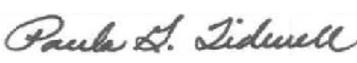


SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, AND 30				1. REQUISITION NUMBER ANTV0022720001		PAGE 1 OF 64	
2. CONTRACT NO. GS00Q12NSD0013		3. AWARD/EFFECTIVE DATE 29-Sep-2012		4. ORDER NUMBER W911RQ-12-F-0112		5. SOLICITATION NUMBER	
7. FOR SOLICITATION INFORMATION CALL:		a. NAME				b. TELEPHONE NUMBER (No Collect Calls)	
9. ISSUED BY RED RIVER ARMY DEPOT DIRECTORATE FOR CONTRACTING 100 JAMES CARLOW DRIVE BLDG 431 TEXARKANA TX 75507-5000 TEL: FAX:		CODE W911RQ		10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED <input type="checkbox"/> SET ASIDE: % FOR <input type="checkbox"/> SB <input type="checkbox"/> HUBZONE SB <input type="checkbox"/> 8(A) <input type="checkbox"/> SVC-DISABLED VET-OWNED SB <input type="checkbox"/> EMERGING SB SIZE STD: 1500 NAICS: 517110		11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/> 13b. RATING 14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP	
15. DELIVER TO RED RIVER ARMY DEPOT MICHAEL SHERIDAN M/F BLDG 184 100 JAMES CARLOW DRIVE TEXARKANA TX 75507-5000		CODE W911RQ		16. ADMINISTERED BY LEOLA LIGGINS PHONE: 903-334-2330 FAX: 903-334-4141 LEOLA.LIGGINS.CIV@MAIL.MIL TEXARKANA TX 75507-5000		CODE W911RQ	
17a. CONTRACTOR/OFFEROR HARRIS IT SERVICES CORPORATION BRAD STEVENS 21000 ATLANTIC BLVD STE 300 DULLES VA 20166-2496 TEL. 703-483-8816		CODE 0HD54 FACILITY CODE		18a. PAYMENT WILL BE MADE BY DFAS COLUMBUS DFAS - ROCK ISLAND / JAIQBAC ATTN: ROCK ISLAND PO BOX 182316 COLUMBUS OH 43218-2316		CODE HQ0303	
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER				18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a. UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM			
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/ SERVICES			21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	SEE SCHEDULE						
25. ACCOUNTING AND APPROPRIATION DATA See Schedule					26. TOTAL AWARD AMOUNT (For Govt. Use Only) \$4,796,336.51		
<input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1. 52.212-4. FAR 52.212-3. 52.212-5 ARE ATTACHED.				ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED			
<input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED.				ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED			
28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES <input type="checkbox"/> TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.				29. AWARD OF CONTRACT: REFERENCE <input type="checkbox"/> OFFER DATED . YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:			
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)		31c. DATE SIGNED	
						29-Sep-2012	
30b. NAME AND TITLE OF SIGNER (TYPE OR PRINT)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (TYPE OR PRINT) PAULA G. TIDWELL / CONTRACTING OFFICER TEL: 903-334-3480 EMAIL: paula.g.tidwell.civ@mail.mil			

**SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS
(CONTINUED)**

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/ SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
<p>SEE SCHEDULE</p>					

32a. QUANTITY IN COLUMN 21 HAS BEEN
 RECEIVED INSPECTED ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: _____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
--	-----------	---

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE
	32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
--	--------------------	---------------------------------	--	------------------

38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY
------------------------	------------------------	-------------

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT	42a. RECEIVED BY (<i>Print</i>)	
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	41c. DATE	42b. RECEIVED AT (<i>Location</i>)
		42c. DATE REC'D (<i>YY/MM/DD</i>)

Section SF 1449 - CONTINUATION SHEET

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001		1	Lot	\$4,796,336.51	\$4,796,336.51

INSTALL FIBER OPTIC CABLE
FFP

Install Fiber Optic Cable in accordance with Technical Data Package (TDP).

Only actual work performed will be paid.

CONTRACTOR MANPOWER REPORTING:

Harris IT Services Corporation Doing Business As Multimax, acknowledges by signing this order that they are aware of the requirements of Clause 52.000-4002, Contractor Manpower Reporting and agree to comply with the requirements in their entirety at no additional cost to the Government.

Period of Performance: 10/01/2012 through 09/30/2014 (730 Days)

FOB: Destination

MILSTRIP: ANTV0022720001

PURCHASE REQUEST NUMBER: ANTV0022720001

NET AMT

\$4,796,336.51

ACRN AA

CIN: ANTV00227200010001

\$4,796,336.51

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
------	---------------	----------	-----------------	-----

0001 POP 01-OCT-2012 TO N/A
30-SEP-2014

RED RIVER ARMY DEPOT
MICHAEL SHERIDAN
M/F BLDG 184
100 JAMES CARLOW DRIVE
TEXARKANA TX 75507-5000
903-334-4622
FOB: Destination

W911RQ

ACCOUNTING AND APPROPRIATION DATA

AA: 210203500006D 25FANTV000MIPR2LDAT0II980ZZII1020113
AMOUNT: \$4,796,336.51
CIN ANTV00227200010001: \$4,796,336.51

CLAUSES INCORPORATED BY FULL TEXT

52.000-4003 ISO 9001-2008 REGISTERED (Jan 2010)
Red River Army Depot, an ISO 9001-2008 registered industrial complex, is committed to quality.

52.000-4957 WIDE AREA WORKFLOW INFORMATION/INSTRUCTIONS - SERVICES (Jan 2012)
(TACOM)

To implement DFARS 252.232-7003, "ELECTRONIC SUBMISSION OF PAYMENT REQUESTS", Red River Army Depot uses Wide Area WorkFlow — Receipt and Acceptance (WAWF-RA) to electronically process vendor requests for payment. This application allows DoD vendors to submit and track invoices and receipt/acceptance documents electronically.

The contractor is required to use WAWF-RA when processing invoices and receiving reports under this order. Submission of hard copy DD250/invoices will no longer be accepted for payment.

The contractor shall register to use WAWF-RA at <https://wawf.eb.mil>. There is no charge to use WAWF. All questions relating to system setup and vendor training can be directed to the help desk at Ogden, UT. They can be reached at 1-866-618-5988 or 1-801-605-7095. Web-based training for WAWF is also available at <http://www.wawftraining.com/>. If you are new to WAWF, please visit our website at <https://redriver.army.mil>. Click on "Link to RRAD's Procurement" on the lower right. At the New Information for Vendors line, click on Access Information about Wide Area Workflow (WAWF). This will take you to the WAWF Getting Started Guide for Vendors. Print this guide for step by step instructions.

THE FOLLOWING CODES WILL BE REQUIRED TO ROUTE YOUR INVOICES THROUGH WAWF.

All codes are required for proper processing.

[X] Invoice as 2-in-1 (Services only)

[X] Contractor CAGE Code

[X] Pay D0DAAC: HQ0303

[X] Issue DoDAAC: W911RQ

[X] Admin D0DAAC: W911RQ

[X] Inspect by D0DAAC: W911RQ

[X] Service Acceptor D0DAAC: W911RQ

[X] Contracting Officer: W911RQ

****Leave the LPO field blank. Entries in this field may delay processing.****

Contractor: WAWF will prompt asking for “additional e-mail submission” after clicking “SIGNATURE”. The following E-Mail address MUST be input in order to prevent delays in processing:

Contracting Officer: Paula Tidwell, paula.g.tidwell.civ@mail.mil, 903-334-3480

Contracting Officer Representative: Michael Sheridan, michael.a.sheridan.civ@mail.mil, 903-334-4622

Contract Administrator: Leola Liggins, leola.liggins.civ@mail.mil, 903-334-2330

The paying office DoDAAC and mailing address will be located on the front of your award. You can track your payment information on the DFAS website at <http://www.dod.mil/dfas/contractorpay/myinvoice.html>. Your purchase order/contract number or invoice will be required to inquire status of your payment.

Questions concerning payment should be directed to the Defense Finance Accounting Services (DFAS) Centralized Customer Service Contact Center at 1-800-756-4571. Please have your order number and invoice ready when calling about payment status.

CLAUSES INCORPORATED BY FULL TEXT

52.211-4009 DELIVERIES TO RED RIVER ARMY DEPOT (RRAD) (Aug 2009)

Beginning August 10, 2009, all drivers will be required to schedule an appointment for delivery at least 24 hours in advance. On numerous occasions DDRT has seen an increase in the number of trucks arriving for delivery at the same time which resulted in trucks not being unloaded within the free time allotted. This increases costs in the form of detention charges to DOD.

Deliveries will be scheduled for Monday-Friday, 0700-1300. A copy of each bill needs to be emailed or faxed to the POC at CML (903)334-2208 or CML (903) 334-2881. POC's are available Monday-Saturday 0700-1730 with the exception of government holidays. For directions, please call CML (903) 334-3060. Trucks are to enter through the commercial carrier route entrance and are to report to Building 23 Truck Control, 30 minutes prior to their scheduled appointment. Carriers that arrive at Truck Control without appointments will be placed at the end of the day's schedule unless there is an earlier opening and will be worked /unloaded as soon as possible.

To schedule an appointment send an e-mail to ddrt-appt@dla.mil.

CLAUSES INCORPORATED BY FULL TEXT

52.212-4037 PERFORMANCE (Apr 1994)

Services to be performed at Red River Army Depot, Texarkana, TX.

Other: _____

CLAUSES INCORPORATED BY FULL TEXT

52.222-42 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 1989)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY: IT IS NOT A WAGE DETERMINATION
Employee Class Monetary Wage-Fringe Benefits

(End of Clause)

CLAUSES INCORPORATED BY FULL TEXT

52.222-4029 WAGE RATES (Jul 2005)

The attached schedule of Wage Rates No. **2005-2235, Latest Revision Apply** was authorized by the Secretary of Labor to be the prevailing wage rates for construction and maintenance contracts at Red River Army Depot, Bowie County, Texarkana, Texas. Any change of wage rates will be issued by addendum prior to opening of bids.

A copy of the Service Contract Act wage determination may be downloaded at website <http://www.wdol.gov>.

CLAUSES INCORPORATED BY FULL TEXT

52.222-4089 HOURS OF WORK (Apr 1994)

The hours of work on this contract will be from **0700 AM** (Central Time) until **1700 PM, Monday through Friday** (except holidays), unless other hours are specifically approved by the Contracting Officer.

