

STATEMENT OF OBJECTIVES (SOO)

For

ISP/OSP Standardization Phase I

(B519, B523, B525, B530, B521, B3510, B3012)

at GOODFELLOW AFB, TX

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Prepared By 17 CS SCXP

328 Ft. Lancaster

GAFB, TX 73145-2713

Table of Contents

1.	SCOPE	4
2.	REQUIREMENTS	4
2.1.	GENERAL REQUIREMENTS	4
2.1.1.	Safety Requirements	4
2.1.1.1.	Contractor Safety Standard Expectation	4
2.1.1.2.	Base Fire Regulations	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)	5
2.1.2.4.	Traffic control	5
2.1.3.	Security Requirements	5
2.1.3.1.	Security Clearances	5
2.1.3.2.	Operation Security (OPSEC)	5
2.1.4.	Environmental Compliance	5
2.1.5.	Permits	6
2.1.6.	Integrated Process Team (IPT)	6
2.1.7.	Quality Assurance	6
2.1.8.	Contractor Personnel	6
2.1.8.1.	Project Management	6
2.1.8.2.	Site Point of Contact (POC)	6
2.1.8.3.	Personnel Requirements	7
2.1.9.	Electronic Contractor Manpower Reporting Application (ECMRA)	7
2.1.10.	Warranty	7
2.2.	SPECIFIC REQUIREMENTS	7
2.2.1.	Maintenance Holes (MHs)	7
2.2.2.	Measurements	7
2.2.3.	Splice Conductors	7
2.2.4.	Cable Racks and Cable Rack Supports	8
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.	OSP Maintenance Loop(s)	8
2.2.10.	Grounding/Bonding	8
2.2.11.	Underground Conduit System	9
2.2.11.1.	Composition. N/A	9
2.2.11.2.	Typical Situations	9
2.2.11.3.	Unique/Site Specific Situations	9
2.2.11.4.	Installation	9
2.2.11.5.	Bends and Sealing	9
2.2.11.6.	Utility Separation	10
2.2.11.7.	Spacers and Tracer Wire	10
2.2.11.8.	Entrance Conduits into Existing Maintenance Holes	10
2.2.11.9.	Excavation/Building Penetrations	10
2.2.12.	N/A	10

2.2.13.	Outside Plant Installation	10
2.2.13.1.	Infrastructure Installation	10
2.2.13.1.1.	Maintenance Holes	10
2.2.13.1.2.	Ductbank Infrastructure	10
2.2.13.1.3.	Geo-textile Fabric (or Innerduct) Installation	11
2.2.13.2.	Fiber Optic Cable Installation	11
2.2.13.2.1.	Fiber Optic Cable From ITB 519 to MH-410	12
2.2.13.2.2.	Fiber Optic Cable From MH-410 to B525/B523/B521/B3510/B530	12
2.2.13.2.3.	Fiber Optic Cable From B3510 to B3323	13
2.2.13.2.4.	Fiber Optic Cable From B3012 to B3323	13
2.2.13.2.5.	Fiber Optic Cable From Building 3510	14
2.2.13.2.6.	Fiber Optic Cable From Building 3012	15
2.2.14.	Site Restoration/Debris Removal	15
2.2.15.	Service Outages	15
2.2.16.	Identification/Marking	16
2.2.17.	Installation Schedules	16
2.2.18.	Weekly Status Reports	16
2.2.19.	As-Built Drawings	16
2.2.20.	Test and Acceptance/Installation Test Plan	16
2.2.20.1.	Outside Plant Cable Testing	16
2.2.21.	Acceptance/Installation Test Report	16
2.2.22.	Final Acceptance	17
2.2.23.	As-Built Documentation in CVC	17
3.	GENERAL INFORMATION	17
3.1.	Period of Performance	17
3.2.	Place of Performance	17
3.3.	Hours of Operation	17
3.4.	Holidays/Down Days	17
3.5.	Base Support	17
3.6.	Minimum Contractor Qualifications.	17
	APPENDIX A: APPLICABLE STANDARDS	18
	APPENDIX B: LIST OF DELIVERABLES	19
	APPENDIX C: LIST OF ACRONYMS	20
	APPENDIX D: DRAWINGS	22

1. SCOPE

This SOW defines the requirement for the Contractor to engineer, furnish, install and test (EFI&T) single mode (SM) fiber optic cable (FOC) at ITB 519 to several buildings. Buildings include 521, 523, 525, 530, 3012, 3510, and 3323 . Inside Plant wiring will also be included at B3012 and B3510. 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 SOO. 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

The contractor shall remain in compliance with all Federal, State, and base security and safety laws, regulations, policies, and requirements.

