

STATEMENT OF WORK

FTFA 21CB52, Install New Taxiway Edge Lights TW-G

DESIGN-BUILD

8-November-2022

PART 1 GENERAL

- 1.1 GENERAL INTENTION: Install flush mounted blue taxiway (TWY) edge lights (45 watts) on pavement, elevated blue taxiway lights (45 watts) in the grass to define the lateral limits and direction of a taxiing route at TWY G hammerhead from TWY H to End of Runway (EOR) shack, one 45-watt isolation transformer for each edge light (both the primary and secondary amperage shall be 6.6 amps), and all wiring, conduit, and miscellaneous materials as required for a completely functional taxiway edge lighting system. The project will comply with applicable DoD, Air Force, and base design rules and standards with Unified Facility Criteria (UFC) 3-535-01 as the lead guidance document.

The existing elevated taxiway edge lighting, whose general location is shown on the attached sketch, is to be removed and turned over to the Airfield Lighting Shop.

Quartz type lighting fixtures (45 watts) shall be used for all taxiway edge lighting on this project.

The existing 4 KW Constant Current Regulator for taxiway G is located in Building 941 and shall be used for all the edge lighting for taxiway G referenced by this Statement-of-Work (SOW).

See the attached sketches for additional information regarding where elevated taxiway edge lighting is required, where flush-mounted taxiway edge lighting is required, and where Building 941 is located.

In addition, there are twenty existing elevated TWY edge lights and associated isolation transformers that will be required to be removed by this project – the elevated TWY edge lights and associated isolation transformers that are to be removed shall be turned over to the CE Airfield Shop. Also, remove associated wiring and conduit not required by any existing electrical systems not being removed by this project.

Where feasible, the use of existing cans for the new light fixtures and associated isolation transformers will be allowed. And where not feasible, provide new cans that shall be concrete encased. The new flush mounted edge lighting will require new cans (10.25" bolt-circle diameter type cans).

The removal and repair of asphalt and substructure material as required to install the new taxiway edge lighting, wiring, and conduit shall be as follows:

- Saw cut approximately two parallel 5,000' x 2' cuts in the proposed area of the asphalt on the airfield.
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- Demolish/remove & excavate the designated saw cut asphalt and substructure material layers approximately (5,000'x2'x3').
- Depth of excavation shall be 24".
- Once the required depth for the lighting, wiring, and conduit is obtained the subgrade will be compacted and conform to UFC 3-260-01 standards.
- (Not Civil Contractor) Utility placement shall be by the electrical contractor (can housing/lighting, wiring, & conduit placement along with tie-in to existing airfield lighting circuit).
- Installation of concrete bases on exterior limits of cans – slab on grade (ACI standards required)
 - 2'x2'x6" inside asphalt perimeter approximately 7.5'-8' beyond edge line
 - 2'x2'x1' outside asphalt perimeter
 - 3500 PCC mix design
- Roughly 1.25' of select fill with cohesive properties are to be installed in 6" lifts compacted to conform to UFC 3-260-01 standards.
- Geotextile/separation layer will be installed the length of the trench on top of the compacted select fill material.

- The 6" lift of (1-1.5" sieve designation) to be installed on top of geotextile fabric and compacted per UFC 3-260-01 standards.
- The 6" lift of GAB (graded aggregate base) course to be installed on top of drainage layer.
- The 9" of asphalt airfield mix shall be installed in 3" lifts and compacted per UFC 3-260-01 standards.
- Asphalt abutment to the PCC(concrete) bases are to be flush.
- Asphalt joint sealant shall be installed at adjoining joints.

1.2 Additional miscellaneous information:

The installation of new home run cables for the Taxiway G circuit is not a requirement for this project.

There are no limitations to the work hours, but it is preferred that the Rwy Controlled Movement Area work be conducted on Weekends or no/low fly days.

Route the new underground circuits in schedule 80 PVC (sized as required). And no concrete encasement of the circuits is required.

There are no new signage or pavement markings required by this contract.

