IAW FGDC-STD-007.3-1998 and 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. The Government will review the shape files in CVC and transcribe the information to the CVC system. Shape files shall be delivered within 10 days of project completion.

1.2.4. Final Acceptance. The Contractor shall schedule a final project walk-through with the COR. This shall be scheduled 10 calendar days prior to acceptance.

1.3. General Services

1.3.1. Site Coordination. Contractor shall coordinate with the COR to arrange an in-brief with other base personnel as appropriate (e.g., Base Civil Engineering [BCE], Security, Safety) at the initiation of any survey and prior to beginning implementation. During the in-brief, the contractor shall familiarize the Government with the contractor's purpose and coordinate the proposed agenda.

1.3.2. 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 COR at least ten (10) calendar days in advance of the outage if the implementation necessitates disruption of service, (e.g., communications, electrical, or other utilities).

1.3.3. Site Restoration. The Contractor shall be responsible for surface restoration. Restoration at each location shall be subject to final inspection and approval by the Base Civil Engineer (BCE) IAW guidelines set forth by NFPA 70 section 02220-1. The Contractor shall dispose of all residues from this project off base and IAW local and base environmental laws and regulations.

1.3.3.1. The Contractor shall be responsible for grounds restoration to include, backfilling, soil compacting, reseeding, re-sodding or any other necessary material and services required to restore ground conditions to the original condition IAW with guidelines set forth by the BCE. All disturbed sites will require at least four inches of topsoil and native cover. The Contractor shall perform follow-up

grounds restoration on any location that is not up to its original condition due to surface settling or lack of turf germination or seeding.

1.3.3.2. The Contractor shall be responsible for restoration of asphalt, concrete, brick, paving stone, etc. at locations, which were damaged due to activities by the contractor. Any asphalt, concrete, street, curb or sidewalk replacement shall be IAW with guidelines set forth by the BCE. At a minimum, the restoration shall be restored to match existing strength, color (to the extent practical), and type of material. The contractor shall perform follow-up restoration on any location that is not up to its original condition due to surface settling.

1.3.4. Identification/Marking. 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" x 11") 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.

1.3.5. Installation Schedule. 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 within ten (10) calendar days after contract award to COR.

1.3.6. Integrated Process Team (IPT). The Contractor shall chair as required an IPT meeting that includes contractor representatives, the Government Contracting Officer (CO), the COR, and other base personnel as required to focus on program execution. Contractor shall provide an agenda and a worldwide teleconference capability for the duration of the project. The purpose of the IPT meeting is to discuss project progress, identify, address, resolve, and recommend solutions to issues or problems to project leadership. The Contractor shall record the IPT meeting minutes and distribute to the COR and CO after contract award/weekly.

2. Services Summary.

The contractor service delivery requirements are summarized into performance objectives that relate directly to standards of performance required to meet mission essential needs. For the Performance Objective to be met, service delivery must be in substantial compliance with applicable performance standards. The Performance Threshold describes the minimum overall levels of service delivery required for acceptable quality control. Failure to meet these Performance Thresholds means that contractor Quality Control is unacceptable. The following is a list of the key performance objectives that shall be verified as contractually compliant by Government personnel; however, inspection of any contract requirement is authorized.

Performance Objective	PWS Para.	Performance Threshold	Method of Surveillance
Provide as-built rack elevation.	1.2.3.1	Elevation must be accurate representation of the actual installation - 0% discrepancy	100% Inspection

Provide completed testing of fiber optic installs.	1.2.4	Must meet EIA/TIA standards – 0% discrepancy	100% Inspection
Site Restoration	1.3.4	Site must be restored to original condition	100% Inspection

3. Government Furnished Property and/or Services

3.1. Government Furnished Property.

3.1.1. None

3.2. Government Furnished Services.

3.2.1. Utilities. The Government will furnish the electricity, water, and sewage services (as necessary) for the accomplishment of service IAW this PWS.

