PERFORMANCE WORK STATEMENT

For

Building 350 Inside Plant Infrastructure Premise Wire

Upgrade Phases I & II

CLIN 1: Zone #3 (1st Floor)

CLIN 2: Zone #4 (2nd Floor)

CLIN 3: Zone #5 (2nd Floor)

CLIN 4: Zone #6 (2nd Floor)

At Peterson SFB, CO

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PWS – Premises Wiring Upgrade Phase I, Zones #3 (1st Floor) and #6 (2nd Floor) in Building B350

1. SCOPE. This Performance Work Statement (PWS) defines the requirements for the Contractor to engineer, furnish, install, and test (EFI&T) an upgrade of existing premises wiring or ISP infrastructure to new Cat-6 cabling for the Zones #3 on 1st floor (CLIN1), Zones #4 on 2nd floor (CLIN 2), Zone #5 on 2nd floor (CLIN3) and Zone #6 on 2nd floor (CLIN4) of the building B350. The zone layout is shown in Appendix C, Figure C-1, B350 Zone Layout. The upgrade shall also include installation and termination of new 12-strand single-mode (SM) plenum-rated fiber backbone cable between the hub/main communications room (CR) of the Zone #1 on 1st floor and each CR of the Zone #3, Zone #4, Zone #5 and Zone #6. The Contractor shall be required to remove all the existing outdated and abandoned-in-place Cat-3/Cat-5 premise wiring in these Zones #3, Zone #4, Zone #6, including defunct fiber backbone cabling.

2. GENERAL INFORMATION.

2.1 Place of Performance. The place of performance shall be Peterson SFB, CO.

2.2 Performance Period. The period of performance for this project shall be determined based on the proposed schedule and actual contract award date. All works shall be completed within the scheduled timeframe. Any request or justification for change shall be made to the designated Contracting Officer (CO) in writing and must be approved by the CO.

2.3 Hours of Operation. The Contractor shall perform routine work during normal duty hours of the base (normally Mon-Fri 0730-1630 MST). However, mission requirements may necessitate work outside normal hours (maintenance windows, nights, and/or weekends), especially if existing services must be interrupted. Any site work requested by the Contractor to be performed outside of normal duty hours shall be coordinated with the CO and designated base Point of Contact (POC) in advance for pre-approval.

2.4 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 base POC.

3. GENERAL REQUIREMENTS. The Contractor shall provide for the removal and disposal of any equipment, cabling, cabinets, racks, and/or any associated termination equipment by coordinating with the base POC. All equipment removed shall remain U.S. Government property. The Contractor shall remove and retain as spares for the Government or dispose of all equipment in accordance with (IAW) the base POC's instructions. The Contractor shall coordinate with the base POC, tenants, and other involved parties to ensure mission continuity and support requirements.

3.1 Site Coordination. The Contractor shall coordinate with the 21 CS/SCX or base POC a minimum of 10 business days prior to arrival on-site.

3.2 Project Management. The Contractor shall identify by name a Project Manager (PM), who shall be the prime contractor's employee, responsible as the single POC from award to final acceptance. The PM shall remain on site as necessary to ensure successful performance. The

Contractor shall identify the PM's range of authority to act for the Contractor relating to daily contract operation.

3.3 Contractor Supervision. The Contractor shall be responsible for supervision of all contract personnel and performance of all Contractor-related functions.

3.4 Safety. The Contractor shall comply with all Federal, State, and Base security and safety laws, regulations, policies, and requirements. If at any time it is determined that equipment is unsafe and/or work is being performed in an unsafe manner, all work will be immediately suspended until the Contractor has corrected the problem to the satisfaction of the base. The Contractor shall meet with the base Safety Officer (SO) immediately upon arrival on site for review of the specific safety requirements prior to implementation.

3.5 Accident/Incident Reporting and Investigation. The Contractor shall record and report all available facts relating to each instance of injury to either Contractor or Government personnel to the base SO or POC unless otherwise stated in the PWS. 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.

3.6 Security Clearances. There are security requirements for performance of this Task Order. Some of this work will take place in secure areas where Contractor employees must be escorted at all times. It is the Government's responsibility to provide escorts, and all Contractor personnel must comply with established security procedures. The Contractor shall coordinate access to secure areas at least two (2) working days ahead of time. The primary Contractor shall provide adequately cleared personnel for the performance of this Task Order. The Contractor personnel working under this Task Order shall not require a security clearance.

3.7 Base Access. The Contractor shall process a Site Visit Request Letter. This letter shall identify the names, social security numbers, driver's license numbers and state of issue, birth date, and security clearance of the personnel who will be performing work on this Task Order. 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 and company name, be clearly and distinctly marked as Contractor, and be IAW base regulations.

3.8 Environmental Management. The Contractor shall comply with the most stringent environmental federal, state, 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 Peterson SFB.

3.9 Permits. The Contractor shall complete and process all permits as required to complete the installation. For example:

• Digging permit, AF Form 103 shall be submitted through the base Civil Engineering (CE) 21 calendar days in advance of digging activities.

• Base CE Work Clearance Request, AF Form 332 required to complete the installation shall be submitted through the base CE 21 calendar days in advance of construction activities.

3.10 System for Award Management (SAM). The Contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract via a secure data collection site. The contractor is required to completely fill in all required data fields using the following web address <u>https://www.sam.gov</u> (*SAM replaces the previous ECMRA application hosted on <u>http://www.ecmra.mil</u>.) 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 the inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year. The Contractor may direct questions to the help desk.*

3.11 Labor Compliance. The Contractor shall be responsible for complying with all Federal labor laws and with applicable regulations governing installation access.

3.12 In-brief and Out-brief. The Contractor shall conduct an in-brief prior to the implementation and an out-brief at the conclusion of the implementation. The in-brief shall inform the customer of implementation plans and necessary support. The out-brief shall inform the customer of implementation result and necessary maintenance, including warranties.

3.13 Work Area(s). 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/stored in a manner that does not cause a safety hazard.