2.1.1.1 Contractor Safety Standard Expectation

The Contractor will comply with all applicable OSHA and Air Force Safety Standards.

2.1.1.2 Base Fire Regulations

The Contractor shall comply with Base Fire Regulations as set forth in the latest edition of GAFB Instruction 32-2001, titled “Base Fire Protection Program”. The Contractor shall use no explosives in performing the work. All work shall be in strict compliance with NFPA-101. Contract SOW must reference the USACE Safety and Health Manual EM-385-1-1 and NFPA 241 and must contain the requirement that the Installation’s fire regulations be followed. All work shall be in strict compliance with NFPA-101.

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 Goodfellow AFB are responsible for the safety of their personnel and for their own confined spaces permit program as outlined in AFI 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 work place. Safety barriers shall be in place to protect unfinished work site 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 work day. 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 17 CS/SCXP of the planned disruptions.

2.1.3. Security Requirements

The Contractor shall process and provide a Site Visit Request Letter to 17 CS/SCXP 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 SOW, company name, address, phone number and contract number, start date and end date. This information is required to grant access to the base. If required by the base, 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 escorted at all times. The Contractor must coordinate access to secure areas at least 24 hours ahead of time with the 17 CS/SCXP PM. It is the Government's responsibility to provide escorts.

2.1.3.2. Operational Security (OPSEC)

Network infrastructure (MHDS, MH/HH locations, fiber paths, etc.) is on the 17 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 "For Official Use Only (FOUO)," and ensuring limited distribution of documents and schematics/drawings to only those individuals with a valid need to know. In accordance with (IAW) AFI 10-701, OPSEC Considerations, the contractor shall develop an OPSEC plan to ensure the protection of FOUO data either furnished by the government or produced by the contractor. The contractor's OPSEC plan provided in the RFP shall be incorporated into the SOW.

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 Goodfellow AFB.

2.1.5. 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 {and any other required permits (as determined by Base Civil Engineering (BCE) or 17 CS/SCXP, etc.)} 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.

2.1.6. 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), the 17 CS/SCXP 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. The contractor shall provide at this meeting a weekly action register, in Microsoft excel, to capture items that need to be addressed. Action register shall have at a minimum Project Description, Contact list, Action Item List, Discrepancy List, and any pertinent information related to the project. (CDRL A004)

2.1.7. 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. (CDRL A003)

2.1.8. Contractor Personnel

2.1.8.1. 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.

2.1.8.2. 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.

2.1.8.3. 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.

2.1.9. Electronic Contractor Manpower Reporting Application (ECMRA)

The contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for Goodfellow AFB single mode (SM) fiber optic cable (FOC) from ITB to ITB, via a secure data collection site. The contractor is required to completely fill in all required data fields using the following web address <http://www.ecmra.mil>

Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year. Contractors may direct questions to the ECMRA help desk.

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

The Contractor shall EFI&T SM, indoor/outdoor rated FOC's from ITB to several buildings using the existing maintenance hole duct bank system. Contractor shall also install associated fiber optic distribution panels, with pre-terminated, factory certified connectors within cassette style modules all fusion spliced in Buildings 519, 521, 523, 525, 530, 3012, 3510, and 3323. In addition, contractor shall install a complete and useable CAT6 solution at Buildings 3012 and 3510. This includes Ethernet jacks, patch panels, cabling, cable ladders and wall mounted enclosures.

2.2.1. Maintenance Holes (MHs)

The Contractor shall pump out water as required. Water shall be drained IAW BCE and base environmental requirements.

2.2.2. Measurements

Any distances provided in this SOO are approximations and should NOT be used for ordering materials or determining duct lengths.

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 SC connectors.