3.3. Government Property Incidental to the Place of Performance.

3.3.1. None

4. General Information.

4.1. Quality Control.

The contractor is required to control the quality of service delivery and offer to the Government for acceptance only services which conform to contract requirements. The overall control of quality must meet the specified performance thresholds for each requirement in the Services Summary.

4.2 Quality Assurance

The Government shall evaluate the contractor's performance by monitoring the contractor's performance to ensure services are received. The Government shall evaluate the contractor's performance through on-site inspections, random spot checks, system acceptance tests, and receipt of customer complaints. The Government shall investigate complaints received from customers. The Government shall make final determination of the validity of customer complaint(s) in cases of disagreement with customer(s). Remedies for non-conforming services shall be resolved IAW the applicable Inspection/Acceptance clause attached within the contract.

4.2.1. The Contracting Officer's Representative (COR) is the authorized Government representative(s) who will perform assessments of the contractor's performance. Subsequent to contract award, the identity of the COR(s), with a letter defining their duties and authority willbe promptly furnished to the successful bidder/offeror.

4.2.1.1. The COR(s) will inform the contract manager when discrepancies occur and will request

corrective action. The COR(s) will make a notation of the discrepancy on their surveillance checklist with the date and time the discrepancy was noted and will request the contract manager (or authorized representative) to acknowledge the discrepancy.

4.2.1.2. Any matter concerning a change to the scope, prices, terms or conditions of this contract shall be referred to the Contracting Officer and NOT to the COR(s).

4.2.1 The Contractor shall provide Quality Assurance Support for the entire life of the project. The Contractor's Quality Assurance Evaluator (QAE) shall assist the Government representative in performing random spot checks and system acceptance tests. The Government shall inspect each task as completed. Contractor shall be responsible for identifying system and outside plant deficiencies and/or discrepancies throughout the life of the project. After the beginning of performance, a weekly status report (soft copy) shall be submitted to the COR to inform IPT members of project progress, problems being encountered, and other topics necessary/beneficial to ensure success and timely completion of the contract requirements. Government personnel reserve the right to perform inspections of the Contractor's work during any and all phases of the installation.

4.2.2 The services to be performed by the contractor during the period of this contract shall (at all times and places) be subject to review by the Contracting Officer (CO) and/or authorized representative(s).

4.3. Security Requirements. Contractor shall coordinate with the COR directly or by email sent to 90CS.SCX@us.af.mil to receive instructions for providing all necessary personnel information for base access within 14 calendar days after contract award. The Contractor shall not send Privacy Act protected information via email. Stated work and associated products shall be performed at UNCLASSIFIED level; however, some work may take place in secure areas where contractor employees must be escorted at all times with COR coordination. Access to secure areas must be coordinated with the COR at least ten (10) working days ahead of time. It is the Government's responsibility to provide escorts.

4.3.2. Anti-Terrorism. If the Contractor (contract employees/subcontractors) identify any suspicious activity, they shall immediately contact the Base Defense Operations Center (BDOC) at 307-773-3501 (on-installation)/Missile Security Control (MSC) at 307-773-2701 (off-installation) and notify the CO and COR that they contacted the BDOC and/or MSC.

4.3.2. Physical Security. The Contractor shall be responsible for all contractor property on Government property. At the close of each work period, Government facilities, Contractor property, and Contractor materials shall be secured. The Government shall not be held responsible for any loss experience by the contractor resulting from theft or vandalism.

4.4 Operational Security (OPSEC).

The contractor shall adhere to the following minimum requirements in support of this requirement:

4.4.1 Contractor personnel shall not discuss government operations in public or over unprotected or unencrypted communications. Official Business, controlled unclassified information (CUI) may only be transmitted as directed in the PWS.

4.4.2 The Contractor shall not post to company websites, publications, newsletters or other media any

images, data or information that reveal sensitive government operations, personnel, equipment, and/or classified or controlled unclassified information. When in doubt, company press releases related to this contract should be coordinated through the Project Manager or Contracting Officer, as applicable.