3.14 Packaging, Handling, Storage, and Transportation. The Contractor shall be responsible for packaging, handling, storage, transportation, staging, and deployment of any equipment and materials provided as part of this project. The Contractor shall coordinate with the base POC to identify any necessary base support, such as laydown and storage areas and provide a plan to deliver all materials to the work site. The Contractor shall be responsible for equipment inventory. The contractor shall return all government-furnished lay-down and storage areas to their original condition upon completion of the project. The Contractor shall be responsible for off-base disposal of residues and removed equipment IAW the base POC instructions and federal, local, and base environmental laws and regulations.

3.15 Documentation. The Contractor shall verify accuracy of all government-furnished documents, layout, and/or drawings.

3.16 Implementation. The Contractor shall have ultimate responsibility for successful project completion. Any work deemed non-compliant shall immediately be re-worked at the Contractor's expense. The Contractor shall plan and manage daily operations and activities associated with project performance. The Contractor will employ effective management tools and methods to assure control of cost, schedule, and performance. The Contractor shall conduct, support, or participate in program management and technical reviews, meetings, and conferences, as required, to ensure effective and efficient execution of this project. The Contractor shall ensure protection of government property to prevent damage during project performance.

4. SPECIFIC REQUIREMENTS. 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 ANSI/TIA telecommunications installation and testing commercial standards and Peterson SFB installation standards. All equipment, supplies, and materials provided shall be new and not refurbished.

4.1 Sustainment. It is required that the purchased equipment is maintainable and supportable for at least five (5) years. Government Re-use Equipment (GRE) does not have to meet this requirement.

4.2 Standards. All installation, equipment cabinets/racks, cables (communications, power, grounding, etc.), equipment, pathways, wire management, patch panels, etc. shall be IAW standards referenced in Appendix A, Applicable Documents and Standards and in secure areas comply with AFSSI 7702 "Emission Security Countermeasures" and NSTISSAM Tempest/2-95 "NSTISSAM Red/Black Installation Guidelines."

4.3 Service Outages. The Contractor shall be responsible for preventing any unscheduled (i.e., cutting or disabling any in-service cables or equipment) interruptions of communications capabilities that are properly identified. The Contractor shall coordinate planned outages with the base POC at least 2 calendar days in advance of the outage if the implementation necessitates disruption of service, (e.g., communications, electrical, or other utilities). The Contractor shall minimize downtime and maintain the existing premise wiring in service as much as possible while performing installation of the new premises wiring upgrade.

4.4 Cutover. The Contractor shall test all performance parameters before cutting over any drop outlet/location. The Contractor shall transition and integrate network connections IAW the Test Plan (CDRL A005) and Test Report (CDRL A0006). The Contractor shall minimize interruption of network services to the base customers as much as possible during installation and cutover. The Contractor shall coordinate and obtain approval for all planned circuit cutover/outages with base personnel. Test results shall be provided to the 21 CS/SCX before cutover.

4.5 Labelling. All cabinets, racks, equipment, cables, faceplate, and patch panels shall be labeled appropriately IAW Peterson SFB standards and with standards referenced in Appendix A, Applicable Documents and Standards. The labelling schemes are provided in Appendix B, LAN Faceplate and Patch Panel Labeling Standards. The Contractor shall also coordinate the labelling scheme with the 21 CS/SCX. The labelling shall be completed via permanent method. Handwritten labelling shall not be authorized.

4.6 Equipment Racks. The Contractor shall reuse the existing vacant 2-post relay racks and replace their existing double-sided vertical cable managers in the following CRs for the Zone #3, Zone #4, Zone #5 and Zone #6 of the B350 for the premise wiring upgrade:

• CLIN1: CR 1254 of Zone #3 on 1st Floor. The Contractor shall reuse the existing vacant 2post racks #3 and #4 as shown in Appendix C, Figure C-3, B350 1st Floor Zone #3 Comm Room 1254 with 2-Post Rack Layout and replace their existing double-sided vertical cable managers with appropriate double-sided slotted ones.

- CLIN2: CR 2126 of Zone #4 on 2nd Floor. The Contractor shall provide two (2) new 45U 19-in floor- mount 2-post relay racks #1 and #2 and install them securely in the proposed location as shown in Appendix C, Figure C-3, B350 2nd Floor Zone #4 Comm Room 2126 with 2-Post Rack Layout.
- CLIN3: CR 2030 of Zone #5 on 2nd Floor. The Contractor shall provide two (2) new 45U 19-in floor- mount 2-post relay racks #1 and #2 and install them securely in the proposed location as shown in Appendix C, Figure C-5, B350 2nd Floor Zone #5 Comm Room 2030 with 2-Post Rack Layout.
- CLIN4: CR 2243 of Zone #6 on 2nd Floor. The Contractor shall reuse the existing vacant 2post racks #3 and #4 as shown in Appendix C, Figure C-5, B350 2nd Floor Zone #6 Comm Room 2243 with 2-Post Rack Layout and replace their existing double-sided vertical cable managers with appropriate double-sided slotted ones.

The Contractor shall provide and install appropriate horizontal cable managers for these existing racks. The Contractor shall ensure new or existing cable ladders/ducts are aligned as much as possible with these existing racks to facilitate the installation of cabling. The Contractor shall properly ground these existing racks to the CR's existing Telecom Grounding Busbar (TGB).

