US Army Corps
of Engineers
Savannah District

Hunter AAF
Georgia

Solicitation Number
W912HN-11-R-0009

Tactical Equipment Maintenance Facility Expansion

November 2010

THIS SOLICITATION IS UNRESTRICTED PURSUANT TO THE "BUSINESS OPPORTUNITY DEVELOPMENT REFORM ACT OF 1988" (PUBLIC LAW 100-656)

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CORPS OF ENGINEERS
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SECTION 01 10 00
STATEMENT OF WORK

1.0 PROJECT OBJECTIVES

1.1. SECTION ORGANIZATION

2.0 SCOPE

2.1. Tactical Equipment Maintenance Facility Expansion

2.2. SITE

2.3. GOVERNMENT-FURNISHED GOVERNMENT INSTALL EQUIPMENT (GFGI)

2.4. FURNITURE REQUIREMENTS

3.0 Tactical Equipment Maintenance Facility Expansion

3.1. GENERAL REQUIREMENTS

3.2. FUNCTIONAL AND AREA REQUIREMENTS

4.0 APPLICABLE CRITERIA

4.1. INDUSTRY CRITERIA

4.2. MILITARY CRITERIA

5.0 GENERAL TECHNICAL REQUIREMENTS

5.1. SITE PLANNING AND DESIGN

5.2. SITE ENGINEERING

5.3. ARCHITECTURE AND INTERIOR DESIGN

5.4. STRUCTURAL DESIGN

5.5. THERMAL PERFORMANCE

5.6. PLUMBING

5.7. ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

5.8. HEATING, VENTILATING AND AIR CONDITIONING

5.9. ENERGY CONSERVATION

5.10. FIRE PROTECTION

5.11. SUSTAINABLE DESIGN

5.12. CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT

5.13. SECURITY (ANTI-TERRORISM STANDARDS)

6.0 PROJECT SPECIFIC REQUIREMENTS

6.1. GENERAL

6.2. APPROVED DEVIATIONS

6.3. SITE PLANNING AND DESIGN

6.4. SITE ENGINEERING

6.5. ARCHITECTURE

6.6. STRUCTURAL DESIGN

6.7. THERMAL PERFORMANCE

6.8. PLUMBING

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.11. HEATING, VENTILATING AND AIR CONDITIONING

6.12. ENERGY CONSERVATION

6.13. FIRE PROTECTION

6.14. SUSTAINABLE DESIGN

6.15. ENVIRONMENTAL

6.16. PERMITS

6.17. DEMOLITION

6.18. ADDITIONAL FACILITIES

1.0 PROJECT OBJECTIVES

1.0.1 The project objective is to design and construct facilities for the military that are consistent with the design and construction practices used for civilian sector projects that perform similar functions to the military projects. For example, a Company Operations Facility has the similar function as an office/warehouse in the civilian sector; therefore the design and construction practices for a company operations facility should be consistent with the design and construction of an office/warehouse building.

Comparison of Military Facilities to Civilian Facilities

Military Facility	Civilian Facility
Tactical Equipment Maintenance Facility Expansion	Heavy Equipment Repair Facility

1.0.3 1.0.2 It is the Army's objective that these buildings will have a 25-year useful design life before a possible re-use/re-purpose or renovation requirement, to include normal sustainment, restoration, modernization activities and a 50-year building replacement life. Therefore, the design and construction should provide an appropriate level of quality to ensure the continued use of the facility over that time period with the application of reasonable preventive maintenance and repairs that would be industry-acceptable to a major civilian sector project OWNER. The site infrastructure will have at least a 50-year life expectancy with industry-accepted maintenance and repair cycles.The project site should be developed for efficiency and to convey a sense of unity or connectivity with the adjacent buildings and with the Installation as a whole.

1.0.4 Requirements stated in this contract are minimums. Innovative, creative, and life cycle cost effective solutions, which meet or exceed these requirements are encouraged. Further, the OFFEROR is encouraged to seek solutions that will expedite construction (panelization, pre-engineered, etc.) and shorten the schedule. **The intent of the Government is to emphasize the placement of funds into functional/operational requirements. Materials and methods should reflect this by choosing the most economical Type of Construction allowed by code for this occupancy/project allowing the funding to be reflected in the quality of interior/exterior finishes and systems selected.**

1.1. SECTION ORGANIZATION

This Section is organized under 6 major “paragraphs”.