2.2.4. Cable Racks and Cable Rack Supports

Cable racks shall be installed in maintenance 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.

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 17CS, SCXP. 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 17CS labeling scheme.

2.2.6. Cable Tags

All tags shall be permanently labeled, easily visible and corrosion resistant. Install cable tags in all maintenance holes/handholes, 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 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 SC connectors in cassette style housing. 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 17 CS/SCXP.

2.2.9. OSP 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 or in telecomm room.

2.2.10. Grounding/Bonding

Grounding/Bonding hardware such as corrosion resistant wire, bonding ribbon, clamps, ground rod, etc. necessary to properly bond/ground the cable in MHs shall be provided by the Contractor. In addition, grounding/bonding of telecommunication racks to telecomm busbar and building ground if necessary. Reference UFC 3-580-01, TIA 607, and TIA 758.

2.2.11. Underground Conduit System

The Contractor shall be responsible for any required trenching and/or boring necessary to lay the duct system. The Contractor is also responsible for backfilling ditch lines and compaction of fill materials with appropriate compaction tools. Directional drilling shall be used for major road crossings, taxiways, runways, etc. 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. Ducts will be appropriately protected when placed under paved surfaces (i.e., concrete encasement).

2.2.11.1. Composition. N/A

2.2.11.2. 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.

2.2.11.3. 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 11.5, 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 bring 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.

2.2.11.4. 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).

2.2.11.5. 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 17 CS/SCXP 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 1/4" (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.

2.2.11.6. 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.

2.2.11.7. 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 above the conduit 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.

2.2.11.8. 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.

2.2.11.9. Excavation/Building Penetrations

All wall penetrations, including inside buildings, shall be restored to meet the required base fire ratings.

2.2.12 N/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. Each cable installation shall be coordinated with 17 CS/SCXP 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

This project requires no new infrastructure installation.

2.2.13.1.1. Maintenance Holes

This project requires no new Maintenance Holes.

2.2.13.1.2. Ductbank Infrastructure

This project requires no new Ductbank Infrastructure.

2.2.13.1.3. Geo-textile Fabric Installation

At time’s provide necessary amount of geo-textile fabric innerduct. TBD by contractor and approved by 17CS.

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, corning glass, outside plant (OSP) cable suitable for indoor/outdoor applications. The Contractor shall coordinate each cable installation with the 17CS/SCXP so as 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 there is some practical reason for an intermediate splice in the cable at some maintenance hole/handhole 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/handhole 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 handhole and approved by 17CS/SCXP.

Install Indoor/Outdoor rated Single Mode Fiber Optic Cable IAW the following Table:

From Building	To Bldg or MHole	FOC Size	Approx. Distance (Feet)	Figure	Comment
ITB519	MH-410	144 SM	690	1	Fully manufactured corning specifications.
B525	MH-410	36	729	1	Fully manufactured corning specifications.
B523	MH-410	24	626	1	Fully manufactured corning specifications.
B521	MH-410	24	977	1	Fully manufactured corning specifications.
B3510	MH-410	24	1127	1	Fully manufactured corning specifications.
B530	MH-410	36	1187	1	Fully manufactured corning specifications.
B3510	B3323	24	3291	1	Fully manufactured corning specifications.
B3012	B3323	24	3974	1	Fully manufactured corning specifications.

2.2.13.2.1. Fiber Optic Cable from ITB 519 to MH-410

The Contractor shall install approximately 690 feet of one continuous length, 144-strand SM FOC from ITB 519 to MH-410 utilizing existing Maintenance Hole Ductbank System. Length of run in SOO is an estimate and shall be verified by contractor. The contractor shall also install the following at ITB 519 and/to MH-410:

- At ITB 519, One (1) 4U, 144-size fiber optic distribution panel, along with cassette style fiber panels. Verify placement with 17CS.
- At ITB 519, Fusion Splice 144-strand SM fiber optic cable to pre-factory certified pigtailed in cassette style fiber panels.
- At MH-410, install one re-enterable corning, dome style splice case, capable of housing 144-strand splice.
- At each 144, OTDR and Power Meter/Light Source test in both directions to B525, B523, B521, B3510, and B530.
- Provide audit of existing cabling and fiber optic patch cords for transition to newly installed cable. Provide forty eight (48), FOC patch cords per 17CS/SCXP guidance.
- Label all FODP's and FOC per 17CS Standard Operating Procedures.
- Provide one (1) CAD drawings for all work performed.
- MHDS templates can be provided at the appropriate time in the project.