4.7 AC Power. The Contractor shall provide and install the following AC powers for the existing vacant racks:

- CLIN1: Existing Racks #3 and #4 in CR 1254 of Zone #3 on 1st Floor. The Contractor shall provide and install two (2) new dedicated 120VAC 30A NEMA L5-30R twist-lock single-receptacle outlets at the rack #3 and two (2) new dedicated 240VAC 30A NEMA L6-30R twist-lock single-receptacle outlet at the rack #4 as shown in Appendix C, Figure C-3, B350 1st Floor Zone #3 Comm Room 1254 with 2-Post Rack Layout. The AC power installation shall include AC circuit breakers, EMT tubing, and electrical feeders/extensions to the receptacle outlets at the racks from the nearest existing electrical utilities service panels. The Contractor shall also provide and install two (2) 120VAC 30A PDUs (e.g., APC AP9560 or better ones) for the rack #3 and two (2) 240VAC 30A PDUs (e.g., Eaton/Tripp Lite PDUH30HV19 or better ones) for the rack #4 for power distribution to equipment in the racks.
- CLIN2: New Racks #1 and #2 in CR 2126 of Zone #4 on 2nd Floor. The Contractor shall provide and install two (2) new dedicated 120VAC 30A NEMA L5-30R twist-lock single-receptacle outlets at the rack #2 and two (2) new dedicated 240VAC 30A NEMA L6-30R twist-lock single-receptacle outlet at the rack #1 as shown in Appendix C, Figure C-3, B350 2nd Floor Zone #4 Comm Room 2126 with 2-Post Rack Layout. The AC power installation shall include AC circuit breakers, EMT tubing, and electrical feeders/extensions to the receptacle outlets at the racks from the nearest existing electrical utilities service panels. The Contractor shall also provide and install two (2) 120VAC 30A PDUs (e.g., APC AP9560 or better ones) for the rack #2 and two (2) 240VAC 30A PDUs (e.g., Eaton/Tripp Lite PDUH30HV19 or better ones) for the rack #1 for power distribution to equipment in the racks.
- CLIN3: New Racks #1 and #2 in CR 2030 of Zone #5 on 2nd Floor. The Contractor shall provide and install two (2) new dedicated 120VAC 30A NEMA L5-30R twist-lock single-receptacle outlet at the rack #2 and two (2) new dedicated 240VAC 30A NEMA L6-30R twist-lock single-receptacle outlet at the rack #1 as shown in Appendix C, Figure C-5, B350

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2nd Floor Zone #5 Comm Room 2030 with 2-Post Rack Layout. The AC power installation shall include AC circuit breakers, EMT tubing, and electrical feeders/extensions to the receptacle outlets at the racks from the nearest existing electrical utilities service panels. The Contractor shall also provide and install two (2) 120VAC 30A PDUs (e.g., APC AP9560 or better ones) for the rack #2 and two (2) 240VAC 30A PDUs (e.g., Eaton/Tripp Lite PDUH30HV19 or better ones) for the rack #1 for power distribution to equipment in the racks.

• CLIN4: Existing Racks #3 and #4 in CR 2243 of Zone #6 on 2nd Floor. The Contractor shall provide and install two (2) new dedicated 120VAC 30A NEMA L5-30R twist-lock single- receptacle outlet at the rack #3 and two (2) new dedicated 240VAC 30A NEMA L6-30R twist-lock single-receptacle outlet at the rack #4 as shown in Appendix C, Figure C-5, B350 2nd Floor Zone #6 Comm Room 2243 with 2-Post Rack Layout. The AC power installation shall include AC circuit breakers, EMT tubing, and electrical feeders/extensions to the receptacle outlets at the racks from the nearest existing electrical utilities service panels. The Contractor shall also provide and install two (2) 120VAC 30A PDUs (e.g., APC AP9560 or better ones) for the rack #3 and two (2) 240VAC 30A PDUs (e.g., Eaton/Tripp Lite PDUH30HV19 or better ones) for the rack #4 for power distribution to equipment in the racks.

The Contractor shall coordinate with the base Civil Engineer (CE) on providing the AC circuits at the nearest existing electrical utilities service panels and on any electrical power removal, modification, and/or installation. All electrical work shall be labeled at the circuit panel with room and rack identification and at the equipment end with panel and circuit information. All electrical component work shall be performed in compliance with the NECs, NFPA 70, UL Listing, UFC 3-520-01; and all local, base, state, and federal codes/regulations/standard requirements.

4.8 Cable Pathways. The Contractor shall install and/or reutilize cable support hardware such as cable trays/troughs, cable tray riser, J-hooks, ladders, cable dropouts, conduits etc. to support cable runs for the entire Cat-6 premises wiring upgrade in the Zone #3, Zone #4, Zone #5 and Zone #6 per Industry and Installation standards. The Contractor shall reutilize the existing wire mesh cable trays as possible for voice and data cable runs. The ladder cable trays and center spline cable trays shall not be utilized. All cable tray sections shall be bonded together and grounded to the Building Ground System IAW NEC, Mil-Std-188-124B and Mil-Hdbk-419A, Vol. I and II.

4.9 Grounding and Bonding. All new and/or existing racks housing equipment as well as all ladder racks and cable trays shall be bonded and grounded to the Building Ground System IAW NEC, Mil-Std-188-124B and Mil-Hdbk-419A, Vol. I and II. All equipment rack rails shall be Telecommunications style rails that are unpainted and have drilled and tapped mounting holes IAW DISN Implementation Standards, Ch. 2.7.20 to 2.7.26. The Contractor shall test any new or extended ground at the racks and at the new grounding/bonding points. The government reserves the right to test and validate newly installed grounds to ensure they meet compliance.

4.10 Ethernet Switches. The Contractor shall procure two (2) Cisco Switch Catalyst 9407R Chassis (Part#: C9407R-96U-BNDL-A), five (5) 48-port POE+ line cards (Part#: C9400-LC-48P), four (4) SFP modules (Part#: SFP-10G-LRM), and eight (8) 3200W AC power supplies (Par#: C9400-PWR-3200AC) and provide to the 21 CS/SCOI for configuration and installation in the rack #3 in the CR 1254 for the CLIN1 Zone #3 and in the rack #3 in the CR 2243 for the CLIN4 Zone #6. The Contractor shall coordinate with the 21 CS/SCX and SCOI to verify prior to procurement. The Contractor shall procure one (1) Cisco Switch Catalyst 9407R Chassis (Part#: C9407R-96U-

BNDL-A), one (1) Cisco Switch Catalyst 9410R Chassis (Part#: C9410R-96U-BNDL-A), five (5) 48-port POE+ line cards (Part#: C9400-LC-48P), four (4) SFP modules (Part#: SFP-10G-LRM), and eight (8) 3200W AC power supplies (Par#: C9400-PWR- 3200AC) and provide to the 21 CS/SCOI for configuration and installation in the rack #1 in the CR 2126 for the CLIN2 Zone #4 and in the rack #1 in the CR 2030 for the CLIN3 Zone #5. The Contractor shall coordinate with the 21 CS/SCX and SCOI to verify prior to procurement.