(1) Paragraph 1 is intended to define the project objectives and to provide a comparison between the military facility(ies) and comparable “civilian” type buildings.

(2) Paragraph 2 describes the scope of the project.

(3) Paragraph 3 provides the functional, operational and facility specific design criteria for the specific facility type(s) included in this contract or task order.

(4) Paragraph 4 lists applicable industry and government design criteria, generally applicable to all facility types, unless otherwise indicated in the Section. It is not intended to be all-inclusive. Other industry and government standards may also be used, where necessary to produce professional designs, unless they conflict with those listed.

(5) Paragraph 5 contains Army Standard Design Criteria, generally applicable to all facility types, unless otherwise indicated in the Section.

(6) Paragraph 6 contains installation and project specific criteria supplementing the other 5 paragraphs.

2.0 SCOPE

2.1. SOF TACTICAL EQUIPMENT MAINTENANCE FACILITY (TEMF) EXPANSION

Provide an expansion to the 1st Battalion 75th Ranger Regiment Tactical Equipment Maintenance Facility (TEMF) at Hunter Army Airfield, Georgia. This project will provide an area for the purpose of maintaining and repairing Stryker vehicles. It is intended to be similar to heavy equipment repair facilities in the private sector community.

The project will include a maintenance bay addition to the existing TEMF as well as organizational vehicle parking. Specific sizing parameters for the expansion are as follows:

Gross Area: The expansion shall consist of 2240 gross square feet.

Hardstand for organizational vehicle parking: 13966 square yards.

2.1.1

The approximate area available for the TEMF expansion is shown on the drawings. The existing TEMF and associated structures and hardstand not in direct conflict with the new construction required by this contract will remain in operation and occupied, and the Contractor must not interfere with the daily operations of the existing facility.

2.2. SITE:

Provide all site improvements necessary to support the new building facilities. Refer to Paragraph 6.

Approximate area available 6.40 acres

2.3. GOVERNMENT-FURNISHED GOVERNMENT-INSTALLED EQUIPMENT (GFGI)

Coordinate with Government on GFGI item requirements and provide suitable structural support, brackets for projectors/VCRs/TVs, all utility connections and space with required clearances for all GFGI items. Fire extinguishers are GF/GI personal property, while fire extinguisher brackets and cabinets are Contractor furnished and installed CF/CI. All Computers and related hardware, copiers, faxes, printers, video projectors, VCRs and TVs are GFGI.

The following are also GFGI items: There will be no GFGI equipment.

2.4. FURNITURE REQUIREMENTS

Provide furniture design for all spaces listed in Chapter 3 and including any existing furniture and equipment to be re-used. Coordinate with the user to define requirements for furniture systems, movable furniture, storage systems, equipment, any existing items to be reused, etc. Early coordination of furniture design is required for a complete and usable facility.

The procurement and installation of furniture is NOT included in this contract. Furniture will be provided and installed under a separate furniture vendor/installer contract. The general contractor shall accommodate that effort with allowance for entry of the furniture vendor/installer onto this project site at the appropriate time to permit completion of the furniture installation for a complete and usable facility to coincide with the Beneficial Occupancy Date (BOD) of this project. The furniture vendor/installer contract will include all electrical pre-wiring and the whips for final connection to the building electrical systems however; the general contractor shall make the final connections to the building electrical systems under this contract. Furthermore, the general contractor shall provide all Information/Technology (IT) wiring (i.e. LAN, phone, etc.) up to and including the face plate of all freestanding and/or systems furniture desk tops as applicable, the services to install the cable and face plates in the furniture, the coordination with the furniture vendor/installer to accomplish the installation at the appropriate time, and all the final IT connections to the building systems under this contract.

The Government reserves the right to change the method for procurement of and installation of furniture to Contractor Furnished/Contractor Installed (CF/CI). CF/CI furniture will require competitive open market procurement by the Contractor using the Furniture, Fixtures and Equipment (FF&E) package.

2.5. NOT USED

3. SOF TACTICAL EQUIPMENT MAINTENANCE FACILITY (TEMF) EXPANSION

3.1. GENERAL

(1) Functional Areas. The existing TEMF is composed of two functional areas: An administrative area and a maintenance area. The addition to the facility will consist of one maintenance bay to the existing maintenance bay area. Refer to the drawings in Appendix J for the recommended layout.