4.4.3 Because observation of events, operations, physical changes, etc. may reveal National Security information, specific restrictions are needed to preclude unintentional release of this information to unauthorized parties. (Unauthorized disclosure and transfer of National Security Information is punishable under 18 USC § 793.) Therefore, contractor personnel shall not disclose to unauthorized third parties, post to unofficial sites (including Social Networking sites) any images, data or information, or observed events that reveal sensitive government operations, personnel, equipment, including, but not limited to:

4.4.3.1 Tactics, techniques and procedures, production or work schedules, any visible or concealed modifications, upgrades, additions to vessels, aircraft, or weapons or equipment; increases, change, or decreases in work/deployment frequency or government personnel, vehicle, vessel or aircraft movements; specialized equipment orders, deliveries, shipments, etc., Unauthorized disclosures and attempts to solicit this type of information by unauthorized third parties or others not affiliated with this contract shall be reported immediately to the 90 CS/PM and/or CO, as applicable.

4.4.3.2 Government issued badges, identification shall be removed and/or concealed from plain sight when off base and shall not be left in vehicles or unprotected. Badges and passes may not be duplicated, copied or loaned to others. Lost or stolen identification badges, vehicle passes etc. shall be immediately reported to the Project Manager, Contracting Officer, and/or installation Security Office.

4.4.4 Network Infrastructure. Manhole Duct System (MHDS), Manhole/Hand Hole (MH/HH) locations, fiber paths, etc.) is on the 90 CS Critical Information List and must be protected. The Contractor shall take appropriate measures to protect detailed information pertaining to the EFI&T effort, to include appropriate marking of documents as “Controlled Unclassified Information (CUI),” and ensuring limited distribution of documents and schematics/drawings to only those individuals with a valid need to know. IAW AFI 10-701, OPSEC Considerations, the contractor shall develop an OPSEC plan, and present to the COR within ten (10) working days before start of project to ensure the protection of Controlled Unclassified Information (CUI) data either furnished by the government or produced by the contractor.

4.5. Location/Hours of Operation.

4.5.1. Location. Place of performance is at F. E. Warren AFB WY. Telework shall not be permitted for this contract.

4.5.2. Normal Hours of Operation. The contractor shall perform the services required under this contract during the normal operating hours of the site. The average workweek consists of 7:00 AM and 4:00 PM (MDT), Monday through Friday, excluding holidays and base closures. 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 submitted to the COR for approval at least ten (10) calendar days in advance.

4.5.3. Recognized Holidays. The contractor is not required to provide service on the following days

or base down days:

- New Year's Day (January 1).
- Birthday of Martin Luther King, Jr. (Third Monday in January).
- Washington's Birthday (Third Monday in February).
- Memorial Day (Last Monday in May).
- Juneteenth National Independence Day (June 19).
- Independence Day (July 4).
- Labor Day (First Monday in September).
- Columbus Day (Second Monday in October).
- Veterans Day (November 11).
- Thanksgiving Day (Fourth Thursday in November).
- Christmas Day (December 25).

If the holiday falls on Saturday, it is observed on Friday. If the holiday falls on a Sunday, it is observed on Monday.

4.6. Conservation of Utilities.

The contractor shall instruct employees in utilities conservation practices. The contractor shall be responsible for operating under conditions which prevent the waste of utilities which include the following:

4.6.1. Lights shall be used only in areas where and when work is actually being performed.

4.6.2. Mechanical equipment controls for heating, ventilation, and air conditioning systems shall not be adjusted by the contractor or by contractor employees unless authorized.

4.6.3. Water faucets or valves shall be turned off after the required use has been accomplished.

4.6.4. Government telephones shall be used only for official Government business.

4.7. Environmental Controls.

4.7.1. Compliance with Laws and Regulations.

4.7.2. Notification of Environmental Spills. If the contractor spills or releases any substance contained in 40 CFR 302 into the environment, the contractor or its agent shall immediately report the incident to the F.E. Warren AFB Fire Dept at 911 (landline) or 307-773-2931 (cell phone). The liability for the spill or release of such substances rests solely with the contractor and its agent.