4.11 Fiber Backbone Cabling. The Contractor shall provide and install two (2) 12-strand SM plenum-rated fiber backbone cables, one from the hub CR 1128 of the Zone #1 to the CR 1254 of the Zone #3 and the other from the hub CR 1128 of the Zone #1 to the CR 2243 of the Zone #6 and terminate them to the fiber optic patch panels (FOPPs) on the racks. The Contractor shall provide and install 12-port LC SM FOPPs on the racks for termination of these fiber backbone cables. All fiber adapters and connectors shall be IAW TIA-604. All strands of all fiber cables shall be tested IAW TIA 526-7 or equivalent. As a minimum, both Optical Time Domain Reflectometer (OTDR) and Optical Power Meter (OPM) tests shall be used for all end-to-end circuits, and bi-directional tests at 1310nm and 1550nm shall be required between FOPPs. The Contractor shall provide and install two (2) 12-strand SM plenum-rated fiber backbone cables, one from the hub CR 1128 of the Zone #1 to the CR 2126 of the Zone #4 and the other from the hub CR 1128 of the Zone #1 to the CR 2030 of the Zone #5 and terminate them to the fiber optic patch panels (FOPPs) on the racks. The Contractor shall provide and install 12-port LC SM FOPPs on the racks for termination of these fiber backbone cables. All fiber adapters and connectors shall be IAW TIA-604. All strands of all fiber cables shall be tested IAW TIA 526-7 or equivalent. As a minimum, both Optical Time Domain Reflectometer (OTDR) and Optical Power Meter (OPM) tests shall be used for all end-to-end circuits, and bi-directional tests at 1310nm and 1550nm shall be required between FOPPs.

4.12 Structured Cabling Requirements. The Contractor shall coordinate with the 21 CS/SCX to verify the base wiring and termination standards (T568B), cable and faceplate labeling, and cable color-coding scheme.

4.12.1 The Contractor shall provide Cat-6 compliant cables, equipment, and connections as required and install IAW ANSI/TIA-568 standard and PSFB Construction Standards. All Cat-6 cables shall be solid pure copper UTP wire and not smaller than 24AWG. Plenum-rated (CMP-rated) Cat-6 cables shall be utilized where required by industry and applicable standards. All cabling and termination hardware shall be new and not refurbished. All cable jackets, including patch cords, shall follow the cable color-coding scheme (Blue cabling for NIPRNet identification).

4.12.2 The Contractor shall provide and install the following Cat-6 48-port patch panels:

- CLIN1 Existing Racks #3 and #4 in CR 1254 of Zone #3 on 1st Floor. The Contractor shall provide and install four (4) Cat-6 48-port patch panels in the rack #3 for voice and four (4) Cat-6 48- port patch panels in the rack #4 for data.
- CLIN2 New Racks #1 and #2 in CR 2126 of Zone #4 on 2nd Floor. The Contractor shall provide and install three (3) Cat-6 48-port patch panels in the rack #2 for voice and three (3) Cat-6 48- port patch panels in the rack #1 for data.

- CLIN3 New Racks #1 and #2 in CR 2030 of Zone #5 on 2nd Floor. The Contractor shall provide and install four (4) Cat-6 48-port patch panels in the rack #2 for voice and five (5) Cat-6 48- port patch panels in the rack #1 for data.
- CLIN4 Existing Racks #3 and #4 in CR 2243 of Zone #6 on 2nd Floor. The Contractor shall provide and install four (4) Cat-6 48-port patch panels in the rack #3 for voice and five (5) Cat-6 48-port patch panels in the rack #4 for data.

4.12.3 CLIN1: The drop outlet/location layout for the Zone #3 is shown in Appendix C, Figure C-2, B350 1st Floor Zone #3 Cat-6 Premises Wiring Upgrade with Drop Layout. These drop locations are approximate and not scaled. Total of drop outlets/locations is 156 (152 1-data & 1-voice drop outlets, 2 2-data outlets, and 2 1-voice outlets), and total of cable drops is 310 (154 voice drops and 156 data drops). All new voice and data Cat-6 cables in the Zone #3 shall be "Home Runs" to the CR 1254 from the drop outlets/locations: voice cables to the Cat-6 patch panels for voice in the rack #3 and data cables to the Cat-6 data patch panels for data in the rack #4. For voice connections or feeders to the Telco carrier, the Contractor shall re-route the existing voice cables from the Telco carrier's 110 punch-down blocks to the rack #3 and terminate them to the Cat-6 patch panels installed for voice.

4.12.4 CLIN2: The drop outlet/location layout for the Zone #4 is shown in Appendix C, Figure C-3, B350 2nd Floor Zone #4 Cat-6 Premises Wiring Upgrade with Drop Layout. These drop locations are approximate and not scaled. Total of drop outlets/locations is 109 (93 1-data & 1-voice drop outlets, 1 5-data & 1-voice outlet, 5 3-data & 1-voice outlets, 8 2-data outlets, 1 1-data outlet, and 1 1-voice outlet), and total of cable drops is 230 (100 voice drops and 130 data drops). All new voice and data Cat-6 cables in the Zone #4 shall be "Home Runs" to the CR 2126 from the drop outlets/locations: voice cables to the Cat-6 patch panels for voice in the rack #2 and data cables to the Cat-6 data patch panels for data in the rack #1. For voice cables from the Telco carrier in the CR, the Contractor shall re-route the existing voice cables from the Telco carrier's 110 punch-down blocks to the rack #2 and terminate them to the Cat-6 patch panels installed for voice.