(2) Gross Building Area. Gross areas of facilities shall be computed according to Appendix Q. Maximum gross area limits indicated in Paragraph 2.0, SCOPE, may not be exceeded. A smaller overall gross area is permissible if all established net area program requirements are met.

(a) Net Area. Net areas of spaces shall be computed according to Appendix Q. If net area requirements are not indicated, the space shall be sized to accommodate the required function, comply with code requirements, comply with overall gross area limitations and other requirements of the RFP (for example, area requirements for corridors, stairs, and mechanical rooms will typically be left to the discretion of the Offeror).

(b) Deviations and Improvements. It is the intent of this document to allow deviations and improvements to the design shown.

(c) Handicapped Access. The maintenance bay expansion will be utilized by able-bodied soldiers and is not required to be handicapped accessible.

(d) Site Design and Functional Areas. Site features include vehicular hardstand, utilities and site improvements.

(e) The design provided with this document exemplifies a technically suitable product and incorporates mandatory functional/operational requirements for a facility to be constructed under this solicitation. It will be left to the offeror's discretion if, and how they will use the design provided to satisfy the requirements of this Request for Proposal. The design included with this document is not intended to modify or over-ride specific requirements of this RFP and, under all circumstances, it will be incumbent upon the successful offeror to adhere to the site specific scope and functional/operational requirements specified within the RFP. This statement of work is not intended to diminish the offeror's responsibilities under the clauses titled "Responsibility of the Contractor for Design," "Warranty of Design," and "Construction Role During Design." The successful offeror shall be the designer of record and shall be responsible for the final design and construction product, including but not limited to, adherence to the installation architectural theme, building code compliance and suitability of the engineering systems provided. The government assumes no liability for the design provided and, to the extent it is used by an offeror. The offeror will be responsible for all aspects of the design as designer- of-record.

3.1.1. Maintenance Bay. The maintenance bay addition will be similar to a heavy equipment repair facility and will be used to service and repair the unit's Stryker vehicles. The maintenance bay will be a single story ground floor space. Conceptually, the maintenance bay shall be configured to provide vehicle access from either end. The maintenance bay shall be free of intermediate support columns, i.e. columns are only permissible along the exterior perimeter walls. This allows complete shop floor coverage by a single bridge crane. The dimensions of the maintenance bay shall be approximately 28' wide x 64'-4" long to match the existing.

(1) Maintenance Bay Equipment

(a) Bridge Crane. The bay shall be provided with a 7.5 ton bridge crane with full bay coverage. The structural height of the bay shall be as required to match that of the existing facility and to allow a minimum bridge crane hook height of 19'-8" clear with the hook at the highest position.

(b) Overhead coiling doors. Provide one 20'-0" wide x 14'-0" high door at the end of each bay.

(c) Trench Drains. Provide continuous 6-inch wide trench drains with continuous grating along the full width of the bay at the exterior doors; locate the drains approximately 3'-0" minimum inside the exterior wall.

(d) Vehicle exhaust hose and hose storage reel. Provide outlets to a vehicle exhaust evacuation system at each overhead door.

(e) Maintenance pit. A maintenance pit is not required.

(f) Hose and Hose Reel for POL. Provide two POL dispensing points mounted to a wall of the maintenance bay expansion. The hose and reel assembly shall be heavy duty, designed for

applicable fluid or oil. Provide a shut off valve at the reel. Provide for distribution of engine oil, gear oil and transmission fluid.

(g) Hose and Hose Reel for Water. Provide one hose and hose reel mounted to a wall of the maintenance bay expansion.

(h) Hose and Hose Reel for Compressed Air. Provide two hose and hose reels mounted to a wall of the maintenance bay. One in the vicinity of each end of the maintenance bay.

3.1.2. Core Areas

(1) Administration and Shop Control. Not required.

(2) Training Room. Not required.

(3) Tool Room. Not required.

(4) Latrine, Shower, Locker Rooms. Not required.

(5) Weapons Storage Vault. Not required.

(6) Communications Rooms. Not required.

(7) Janitor's Room. Not required.

(8) Mechanical Room. Not required

(9) Electrical Room. Not required.