CLAUSES INCORPORATED BY FULL TEXT

52.228-5 INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.232-99 PROVIDING ACCELERATED PAYMENT TO SMALL BUSINESS SUBCONTRACTORS (DEVIATION)(AUG 2012)

This clause implements the temporary policy provided by OMB Policy Memorandum M-12-16, Providing Prompt Payment to Small Business Subcontractors, dated July 11, 2012.

(a) Upon receipt of accelerated payments from the Government, the contractor is required to make accelerated payments to small business subcontractors to the maximum extent practicable after receipt of a proper invoice and all proper documentation from the small business subcontractor.

(b) Include the substance of this clause, including this paragraph (b), in all subcontracts with small business concerns.

(c) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

CLAUSES INCORPORATED BY FULL TEXT

52.233-3 PROTEST AFTER AWARD (AUG. 1996)

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule

or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

- (1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and
- (2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal at any time before final payment under this contract.
- (c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.
- (d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.
- (e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.
- (f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.236-4028 AMMUNITION AREA PROJECTS (Apr 1994)

Access to the Ammunition Limited Area by contractor employees in privately owned vehicles (POV) is not authorized and shall not be permitted. The contractor shall provide transportation to and from the work site in an authorized contractor's vehicle. Employees of contractors doing work in the Ammunition Limited Area will be required to park their POV in Parking Lots 5 and 13 outside the limited area.

CLAUSES INCORPORATED BY FULL TEXT

52.236-4031 SECURITY REGULATIONS (Apr 1994)

(a) All contractors, subcontractors, and their employees are responsible for complying with the following regulations:

(1) Items forbidden on the depot include "strike anywhere" matches, alcoholic beverages, narcotics, photographic equipment, unauthorized tools, firearms, explosives and illegal knives (stilettoes, switchblades, hook blades, and blades over three inches in length).

(2) Personnel will not retain passes and badges upon job completion or termination, enter depot in an intoxicated condition, fight, gamble, picket, or create a disturbance. Failure to return badges will cost your firm \$50.00 per badge.

(3) Contractor will ensure that all contractor employees comply with all applicable fire, safety, and security requirements and adhere to all applicable state and federal labor laws and regulations.

(b) General Instructions:

- (1) All depot traffic regulations will be observed.
- (2) Predetermined work routes will be followed with no deviation.
- (3) All personal vehicles and containers are subject to search and confiscation of unauthorized items while on the depot (with or without presence of owner).
- (4) Notorious misconduct off the depot may be sufficient grounds for denying entrance to the depot.
- (5) POV'S must have a minimum insurance coverage and state inspection sticker, in accordance with Texas State Laws.
- (6) All personnel will adhere to all depot fire, safety, security, and other applicable regulations.

52.236-4032 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS (Jan 2010)

(a) The contractor shall furnish all personnel and material necessary for the prevention of accidents, injury or damage to employees or equipment while operating on a Federal reservation. Also includes personnel and equipment necessary for the prevention of accidental damage to Government property, Federal employees or other U.S. Government contractor personnel.

(b) The contractor and his employees to include subcontractors and their employees, will comply with all Federal, state and local laws pertaining to traffic safety and safety of public rights of way. In addition, the contractor or his authorized agent will comply with the Occupational Safety and Health Act Parts 1910 and 1926, the U.S. Army Engineer Manual 385-1-1, Army Regulations, Red River Regulations 385-1, and the Uniform Code of Traffic Control Devices.

(c) Each contractor shall have a written contractors safety program and policy. In cases where the subcontractor has a written regulation for its employees, a copy of that regulation will be forwarded to the contractor for forwarding to the Contracting Officer, prior to commencement of work.

(d) Subcontractors and Employees. Each subcontractor shall be considered a contractor employee for purposes of this section.

(e) Warning signs, barricades, and detours. The contractor shall furnish and erect adequate warning signs, flashing lights, and barricades to properly control traffic movements around or through the construction site. The contractor shall provide and maintain any detours or crossovers necessary for the safety and convenience of traffic.

(f) Contractor and Employee Vehicles. Contractor vehicles must meet with current state safety regulations and an appropriate sticker affixed in the lower left corner of the windshield. Vehicles not meeting the state safety codes will not be allowed on RRAD. Those which have a safety inspection expire while on RRAD will be removed and properly recertified NLT 15 days prior to the expiration date. Vehicles found to be out of inspection date will be ordered off of the depot and the contractor decal removed. Vehicles found by RRAD Safety personnel to be unsafe for RRAD operations will be brought to the attention of the contractor who will either repair the vehicle or remove it.

(g) Contractors are responsible for their employees' conduct and their vehicles. Employees with unsafe vehicles will be required to remove them from RRAD until they can be repaired.

(h) Accidents, other than minor first aid injuries, should be reported to the COR and/or Contract Administrator who will inform Safety as appropriate. These are reportable on a Department of Army Form 285 when they occur on U.S. Federal property. .

(i) The Contracting Officer will notify the contractor in writing of any observed non-compliance with the foregoing provisions. The contractor shall, after receipt of such notice, immediately take corrective action. The Safety Manager may make direct contact with a contractor or his authorized representative for conditions of imminent danger to life or U.S. Government property. In such cases, the Contracting Officer will be immediately notified. In cases which have the potential for embarrassment to the U.S. Government, or Red River Army Depot, the Contracting Officer will notify the contractor verbally to be followed up by a written report of the situation and the action to be taken to correct it. If the contractor fails or refuses to promptly take corrective action, the Contracting Officer will issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of a claim for extension of time or for excess costs or damages by the contractor unless it was later determined that the contractor was in compliance.

52.236-4033 FIRE PREVENTION AND PROTECTION (Apr 1994)

The contractor shall comply with all fire prevention measures prescribed in the installation fire regulations, a copy of which is on file in the office of the Contracting Officer. A written fire permit shall be obtained from the installation fire marshall for use of open flame devices, such as: blowtorches, portable furnaces, tar kettles, or gas and electric welding and cutting equipment in, or within 15 feet of buildings. The contractor shall be liable for any fire loss to Government property attributable to negligence on the part of the contractor, including failure to comply with fire prevention measures prescribed by terms of this contract.

52.237-2 PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT, AND VEGETATION (APR 1984)

The Contractor shall use reasonable care to avoid damaging existing buildings, equipment, and vegetation on the Government installation. If the Contractor's failure to use reasonable care causes damage to any of this property, the Contractor shall replace or repair the damage at no expense to the Government as the Contracting Officer directs. If the Contractor fails or refuses to make such repair or replacement, the Contractor shall be liable for the cost, which may be deducted from the contract price.

(End of clause)

52.242-4004 ADMINISTERING CONTRACTING OFFICER (May 2011)

NAME: Paula G. Tidwell

ADDRESS: Red River Army Depot
100 James Carlow Drive
ATTN: CCTA-HDR
Texarkana, Texas 75507-5000

TELEPHONE: 903-334-3480

FAX: 903-334-4141

E-MAIL: paula.g.tidwell.civ@mail.mil

52.246-4001 INSPECTION AND ACCEPTANCE (Apr 1994)

Red River Army Depot
Texarkana, Texas

52.246-4002 PARTIAL SHIPMENTS (Apr 1994)

Partial shipments are authorized.

52.247-4049 PACKAGING & MARKING (Apr 1994)

Material is to be packaged and packed in a manner to afford adequate protection against damage during shipment from supply source to destination. Package and pack shall conform to the applicable carrier rules, regulations and tariffs and may be the industry standard commercial practice. All unit, intermediate and exterior packs shall, as a

minimum, be marked as follows by any means which provides legibility and durability: Federal Stock Number and/or Manufacturer's Part Number; Noun; Quantity; Purchase Order Number; Requisition Number; Mark for Bldg; and Ship To. Exterior shipping containers shall contain a packing list or other documentation setting forth contents.

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.212-7001 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS APPLICABLE TO DEFENSE ACQUISITIONS OF COMMERCIAL ITEMS (JUN 2012)

(a) The Contractor agrees to comply with the following Federal Acquisition Regulation (FAR) clause which, if checked, is included in this contract by reference to implement a provision of law applicable to acquisitions of commercial items or components.

 X 52.203-3, Gratuities (APR 1984) (10 U.S.C. 2207).

(b) The Contractor agrees to comply with any clause that is checked on the following list of Defense FAR Supplement clauses which, if checked, is included in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items or components.

(1) 252.203-7000, Requirements Relating to Compensation of Former DoD Officials (SEP 2011) (Section 847 of Pub. L. 110-181).

(2) 252.203-7003, Agency Office of the Inspector General (APR 2012)(section 6101 of Pub. L. 110-252, 41 U.S.C. 3509).

(3) 252.205-7000, Provision of Information to Cooperative Agreement Holders (DEC 1991) (10 U.S.C. 2416).

(4) 252.219-7003, Small Business Subcontracting Plan (DoD Contracts) (JUN 2012) (15 U.S.C. 637).

(5) 252.219-7004, Small Business Subcontracting Plan (Test Program) (JAN 2011) (15 U.S.C. 637 note).

(6)(i) 252.225-7001, Buy American and Balance of Payments Program (JUN 2012) (41 U.S.C. chapter 83, E.O. 10582).

(ii) Alternate I (OCT 2011) of 252.225-7001.

(7) 252.225-7008, Restriction on Acquisition of Specialty Metals (JUL 2009) (10 U.S.C. 2533b).