4.12.5 CLIN3: The drop outlet/location layout for the Zone #5 is shown in Appendix C, Figure C-4, B350 2nd Floor Zone #5 Cat-6 Premises Wiring Upgrade with Drop Layout. These drop locations are approximate and not scaled. Total of drop outlets/locations is 211 (184 1-data & 1-voice drop outlets, 26 2-data outlets, and 1 1-voice outlet), and total of cable drops is 421 (185 voice drops and 236 data drops). All new voice and data Cat-6 cables in the Zone #5 shall be "Home Runs" to the CR 2030 from the drop outlets/locations: voice cables to the Cat-6 patch panels for voice in the rack #2 and data cables to the Cat-6 data patch panels for data in the rack #1. For voice connections or feeders to the Telco carrier in the CR, the Contractor shall re-route the existing voice cables from the Telco carrier's 110 punch-down blocks to the rack #2 and terminate them to the Cat-6 patch panels installed for voice.

4.12.6 CLIN4: The drop outlet/location layout for the Zone #6 is shown in Appendix C, Figure C-5, B350 2nd Floor Zone #6 Cat-6 Premises Wiring Upgrade with Drop Layout. These drop locations are approximate and not scaled. Total of drop outlets/locations is 176 (161 1-data & 1voice drop outlets, 6 6-data outlets, 5 2-data outlets, and 4 1-voice outlets), and total of cable drops is 372 (165 voice drops and 207 data drops). All new voice and data Cat-6 cables in the Zone #6 shall be "Home Runs" to the CR 2243 from the drop outlets/locations: voice cables to the Cat-6 patch panels for voice in the rack #3 and data cables to the Cat-6 data patch panels for data in the rack #4. For voice connections or feeders to the Telco carrier, the Contractor shall re-route the existing voice cables from the Telco carrier's 110 punch-down blocks to the rack #3 and terminate them to the

Cat-6 patch panels installed for voice.

4.12.7 Unless otherwise noted, all new voice and data Cat-6 cabling shall be terminated and routed via cable support hardware from the new and/or existing drop locations to the new patch panels installed in the new cabinets/racks and shall have the same RJ45 wiring and termination standard (T568B). Pull-through cable runs shall not exceed 295 feet in length.

4.12.8 The Contractor shall provide and install new Cat-6 patch cords for cross-connections from the new patch panels to network switches for all drops. These patch cords shall be of varying cable lengths for routing from the patch panels to the network switches.

4.12.9 All cables shall be routed in a structured and orderly manner. Secure cable(s) within cable support hardware, i.e., cable trays, cable tray riser, J-hooks, cable dropouts, horizontal cable managers and/or vertical cable managers. All cables shall be fanned and formed using Velcro straps to support cabling.

4.12.10If surface-mounted raceway is installed on wall surfaces, surface-mounted raceway shall be secured with appropriate anchor and screw hardware and be "Off White" in color unless otherwise noted. Surface-mounted raceway installed with adhesive tape is not authorized.

4.12.11Existing cable routes within walls shall be reused where possible and if within the general location of user drops.

4.12.12 The Contractor shall fire-stop all cable entrances cut, drilled, or core-drilled into walls per Industry and Safety codes.

4.12.13 New drop installation(s) shall be at a height above the finish floor for easy access for patch cord connections.

4.12.14 Cables shall not be exposed to rough/sharp edges or burrs when the cable is routed through cable openings. All penetrations into the rack/cabinet must be reamed, filed and have an installed bushing or grommet material. No exposed metal edges shall come in contact with telecommunications cabling.

4.12.15 The Contractor shall provide new Cat-6 patch cords for all drops for user connections from the drop locations' faceplate to user network devices (i.e., laptop, desktop, printer, etc.). These patch cords can be pre-made of a variety of lengths as necessary.

4.12.16 The Contractor shall remove all the existing outdated and abandoned-in-place Cat-3/Cat-5 premise wiring in these zones #3, #4, #5 and #6, including defunct fiber backbone cabling. If the existing cables are removed from a drop location that cannot be replaced with new cables, the drop location shall be covered with a blank faceplate.

4.13 Restoration. The Contractor shall restore all disturbed grounds/base property to the "as found" condition or better after installation. Base grounds/property restoration requirements shall be complied with.

4.14 Residues. The Contractor shall dispose of all residues from this project off base and IAW Federal, local, and base environmental laws and regulations. All excess Automatic Data Processing Equipment (ADPE) shall remain U.S government property and shall be removed and retained as spares or shall be disposed of on base IAW the 21 CS/SCX.

4.15 Contractor Furnished Materials. The Contractor shall furnish all materials for this project, except the equipment and/or hardware which is currently owned or leased by the government. Material and/or equipment specified by the Contractor must interface properly with existing government equipment that has already been determined to be reutilized. Unless otherwise specified, the Contractor shall provide copies of COTS technical or equipment manuals and warranty documentation and procedures for Contractor-furnished end-item system equipment maintenance. The Contractor shall transfer warranties to the Government at project acceptance.

4.16 Warranty. The Contractor shall provide warranty services for workmanship deficiencies and installed equipment for a minimum period of one (1) year. The warranty period shall start from the date of final acceptance. The Contractor shall provide written procedures and required information for warranty services in the final acceptance form or as an attachment to the final acceptance form at or prior to site acceptance. This information shall include, but is not limited to, written confirmation of the warranty period and phone numbers and contact information & procedures for technical support, troubleshooting assistance, and replacement of faulty equipment.

4.17 Manuals and Practice. The Contractor shall provide the 21 CS/SCX with the latest version of operation, installation, and maintenance manuals and practices as provided by the OEM with all new equipment installed for this project.