(10) Fluid Distribution Room. Provide a room to house the POL central distribution equipment and unused POL storage containers (typically 55-gallon drums-one each) for three types of lubricants/fluids- Dextron transmission fluid, 15W40 motor oil and 80W90 motor oil. Fluids shall be dispensed by automotive lubricant type air driven pump assemblies. Motor shall be heavy-duty compressed air driven reciprocating action. Compliance with UFC 3-600-01, NFPA 30, and 29 CFR 1910.106 is mandatory. Provide secondary containment in compliance with applicable federal and state environmental regulations.

(11) Fire Riser Room. A space shall be provided to house the riser associated with the fire protection system.

(12) Air Compressor Room. A space shall be provided to house the existing air compressor to be relocated.

(13) Outboard Motor Testing Area. A space shall be provided for outboard motor testing equipment.

3.1.3. Site Functional Area

(1) Organizational Vehicle Hardstand. This hardstand consists of a rigid concrete paved area used for parking assigned vehicles, commercial vehicles (contractor support), trailers and generators. Organizational vehicle hardstand includes building aprons, parking spaces, and circulation lanes on site.

(a) Tactical/Military and Commercial Vehicle Parking. Maximize vehicle parking and traffic flow to best support the operation of the TEMF Expansion.

(b) POL Vehicle Parking. Not required.

(c) POV Vehicle Parking. Not required.

(d) Building Aprons. Provide concrete pavement for aprons associated with the facility expansion.

(2) Site Storage

(a) Hazardous Waste Storage Building. Not required.

(b) POL Storage Building. Not required.

(c) Organizational Storage Building. Not required.

(d) Entrance Drives. Provide primary and secondary entrance drives to connect organizational vehicle hardstand to existing roads.

3.1.4. Site Design. See drawing in Appendix J.

(1) Hardstand. All hardstand areas shall be rigid concrete pavement. Pavement design for organizational vehicle areas shall be designed to support the vehicles assigned to this facility. See paragraph 6.4.4 for Organizational Vehicles assigned to this facility. The parking layout and configuration shall be adjusted as necessary for the site limits and space provided.

(2) Antiterrorism and Force Protection. The project shall be evaluated for security requirements in accordance with UFC 4-010-01. Minimum requirement is a security fence at the site perimeter consisting of 7-foot high chain link fabric plus a single outrigger with 3-strand barbed wire, designed in accordance with STD 872-90-03, FE-6 Chain-Link Security Fence Details, with visual barrier slats to match existing. A zone cleared of trees and shrubs, 20 feet wide inside the fence and 10 feet wide outside the fence is required. The clear zone shall be gravel underlain by a synthetic fabric. The clear zone shall be treated with herbicides to discourage vegetative growth.

Manually operated vehicular gates, approximately 30 feet wide overall, shall be provided at each vehicle entrance/exit.

(3) Storm Water Management. Site storm water management will require controls on the peak flow that can be discharged in accordance with the State of Georgia Storm Water Manual for the new hardstand. Installations are required to have a storm water pollution prevention plan. Implement the applicable portions of this plan using best management practices. Segregate drainage form areas likely to be contaminated. Provide treatment for contaminated water prior to its discharge. Maintenance shall not be provided outside the primary facility.

(4) Storm Drainage System. Construction and material specified for storm drainage installation shall be per the State's DOT requirements. All storm drainage lines constructed under organizational vehicle hardstand, entrance drives, and other surfaces subject to vehicular traffic shall be reinforced concrete pipe with watertight joints. See Paragraph 6 for additional storm drainage system requirements.

(5) Oil/Water Separator. One or more oil/water separators are required to remove oil, lubricants, floatables, from water sources (e.g., repair and maintenance areas, POL distribution, etc.) Oil/water separators shall be designed in accordance with local codes and standard industry practice for the specific waste stream to be treated. Minimize maintenance requirements and locate oil/water separators to minimize pipe runs, provide vehicular access, and avoid circulation areas.

(6) Primary and Secondary Drives. Construct a new entrance drive onto the organizational vehicle hardstand area to accommodate new hardstand construction and layout that replaces the existing entrance gate that will be removed. The new access drive shall be 30 feet wide.

(7) Organizational Vehicle Hardstand. Organizational vehicle pavement grades shall provide positive surface drainage with a 1 percent minimum slope in the direction of drainage. Maximum pavement slope shall be 2 percent.