4.7.3. Hazardous Material (HM). In the event that hazardous materials shall be used in the execution of this contract, the contractor shall comply with all federal, state and local regulations concerning the use, storage, and reporting of HM in accordance with AFMAN 32-7002, Environmental Compliance and Pollution Prevention. The contractor shall be required to obtain authorization per the Installation

Hazardous Materials Management Program before ordering or purchasing any hazardous product and may not bring a HM onto F. E. Warren AFB property, nor use a HM, until the contractor receives all required authorizations. This authorization process may take up to three weeks.

4.7.4. Green Procurement Program (GPP). In performance of this contract, contractors shall use Environmental Protection Agency (EPA) designated recycled content products, Information Technology (IT) Energy Star products/appliances, Federal Energy Management Program (FEMP) Designated Energy Efficient Low Stand By Power products/appliances, U.S. Department of Agriculture (USDA) Bio based/Bio preferred products, Environmentally preferable products, Electronic Product Environmental Assessment Tool (EPEAT) registered products, Water Sense or other water efficient products, non- or Low Ozone depleting substances under the Significant New Alternatives Policy (SNAP), non or Low toxic or hazardous constituents (e.g. non-VOC paint) and any other environmentally sustainable product/method, to the greatest extent possible.

4.7.5. Asbestos. Due to the age of the building, the contractor must test for asbestos and lead prior to drilling into real property. The government shall not provide an asbestos report and it is incumbent upon the contractor to conduct the testing and abatement if required for installation. If the contractor detects asbestos or lead, the contractor must properly abate and dispose of the asbestos/lead (released during any drilling) IAW applicable laws and regulations. When testing, abating, or disposing, the contractor must take the necessary precautions to protect their employees, the public, and building occupants. If desired by the contractor, the contractor can hire a sub-contractor to conduct the asbestos/lead testing and abatement; however, ensuring proper qualifications shall be the responsibility of the contractor.

4.8. Safety Requirements.

4.8.1. In performing work under this contract, the contractor shall:

4.8.1.1. Conform to the safety requirements contained in the contract and PWS for all activities related to the accomplishment of the work.

4.8.1.2. Record and report promptly (within one hour), to 90 CS/PM or CO, all available facts relating to each instance of damage to Government property or injury to either contractor or Government personnel.

4.8.1.3. Accident/Incident Reporting and Investigation. Contractor shall record and report immediately all available facts relating to each instance of injury to either contractor or Government personnel to the COR and the Base Safety Office (BSO). Contractor shall secure the scene of any accident and wreckage until released by the accident investigative authority through the COR. 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.

4.8.2. Confined Spaces. Contractors and sub-contractors entering confined spaces during the execution of this effort are responsible for the safety of their personnel and for their confined space 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. The primary Contractor is responsible for all Sub-Contractor confined space operations.

4.8.3. Work area(s) shall follow OSHA CFR 29 part 1910-268 standards for safety if not covered by an applicable Air Force Standard. At day's end, the Contractor shall remove all debris and surplus materials from the workplace. Equipment and materials required to complete the work effort may remain on site as long as they are organized and stored in a manner that does not cause a safety hazard. The contractor shall return all Government furnished lay-down and storage areas to their original condition upon completion of the project.

4.8.3.1 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.

4.8.3.2. All residues from this project shall be disposed of off base and IAW with Federal, State, local and base environmental laws and regulations. All residue produced by horizontal directional boring 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 and state environmental laws and regulations. Removal of all debris, waste and surplus materials from the immediate work area will take place each day and from the premises at suitable intervals and at final project completion. Under no circumstances will the contractor stage or store boring residue in slurry ponds or other containment areas on F. E. Warren AFB.

4.8.3.3. Traffic Control. In the event base vehicular traffic is to be disrupted by trenching or horizontal directional boring, the contractor shall notify the COR NLT ten (10) calendar days in advance to inform base Security Forces and Emergency Services personnel of the planned disruptions.