4.18 Quality Assurance. The Contractor shall provide a Quality Control Plan 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). Government personnel reserve the right to perform inspections of the Contractor's work during any and all phases of the installation.

4.19 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 IAW CDRL A002. The Contractor shall establish a preliminary project schedule/plan and submit with the technical proposal.

4.20 Integrated Product Team (IPT). The IPT members shall be identified for this project. The Contractor shall chair a weekly IPT meeting that includes the Contractor representatives, Government Contracting Officer (CO), CSI-B, 38 ES Project Manager, 21 CS/SCX Project Manager, 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 IAW CDRL A004.

4.21 Weekly Status Reports. The Contractor shall prepare a Weekly Status Report and distribute IAW CDRL A003. 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. The Status Report and meeting agenda may be combined as long as the resulting report contains all the required elements and sufficient detail to serve as project record.

4.22 As-Built Drawings. The Contractor shall provide as-built drawings in electronic format in Visio and PDF formats IAW CDRL A001. The drawing shall depict the details of entire premises wiring/ISP infrastructure upgrade, including but not limited to CR location, drop locations, drop outlet number, rack elevation, pathway, labeling, cabling, wiring, cross-connections, patch panels, and grounding.

4.23 Installation Test Plan. The Contractor shall provide a test plan as to how the system shall be pre-tested, in-progress-tested, post-tested and cut-over plan to demonstrate to the Government 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 IAW CDRL A005. The Contractor shall test the system to demonstrate its proper performance to the Government quality assurance representative. These tests shall be accomplished prior to the system being placed into service.

4.24 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.

4.25 Final Acceptance. The Contractor shall schedule a final project walk-through with the base POC. This should be scheduled 5 calendar days prior to acceptance.

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

CDRL	Data Item Title	Data Item Title
A001	As Built	DI-DRPR-80151A/T
A002	Work Schedule	DI-MISC-81382/T
A003	Status Report	DI-MGMT-80368A
A004	Meeting Minutes	DI-ADMIN-81505/T
A005	Cutover and Test Plan	DI-NDTI-80566A/T
A006	Test Report	DI-QCIC-80512

Table 1. Contract Data Requirement List (CDRL)

5. GOVERNMENT-FURNISHED PROPERTY, EQUIPMENT, AND SERVICES. The

Contractor shall coordinate to identify and ensure all requirements to be provided by the Government prior to implementation. The Government shall provide responsibilities, allied support, and furnished equipment as necessary, include but not limited to:

• Provide floor plan drawing of B350

APPENDIX A. APPLICABLE DOCUMENTS AND STANDARDS

The Contractor shall comply with all military and commercial standards where applicable. Other commercial standards may apply to individual projects and will be stated in individual task orders. In the event of a conflict between a commercial document and a Federal or Military Standard, the Federal or Military Standard shall take precedence. It is the Contractor's responsibility to identify and obtain applicable standards proposed for the project in the Performance Work Statement (PWS).

The following tables are not all-inclusive lists of standards. The contractor shall obtain and comply with any other applicable manuals not identified in these tables that would be required to meet industry standards.

NUMBER	TITLE	WEBSITE OR LOCATION
OSHA	Occupational Safety and Health Administration (OSHA)	http://www.osha.gov
OSHA CFR 29 Part	Telecommunications	
1910-268 - (1988)		
EPA	Environmental Protection Agency (EPA)	http://www.epa.gov/
EPA	EPA Rules, Regulations, and Legislation	
DODD 5220.22	DOD Industrial Security Program Directive	
DOD JTA ver. 4	Department of Defense Joint Technical Architecture	
AFI 31-101	The Air Force Installation Security Plan	

Table A-1. Federal Government Standards

	Table A-2.	Military	Standards
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NUMBER	TITLE
MIL-STD-188-154A	Subsystem, Equipment, and Interface Standards for Common Long Haul
	and Tactical Telecommunications Control Facilities
MIL-STD-188-124B	Grounding, Bonding and Shielding for Common Long Haul/Tactical
	Communications Systems
MIL-HDBK 419A,	Grounding, Bonding, and Shielding for Electronic Equipments and Facilities
Vol. I and II	
MIL-HDBK-232A	Red/Black Engineering Installation Guidelines
MIL-HDBK-411B	Power and the Environment for Sensitive DoD Electronic Equipment
AFI 32-1065	Grounding Bonding and Shielding for Electronic Equipment and Facilities
AFI 91-203	Air Force Consolidated Occupational Safety Instruction
MIL-HDBK-1857	Grounding, Bonding and Shielding Design Practices
MIL-HDBK-454B	General Guidelines for Electronics Equipment
Local Standards	Peterson SFB Construction Standards

(Copies of the above documents may be obtained from the Naval Publications and Forms Center (NPFC 105), 5801 Tabor Ave, Philadelphia PA 19120.)