- 1.3 The purpose of the taxiway is to support the flying operations of Eglin Test and Training Complex (ETTC), community, and tenants at Eglin AFB.
- 1.4 The design and construction shall comply with the following construction standards: Air Force Instruction (AFI) 32-1042 Standards for Marking Airfields, DoD Unified Facilities Criteria (UFC) 3-260-01 Airfield and Heliport Planning and Design, UFC 3-260-04 Airfield and Heliport Markings, UFC 3-535-01 Visual Air Navigation Facilities, and the latest edition of the National Electrical Code.
- 1.5 Taxiway edge lighting must be installed for night VMC operations and for day and night instrument operations. Locate the line of taxiway edge lights on each side of the TWY no more than 3 meters (10 feet) from the edge of

the full-strength paving, and no closer than the edge of the full-strength pavement. Place TWY edge lights along all curved taxiway sections. Uniformly space the lights on the outer line at a distance, not to exceed the value obtained from the formula given in UFC 3-535-01 Visual Air Navigation Facilities, Figure 5-2. Place uniformly spaced edge lights at all fillets. The spacing must not exceed one half the width of the straight taxiway section.

- 1.6 STANDARD DESIGN: This design shall conform to criteria established in the Air Force Corporate Facilities Standards (AFCFS), the Installation Facilities Standards (IFS), and UFC 3-260-01 Airfield and Heliport Planning and Design, UFC 3-260-04 Airfield and Heliport Markings, and UFC 3-535-01 Visual Air Navigation Facilities.
- 1.7 Provide labor and materials as required to support therequirements of this statement-of-work.
- 1.8 The contractor shall include all user defined requirements, these requirements will be provided at the pre-design bid meeting. This contract shall require the execution of both design and construction for the work described in this statement-of-work.
- 2.1 GENERAL DESCRIPTION: The contractor shall be responsible for performing all testing as required for the newly installed items, new grounding system, and existing equipment as required to interface with existing equipment, systems, and hardware. The construction drawings shall be signed and sealed by a licensed Electrical Engineer. Shop drawings shall be provided to the Government. The design and construction shall comply with all the codes and standards referenced by this Statement-of-Work.
- 3.1 DESIGN-CONSTRUCTION: The Design-Engineer shall be responsible for obtaining all As-built drawings from the 796 CES/CEOCD Drafting section; the available As-Built drawings for the work described above are very limited. The contractor shall be responsible for hiring an Electrical Engineer responsible for the following requirements:

- a) The work shall include original contract drawings, and technical specifications. The Electrical Engineer shall investigate the existing site conditions, and perform all necessary design analysis and calculations as required. A design analysis consisting of a copy of the Engineer's notes and calculations shall be submitted in an organized, readable format.
- b) The Engineer shall be responsible for approving all submittals. After approval a copy shall be sent to the Government.
- c) The Government reserves the right, at no additional cost, to evaluate, critique, and request changes necessary to meet the intent of the Statement-of-Work and Air Force requirements during the initial design up to the 100% submittal.
- d) The drawings shall include the "type of sheets" shown below and any other applicable sheets as required for a complete design. The sheets shall be submitted to the Government for review. All contract drawings to be complete, and accomplished in accordance with the best of professional practices to show clearly and concisely the type and extent of work to be performed to provide the government a "turn-key" system.

T1	Title Sheet
E1	General Notes, Legends, Abbreviations
E2	Existing Airfield & Taxiway Site Plan
E3	New Airfield & Taxiway Site Plan
E4	Elevations as required
E5	Details as required
E6	Details as required
E7	Miscellaneous Details, Risers, etc. as required