- (8) ___ 252.225-7009, Restriction on Acquisition of Certain Articles Containing Specialty Metals (JUN 2012) (10 U.S.C. 2533b).
- (9) ___ 252.225-7012, Preference for Certain Domestic Commodities (JUN 2012) (10 U.S.C. 2533a).
- (10) ___ 252.225-7015, Restriction on Acquisition of Hand or Measuring Tools (JUN 2005) (10 U.S.C. 2533a).
- (11) ___ 252.225-7016, Restriction on Acquisition of Ball and Roller Bearings (JUN 2011) (Section 8065 of Pub. L. 107-117 and the same restriction in subsequent DoD appropriations acts).
- 12) ___ 252.225-7017, Photovoltaic Devices (JUN 2012) (Section 846 of Pub. L. 111-383).
- 13)(i) ___ 252.225-7021, Trade Agreements (JUN 2012) (19 U.S.C. 2501-2518 and 19 U.S.C. 3301 note).
- (ii) ___ Alternate I (OCT 2011) of 252.225-7021.
- (iii) ___ Alternate II (OCT 2011) of 252.225-7021.
- (14) ___ 252.225-7027, Restriction on Contingent Fees for Foreign Military Sales (APR 2003) (22 U.S.C. 2779).
- (15) ___ 252.225-7028, Exclusionary Policies and Practices of Foreign Governments (APR 2003) (22 U.S.C. 2755).
- (16)(i) ___ 252.225-7036, Buy American Act—Free Trade Agreements—Balance of Payments Program (JUN 2012) (41 U.S.C. chapter 83 and 19 U.S.C. 3301 note).
- (ii) ___ Alternate I (JUN 2012) of 252.225-7036.
- (iii) ___ Alternate II (JUN 2012) of 252.225-7036.
- (iv) ___ Alternate III (JUN 2012) of 252.225-7036.
- (v) ___ Alternate IV (JUN 2012) of 252.225-7036.
- (vi) ___ Alternate V (JUN 2012) of 252.225-7036.
- (17) ___ 252.225-7038, Restriction on Acquisition of Air Circuit Breakers (JUN 2005) (10 U.S.C. 2534(a)(3)).
- (18) ___ 252.225-7039, Contractors Performing Private Security Functions (JUN 2012) (Section 862 of Pub. L. 110-181, as amended by section 853 of Pub. L. 110-417 and sections 831 and 832 of Pub. L. 111-383).
- (19) ___ 252.226-7001, Utilization of Indian Organizations, Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns (SEP 2004) (Section 8021 of Pub. L. 107-248 and similar sections in subsequent DoD appropriations acts).
- (20) ___ 252.227-7013, Rights in Technical Data--Noncommercial Items (FEB 2012), if applicable (see 227.7103-6(a)).
- (21) ___ 252.227-7015, Technical Data—Commercial Items (DEC 2011) (10 U.S.C. 2320).
- (22) ___ 252.227-7037, Validation of Restrictive Markings on Technical Data (JUN 2012), if applicable (see 227.7102-4(c))(10 U.S.C. 2321).
- (23) X 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports (MAR 2008) (10 U.S.C. 2227).

(24) ____ 252.237-7010, Prohibition on Interrogation of Detainees by Contractor Personnel (NOV 2010) (Section 1038 of Pub. L. 111-84)

(25) ____ 252.237-7019, Training for Contractor Personnel Interacting with Detainees (SEP 2006) (Section 1092 of Pub. L. 108-375).

(26) ____ 252.243-7002, Requests for Equitable Adjustment (MAR 1998) (10 U.S.C. 2410).

(27) ____ 252.246-7004, Safety of Facilities, Infrastructure, and Equipment For Military Operations (OCT 2010) (Section 807 of Pub. L. 111-84).

(28) ____ 252.247-7003, Pass-Through of Motor Carrier Fuel Surcharge Adjustment to the Cost Bearer (SEP 2010) (Section 884 of Pub. L. 110-417).

(29)(i) ____ 252.247-7023, Transportation of Supplies by Sea (MAY 2002) (10 U.S.C. 2631).

(ii) ____ Alternate I (MAR 2000) of 252.247-7023.

(iii) ____ Alternate II (MAR 2000) of 252.247-7023.

(iv) ____ Alternate III (MAY 2002) of 252.247-7023.

(30) ____ 252.247-7024, Notification of Transportation of Supplies by Sea (MAR (2000) (10 U.S.C. 2631).

(31) ____ 252.247-7027, Riding Gang Member Requirements (OCT 2011) (Section 3504 of Pub. L. 110-417).

c) In addition to the clauses listed in paragraph (e) of the Contract Terms and Conditions Required to Implement Statutes or Executive Orders--Commercial Items clause of this contract (FAR 52.212-5), the Contractor shall include the terms of the following clauses, if applicable, in subcontracts for commercial items or commercial components, awarded at any tier under this contract:

(1) 252.225-7039, Contractors Performing Private Security Functions (JUN 2012) (Section 862 of Pub. L. 110-181, as amended by section 853 of Pub. L. 110-417 and sections 831 and 832 of Pub. L. 111-383).

2) 252.227-7013, Rights in Technical Data--Noncommercial Items (FEB 2012), if applicable (see 227.7103-6(a)).

(3) 252.227-7015, Technical Data--Commercial Items (DEC 2011), if applicable (see 227.7102-4(a)).

(4) 252.227-7037, Validation of Restrictive Markings on Technical Data (JUN 2012), if applicable (see 227.7102-4(c)).

(5) 252.237-7010, Prohibition on Interrogation of Detainees by Contractor Personnel (NOV 2010) (Section 1038 of Pub. L. 111-84).

(6) 252.237-7019, Training for Contractor Personnel Interacting with Detainees (SEP 2006) (Section 1092 of Pub. L. 108-375).

(7) 252.247-7003, Pass-Through of Motor Carrier Fuel Surcharge Adjustment to the Cost Bearer (SEP 2010) (Section 884 of Pub. L. 110-417).

(8) 252.247-7023, Transportation of Supplies by Sea (MAY 2002) (10 U.S.C. 2631).

(9) 252.247-7024, Notification of Transportation of Supplies by Sea (MAR 2000) (10 U.S.C. 2631).

(End of clause)

H2. INSURANCE (Fixed Price Contract)

Pursuant to the requirements of the contract clause titled "Insurance-Work on a Government Installation", the contractor shall obtain and maintain at least the following kinds of insurance and minimum liability coverage during any period of contract performance:

a. Workmen's Compensation and occupational disease coverage as required by law except that, if this contract is to be performed in a state which does not require or permit private insurance, then compliance with the statutory or administrative requirements in any such state will be satisfactory. The required Workmen's Compensation Insurance shall extend to cover employers' liability for accidental bodily injury or death and for occupational disease with a minimum liability limit of \$100,000.

b. Comprehensive General Liability Insurance in the minimum limit of \$500,000 per occurrence for bodily injury liability.

c. Comprehensive Automotive Liability Insurance with minimum limits of \$200,000 per person and \$500,000 per occurrence for bodily injury, and a minimum limit of \$20,000 per occurrence for property damage.

L2. AMC-Level Protest Program

If you have complaints about this procurement, it is preferable that you first attempt to resolve those concerns with the responsible contracting officer. However, you can also protest to Headquarters, AMC. The HQAMC-Level Protest Program is intended to encourage interested parties to seek resolution of their concerns within AMC as an Alternative Dispute Resolution forum, rather than filing a protest with the Government Accountability Office or other external forum. Contract award or performance is suspended during the protest to the same extent, and within the same time periods, as if filed at the GAO. The AMC protest decision goal is to resolve protests within 20 working days from filing. To be timely, protests must be filed within the periods specified in FAR 33.103. If you want to file a protest under the HQAMC-Level Protest Program, the protest must request resolution under that program and be sent to the address below. All other agency-level protests should be sent to the contracting officer for resolution.

Headquarters U.S. Army Materiel Command
Office of Command Counsel-Deputy Command Counsel
4400 Martin Road
Rm: A6SE040.001
Redstone Arsenal, AL 35898-5000
Fax: (256) 450-8840 or
e-mail: amcprotests@conus.army.mil

The HQAMC-Level Protest Procedures are located at <http://www.amc.army.mil/pa/COMMANDCOUNSEL.asp>.

If Internet access is not available, contact the contracting officer or HQ, AMC to obtain the HQAMC-Level Protest Procedures.

TECHNICAL DATA PACKAGE (OUTSID

TECHNICAL DATA PACKAGE FOR THE

**INSTALLATION INFORMATION
INFRASTRUCTURE MODERNIZATION PROGRAM OUTSIDE
PLANT
AT
RED RIVER, TEXARKANA, TX**

08/06/2012

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TECHNICAL DATA PACKAGE FOR THE INSTALLATION INFORMATION INFRASTRUCTURE MODERNIZATION PROGRAM AT RED RIVER, TEXARKANA, TX

The network requirements for this Technical Data Package (TDP) were developed within the guidance set forth in the references contained in Appendix J of this TDP. This TDP and associated references may refer to small, medium, and large Ethernet switches or other specific technologies. The intent for these references is to serve as a guide for assisting the contractor in understanding the footprint and switch sizing available. Any reference, implied or otherwise, to any specific technologies, commercial products, processes, or services by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by the U.S. Government. The contractor-proposed solution can use any Unified Capabilities Requirements (UCR)-compliant technologies as long as the proposed solution meets the *Department of Defense (DoD) Unified Capabilities Requirements (UCR) 2008, Change 3*, requirements; is on the Unified Capabilities Approved Products List (UC APL); and meets the capabilities defined in this TDP.

1.0 INTRODUCTION

This TDP provides technical requirements and engineering details for implementation of the Installation Information Infrastructure Modernization Program (I3MP) at Red River, Texarkana, TX. This TDP is based on requirements to modernize current telecommunications network to meet I3MP Standards.

1.1 System Diagrams

Not Applicable.

1.2 Existing Network Systems Descriptions

1.2.1 Existing Outside Plant

Red River Army Depot's current OSP infrastructure consists of copper, single-mode (SM) fiber optic cable (FOC) and multimode (MM) FOC, most of which is installed in maintenance hole/duct systems, with some FOC and copper direct buried and aerial installed into some areas. Red River AD has one main communications node (MCNs) and three (3) area distribution nodes (ADNs) (one of which are co-located with the MCN and buildings with SM FOC installed). The MCN are located in Building 184. The ADNs are located in Buildings 184, 345, 595. The existing FOC connectivity between data nodes consists of a minimum of 24 strands of SM FOC. Most of the end-user buildings (EUBs) have existing 12-strand (ST), SM FOC already connected to core ADN sites.

1.2.2 Existing Network Transport

Not Applicable.

1.2.3 Existing Data Network

Not Applicable.

1.2.3.1 Existing Gateway Router/Top Level Architecture Gateway Router

Not Applicable.

1.2.3.2 Existing Data Core Layer/Main Communications Nodes

Not Applicable.

1.2.3.3 Existing Distribution Layer/Area Distribution Nodes

Not Applicable.