NUMBER	TITLE	WEBSITE OR LOCATION
BICSI TDM	Building Industry Consulting Service	http://www.bicsi.org/
Manual	International, Inc. (BICSI) Telecommunications	
	Distribution Methods (TDM) Manual	
NFPA 70	National Fire Protection Association (NFPA)	http://www.nfpa.org/
	National Electric Code (NEC)	
NFPA 72	National Fire Alarm Code	
EIA/ECA-310-E	Racks, Panels and Associated Equipment	http://www.eia.org/
		http://www.tiaonline.org/
TIA-526-7	Measurement of Optical Power Loss of Installed	
TIA 52(14 D	Single-mode Fiber Cable Plant	
11A-526-14-B	Optical Power Loss Measurement of Installed	
ANGL/TIA 569.0 D	Generic Telescommunications Cabling for	
ANSI/11A 308.0-D	Generic Telecommunications Cabling for	
ANSI/TIA 568 1 D	Commercial Building Telecommunications	
ANSI/11A-300.1-D	Cabling Standard	
ANSI/TIA-568 2-D	Balanced Twisted Pair Telecommunications	
711(51/11/1 500.2 D	Cabling and Components Standard	
ANSI/TIA-568.3-D	Optical Fiber Cabling Components Standard	
ANSI/TIA 569-E	Telecommunications Pathways and Spaces	
	Standard	
ТІА-570-С	Residential Telecommunications Infrastructure	
	Standard	
TIA-598-C	Optical Fiber Cable Color Coding	
ANSI/TIA-606-C	Administration Standard for the	
	Telecommunications Infrastructure of	
	Commercial Buildings	
TIA/EIA-607-D	Generic Telecommunications Grounding and	
	Bonding (Earthing) for Customer Premises	
TIA-758-A	Customer-owned Outside Plant	
	l elecommunications Infrastructure	
ANSI/11A-862-C	Structured Cabling Infrastructure Standard for	
ANGL/TIA 042 D	Talagent Building System	
ANSI/11A-942-D	Data Centers	
ANSI/NECA/BICSI	Data Center Design and Implementation Rest	
-002	Practices	
RUS Bulletin	Flectrical Protection Fundamentals	
1751F-801		
RUS Bulletin	RUS Standard for Acceptance Tests and	
1753F-201 (PC-4)	Measurements of Telecommunications Plant	
RUS Bulletin	REA Specification for Terminating Cables	
1753F-207 (PE-		
TIA-604 Series	Fiber Optic Connector Intermateability Standard	
	(FOCIS)	

Table A-3. Commercial Standards and Manuals

APPENDIX B. LAN FACEPLATE AND PATCH PANEL LABELING STANDARDS

B.1 LAN Faceplate Labeling.

B.1.1 Two Position UTP Wall Plate.

ROOM Actual room number from the facility drawings at time of design.

TELECOM ROOM (TR) Actual TR or Equipment Room where the end of the wall plate cables terminate. In existing facilities with no TR numbers, the TR room identifier shall be floor number, room number where room number starts with the letter A with additional TR labeled B, C etc.

RACK #Actual Rack number that contains the patch panel where the cable terminates.PATCH PANEL #Actual patch panel number.PORT #'sActual port numbers in the patch panel.

The bottom position of the UTP wall plate shall be marked with the Room Number that the wall plate is installed. This information is reflected in the site cable plan.

Top Position Example:

110-1-1-1, 2 TR 110 Rack # 1 Patch Panel # 1 Port #'s 1, 2 (On the patch panel)

Bottom Position Example:

32 = Room Number (Actual room # from the cable plan and facility drawings at time of design)

Top Position Example: (no comm. room identifier)

1A-1-1-1, 2 = TR 1A, Rack # 1, Patch Panel # 1, Port #'s 1, 2 (On the patch panel)



Example of a Second Dual Data Outlet Located in room 32 and terminating in TR 110, Rack # 1, Patch Panel # 1 and starting in port # 3 of the patch panel.



Figure B-1. Two-Position Wall Plate Numbering Scheme

B.1.2 Four Position UTP Wall Plate.

ROOM Actual room number from the facility drawings at time of design.

TELECOM ROOM (TR) Actual TR or Equipment Room where the end of the wall plate cables terminate. In existing facilities with no Telecom Room (TR) numbers the TR room identifier shall be floor number, room number where room number starts with the letter A with additional TR labeled B, C etc.

RACK #Actual Rack number that contains the patch panel where the cable terminates.PATCH PANEL #Actual patch panel number.PORT #'sActual port numbers in the patch panel.

The bottom position of the UTP wall plate shall be marked with the Room Number that the wall plate is installed. This information is reflected in the site cable plan.

Top Position Example:

110-1-1-1, 2, 3, 4 TR 110 Rack # 1 Patch Panel # 1 Port #'s 1,2,3,4 (On the patch panel)

Bottom Position Example:

32 = Room Number (Actual room # from the cable plan and facility drawings at time of design)

Top Position Example: (no comm. room identifier)

1A-1-1-1, 2, 3, 4 = TR 1A, Rack # 1, Patch Panel # 1, Port #'s 1,2,3,4 (On the patch panel)



Figure B-2. Four-Position Wall Plate Numbering Scheme

B.2 Patch Panel Labeling

Patch panel shall be labeled using the following format. Room number (actual room where user wall plate is located), face plate number, jack designator, 110-1 A B C D.



Figure B-3. Patch Panel Numbering Scheme





Figure C-1. B350 Zone Layout

PWS – Premises Wiring Upgrade Phase I, Zones #3 (1st Floor) and #6 (2nd Floor) in Building B350





Zone 3, 1st Floor: Total of 156 drop outlets/locations (152 1-data & 1-voice drop outlets, 2 2-data outlets, and 2 1-voice outlets) with total of 310 cable drops (154 voice drops and 156 data drops)



Zone 3, 1st Floor



Comm Room 1254 for Zone 3, 1st Floor. All data and/or voice drops in Zone 3 will homerun to Comm Room 1254 and terminate in the existing vacant 2-post racks



New wall-mount Cat-6 data drop outlet replacing the existing one, where X is the number of new data drops per outlet



New floor-mount Cat-6 data drop outlet replacing the existing one, where X is the number of new data drops per outlet



New wall-mount Cat-6 voice drop outlet replacing the existing one, where Y is the number of new voice drops per outlet



New wall-mount Cat-6 voice and data drop outlet replacing the existing one, where X and Y are the number of new data drops and new voice drops respectively per outlet



New floor-mount Cat-6 voice and data drop outlet replacing the existing one, where X and Y are the number of new data drops and new voice drops respectively per outlet

Existing wire mesh cable tray



Figure C-2. B350 1st Floor Zone #3 Comm Room 1254 with 2-Post Rack Layout



Zone 4, 2nd Floor

X

Comm Room 2126 for Zone 4, 2nd Floor. All data and/or voice drops in Zone 4 will homerun to Comm Room 2126 and terminate in the newly installed 2-post racks

New wall-mount Cat-6 data drop outlet replacing the existing Δ one, where X is the number of new data drops per outlet