- e) In addition to normal design review conferences and construction conferences, coordination conferences may be held from time to time as required by the Contractor or the Air Force. The contractor may request such conferences when it is deemed necessary by both parties to clarify the work or expedite the preparation of plans and specifications. The Contractor shall be responsible for making memoranda for record of any conversations and minutes of any meetings with Government personnel concerning this project. The Contractor shall forward one copy of these memoranda/minutes to each party concerned and one copy to the Government.
- f) Prospective bidders are expected to visit the areas of work and verify all conditions and dimensions. Submitting a bid will be construed that such examination has been made and later claims for labor, materials, or equipment required for difficulties encountered and/or oversights will not be accepted.
- g) It may become necessary from time to time for the Government to stop the contractor from working due to high priority or sensitive missions. The contractor will cease work as directed by the contracting officer. The contractor may be required to repair or replace items within the scope of the contract to support the continued operation of the base during this time as directed by the contracting officer. For each calendar day and/or portion of a calendar day the contractor is removed from the job site, the contract schedule will be adjusted by one calendar day. Electrical Power Outages and road closures shall be limited to weekends only.
- h) The Contractor shall furnish sufficient technical, supervisory, and administrative personnel at all times to ensure prosecution of the work in accordance with the delivery schedule. Professional level skills and management practices are required in the performance of this contract. The Contractor shall establish an effective quality control program to assure that the end product meets professional standards and complies with the contract requirements.

- i) The contractor shall be allotted 90 calendar days for the design and 120 calendar days for construction.

3.2 SUBMITTALS: The following submittals of plans and specifications are required.

- A. Preliminary (approximately 65% design) 5 sets, 1/2 sizes. Submittal is due to be Delivered "TBD. " Drawings shall be 1/2 size on "B" size sheets, with no text smaller than 1/16" on 1/2 size drawings.

- B. Intermediate (approximately 95% design) 5 sets, 1/2 sizes. Submittal is due TBD. Drawings shall be 1/2 size on "B" size sheets, with no text smaller than 1/16" on 1/2 size drawings.

- C. Final (100% design) original Mylar's, disc, and 5 sets, 1/2 size. Submittal is due TBD. Drawings shall be 1/2 size on "B" size sheets, with no text smaller than 1/16" on 1/2 size drawings.

4.1 FIELD SUPERVISION, STARTUP AND TESTING: The services of a manufacturer's service engineer who is experienced in the installation, adjustment, and operation of the equipment specified shall be provided. The representative shall supervise the installation, adjustment and testing of the equipment. The representative shall that the total system is functioning according to the intent of the design. The field tests shall be performed under the supervision of a factory-trained representative of the equipment manufacturer and witnessed by the Government. The Government shall be given 2 weeks written advance notice of the date and time when testing will be conducted.

5.1 PREPROPOSAL PREDESIGN CONFERENCE: Eglin Procurement shall establish a conference date to include a site visit, with prospective contract bidder.

6.1 SITE INSPECTION: Contractor to visit areas of work and verify all conditions and dimensions.

- 7.1 **APPLICABLE PUBLICATION/REGULATIONS:** Publications referred to in the specifications may include reference dates that do not reflect the current status of the publication. Unless otherwise stated in the specifications (this will be accomplished by stating "Compliance is required with this publication versus any future versions") the current publication is the applicable publication. Where the specification further refers to deviations from these publications, these deviations will be applied to the current publication.
- 8.1 **STORM PROTECTION:** Should warnings of winds of gale force or stronger be issued, the contractor shall take every practical precaution to minimize danger to persons, to the work, and to adjacent property. These precautions shall include closing all openings, removing all loose materials, tools, and equipment from exposed locations, and removing or securing scaffolding and other temporary work.
- 9.1 **INTERFERENCE WITH STATION OPERATIONS:** Permission to interrupt any utility, communication, operational or traffic service or pattern shall be requested in writing at least 3 working days prior to the date of the desired interruption. The Contractor shall receive approval in writing from the Contracting Officer before the requested interruption may be put into effect. Any power outage shall be approved by the Contracting Officer in writing.
- 10.1 **CHEMICAL LATRINE:** The Contractor shall provide, at no additional cost to the government, a minimum of one chemical latrine, and additional latrines at one per 12 workmen, where needed. The latrine(s) will be at the job site for the duration of the contract performance period. The latrine(s) shall be serviced as often as required for sanitary conditions, but in no case shall servicing be less than once per week. Servicing shall comply with all applicable federal, state, and local laws, ordinances, and regulations. The latrine waste shall be disposed of legally off government lands. Location of this latrine will be decided by Airfield Management.
- 11.1 **WORK CLEARANCE:** The Contractor shall be responsible for

obtaining and having filled out form AF Form 103, Base Civil Engineering Work Clearance Request. No site work shall be done until this form is completed.