1.2.3.4 Existing Access Layer/End-User Buildings

Not Applicable.

1.2.3.5 Existing Network Management System

Not Applicable.

1.2.4 Existing Voice and/or UC Infrastructure

Not Applicable.

1.2.5 Existing Facilities Supporting infrastructure

Not Applicable.

1.2.6 Existing Wireless Infrastructure

Not Applicable.

1.3 Engineering Design Assumptions

Not Applicable.

1.3.1 Design Assumptions for the GW Router/TLA GW Router

Not Applicable.

1.3.2 Design Assumptions for the Core Layer\MCN

Not Applicable.

1.3.3 Design Assumptions for the Distribution Layer/ADN

Not Applicable.

1.3.4 Design Assumptions for the Distribution Legacy Devices

Not Applicable.

1.3.5 Design Assumptions for the Access Layer EUB

Not Applicable.

2.0 OSP Requirements

The contractor shall engineer, furnish, install, and test (EFI&T) the modernization and expansion of the OSP infrastructure to accomplish the tasks listed in this section. Sections of the infrastructure installed within one task may serve in other tasks or parts of other tasks. All OSP work shall comply with the *Technical Criteria for the Installation Information Infrastructure Architecture*, and the *United States Army Information Systems Engineering Command (USAISEC) Outside Plant Design and Performance Requirements (OSP DPR)* (refer to Appendix J). Appendix A of this TDP defines the task details, as well as special restrictions and requirements.

2.1 INFRASTRUCTURE

2.1.a Install infrastructure from building 345 along Third ST to Nema Cabinet-345.

The Contractor shall EFI&T nema cabinet, 1PVC4" conduit with 6-way fabric mesh, and any other equipment, material, and services necessary to provide connectivity along Third ST from Nema Cabinet-345 to Building 345 as designated in accordance with (IAW) layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001.

2.1.b Install infrastructure along Third ST from Nema Cabinet-345 to MH-29.

The Contractor shall EFI&T maintenance holes, 1PVC4" conduit with 6-way fabric mesh installed and any other equipment, materials and services necessary to provide connectivity between Nema Cabinet-345 and MH-29 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.c Install infrastructure along Third ST from building 412B to MH-15 at Avenue K.

The Contractor shall EFI&T maintenance holes, 1PVC4" conduit with 6-way fabric mesh and any other equipment, materials and services necessary to provide connectivity between building 412B and MH-15 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.d Install infrastructure along Avenue K from MH-16 to MH-25.

The Contractor shall EFI&T maintenance holes, 4PVC4” conduit with 6-way fabric mesh installed in 1 conduit, 1 conduit to require building and any other equipment, material and services necessary to provide connectivity along Avenue K from MH-16 to MH-25 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.e Install infrastructure along Fourth ST from MH-16 to MH-26.

The Contractor shall EFI&T maintenance holes, 4PVC4” conduit with 6-way fabric mesh installed in 1 conduit, 1 conduit to require buildings and any other equipment, material and services necessary to provide connectivity along Fourth ST from MH-410 to MH-446 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.f Install infrastructure from MH-31 along Eighth ST to connect to MH-22.

The Contractor shall EFI&T maintenance holes, 4PVC4” conduit with 6-way fabric mesh installed in 1 conduit, 1 conduit to require buildings and any other equipment, materials and services necessary to provide connectivity along Eighth ST from MH-31 to MH-22 in accordance with (IAW) layer REDR LATERALS in the drawing 48733TL.BA00001

2.1.g Install infrastructure from MH-31 to ADN Shelter-595.

The Contractor shall EFI&T maintenance holes, 4PVC4” conduit with 6-way fabric mesh installed in 1 conduit, 1 conduit to require buildings and any other equipment, material and services necessary to provide connectivity from MH-31 to ADN Shelter-595 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.h Install infrastructure along Avenue K from MH-31 to Nema Cabinet-499E.

The Contractor shall EFI&T placement of Nema Cabinet, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from MH-31 to Nema Cabinet-499E IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.k Install infrastructure along Avenue K from MH-15 to MH-14-1.

The Contractor shall EFI&T placement of maintenance holes, 4PVC4” conduit with 6-way fabric mesh installed in 1 conduit, 1 conduit to require building and any other equipment, material and services necessary to provide connectivity along Avenue K from MH-15 to MH-14-1 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.l Install infrastructure along Texas Avenue from MH-13 to Nema Cabinet-421.

The Contractor shall EFI&T placement of nema cabinet, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity along Texas Avenue from MH-13 to Nema Cabinet-421 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.m Install infrastructure along Texas Avenue from Nema Cabinet-421 to Nema Cabinet-314.

The Contractor shall EFI&T placement of maintenance hole, nema cabinet, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity along Texas Avenue from Nema Cabinet-421 to Nema Cabinet-314 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.n Install infrastructure along Texas Avenue from Nema Cabinet-314 to Building 184.

The Contractor shall EFI&T placement of maintenance holes, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity along Texas Avenue from Nema Cabinet-314 to Building 184 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.o Install infrastructure from Nema Cabinet-527 to Building 184.

The Contractor shall EFI&T placement of nema cabinet, maintenance holes, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-527 to Building-184 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.p Install infrastructure from Shelter-527 to Building 345.

The Contractor shall EFI&T placement of shelter, 1PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Shelter-527 to Building 345 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.q Install infrastructure along Avenue A from Shelter-527 to ADN Shelter-595.

The Contractor shall EFI&T placement of maintenance holes, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity along Avenue A from Shelter-527 to ADN Shelter-595 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.r Install infrastructure along Avenue I from Nema Cabinet-1 to MH-544.

The Contractor shall EFI&T placement of maintenance holes, 4PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-1 to MH-544 IAW layer on the following OSP drawing: 48733TL.BA00001

2.1.s Install infrastructure from Nema Cabinet-499E to Nema Cabinet-1174.

The Contractor shall EFI&T placement of nema cabinet, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-499E to Nema Cabinet-1174 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.t Install infrastructure from ADN Shelter-595 to MH-67.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit, 1PVC4” conduit to require buildings and any other equipment, materials and services necessary to provide connectivity from ADN Shelter-595 to MH-67 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.u Install infrastructure along North Patrol RD from MH-43 to Nema Cabinet-732.

The Contractor shall EFI&T placement of nema cabinet, maintenance holes, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity along North Patrol RD from MH-43 to Nema Cabinet-732 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.v Install infrastructure from MH-47 to MH-66.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit, 1PVC4” conduit to require buildings and any other equipment, materials and services necessary to provide connectivity from MH-47 to MH-66 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.w Install infrastructure from MH-67 to Nema Cabinet-G101.

The Contractor shall EFI&T placement of nema cabinet, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from MH-636 to Nema Cabinet-G101 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.x Install infrastructure from Nema Cabinet-G101 to Nema Cabinet-1174.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit, 1PVC4” conduit to require buildings and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-G101 to Nema Cabinet-1174 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.y Install infrastructure from MH-76 to MH-79.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit, 1PVC4” conduit to require buildings and any other equipment, materials and services necessary to provide connectivity from MH-76 to MH-77 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.z Install infrastructure from Nema Cabinet-G101 to MH-69.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-G101 to MH-69 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.aa Install infrastructure from MH-69 to MH-74.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit, 1PVC4” conduit to require buildings and any other equipment, materials and services necessary to provide connectivity from MH-69 to MH-74 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.ab Install infrastructure from Nema Cabinet-1174 to MH-79.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-1174 to MH-79 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.ac Install infrastructure from ADN 412B to Building 407A.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from ADN 412B to Building 407A IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.1.ad Install infrastructure from MH-18 to Building 493.

The Contractor shall EFI&T placement of 1PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from MH-18 to Building 493 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.ae Install infrastructure from MH-79 to Building-1169.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit, 1PVC4” conduit to require buildings and any other equipment, materials and services necessary to provide connectivity from MH-79 to Building-1169 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.1.af Install infrastructure from Nema Cabinet-1174 to MH-84.

The Contractor shall EFI&T placement of maintenance holes, 2PVC4” conduit and any other equipment, materials and services necessary to provide connectivity from Nema Cabinet-1174 to MH-84 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2 Cables

2.2.a Install SM FOC to building 184 from (1) Building 527 (144 ST SM FOC), (2) Nema Cabinet-314 (144 ST SM FOC), ,

2.2.a.1 The Contractor shall EFI&T 144 ST SM FOC, 6-way fabric mesh and any other equipment, materials and services needed to provide connectivity from MCN 184 (building 184) to Building 527 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.2.a.2 The Contractor shall EFI&T 144 ST SM FOC, 6-way fabric mesh and any other equipment, materials and services needed to provide connectivity from MCN 184 (building 184) to Nema Cabinet-314 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.2.b Install SM FOC to Nema Cabinet-1174 from (1) Nema Cabinet-499E (288 ST SM FOC),

2.2.b.1 The Contractor shall EFI&T 288 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from Nema Cabinet-1174 to Nema Cabinet-499E IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.c Install SM FOC to Nema Cabinet-499E from (1) Nema Cabinet-421 (144 ST SM

2.2.c.1 The Contractor shall EFI&T 144 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from Nema Cabinet-421 to Nema Cabinet-499E IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.2.c Install SM FOC to Nema Cabinet-345 from (1) Building 345 (288 ST SM FOC), (2) ADN Shelter-595 (144 ST SM FOC),

2.2.c.1 The Contractor shall EFI&T 288 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from Building 345 to Nema Cabinet-345 IAW layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.2.c.2 The Contractor shall EFI&T 144 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from ADN Shelter-595 to Nema Cabinet-1 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.d Install SM FOC to ADN Shelter-595 from (1) Shelter 527 (144 ST SM FOC),

2.2.d.1 The Contractor shall EFI&T 144 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from Shelter 525 to ADN Shelter-595 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.e Install SM FOC to MH-84 from (1) Nema Cabinet-1174 (24 ST SM FOC),

2.2.e.1 The Contractor shall EFI&T 24 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from Nema Cabinet-1174 to MH-84 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.f Install 12 ST SM FOC from (1) ADN Shelter-595 to buildings 551, 561, 562, 563, 571, 572, 573, 581, 582, 583, 591, 592, 593, 610, 612,614,616,618,620,624,626, 628, 630, 632, 634, 650, 652, 654, 656, 658, and 660.