4.9 Continuation of Essential DoD Contractor Services During Crisis.

4.9.1. IAW DFARS 237.7602(a), it is determined that this service has NOT been identified by the Functional Commander/Director as an essential service.

4.10. Permits.

4.10.1. The Contractor shall be responsible to coordinate, complete, and process all permits required to complete the installation to the COR.

4.10.1.1. Digging permit: To request a digging permit, an AF IMT 103 shall be submitted through Base Civil Engineering Work Request (BCE) 14 calendar days in advance of digging activities.

4.10.1.2. Confined space entry plan, list of trained individuals, and employee certifications per Unified Facilities Guide Specifications (UFGS) 01 35 26. The Contractor shall be prepared to provide proof of their Confined Space Training Program to the COR ten (10) calendar days prior to start date.

4.11. Contractor Personnel.

4.11.1. Personnel Information. The Contractor shall submit a written request on company letterhead to the COR listing the following: contract number, location of work site, start and stop dates, and names of contractor personnel needing access to the base no later than 14 calendar days before beginning work. When reporting to the registration office, the authorized Contractor personnel must provide a valid

driver's license for each individual and valid vehicle insurance certificate or rental agreement for each vehicle, to obtain access to the base.

4.11.2. Contract Manager. Contractor shall provide a Project Manager (PM) and alternate(s) responsible for contract performance and continuity ten (10) calendar days prior to project start to the COR. The Contractor shall identify the Project Manager's or alternate's range of authority to act for the contractor relating to daily contract operation.

4.11.2.1. The contract manager shall have full authority to act for the contractor on all contract matters relating to daily operations of this contract.

4.11.2.2. The contract manager shall be available within 24 hours of a request by the Government to meet to discuss problems.

4.11.2.3. The contract manager shall be able to read, write, speak, and understand English and shall be on site to coordinate permits, clearances, and receive shipments/material related to the contract.

4.11.3. Site Point of Contact (POC). The Contractor shall designate and provide to the COR the Contractor's on-site team leader and alternate(s) as the Site POC for individual projects first day of project start. 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.

4.11.3.1. The site POC shall be able to read, write, speak, and understand English and shall be on site to coordinate permits, clearances, and receive shipments/material related to the contract.

4.11.4 Contractor Employees: The contractor shall not employ persons for work on this contract if such employee is a potential threat to the health, safety, security, general wellbeing or operational mission of the installation and its population.

4.11.4.1. The contractor must always have at a minimum one (1) fiber certified technician on site and be qualified to perform installation and testing on all equipment required in this specification.

4.11.4.2 The Contractor shall utilize employees who have adequate training, skills, and knowledge to perform the requirements in this PWS.

4.11.4.3 Contractor personnel shall present a neat appearance and be easily recognized as contractor employees. This may be accomplished by wearing distinctive clothing bearing the name of the company or by wearing appropriate badges, which contain the company name and employee name in English. Contractor personnel who interact with Government personnel shall be able to communicate effectively in English.

4.11.4.4 The consumption of alcoholic beverages by Contractor personnel while on duty is strictly forbidden. The use of illegal drugs by Contractor Personnel is strictly forbidden. The Contractor shall immediately remove any personnel who is under the influence of alcohol or drugs.

4.12 Records. The contractor shall be responsible for creating, maintaining, and disposing of only those government required records that are specifically cited in this PWS or required by the provisions of a mandatory directive listed in the 90th Telecommunications Installation Criteria Handbook, Applicable Publications and Forms. If requested by COR or CO, the contractor shall provide the original record, or a reproducible copy of any such record within five (5) working days of receipt of the request.

4.12.1 Manuals and Practices. The Contractor shall provide the latest version of operation, installation, and maintenance manuals and practices/users guide for each system installed as provided by the original manufacturer with all new equipment to COR ten (10) days prior to acceptance.