12.1 SCHEDULING: The Contractor shall submit a schedule of proposed work to the Contracting Officer. The schedule shall show the proposed activities, including locations where work is planned and planned shutdown of equipment. All work sequencing and phasing is subject to the approval of the Contracting Officer.

The contractor shall be responsible for documenting and complying with the following government requirements: (1) Temporary Construction Waiver requirements as required by UFC 3-260-01, (2) Airfield Driving requirements as stated in EAFBI 13-213v1, and (3) Site Storage requirements stated in UFC 3-260-01.

TERMS AND CONDITIONS:

Responsibility of the Architect-Engineer Contractor: The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services. Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Contractor shall remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services furnished under this contract. The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law. If the Contractor is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

Requirements for Registration of Designers: Architects or

engineers registered to practice in the particular professional field involved in a State, the District of Columbia, or an outlying area of the United States shall as applicable; prepare, review, and approve the design of architectural, structural, mechanical, electrical, civil, and other engineering features of the work.

Government Rights: The Government shall have unlimited rights, in all drawings, designs, specifications, notes and other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Contractor. The Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish the original or copies of all such works on the request of the Government.

Rights in Shop Drawings: The Government may duplicate, use, and disclose in any manner and for any purpose, shop drawings delivered under this contract. Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment.

Drawings And Other Data To Become Property Of Government: All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the Contractor. The Government shall be considered the “person for whom the work was prepared” for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Government. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

Suspension of Work: The Government may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Government determines appropriate for the convenience of the Government. If the performance of all or any part of the work is, for an unreasonable

period of time, suspended, delayed, or interrupted (1) by an act of the Government in the administration of this contract, or (2) by the Government's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. A claim shall not be allowed -- (1) For any costs incurred more than 20 days before the Contractor shall have notified the Government in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

Contractor's Access to Base: The contractor shall obtain base identification and vehicle passes, if required, for all contractor personnel who make frequent visits to or perform work on the Air Force installation(s) cited in the contract. Contractor personnel are required to wear or prominently display installation identification badges or contractor-furnished, contractor identification badges while visiting or performing work on the installation. The contractor shall submit a written request on company letterhead to the Government listing the following: contract number, location of work site, start and stop dates, and names of employees and subcontractor employees needing access to the base. The letter is required regardless of the length of visit and will also specify the individual(s) authorized to sign for a request for base identification credentials or vehicle passes. The Government will endorse the request and forward it to the contract specialist for processing into the Security Forces data base. Contractors requiring base access for meetings or site visits must complete the Eglin CAB (Contractor Access Badge) Affidavit. Contractors requiring access to work on base will need to complete the Eglin CAB Affidavit and a Form I-9 (Employment Eligibility