2.2.f.1 The Contractor shall EFI&T 288 ST SM FOC, 144 ST SM FOC, 48 SM FOC, 12 ST SM FOC, 6-way fabric mesh, and any other equipment, material and services needed to provide connectivity between ADN Shelter-595 and buildings 551, 561, 562, 563, 571, 572, 573, 581, 582, 583, 591, 592, 593, 610, 612,614,616,618,620,624,626, 628, 630, 632, 634, 650, 652, 654, 656, 658, and 660 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.g Install 12 ST SM FOC from (1) ADN Shelter-595 to buildings 551, 561, 562, 563, 571, 572, 573, 581, 582, 583, 591, 592, 593, 610, 612,614,616,618,620,624,626, 628, 630, 632, 634, 650, 652, 654, 656, 658, and 660.

2.2.g.1 The Contractor shall EFI&T 288 ST SM FOC, 144 ST SM FOC, 48 SM FOC, 12 ST SM FOC, 6-way fabric mesh, and any other equipment, material and services needed to provide connectivity between ADN Shelter-595 and buildings 551, 561, 562, 563, 571, 572, 573, 581, 582, 583, 591, 592, 593, 610, 612,614,616,618,620,624,626, 628, 630, 632, 634, 650, 652, 654, 656, 658, and 660 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.h Install 12 ST SM FOC from (1) ADN 345 to buildings 909, 922, 935, 938, 939, 957, 1116, 1122, 1130, 1142, 1163, 1167, 1169.

2.2.h.1 The Contractor shall EFI&T 288 ST SM FOC, 144 ST SM FOC, 12 ST SM FOC, 6-way fabric mesh, and any other equipment, material and services needed to provide connectivity between ADN 345 and buildings 909, 922, 935, 938, 939, 957, 1116, 1122, 1130, 1142, 1163, 1167, 1169 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.i Install 12 ST SM FOC from (1) ADN 412B to buildings 416, 419, 420, 426, 427, 429, 436, 439, 448, 449.

2.2.i.1 The Contractor shall EFI&T 144 ST SM FOC, 12 ST SM FOC, 6-way fabric mesh, and any other equipment, material and services needed to provide connectivity between ADN 412B and buildings **416, 419, 420, 426, 427, 429, 436, 439, 448, 449**. IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.j Install SM FOC to (1) Nema Cabinet-732 from ADN 595 (144 ST SM FOC),

2.2.j.1 The Contractor shall EFI&T 144 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from ADN 595 to Nema Cabinet-732 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.k Install SM FOC to (1) Building 493 from MH-18 (12 ST SM FOC),

2.2.k.1 The Contractor shall EFI&T 12 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from MH-18 to Building 493 IAW layer REDR LATERALS on the following OSP drawing: 48733TL.BA00001

2.2.l Install SM FOC to (1) Building 407A from ADN 412B (48 ST SM FOC),

2.2.l.1 The Contractor shall EFI&T 48 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from ADN 412B to Building 407A layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

2.2.M Install SM FOC to (1) MH-14-1 from Building 407A (48 ST SM FOC),

2.2.l.1 The Contractor shall EFI&T 48 ST SM FOC, 6-way fabric mesh and other equipment, materials and services needed to provide connectivity from Building 407A to MH-14-1 layer CORE DUCTS on the following OSP drawing: 48733TL.BA00001

3.0 Inside Plant and ACCESS LAYER REQUIREMENTS

SEPARATE PROPOSAL PACKAGE

4.0 Network TRANSPORT REQUIREMENTS

Not Applicable.

4.1 Modernization and Expansion of the Transport Network

Not applicable.

5.0 CORE Network SYSTEMS

Not Applicable.

5.1 Modernization and Expansion of the Network's Core and Distribution Layers

Not Applicable.

6.0 Voice/Unified Capabilities REQUIREMENTS

Not Applicable.

6.1 Modernization and Expansion of the Voice/UC Network

Not Applicable.

6.2 Modernization of Voice Mail

Not Applicable.

6.3 Modernization of Automated Directory Attendant System

Not Applicable.

6.4 Modernization of Telecommunications Management System

Not Applicable.

7.0 secret Internet Protocol Router network

Not Applicable.

7.1 Modernization and Expansion of SIPRNet

Not Applicable.

8.0 Site Preparation

See Section 8.1.

8.1 New Communications Shelter.

The contractor shall EFI&T a new 10'X12'X10' communications shelter.

8.2 Modernization of the Heating, Ventilation, and Cooling in Building XX, Room XX

Not Applicable.

9.0 STAND-ALONE TASKS

The following tasks may be executed at multiple times at various locations as required during the fielding process.

9.1 OSP Stand-Alone Tasks

9.1.1 Maintenance Hole

The contractor shall engineer, furnish, and install (EF&I) the placement of a MH. The task shall include a new 6-foot-wide by 7-foot-high by 12-foot-long MH with a locking lid. This work shall include all the excavation, gravel, backfilling, and the disposal of spoils required to make a complete system in loose rock soil.

9.1.2 Conduit and Building Entrance

The contractor shall EF&I a conduit system from a MH into a building. The task shall include 500 feet of two (2) each 4-inch, Schedule 40 PVC conduits; 550 feet of one (1) each three-cell configurations of fabric-mesh innerduct placed through one conduit; mule tape in each conduit; warning tape, tracer wire, and core drills as required for the MH and the building entrance; and steel sleeves used above grade or to penetrate the walls or basement of the building. This work shall include all excavation and backfilling required to make a complete system in loose rock soil and the disposal of spoils.

9.1.3 Boring of Conduit

The contractor shall EF&I the boring to install four (4) each 4-inch conduits and cables for a 300-foot section. The installation method may be either the push and bore or directional boring method. Install the duct at a minimum depth of 5 feet below grade or the top rail IAW the *OSPDPR* or IAW this TDP, whichever is greater. This work shall include all excavation, back filling, and disposal of spoils required.

9.1.4 Cut and Resurface Asphalt

The contractor shall perform all actions required and provide all materials required to cut and replace 140 square feet (sq. ft.) of asphalt up to a depth of 6 inches. Actions include, but are not limited to, cutting the asphalt, removing and disposing the spoils, building

forms as required, replacing and compacting the base material, tack coating the cut edges, furnishing and placing new asphalt, and working and tooling the surface to match the original surface. The new asphalt shall be of the same type as was removed. Only use cold patch as a temporary measure, and do not use it as a permanent fix. Restore the road base to its original condition, or replace it with concrete.

9.1.5 Cut and Resurface Concrete

The contractor shall perform all actions required and provide all materials required to cut and replace 12 sq. ft. of reinforced concrete up to a depth of 6 inches. Actions include, but are not limited to, cutting the reinforced concrete, removing and disposing the spoils, building forms as required, replacing and compacting the base material, applying a bonding agent to the cut edge, furnishing and placing new reinforced concrete, and working and tooling the surface to match the original surface. The contractor shall attach the new concrete patch to the surrounding concrete with dowels to prevent settlement. Restore the road base to its original condition, or replace it with reinforced concrete.

9.1.6 Cut and Resurface Gravel

The contractor shall perform all actions required and provide all materials required to remove and replace 2,400 sq. ft. of gravel, 6 inches deep. Actions include, but are not limited to, cutting/digging the gravel, removing and storing the gravel, disposing the spoils, furnishing and placing the gravel, and working and tooling the surface to match the original surface. The new gravel shall be of the same type(s) as was removed. Restore the road base to its original condition. The contractor shall EFI&T weed-blocking fabric material under the new gravel.

9.1.7 Rock Cutting and Excavation

The contractor shall EF&I the cutting and excavation of hard material, such as reinforced concrete or solid rock, to a width of 24 inches and a depth of 28 inches for a 50-foot distance to install OSP conduit and/or cables. This work shall include all cutting, excavating, removing and disposing of the spoils, providing clean fill, back filling, and compacting required.

9.1.8 EFI&T 24-Port Fiber Optic Patch Panels

The contractor shall EFI&T one rack-mounted 24-strand, single-mode (SM) fiber optic patch panel (FOPP) to include a preterminated pigtail with connectors. The contractor shall splice the pigtails to 24 strands of FOC. The contractor shall provide eight (8) each SM, fiber, duplex patch cords each 10 feet in length.

9.1.10 EFI&T 24-Strand, SM FOC

The contractor shall EFI&T and label 600 feet of 24-strand SM indoor/outdoor-rated FOC in a new three-way, fabric-mesh innerduct in an existing 4-inch duct. Installation includes all actions and materials required to install the cable from point to point. This includes installing the cable in conduits, electrical metallic tubing (EMT), cable tray, raceway, and/or cable ladder.

9.1.11 EFI&T a New Fiber Splice Case

The contractor shall EFI&T a new splice case for FOCs. This includes all labor and materials to prepare the cable and install the case and the labeling of the cable.

9.1.12 EFI&T 24 Fusion Splices

The contractor shall EFI&T twenty-four (24) each fusion splices on SM FOCs, to include all labor and materials required to prepare the strands, accomplish the splice, and store and safeguard the splices. This includes the labeling of the cable.

9.2 ISP Stand-Alone Tasks

NOT APPLICABLE.

9.4 Voice/UC Network Stand-Alone Tasks

NOT APPLICABLE.

9.5 Facility Stand-Alone Tasks

9.5.1 Alternating Current Subpanel (100-Ampere, Single-Phase)

The contractor shall EFI&T a 100-ampere (amp), 120/240-volt-alternating-current (VAC), single-phase, alternating current (AC) electrical subpanel, to include a 100-foot feeder length, required breakers in the servicing panel, main breaker in the subpanel, and breakers to support the new load. The work shall be performed IAW the National Fire Protection Association (NFPA) 70, *National Electrical Code*® (NEC®).

9.5.2 AC Subpanel (100-Amp, Three-Phase)

The contractor shall EFI&T a 100-amp, 120/208-VAC, three-phase, AC electrical subpanel, to include a 100-foot feeder length, required breakers in the servicing panel, main breaker in the subpanel, and breakers to support the new load. The work shall be performed IAW the NFPA 70, *NEC*®.