2.2.13.2.2. Fiber Optic Cable from MH-410 to B525/B523/B521/B3510/B530

The Contractor shall install approximately 1916 feet of one continuous length, 36-strand SM FOC from MH-410 to B525 and B530 utilizing existing Maintenance Hole Ductbank System. Contractor shall install 2,730 feet of one continuous length, 24-strand SM FOC from MH-410 to B523, B521, and B3510. Length of run in SOO is an estimate and shall be verified by contractor. The contractor shall also install the following at each building:

- At each building, one fiber optic distribution panel, along with cassette style fiber panels. Verify placement with 17CS.
- At each building, Fusion Splice 36-strand or 24-strand single mode fiber optic cable to pre-factory certified pigtailed in cassette style fiber panels.
- At each building, OTDR and Power Meter/Light Source test in both directions to B519.
- Provide audit of existing cabling and fiber optic patch cords for transition to newly installed cable. Provide forty eight (48), FOC patch cords per 17CS/SCXP guidance.
- Label all FODP's and FOC per 17CS Standard Operating Procedures.
- Provide one (1) CAD drawings for all work performed.
- MHDS templates can be provided at the appropriate time in the project.

2.2.13.2.3. Fiber Optic Cable from B3510 to B3323

The Contractor shall install approximately 3,291 feet of one continuous length, 24-strand SM FOC from B3510 to B3323 utilizing existing Maintenance Hole Ductbank System. Length of run in SOO is an estimate and shall be verified by contractor. The contractor shall also install the following at each building:

- At each building, one fiber optic distribution panel, along with cassette style fiber panels. Verify placement with 17CS.
- At each ITB, Fusion Splice 24-strand SM fiber optic cable to pre-factory certified pigtailed in cassette style fiber panels.
- At each building, OTDR and Power Meter/Light Source test in both directions.
- Provide audit of existing cabling and fiber optic patch cords for transition to newly installed cable. Provide four (4), FOC patch cords per 17CS/SCXP guidance.
- Label all FODP's and FOC per 17CS Standard Operating Procedures.
- Provide one (1) CAD drawings for all work performed.
- MHDS templates can be provided at the appropriate time in the project.

2.2.13.2.4. Fiber Optic Cable From B3012 to B3323

The Contractor shall install approximately 3,974 feet of one continuous length, 24-strand SM FOC from B3012 to B3323 utilizing existing Maintenance Hole Ductbank System. Length of run in SOO is an estimate and shall be verified by contractor. The contractor shall also install the following at each building:

- At each building, one fiber optic distribution panel, along with cassette style fiber panels. Verify placement with 17CS.
- At each ITB, Fusion Splice 24-strand SM fiber optic cable to pre-factory certified pigtailed in cassette style fiber panels.
- At each building, OTDR and Power Meter/Light Source test in both directions.
- Provide audit of existing cabling and fiber optic patch cords for transition to newly installed cable. Provide four (4), FOC patch cords per 17CS/SCXP guidance.
- Label all FODP's and FOC per 17CS Standard Operating Procedures.
- Provide one (1) CAD drawings for all work performed.
- MHDS templates can be provided at the appropriate time in the project.

2.2.13.2.5. Building 3510

Building 3510 is an entry gate to the base and contains one telecomm room. Contractor shall be performing work in building and telecomm room. Contractor shall engineer, furnish, install, and test 12 new telecomm outlets. Contractor shall also transition existing 25 pair copper cable to new enclosure cabinet. Additional details for this task can be provided during site survey or as needed by 17CS SCXP. Inside plant wiring shall, at a minimum, meet all UFC 3-580-01, Ch. 1/2 and 17CS SOP requirements.