 $\sum_{\mathbf{x}}$ New floor-mount Cat-6 data drop outlet replacing the existing one, where X is the number of new data drops per outlet

New wall-mount Cat-6 data drop outlet addition, where X is the number of new data drops per outlet

New ceiling-mount Cat-6 data drop outlet addition, where X is the number of new data drops per outlet

New wall-mount Cat-6 voice drop outlet replacing the existing one, where Y is the number of new voice drops per outlet

 $\Delta_{\mathbf{x}}$

New wall-mount Cat-6 voice and data drop outlet replacing the Δ existing one, where X and Y are the number of new data drops X,Y and new voice drops respectively per outlet

New floor-mount Cat-6 voice and data drop outlet replacing

Δ the existing one, where X and Y are the number of new data X,Y drops and new voice drops respectively per outlet



New wall-mount Cat-6 voice and data drop outlet addition, where X and Y are the number of new data drops and new voice drops respectively per outlet

Existing wire mesh cable tray

Figure C-3. B350 2nd Floor Zone #4 Cat-6 Premises Wiring Upgrade with Drop Layout

Zone 4, 2nd Floor: Total of 109 drop outlets/locations (93 1-data & 1-voice drop outlets, 1 5-data & 1-voice outlet, 5 3-data & 1-voice outlets, 8 2-data outlets, 1 1-data outlet, and 1 1-voice outlet) with total of 230 cable drops (100 voice drops and 130 data drops)



Figure C-3. B350 2nd Floor Zone #4 Comm Room 2126 with 2-Post Rack Layout



Figure C-4. B350 2nd Floor Zone #5 Cat-6 Premises Wiring Upgrade with Drop Layout



Figure C-4. B350 2nd Floor Zone #5 Comm Room 2030 with 2-Post Rack Layout



Figure C-5. B350 2nd Floor Zone #6 Cat-6 Premises Wiring Upgrade with Drop Layout

Zone 6, 2nd Floor

X

Δ

x

Δ

X,Y

X,Y

 Δ

X,Y

- Comm Room 2243 for Zone 6, 2nd Floor. All data and/or voice drops in Zone 6 will homerun to Comm Room 2243 and terminate in the existing vacant 2-post racks
- New wall-mount Cat-6 data drop outlet replacing the existing one, where X is the number of new data drops per outlet
- New floor-mount Cat-6 data drop outlet replacing the existing one, where X is the number of new data drops per outlet
- New wall-mount Cat-6 data drop outlet addition, where X is the number of new data drops per outlet
- New wall-mount Cat-6 voice drop outlet replacing the existing one, where Y is the number of new voice drops per outlet
- New wall-mount Cat-6 voice and data drop outlet replacing the existing one, where X and Y are the number of new data drops and new voice drops respectively per outlet
- New floor-mount Cat-6 voice and data drop outlet replacing the existing one, where X and Y are the number of new data drops and new voice drops respectively per outlet
- New wall-mount Cat-6 voice and data drop outlet addition, where X and Y are the number of new data drops and new voice drops respectively per outlet
- Existing wire mesh cable tray

Zone 6, 2nd Floor: Total of 176 drop outlets/locations (161 1-data & 1-voice drop outlets, 6 6-data outlets, 5 2-data outlets, and 4 1-voice outlets) with total of 372 cable drops (165 voice drops and 207 data



Figure C-5. B350 2nd Floor Zone #6 Comm Room 2243 with 2-Post Rack Layout

APPENDIX D. LIST OF ACRONYMS

AC	Alternating Current
ADPE	Automatic Data Processing Equipment
SFB	Air Force Base
AFSSS	Air Force Systems Security Instruction
ANSI	America National Standards Institute
BCE	Base Civil Engineering
BICSI	Building Industry Consulting Service International
BSO	Base Safety Office
Cat-3/5/6	Category 3/5/6
CDRL	Contract Data Requirement List
CE	Civil Engineer
CFE	Contractor-Furnished Equipment
CFP	Contractor-Furnished Property
CO	Contracting Officer
CR	Communications Room
COTS	Commercial off the Shelf
CS	Communication Squadron
CSI-B	Cyberspace Integrator – Base
CUI	Controlled Unclassified Information
DOD	Department of Defense
ECA	Electronic Components, Assemblies, Equipment & Supplies Association
ECMRA	Enterprise-wide Contractor Manpower Reporting Application
EFI&T	Engineer, Furnish, Install, and Test
EIA	Electronic Industries Alliance
EMT	Electrical Metallic Tubing
EOL	End of Life
EOS	End of Service
EPA	Environmental Protection Agency
FOC	Fiber Optic Cable
FODP/FOPP	Fiber Optic Distribution Panel/Fiber Optic Patch Panel
FOUO	For Office Use Only
FY	Fiscal Year
GRE	Government Re-use Equipment
HQ	Headquarters
IAW	In Accordance With
IPT	Integrated Process Team
ISP	Inside Plant
JTA	Joint Technical Architecture
LAN	Local Area Network
MIL-HDBK	Military Handbook
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electric Manufacturers Association
NETCENTS	Network Centric Solution

NIPRNet Non-classified Internet Protocol (IP) Router Network

NSTISSAM	National Security Telecommunications and Information Systems Security
	Advisory Memorandum
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PDF	Portable Document Format
PDU	Power Distribution Unit
PM	Project Manager
POC	Point of Contact
POE	Power over Ethernet
REA	Rural Electrification Administration
RUS	Rural Utilities Service Bulletin
SCX	Plans and Resources Flight
SFP	Small Form-Factor Pluggable
SIPRNet	Secret Internet Protocol (IP) Router Network
PWS	Performance Work Statement
TDM	Telecommunications Distribution Methods
TIA	Telecommunication Industry Association
TGB	Telecommunication Grounding Busbar
TR	Telecom or Telecommunications Room
U or RU	Unit or Rack Unit
UL	Underwriters Laboratories
UPS	Uninterruptable Power Supply
UTP	Unshielded Twisted Pair