9.5.3 AC Subpanel (200-Amp, Three Phase)

The contractor shall EFI&T a 200-amp, 120/208-VAC, three-phase, AC electrical subpanel, to include a 100-foot feeder length, required breakers in the servicing panel, main breaker in the subpanel, and breakers to support the new load. The work shall be performed IAW the NFPA 70, *NEC*®.

9.5.4 AC Circuit (30-Amp, Single-Phase)

The contractor shall EFI&T a 30-amp, 120/240-VAC, single-phase, AC electrical circuit, to include 50 feet of cable, required breakers in the servicing panel, conduit, outlets, and anything else required to prepare the device for use.

9.5.5 AC Circuit (30-Amp, Three-Phase)

The contractor shall EFI&T a 30-amp, 120/208-VAC, three-phase, AC electrical circuit, to include 50 feet of cable, required breakers in the servicing panel, conduit, outlets, and anything else required to prepare the device for use.

9.5.6 UPS (5-kilovoltampere)

The contractor shall EFIS&T a 5-kilovoltampere (kVA) uninterruptible power supply (UPS) with 30 minutes of battery at a 50-percent load, including all mounting hardware, configuration, and anything else required to make the device operational. The UPS shall be remotely monitored and managed by Simple Network Management Protocol Version 3 (SNMPv3) at the Element Management System (EMS).

9.5.7 UPS (2.2-kVA)

The contractor shall EFIS&T a 2.2-kVA UPS with 30 minutes of battery at a 50-percent load, including all mounting hardware, configuration, and anything else required to make the device operational. The UPS shall be remotely monitored and managed by SNMPv3 at the EMS.

9.5.8 Power Distribution

The contractor shall EF&I a 20-amp, 120-volt receptacle strip with a minimum of six (6) each receptacles, including overvoltage protection. The receptacle switch shall not include an on/off switch.

9.5.9 Telecommunications Grounding Busbar

The contractor shall EFI&T a copper, predrilled telecommunications grounding busbar (TGB) at least 0.25 of an inch thick, 2 inches wide, and 20 inches in length. The TGB shall be sized, installed, bonded, and grounded IAW the *Technical Criteria for the Installation Information Infrastructure Architecture*, Sections 2.6 and 3.18. Work shall include 100 feet of 1/0-American Wire Gauge (AWG) copper conductor to bond the TGB to the telecommunications main grounding busbar (TMGB).

9.5.10 Telecommunications Main Grounding Busbar

The contractor shall EFI&T a copper, predrilled TMGB at least 0.25 of an inch thick, 4 inches wide, and 20 inches in length. The TMGB shall be sized, installed, bonded, and grounded IAW the *Technical Criteria for the Installation Information Infrastructure Architecture*, Sections 2.6 and 3.18. Work shall include 100 feet of 3/0-AWG copper conductor to bond the TMGB to the main facility ground.

9.5.11 Telecommunication Ground Conductor (3/0-AWG)

The contractor shall EFI&T 50 feet of 3/0-AWG copper conductor to be used to ground equipment and racks to a TGB, or to be used as a grounding conductor for a TGB or TMGB, IAW the *Technical Criteria for the Installation Information Infrastructure Architecture*, Sections 2.6 and 3.18.

9.5.12 Telecommunication Ground Conductor (4/0-AWG)

The contractor shall EFI&T 25 feet of 4/0-AWG copper conductor to be used to ground equipment and racks to a TGB, or as a grounding conductor between a TGB and a TMGB, IAW the *Technical Criteria for the Installation Information Infrastructure Architecture*, Sections 2.6 and 3.18.

9.5.13 Telecommunication Ground Conductor (1/0-AWG)

The contractor shall EFI&T 25 feet of 1/0-AWG copper conductor to be used to ground equipment and racks to a TGB, or as a grounding conductor between a TGB and a TMGB, IAW the *Technical Criteria for the Installation Information Infrastructure Architecture*, Sections 2.6 and 3.18.

9.5.14 Telecommunications Room Passive Ventilation

The contractor shall EFI&T the installation of additional ventilation for one TR to improve airflow and reduce temperature buildup in the TR. The installation of passive ventilation consisting of a high-output air grill/louver and a low-input air grill/louver will accomplish the ventilation of the TR. Grills/louvers in TR perimeter walls or doors shall have tamper-proof mounting, be capable of securing against forced entry, and include man bars.

9.5.15 TR Fan-Assisted Ventilation

The contractor shall EFI&T the installation of additional ventilation for one TR to improve airflow and reduce temperature buildup in the TR. The installation of passive ventilation consisting of a high-output air grill/louver and a low-input air grill/louver shall accomplish the ventilation of the TR. The fan(s) shall have multiple fan speeds to give the ability to lower acoustic noise when the maximum airflow is not required. The fan(s) shall provide a maximum air flow of 450 cubic feet per minute and produce no more than 65 decibels of audible noise. Operation of the fan shall be by a manual on/off switch and a temperature sensor. Fans(s) and grills/louvers shall have tamper-proof mounting. Grills/louvers in the TR perimeter walls or doors shall secure against forced entry and include man bars.

9.5.16 TR Cooling

The contractor shall EFI&T the replacement of a ceiling-mounted, dedicated air conditioning unit for one TR to provide cooling in the TR. The work shall include new the air conditioning, exterior condenser on a concrete pad, mechanical piping, and electrical circuits. The new air conditioner may be either ceiling- or wall-mounted. The new air conditioner shall be sized at a nominal 1-ton of cooling capacity. Control of the air conditioning unit shall be by manual on/off switch and a temperature sensor. Additionally, the contractor shall install fan-assisted ventilation as a secondary backup to the dedicated air conditioner, including the fan(s), a high-output air grille/louver, and a low-input air grille/louver. The fan(s) shall have multiple fan speeds to give the ability to lower acoustic noise when the maximum airflow is not required. Grilles/louvers shall be manually operable. Grilles/louvers shall secure against forced entry and include man bars. The contractor shall assume the TR is located on the inside of the building, 300 feet from the exterior wall of the building. The contractor shall assume six core drills up to a 5.5-inch-diameter into 12-inch B&B walls.

APPENDIX A. OUTSIDE PLANT

A-1.0 MAINTENANCE HOLES

All new maintenance holes will be numbered and labeled IAW the Red River NEC's instructions and numbering plan.

A-2.0 NEMA CABINETS

All nema cabinets must be outdoor rated, (Modular Enclosure 42RU) height 78". They will be priced separately and the estimate is totaling \$3,200.00, including installation costs.

A-3.0 NEW CABLES

All new cables installed under this TDP will be numbered IAW the Red River NEC's instructions and numbering plan.

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APPENDIX B. INSIDE PLANT

B-1.0 ISP REQUIREMENTS

The ISP requirements, regardless of Core or EUB location, shall be implemented IAW the most recent versions of the *U.S. Army Installation and Campus Area Network Design Guide*, the *Technical Criteria for the Installation Information Infrastructure Architecture*, industry standards, and the current *UCR 2008, Change 3*, unless otherwise specified by the Government in this TDP. The IN detail drawings show the location and details of the TRs on a floor plan and the details of the cable routes, grounding, power circuit runs, associated work, and rack elevations, if applicable.

The Government has provided drawings and pictures (where available) with recommended equipment placement. The contractor shall determine exact locations of new equipment in coordination with the site point of contact (POC) and building tenant. The environment, existing equipment, cabling, power sources, grounding, tenant needs, noise produced by the equipment, safety, security, maintainability, equipment access, industry standards, Government standards, etc., must be taken into consideration. The Government will approve new equipment locations before work begins. To remain vendor- and technology-neutral, the Government has labeled "OPEN SPACE" (shown within racks and cabinets on the IN drawings) available for the contractor to place its electronics. Since the Government provides flexibility for designs in the drawings, the contractor shall EFIS&T any additional items, such as larger or additional racks, cabinets, shelf space, power, grounding, cabling, hardware, software, or any other items beyond those shown on the IN drawings to meet all the requirements of this TDP.

B-1.1 Power Outlets, Circuits, and Grounding

The contractor shall install all equipment IAW the *Technical Guide for I3A and I3MP Grounding and Bonding, Version 2.2*, the applicable ANSI/TIA/EIA standards, the *OSP DPR*, all local and national codes, and ARs.

The contractor shall ensure all power circuits and power outlets/receptacles are of the proper rating, amperage, quantity, and National Electrical Manufacturers' Association (NEMA) receptacle configuration to support the proposed solution during and after the burn-in period. All existing, dedicated AC circuits identified by the Government in the drawings are in use and are 120/240-volt-root-mean-square single-phase, 20-amp power circuits in a duplex, NEMA 5-15 or 5-20, receptacle configuration, unless otherwise specified. If the contractor's solution requires more circuits, different rating, amperage, quantity, and/or NEMA receptacle configuration, the contractor shall EFI&T all necessary power components to provide dedicated circuits to power the electronics and/or UPS and its required features properly. Components include, but are not limited to, wire, conduit, outlets, breakers, fuse panels, core drills, grounding, labeling, subpanels, and anything else required to provide dedicated circuits to the electronics and/or UPS. Properly label all new or reused circuits/breakers at the power distribution panel and at the receptacle. Ground the contractor-provided receptacles to the servicing power distribution panel through a dedicated, insulated, green-wire grounding conductor. The contractor shall notify the site POC if the contractor observes the power panel feeding the new circuit is non-compliant with any electrical requirements. The contractor shall be responsible for ensuring all power cords for electronics can reach their power source.

In many cases, the IN drawings show large grounding wires to the nearest power panel. The Government cannot open the power panels to survey the conductor wire sizes; therefore, large grounding wires are called out on the IN drawings. The contractor shall bid the size of the wires called out on the IN drawings but may reduce the size of the wire to meet NEC requirements after an electrician has verified the size of conductors in the power panel.

B-1.2 Task Dependencies

1.2.1 Equipment Hot-Swapping

If sufficient space for the new and old switch is not available, a hot-swap (new equipment for old) may occur with Government approval. Hot-swaps are not ideal, because they do not allow for a 30-day testing period; however, they may be necessary. The Government must approve any hot-swap, and coordinate it with the site POC and tenants. There are also instances in which rack space may be limited and the contractor may need to provide small tables or other equipment temporarily on which to place electronics during the burn-in period. The TRs in which this may be a requirement are dependent upon the contractor's solution and shall be determined using the Government-provided pictures and drawings.