PART	QTY
Install 19", 24"x30"x48" enclosure cabinet, 12 inch ladder rack and bond to existing ground per TIA 607 standards.	1
Install 12" x 5' of cable tray above existing rack as a pathway for cabling. Supported every 5 feet with 3/8 threaded rod. Provide firestop material, and ground and bond as needed.	2
Provide and install a 2U horizontal front and rear wire manager, with cover, for 19" relay rack.	2
Provide appropriate size, green Cat-6 Patch Cord	12
Provide and install one Cat-6, 24 port patch panel. (Copper Cable Transition and 12 telcomm outlets)	1
Install a 4' x 8' x 3/4", fire rated plywood backboard.	1
Provide CAD Services and Provide (1) Hard Copy 24" X 36" CAD Drawing	1
Communications Tech to perform dressing of existing horizontal cabling. (Hours)	32

2.2.13.2.6. Building 3012

Building 3012 is an entry gate to the base and contains one telecomm room. Contractor shall be performing work in building and telecomm room. Contractor shall engineer, furnish, install, and test 12 new telecomm outlets. Contractor shall also transition existing 25 pair copper cable to new enclosure cabinet. Additional details for this task can be provided during site survey or as needed by 17CS SCXP. Inside plant wiring shall, at a minimum, meet all UFC 3-580-01, Ch. 1/2 and 17CS SOP requirements.

PART	QTY
Install 19", 24"x30"x48" enclosure cabinet, 12 inch ladder rack and bond to existing ground per TIA 607 standards.	1
Install 12" x 5' of cable tray above existing rack as a pathway for cabling. Supported every 5 feet with 3/8 threaded rod. Provide firestop material, and ground and bond as needed.	2
Provide and install a 2U horizontal front and rear wire manager, with cover, for 19" relay rack.	2
Provide appropriate size, green Cat-6 Patch Cord	12
Provide and install Cat-6, 24 port patch panel. (Copper Cable Transition and 12 telcomm outlets)	2
Install a 4' x 8' x 3/4", fire rated plywood backboard.	1
Provide CAD Services and Provide (1) Hard Copy 24" X 36" CAD Drawing	1
Communications Tech to perform dressing of existing horizontal cabling. (Hours)	32

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 Goodfellow AFB environmental laws and regulations. Under no circumstances will the contractor stage or store boring residue in slurry ponds or other containment areas on Goodfellow AFB.

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. (CDRL A002)

2.2.18. Weekly Status Reports

The Contractor shall prepare a Weekly Status Report in English and shall distribute. The purpose of the report is 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. (CDRL A003)

2.2.19. As-Built Drawings

The Contractor shall submit red line drawings showing the "as-built" configuration in format specified by base SCX project manager. 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 per Goodfellow Air Force Base, Standard Operating Procedures. (CDRL A001)

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. (CDRL A005)

2.2.20.1 Outside Plant Cable testing

All strands of fiber optic cables shall be tested IAW 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. Between FODPs, bi-directional testing at 1310 nm and 1550 nm is required.

NOTE: Testing of the Fiber Optic Cables on the reel shall be provided to the 17 CS/SCXP prior to installation.

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 IAW CDRL A006.

2.2.22. Final Acceptance

The Contractor shall schedule a final project walk-through with the 17 CS/SCXP. 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 maintenance 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/handhole 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. (CDRL A001)

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 Goodfellow AFB, TX.

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 17 CS/SCXP and approved by the Contracting Officer 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 CO and coordinated with the 17 CS/SCXP 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 and provide the technician's certifications that are to perform work on this project.

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

AFBAN-FS – AF Base Area Network Functional Specification, 2017

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 - Customer-owned Outside Plant Telecommunication Infrastructure Standard

T.O. 00-33A-1001, Methods and Procedures, General Cyberspace Support Activities Management Procedures and Practice Requirements

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

UFC 3-520-01. Interior Electrical Systems

UFC 3-580-01, Telecommunications Interior Infrastructure Planning and Design (Ch. 1 & 2)

Goodfellow Air Force Base Telecommunications Requirements (17CS, SOP)

APPENDIX B: LIST OF DELIVERABLES

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

CDRL	Data Item Title	Data Item Title
A001	As Built	
A002	Work Schedule	
A003	Status Report	
A004	Meeting Minutes	
A005	Test Plan	
A006	Test Report	