Verification). These documents must be delivered to the Eglin AFB East Gate Pass and ID Office in a sealed envelope with a point of contact (POC) and phone number on the front of the envelope. You may also mail or FEDX the documents to: 96 Security Forces Squadron, Bldg 272, 302 West D Ave, Eglin AFB FL 32542, Attn Pass & Registration. Anticipate a three-day lead time for Security Forces to process the documents and conduct the required background check. Once the background check is complete, a copy will be returned to the POC listed on the envelope. The prime contractor can provide paperwork for their subcontractor(s) and submit as many documents per envelope as necessary. When reporting to the registration office, the authorized contractor individual(s) should provide a valid driver's license, current vehicle registration, valid vehicle insurance certificate and social security card to obtain a vehicle pass. All deliveries to contractor work sites on Eglin AFB main base must go through the North Gate, located off SR-85 South. Trucks trying to enter the East, West or the ACC gate will be turned around and told to use the North Gate. Contractors' work trucks carrying equipment and tools are also required to use the North Gate. During performance of the contract, the contractor shall be responsible for obtaining required identification for newly assigned personnel and for prompt return of credentials and vehicle passes for any employee who no longer requires access to the work site. When work under this contract requires unescorted entry to controlled or restricted areas, the contractor shall comply with [AFI 31-101, Volume 1](#), *The Air Force Installation Security Program*, and [AFI 31-501](#), *Personnel Security Program Management* citing the appropriate paragraphs as applicable. Upon completion or termination of the contract or expiration of the identification passes, the prime contractor shall ensure that all base identification passes issued to employees and subcontractor employees are returned to the issuing office. Failure to comply with these requirements may result in withholding of final payment.

13 PROJECT RECORD DOCUMENTS

13.1 Record Drawings

Drawings showing final as-built conditions of the project. This paragraph covers record drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working record drawings" and "final record drawings" refer to contract drawings which are revised to be used for final record drawings showing as-built conditions. The final record drawings shall consist of as-built construction drawings on an ARCH D sheet mylar size and 2 CD ROMs

in AutoCAD and PDF for Air Force review and approval. Each drawing shall be its own separate file in both AutoCAD and PDF format. Appendix drawings shall meet same requirements.

13.2 Government Furnished Materials

One set of electronic CADD files in .dwg format in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for projects requiring CADD file record drawings.

13.3 Working Record and Final Record Drawings

Revise 2 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. Keep these working as-built marked drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. Prepare final electronic record (as-built) drawings after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). Show on the working and final record drawings, but not limited to, the following information:

- (a) The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.
- (b) The location and dimensions of any changes within the building structure.
- (c) Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

- (d) Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- a. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.
 - b. Changes or modifications which result from the final inspection.
 - c. Where contract drawings or specifications present options, show only the option selected for construction on the final as-built prints.
 - d. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.
 - e. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.
 - f. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures.
 - i. Follow directions in the modification for posting descriptive changes.
 - ii. Place a Modification Delta at the location of each deletion.

- iii. For new details or sections which are added to a drawing, place a Modification Delta by the detail or section title.
- iv. For minor changes, place a Modification Delta by the area changed on the drawing (each location).
- v. For major changes to a drawing, place a Modification Delta by the title of the affected plan, section, or detail at each location.
- vi. For changes to schedules or drawings, place a Modification Delta either by the schedule heading or by the change in the schedule.
- vii. The Modification Delta size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

2. Drawing Preparation

Modify the record drawings as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints must be neat, legible and accurate. These drawings are part of the permanent records of this project and must be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.

(1) Extensions of Design: Although Fire suppression and fire alarm systems shall be added to the BIM model and subject to all of the submission requirements below (including native file submission on CD-ROM), shop Drawings such as structural fabrication and erection drawings and fire alarm systems that will require extensive redrafting effort in order to create an

electronic set will not be required to be incorporated into the electronic BIM-only set. They will be included as an Appendix to the paper copy and later mylar set and scanned into both AutoCAD and PDF format for inclusion on the same CD-ROM as the other electronically submitted set of drawings. The Contractor shall participate in monthly review meetings with the Contracting Officer's Representative to show the progress made the preceding month and make all required changes. Prior to final construction inspection, the Contractor shall submit one copy of the red lined as-built drawings to the Contracting Officer's Representative for review and approval. The as-built drawings shall be certified as to their correctness by the signature of an authorized representative of the Contractor.