(8) Circulation Lane. Organizational vehicle parking circulation lanes shall be 20 feet wide when lanes are located adjacent to TEMF aprons. Parking stalls within the hardstand are to be placed back-to-back with circulation lane width of 30 feet for vehicles less than or equal to 18 feet long and 45 feet for vehicles more than 18 feet long.

(9) Tactical /Military Vehicle Parking. Tactical/Military Vehicle Parking spaces shall be spaced with side clearances of 3 feet and end clearances of 2 feet.

(10) TEMF Aprons. TEMF aprons shall measure 45 feet wide on all four sides of the facility. Circulation lanes are not part of the 45 foot wide apron.

(11) Bollards at TEMF Maintenance Bays. Provide 12-inch diameter steel bollards filled with concrete at all TEMF maintenance by openings where frequent vehicle access/egress increases the risk of damage by vehicle impact. Bollard footings shall be designed to withstand organizational vehicular impact.

3.1.5. Architecture

(1) Exterior Materials. Select exterior materials to match the existing TEMF facility and to be attractive, economical, and durable and low maintenance. Masonry walls are preferred at the ground level.

(2) Floors. Provide concrete floors in the maintenance bay expansion, sloped in accordance with NFPA 30A and IBC/IPC. Provide continuous trench drains located on the interior side of the overhead doors. The trench drains shall extend the length of the maintenance bay expansion and be located 3'-0" minimum from the inside face of the exterior wall.

(3) Natural Lighting. The maintenance bay shall be illuminated using translucent wall panels above overhead doors.

(4) Maintenance Bay Doors. Provide overhead doors 20' wide x 14'-8" high in the exterior wall at each end of the bay. Provide doors of coiling, sectional, or telescoping design. Provide electrically operated doors with provision for manual chain operation.

(a) Locking. Provide overhead doors that are operable from the interior only. Provide doors with a positive locking mechanism that will allow the door to remain open at engine exhaust position approximately 1 foot above the floor. Coordinate locking requirements with the using service.

(b) Serviceability. Maintenance bay doors shall be designed to meet heavy duty loads and high frequency of operation. Provide testing of deflection and operation of the doors prior to acceptance during construction. Doors shall be provided and installed by a commercial door

company having not less than 5 years of experience in manufacturing, installing, and servicing the size and type of doors provided.

(c) Insulated Doors. Preference will be given to proposals that include insulated doors for thermal resistance and noise control.

(5) Personnel Doors. Provide exterior personnel doors as shown on the drawings. Provide steel doors. Minimum size for personnel door is 3 feet wide by 7 feet high.

(6) Overhead Cranes. Crane shall be designed and constructed to CMAA 70 (Class C) or CMAA 74 (moderate requirements) for operation with hoist in accordance with ASME HST-1 or HST-4.

3.1.6. Fire Protection

(1) Standards and Codes. All fire protection and life safety features shall be in accordance with UFC 3-600-01 and the criteria referenced therein. The expansion to the Tactical Equipment Maintenance Facility shall be classified as mission essential and shall be provided with complete sprinkler protection.

3.1.7. Heating, Ventilation, and Air Conditioning (HVAC) Systems

(1) Ventilation System. Ventilation supply system for the maintenance bay expansion shall be designed to provide 100% of outdoor air with no recirculation and sized for minimum of 1.5 cfm per square foot per ASHRASE 62.1. The maintenance bay expansion exhaust system's fan shall be equipped with a VFD and CO and NOX sensors to adjust supply airflow rate with a variable emission rate and use a pressure sensor to maintain positive pressure based on operation of a demand based local exhaust system. Ventilation will be supplied by means of an exhaust fan interlocked to a motorized damper to match existing conditions. No new dedicated outside air unit or make-up air unit will be required. The ventilation load does not require conditioning or dehumidification. The ventilation system will also use a ceiling suspended air circulation fan for air movement and distribution. The suspended ceiling fan shall match the existing fans of the TEMF maintenance bays. The existing ventilation consist of one motorized louver above the east bay door, and exhaust consist of one motorized louver with propeller exhaust fan in enclosure over the west bay door. Propeller exhaust fan enclosures are full size of louver and approximately 30" in depth. No nameplate data could be located on fan enclosures. Top of louvers are approximately 2'-0" below roof eaves. Louvers are centered above bay doors. The existing ceiling suspended air circulation fan is mounted from the structural steel close to the roof peak. Placement is above the 7.5 ton crane. The manufacturer is Big Ass Fan Co. With approximately 10'-0" blades.