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
ECMRA	Contractor Manpower Reporting Application
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
ITB	Information Transfer Building
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
SCOW	Supply Chain Operations Wing
SCX	Scheduler Planner
SE	System Engineer
SM	Single Mode
SOO	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

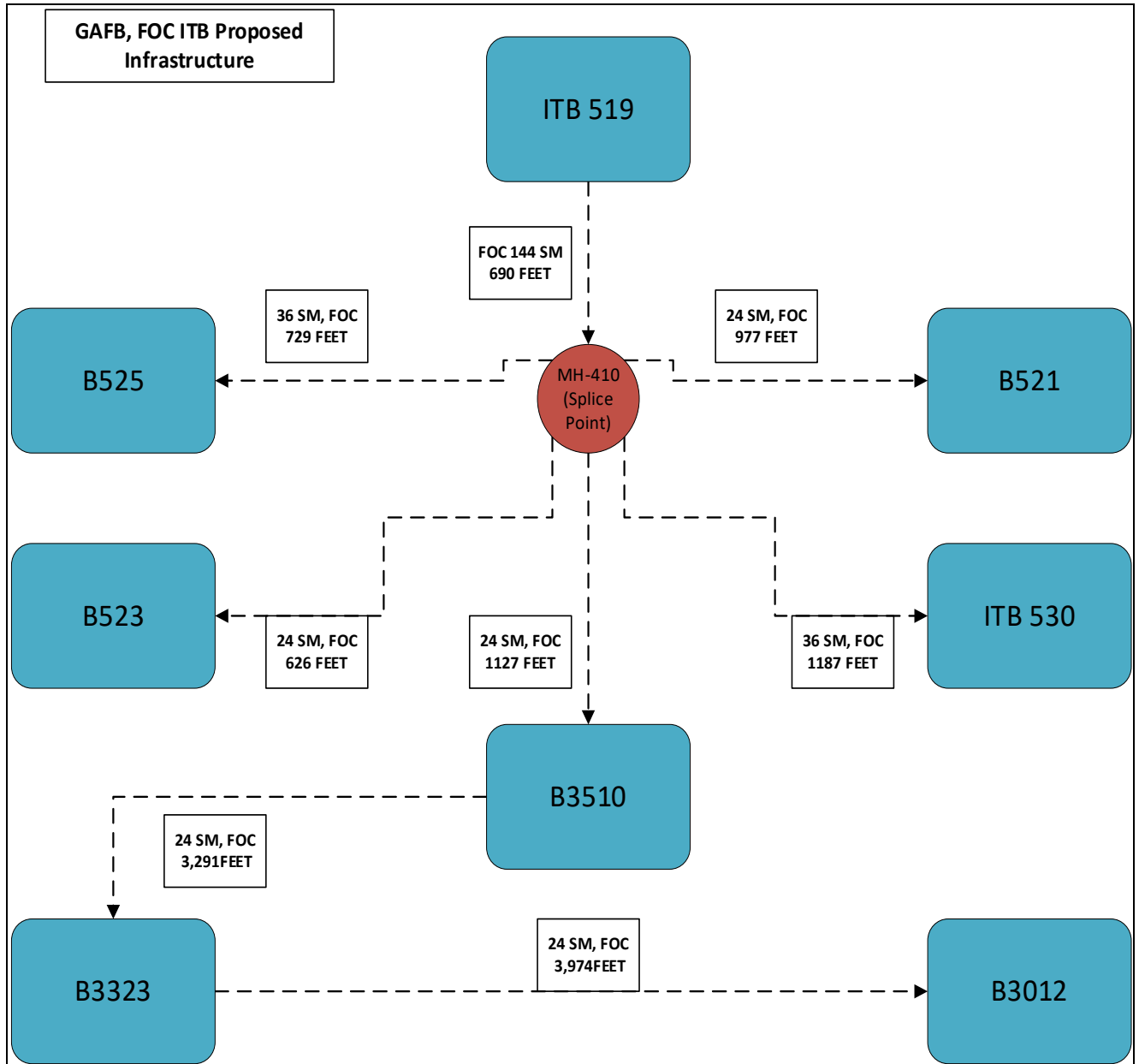


Figure 1: B519, North and South Gate, and B3323 Proposed FOC Upgrade