3. Computer Aided Design and Drafting (CADD) Drawings

Only employ personnel proficient in the preparation of CADD drawings in BIM and .dwg format to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols must be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, prepare them using the specified electronic file .dwg format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CADD files. The Contractor will be furnished "as-designed" drawings in AutoCAD 2020 .dwg format compatible with a Windows 10 operating system. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). Provide all program files and hardware necessary to prepare final electronic record drawings. Eglin Engineering will review final record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

- a. Provide CADD "base" colors of red, green, and blue. Color code for changes as follows:
 - i. Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

ii. Additions (Green) - Added items, lettering in notes and leaders.

iii. Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

b. Within 10 days for contracts less than \$5 million after Government approval of all of the working record drawings for a phase of work, prepare the final CADD record drawings for that phase of work and submit two sets of prints of these drawings for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 7 days for contracts less than \$5 million revise the CADD files accordingly at no additional cost and submit one set of final prints on mylar media for the completed phase of work to the Government. Within 10 days for contracts less than \$5 million of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit two sets of electronic files on compact disc, read-only memory (CD-ROM), one set of mylars, and one set of the approved working record drawings. They must be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record drawing files and marked prints as specified will be cause for withholding any payment due the Contractor under this contract. Contractor shall have all corrections resulting from Government review completed in order to have the final as-built record drawings

submitted and approved within 120 calendar days after project completion date. Failure to meet Final As-Built submission will result in negative statement in CPARS. Approval and acceptance of final record drawings must be accomplished before final payment is made to the Contractor.

4. General

1. As-built drawings shall be submitted in a version of AutoCAD that is coordinated with 96 CEG drafting section at time of submission.
2. The as-built DWG files shall have no reference files attached as all shall be bound into the file to make one AutoCAD DWG file, which also shall be purged and created with standard AutoCAD pen table.
3. Scaled drawings should provide a bar scale and shall be in feet not meters. Contractor shall provide 1 hard copy of as-built on Mylar on an Arch D sheet size and 2 CD's in AutoCAD and PDF.
4. Final As-builts shall include the assigned building number in the title block and Air Force FTFA number.

5. Other Requirements

1. AutoCAD drawings shall have correct geometry:
 - a. Segmented lines and arcs are to be made continuous and free of self overlapping sections, thus decreasing file size and increasing efficiency within the AutoCAD platform.
 - b. All AutoCAD data shall be free of topological errors such as slivers, undershoots, overshoots, dangles, overlaps, intersections, etc.
 - c. Area features such as building footprints, parking lots, roadways, and airfield pavements shall be true polyline polygons. Adjacent polygons shall not have gaps or overlaps.
2. All native AutoCAD drawings (Civil) shall be checked for

correctspatial projection to one of the following:

- a. North American Datum 1983 Florida State Plane North FIPS 0903 Feet(AutoCAD Code FL83-NF)
 - b. Universal Transverse Mercator 1984, Zone 16 North (AutoCAD CodeUTM84-16N)
3. Any Building Information Models (BIM) developed for a project shall besupplied in accordance with section I.5&6 of the U.S. Air Force Building Information Modeling Minimum Requirements (current version): <http://wbdg.org> in a Model Archive as part of the final as-built submittal consisting of two sets of files:
- a. The first set shall be a collection of individual Models as received from the Model Element Author(s).
 - b. The second set of files shall consist of the aggregate of those individual Models in a format suitable for archiving and viewing.The aggregate model shall also be submitted in a DWG file format.
4. Drawings submitted for approval as as-builts shall have all changesincorporated into the final drawings.
- a. Drawings shall be free of revision clouds, hand-written notes,scanned in change orders, etc.
 - b. Revision symbols shall be accompanied with an entry in the sheet'srevision block. Revision block entries shall consist of a brief description of the change along with the change order number.
 - c. Each sheet shall be annotated in bold letters near the title block with the date the as-builts were accepted (i.e. AS-BUILT DRAWING 12 APR 2012). AND signed by contractor's engineer certifying asbuilt conditions.

6. Payment

Contracting Officer to withhold three percent of contract amount pending completion and approval of all requirements specified in this section. No separate payment will be made for record drawings

required under this contract, and all costs accrued in connection with such drawings are considered a subsidiary obligation of the Contractor.