4.13 Warranty.

Contractor shall provide standard commercial warranty. The contractor shall provide any OEM pass through warranty and standard commercial warranties applicable to the products being purchased at no cost. The warranty shall be at a minimum one year or manufacturers standard warranty, whichever is longer. 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 to the project manager.

5. Appendices

5.1. Appendix A - Regulations

The following documents are referenced within this document or are hereby recognized as a standard of good practice to be followed during the performance of all work.

DAFMAN 91-203 – Air Force Consolidated Occupational Safety Instructions
OSHA CFR 29 Part 1910 268 – Telecommunications Occupational Safety and Health Standards
OSHA CFR Part 1926.651 Specific Excavation Requirements
OSHA 1941-146 and 1941-146 (a)
NEMA TC 2- Electrical Polyvinyl Chloride (PVC) Tubing and Conduit
TIA-606 Administration Standard for Telecommunications Infrastructure
TIA-607 Generic Telecommunications Bonding and Grounding (Earthing) For Customer Premises
TIA-526-7- Measurement of Optical Power Loss of Installed Single-mode Fiber Cable Plant
TIA-758 B Customer-owned Outside Plant Telecommunication Infrastructure Standard
RUS Bulletin 1735F-401, Standards for Splicing Copper and Fiber Cable
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 1753F-151 (515b) - Specifications and Drawings for Underground Cable Installation
RUS Bulletin 345-65 (PE-33)
Unified Facilities Guide Specifications 01 35 26
90 CS TIC – Telecommunications Installation Criteria for Facility Design & Renovation
FGDC-STD-007.3-1998 Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy
Mil-Std-188-124B Grounding, Bonding and Shielding for Common Long Haul/Tactical Communication Systems
Mil-HDBK-419A, Volumes 1 and II Grounding, Bonding, and Shielding for Electronic Equipment and Facilities
Technical Order 31-10-34
DISN Implementation Standards, Ch. 2.7.20 to 2.7.26
EIA/ECA-310 Cabinets, Racks, Panels, and Associated Equipment
J-STD-607-A-2002 Commercial Building Grounding (Earthing) And Bonding Requirements for Telecommunications
NFPA 70 NEC National Fire Protection Association
AFI 10-701 Operations Security
ANSI/TIA-758-B

5.2. Appendix B – Deliverables

Deliverable	Ref	Due	To
Accident/Incident Report	4.8.1.3	Immediately	COR/BSO
Traffic Disruption	4.8.3.3	10 calendar days in advance	COR
Personnel Info	4.3	14 calendar days after award	COR
Secure Area Access	4.3	10 working days ahead of time	COR
OPSEC Plan	4.4.4	10 working days prior to start of project	COR
Digging Permits	4.10.1.1	14 working days in advance	BCE
IPT Meeting Minutes	1.3.6	after contract award weekly	COR/CO
Weekly Status Report	4.2.1	after beginning of performance/weekly	COR
Contract Manager	4.11.2	10 calendar days prior to project start	COR
Site POC	4.11.3	First day of project start	COR
Operation Manuals	4.12	10 calendar days prior to acceptance	COR
Service Outages	1.3.2	10 calendar days in advance	COR
Milestone Schedule	1.3.5	10 calendar days after award	COR
As-Built Drawings	1.2.3.1	10 calendar days of project completion	COR
Butterfly Drawings	1.2.3.1.1	10 calendar days of project completion	COR
Geospatial	1.2.3.1.2	10 calendar days of project completion	COR
Acceptance/Installation Test Report	1.2.1	10 calendar days of competition of each test	COR
Outside Normal Hours Request	4.5.2	10 calendar days in advance	COR
Warranty	4.12	10 calendar days prior to acceptance	COR

5.3. Appendix C – Attachments

Attachment 2a – TIC Handbook
Attachment 2b – Installation Pictures
Attachment 2c – Armored Single Mode Fiber Details
Attachment 2d – AF T.O. 31W3-10-22 (Available to awardee only – post award)
Attachment 2e – Task Order Proposal Instructions
Attachment 2f – Task Order Proposal Pre-Priced CLIN sheet