1.2.2 Repositioning Existing Equipment

Whether placing new equipment in a new or existing rack, cabinet, or backboard, the contractor may reposition existing components as necessary to meet the design requirements. Prior coordination with and approval of the site POC is required.

1.2.3 Fiber Optic Riser Cabling

Select only new riser cabling and conduit, properly rated for their intended use, as required by this TDP. Install all new FOC on a cable ladder or protect it using metallic conduit or raceway. Flexible innerduct is an acceptable solution, but only on a limited basis, in locations where metallic enclosures are not practical. Do not use large patch cables/rip cords (longer than 20 feet) in place of risers, unless the Government approves such use.

1.2.4 Fiber Optic Cable Termination

The contractor shall terminate all FOC in the identified node and EUB. The site-preferred termination connectors for FOC on FOPPs are subscriber terminal (ST)-type connectors. The contractor shall fully populate all new FOPPs with ST-type connectors. The contractor shall use Ultra- or Angle-polished connectors with pre-manufactured pigtailed fusion spliced onto the OSP cable. The contractor shall terminate all FOC strands required in this TDP on rack-mounted FOPPs at the EUB and the node, unless otherwise specified on an IN drawing. The contractor shall terminate the FOC strands from the same cable sheath on a single FOPP, and the contractor shall not split strands from the same cable across FOPPs, unless the cable has a strand count higher than 144. If splitting FOC strands across FOPPs is necessary, the FOPPs shall be in the same rack. The contractor shall terminate core and distribution FOCs on separate FOPPs. The contractor shall protect all FOPP connectors and unused optical connectors (e.g., GBICs) from environmental particulates, such as dust and dirt.

1.2.5 Riser Maintenance Loops

All new riser fiber installed shall include a minimum, 10-foot maintenance/service loop at each end of the fiber run. The contractor shall secure, in close proximity to the FOPP, all

maintenance/service loops in which the contractor terminates the fiber. The contractor shall maintain the minimum cable bend radius.

1.2.6 Patch Cords

The contractor shall provide all necessary patch cords/jumpers (fiber and UTP) to ensure end-to-end connectivity. All provided cables shall meet the TIA/EIA standard. The contractor shall ensure all patch cords are of the proper length, media, and connector type. The cords shall be of sufficient length to accommodate moves within the same rack/cabinet, but shall not be of such length as to create a disorganized appearance. The contractor shall coordinate patch cord color schemes with the NEC prior to ordering the cords.

1.2.7 Racks and Cabinets

The contractor shall make reasonable efforts to install racks or cabinets that match the color and height of the existing cabinets or racks. All new equipment cabinets shall be lockable and keyed alike. The contractor shall account for and turn over all keys to the site POC. The contractor shall lock all cabinets after completing the work. The contractor shall submit cabinet and rack specifications to the Government prior to ordering. The contractor shall not order cabinets or associated equipment until the Government has approved its type, size, and location. All racks and cabinets shall have the correct number of posts and shall be sized to properly house, support, secure, and cool the proposed and existing equipment to be installed in the unit. The contractor shall ensure each new rack or cabinet secures to the floor or wall and has the proper rating to support the load that it will support.

The use of low-profile wall-mounted enclosures, ceiling-mounted enclosures, lock boxes, weather-resistant enclosures, and noise-dampening/acoustic rack enclosures is required in some locations, and such locations are identified on the IN drawings.

With the exception of low-profile wall-mounted enclosures, all new racks/cabinets shall maintain a minimum of 4-rack-unit spacing after the contractor installs all equipment in the rack/cabinet. All racks and cabinets shall have sufficient cable management systems, both vertical and horizontal, to maintain an organized appearance and shall include cable dressing.

1.2.8 User Connectivity

The contractor shall permanently label all new cables (to include patch cords), patch panels, terminals, etc., that are added, changed, or modified, including re-homed cables. The contractor shall label IAW the current ANSI/TIA/EIA 606-A-2002 standard and the NEC's existing labeling scheme. The contractor shall not use handwritten tags/labels. The contractor shall coordinate labeling of cables, outlets, and equipment with the NEC before any labeling takes place.

1.2.9 Labeling

Permanently label all new cables (to include patch cords) and patch panels, as well as any cables, patch panels, terminals, etc., that are added, changed, or modified, including re-homed cables. Perform labeling IAW the current ANSI/TIA/EIA 606-A-2002 standard and the NEC's existing labeling scheme. Do not use handwritten tags/labels. Coordinate the labeling of cables, outlets, and equipment with the NEC before any such labeling takes place.

1.2.10 Equipment Separation

All new electronic equipment and metallic cabling that carries Unclassified but Sensitive Internet Protocol Router Network traffic shall maintain a minimum of one meter of separation from any electronic equipment that transmits, processes, or stores classified information.

1.2.11 Cable Testing

The contractor shall ensure all cable (OSP cable, premise wiring, and patch cords), cable connections, splices, and terminations are installed IAW Government and industry standards. End-to-end testing shall be performed onsite on every strand/pair of all installed cable in this project IAW the *OSPDPR* and industry standards. The contractor shall perform open-ended testing on all cable pairs and strands installed by this effort in which the termination of only one end will occur. Test all cable “on the reel” prior to installation to verify cable functionality, and test again after final termination. Do not use factory test results to determine cable functionality before installation, as cable damage may occur during shipping/handling. The contractor may test all cable pairs/strands prior to re-homing/moving and shall test after work on that cable is completed. The contractor shall correct any problems with the cable. The contractor shall inform the Government of its intent to test, providing sufficient time for the Government to schedule to witness the testing. The contractor shall provide the Government with a hardcopy (in MS Word or .pdf) and softcopy of the test results and any software required to provide reading access to the test results. There shall also be a summary report included with the test results. Information on the summary sheet shall include, but is not limited to, the cable identification number, strand/pair, test result, and pass/fail. The contractor shall test all pairs/strands of existing cable to be re-terminated/re-homed prior to working on the cable, and then retest the cable once the work is completed. Document and report pairs/strands that fail initial testing (prior to working on the cable) to the NEC. All pair/strands that pass initial testing shall pass testing after the contractor has completed the work on the cable. The contractor is responsible for repairing any pairs/strands damaged during the re-homing/re-termination effort. If the contractor elects to reuse cables and or connections currently in-service, the contractor must include, in its cutover plan, how it plans to accomplish the testing required in this paragraph. During the testing, the Government may require the contractor to establish temporary connections to limit out-of-service time. The contractor shall test all cables that require re-termination before and after the re-termination.

1.2.12 EUB UPS

The contractor shall EFIS&T new UPSs to support the Access Layer electronics for momentary fluctuation and interruption events. These UPSs shall be of the kind in form and function as those currently used in many locations such as in buildings 416, 419, 426,427 and others. They are typically 1RU in vertical size and fit in standard cabinets.

The contractor shall EFIS&T all new UPSs to report alarms and provide status updates via SNMPv3 back to the EMS in the NEC. The contractor shall furnish, install, secure, and test (FIS&T) any software and licensing required to manage the new UPSs from the EMS workstation.

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APPENDIX C. TRANSPORT

Not Applicable.

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APPENDIX D. CORE NETWORK SYSTEMS

Not Applicable.

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APPENDIX E. VOICE/UNIFIED CAPABILITIES

Not Applicable.

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APPENDIX F. SECRET INTERNET PROTOCOL ROUTER NETWORK

Not Applicable.

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APPENDIX G. SITE PREPARATION

Not Applicable.

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APPENDIX H. THEATER/SITE-UNIQUE DESIGN CONSIDERATIONS

Not

Applicable.

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APPENDIX I. DRAWINGS, PICTURES, AND SUPPORTING DOCUMENTS

I-1.0 SUPPORTING DOCUMENTS

I-1.1 etc.

All drawings, pictures, and the BBL associated with this TDP will be send to Red River AD Officials.

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APPENDIX J. REFERENCES

Note: The version in effect at the time of this report's publication shall apply. The following publications are applicable to this TDP and/or have been cited herein.

J-1.0 U.S. GOVERNMENT PUBLICATIONS

- a. Assistant Secretary of Defense for Networks and Information Integration (ASD NII) DOD Chief Information Officer (CIO), *Department of Defense (DoD) Unified Capabilities Requirements 2008 (UCR 2008), Change 3*, September 2011.
- b. Joint Chiefs of Staff (JCS), Chairman, Joint Chiefs of Staff Instruction (CJCSI), CJCSI 6215.01C, *Policy for Department of Defense (DOD) Voice Networks with Real Time Services (RTS)*, 9 November 2007.
- c. DOD, DOD CIO, *Department of Defense Information Technology Standards Registry Baseline Release 10-3.0*, 1 December 2010.
- d. DOD, Department of Defense Instruction (DODI) 8100.3, *Department of Defense Voice Networks*, 16 January 2004.
- e. DOD, DODI 8500.2, *Information Assurance (IA) Implementation*, 6 February 2003.
- f. DOD, DODI 8510.01, *Department of Defense Information Assurance Certification and Accreditation Program (DIACAP)*, 28 November 2007.
- g. DOD, *Department of Defense Unified Capabilities Requirements 2008 (UCR 2008), Change 3*, September 2011.
- h. DOD, Unified Facilities Criteria (UFC) 3-520-01, *Interior Electrical Systems*, 3 February 2010.
- i. DOD, UFC 3-600-01, *Fire Protection Engineering for Facilities*, 26 September 2006. Change 1, 14 July 2009.
- j. Defense Information Systems Agency (DISA), *Internet Protocol Telephony & Voice over Internet Protocol Security Technical Implementation Guide, Version 2, Release 2*, 21 April 2006.
- k. DISA, *DOD Telecommunications and Defense Switched Network Security Technical Implementation Guide, Version 2, Release 3.4*, 15 July 2008.
- l. Headquarters, Department of the Army (HQDA), Army Regulation (AR) 25-1, *Army Information Management*, 4 December 2008.
- m. HQDA, AR 25-2, *Information Assurance*, 24 October 2007. Rapid Action Revision (RAR), 23 March 2009.
- n. HQDA, AR 190-16, *Physical Security*, 31 May 1991 (Chapter 5).
- o. HQDA, AR 190-51, *Security of Unclassified Army Property (Sensitive and Nonsensitive)*, 30 September 1993 (Chapter 3 and Appendix B).
- p. HQDA, AR 380-5, *Department of the Army Information Security Program*, 29 September 2000.

- q. HQDA, AR 415-15, *Army Military Construction and Nonappropriated-Funded Construction Program Development and Execution*, 12 June 2006.
- r. HQDA, DA Pamphlet (PAM) 190-51, *Risk Analysis*, 30 September 1993.
- s. U.S. Army Corps of Engineers (COE), Corps of Engineers Guide Specification 16710, *Premises Distribution System*, 1 August 2000. (Telephone System – Inside Plant)
- t. U.S. Army COE, Engineer Manual 385-1-1, *U.S. Army Corps of Engineers Safety and Health Requirements Manual*, 15 September 2008.
- u. U.S. Army COE, Standard Drawing (STD) 87-90-03, *Type FE6, Chain-link Fence with Barbed Wire on Single Outrigger*.
- v. USAISEC, Fort Detrick Engineering Directorate, *Technical Guide for I3A and I3MP Grounding and Bonding, Version 2.2*, September 2006.
- w. USAISEC, *Technical Criteria for the Installation Information Infrastructure Architecture*, February 2010.
- x. USAISEC, *Secret Internet Protocol Router Network (SIPRNet) Technical Implementation Criteria, Version 6*, October 2010.
- y. USAISEC, Enterprise Systems Engineering Directorate, TR No. AMSEL-IE-IS 08014, *I3MP Guide for Facilities Requirements of Core Communications Nodes*, July 2008.
- z. USAISEC, TR No. AMSEL-IE-TI 09-001-7A, *United States Army Information Systems Engineering Command (USAISEC) Outside Plant Design and Performance Requirements (OSP DPR)*, February 2009.
- aa. USAISEC, Technology Integration Center, TR No. ELIE-ISE-TI 10-001, *U.S. Army Installation and Campus Area Network Design Guide*, March 2010.
- bb. USAISEC, *U.S. Army Information Systems Engineering Command Design Guide for Transport of Digital Communications in Campus Area Networks*.
- cc. USAISEC, *Data Descriptor Dictionary, Version 7.0A*, 15 December 2011.
- dd. U.S. Department of Labor, Occupational Health and Safety Administration, Code of Federal Regulations 1910.268, *Telecommunications: Subpart R, Special Industries*.
- ee. U.S. General Services Administration, Federal Specification FF-L-2740A, *Locks, Combination*, 12 January 1997; Amendment 1, 25 May 2001.

J-2.0 NON-U.S. GOVERNMENT PUBLICATIONS

- a. ANSI J-STD-607-A-2002, *Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications*, October 2002.
- b. ANSI/EIA/Telecommunications Industry Association (TIA) 606-A-2002, *Administration Standard for Commercial Telecommunications Infrastructure*, May 2002.
- c. ANSI/Institute of Electrical and Electronics Engineers (IEEE) C2-2007, *National Electrical Safety Code (NESC), 2007 Edition*.
- d. ANSI/International Safety Equipment Association Z358.1-2009, *American National Standard for Emergency Eyewash and Shower Equipment*, 2009.

- e. ANSI/TIA/EIA 568-C.1, *Commercial Building Telecommunications Cabling Standard*, February 2009.
- f. ANSI/EIA 310-D-92, *Cabinets, Racks, Panels, and Associated Equipment*, September 1992.
- g. ANSI T1.105-2001, *Synchronous Optical Network (SONET) – Multiplex Structure, Rates, and Formats*.
- h. ANSI T1.105.03-2003, *Synchronous Optical Network (SONET) – Jitter and Wander at Network and Equipment Interfaces*.
- i. ANSI T1.105.06-2002 (Revised 2007), *Synchronous Optical Network (SONET) – Physical Layer Specifications*.
- j. ANSI T1.105.09-1996 (Revised 2008), *Synchronous Optical Network (SONET) – Network Timing and Synchronization*.
- k. ANSI T1.601-1992 (Revised 2004), *Integrated Services Digital Network (ISDN) - Basic Access Interface for Use on Metallic Loops for Application at the Network Side of the NT (Layer 1 Specification)*.
- l. EIA RS-232C, *Interface between Data Terminal Equipment and Data Circuit - Terminating Equipment Employing Serial Binary Data Interchange*.
- m. IEEE Standard 802.3ba-2010, *IEEE Standard for Information Technology – telecommunications and information exchange between systems – Local and metropolitan networks – Specific requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications*.
- n. **IEEE Standard 802.3af-2003, IEEE Standard for Local and Metropolitan Area Networks - IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications - Data Terminal Equipment (DTE) Power Via Media Dependent Interface (MDI), June 2003.**
- o. IEEE Standard 1100 (Emerald Book), *IEEE Recommended Practice for Powering and Grounding Electronic Equipment*, 2006.
- p. IEEE Standard 1187, *IEEE Recommended Practice for Installation Design and Installation of Valve-Regulated Lead-Acid Storage Batteries for Stationary Applications*, 2002.
- q. IEEE Standard 1188, *IEEE Recommended Practice for Maintenance, Testing, and replacement of the Valve-Regulated Lead-Acid Storage Batteries for Stationary Applications*, 2002.
- r. International Organization for Standardization/International Electrotechnical Commission (ISO/IEC)/IEEE 8802-15-4: 2010, *Information technology – Telecommunications and Information Exchange between Systems – Local and Metropolitan Networks – Specific Requirements*.

- s. International Telecommunication Union – Telecommunication Standardization Sector (ITU-T), ITU-T Recommendation G.655, *Characteristics of a Non-Zero, Dispersion-Shifted, Single-Mode Optical Fibre and Cable*, 1 November 2009.
- t. Internet Engineering Task Force (IETF), Request for Comments (RFC) 2819, *Remote Network Monitoring Management Information Base*, May 2000.
- u. IETF, RFC 3418, *Management Information Base (MIB) for the Simple Network Management Protocol*, 2 December 2005.
- v. IETF, RFC 5709, *OSPFv2 HMAC-SHA Cryptographic Authentication*, October 2009.
- w. IETF, RFC 5798, *Virtual Router Redundancy Protocol Version 3 for IPv4 and IPv6*, March 2010.
- x. NFPA, NFPA 70, *National Electrical Code® (NEC®)*, 2011 Edition.
- y. NFPA, NFPA 72, *National Fire Alarm and Signaling Code*, 2010 Edition.
- z. NFPA, NFPA 75, *Standard for the Protection of Information Technology Equipment*, 2009 Edition.
- aa. NFPA, NFPA 780, *Standard for the Installation of Lightning Protection Systems*, 2011 Edition.
- bb. NFPA, NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*, 2008 Edition.
- cc. National Electrical Manufacturers Association Standards Publication 250-2003, *Enclosures for Electrical Equipment (1000 Volts Maximum)*, 2003.

GLOSSARY. ACRONYMS AND ABBREVIATIONS

Note: Do not copy/paste a glossary from another document. The tech editor will create the glossary based on the acronyms within the TDP. This glossary was built from this TDP as an example.>

AC	alternating current
ADAS	Automated Directory Attendant System
ADN	area distribution node
amp	ampere
ANSI	American National Standards Institute
APL	Approved Products List
AR	Army Regulation
ASD	Assistant Secretary of Defense
ASLAN	Assured Services Local Area Network
AWG	American Wire Gauge
B&B	brick and block
BBL	Baseline Building List
CAT	category
CIO	Chief Information Officer
CJCSI	Chairman, Joint Chiefs of Staff Instruction
COE	Corps of Engineers
COPP	copper patch panel
CSMA/CD	Carrier Sense Multiple Access with Collision Detection
DIACAP	Department of Defense Information Assurance Certification and Accreditation Program
DISA	Defense Information Systems Agency
DOD	Department of Defense
DODI	Department of Defense Instruction
DTE	Data Terminal Equipment
EF&I	engineer, furnish, and install
EFI&T	engineer, furnish, install, and test
EFIS&T	engineer, furnish, install, secure, and test
EIA	Electronic Industries Alliance
EMS	Element Management System
EMT	electrical metallic tubing
EUB	end-user building
F&I	furnish and install
FOC	fiber optic cable

FOPP

fiber optic patch panel

Gb	Gigabit
GbE	Gigabit Ethernet
GBIC-LX	Gigabit Interface Converter-Long Transport
GW	gateway
HQDA	Headquarters, Department of the Army
HVAC	heating, ventilation, and cooling
I3MP	Installation Information Infrastructure Modernization Program
IA	information assurance
IAW	in accordance with
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
ISDN	Integrated Services Digital Network
ISO/IEC	International Organization for Standardization/International Electrotechnical Commission
ISP	inside plant
ITU-T	International Telecommunication Union–Telecommunication Standardization Sector
JCS	Joint Chiefs of Staff
kVA	kilovoltampere
L2	Layer 2
L3	Layer 3
Mbps	Megabits per second
MCN	main communication node
MDI	Media Dependent Interface
MH	maintenance hole
MIB	Management Information Base
NEC	Network Enterprise Center
NEC®	National Electrical Code®
NFPA	National Fire Protection Association
NII	Networks and Information Integration
NMS	Network Management System
OLT	Optical Line Termination
ONT	Optical Network Terminal
OSP	outside plant
OSPDPR	Outside Plant Design and Performance Requirements

PAM	pamphlet
PoE	Power over Ethernet
PVC	polyvinyl chloride
RAR	Rapid Action Revision
RFC	Request for Comments
RJ	registered jack
RTS	Real Time Services
SAT	System Acceptance Test
SIPRNet	Secret Internet Protocol Router Network
SM	single-mode
SNMPv3	Simple Network Management Protocol Version 3
SONET	Synchronous Optical Network
sq. ft.	square foot
STD	Standard Drawing
STIG	Security Technical Implementation Guide
TDP	Technical Data Package
TGB	telecommunications grounding busbar
TIA	Telecommunications Industry Association
TLA	Top Level Architecture
TMGB	telecommunications main grounding busbar
TMS	Telecommunications Management System
TR	telecommunications room
UC	Unified Capabilities
UCR	Unified Capabilities Requirements
UFC	Unified Facilities Criteria
UPS	uninterruptible power supply
USAISEC	United States Army Information Systems Engineering Command
UTP	unshielded twisted pair
VAC	volts alternating current
VoIP	Voice over Internet Protocol

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