(2) System Selection.

(a) The maintenance bay expansion shall be heated to 55 degrees F.

(b) The maintenance bay expansion shall be heated through the use of infrared radiant heaters. The heater design and the heater manufacturer shall match that of the existing maintenance bays. The existing heaters are radiant tube with approximately 25'-0" tubes. Modine is the manufacturer. Combustion air is taken from space and exhaust discharges vertically through the roof at the end of the tube run. Existing mounting is approximately 2'-0" inside of coiled roll up doors, and approximately 2'-0" above top of coiled roll up door enclosure. Mounting shall be per the manufacturers instructions.

(3) Building Exhaust Systems. Provide general exhaust in the maintenance bay expansion. Exhaust fan shall be non-sparking. Exhaust duct openings shall be located so that they effectively remove vapor accumulations at floor level from all parts of the floor area. Exhaust systems shall be in accordance with NFPA 30 and 30A. Energy recovery from exhaust air shall be used in climate zones 3 through 8. General exhaust for the maintenance bay will be handled through the new provided exhaust fan with the ventilation system.

(4) Vehicle Exhaust Evacuation Systems. A vehicle exhaust evacuation system for wheeled vehicles shall be provided in the maintenance bay expansion allowing for capturing exhaust fumes from stationary vehicles and vehicles moving in and out of the building. Size and locate the exhaust lines as required to service vehicles and equipment within the maintenance bay expansion. Lines shall not interfere with maintenance operations or obstruct equipment such as the traveling bridge crane. Exhaust systems shall match the existing ceiling/wall mounted fans in the existing maintenance bays. The flue shall discharge through the roof. A 50% duty cycle of the total available capacity of vehicle exhaust can be considered unless specified otherwise by the using service. The using service is responsible for providing the transition connectors (if required,

depending on the type of exhaust system provided) between the vehicle exhaust and the vehicle exhaust system installed. All systems components must be compatible with the vehicle exhaust temperatures. Unless otherwise indicated by the user, design exhaust outlets for 1400 cfm and 700 degrees F. Provide a separate vehicle exhaust system at each bay door. Ventilation in the maintenance bay shall be in accordance with ASHRAE 62.1. Additional makeup air may be needed to compensate for the exhaust requirements. The existing vehicle exhaust system is located at the North side of all bay doors. The existing systems are supported from the structural steel columns at the exterior east and west walls. The exhaust discharge extends vertically through the roof. The existing system is mounted approximately 2'-0" above the coiled roll up doors, adjacent to the infrared heating system. No nameplate data could be obtained on the existing system. The hose length from the exhaust system to the vehicle attachment is approximately 25'-0" in length.

(5) HVAC Controls. HVAC controls shall be in accordance with paragraph 5.8.3. See Appendix AA Details 4/M-802 (EF-1,2,6,7), 6/M-802 (Exhaust fans), M-803 (input/output schedule), and 3/M-803 (Exhaust fan starter diagram) for HVAC controls for existing control system points schedules. All other information is existing but not required for the maintenance bay addition. These schedules identify as a minimum points to be monitored and controlled by the building automation system (BAS). Contractor is to verify that the existing condition of the DDC. If the existing DDC controller does not contain enough points to install the new equipment, the contractor shall install a new DDC controller with enough points for all new equipment, plus 20% extra point tie-ins. The contractor shall connect the new DDC controller, if required, to the existing UMCS. See paragraph 6 for any additional installation specific points. Points schedule drawings convey a great deal of information critical to design, installation, and subsequent performance of the control system. It includes hardware input/output information, device ranges and settings, ANSI 709.1 communications protocol data, and information about data that is to be used at the operator work station by Monitoring and Control software. These schedules are available as an excel spread sheet and as AutoCAD drawings on Engineering Knowledge Online (EKO) website https://eko.usace.army.mil/fa/bas/. Point schedules of system types not addressed in the appendix shall be developed by the Contractor, and shall be sufficiently detailed to a level consistent to similar listed systems in the appendix. It is recommended that all of the guidance and instruction documents be reviewed prior to using any of the information, as the documents provide necessary and critical information to the use of website drawings. The existing DDC controls are Johnson controls located in the Mechanical room. DPW contact for the UMCS is Fred Cavedo 912-767-5499

(6) Relocated Exhaust. Relocate the existing exhaust fan for the POL storage into the new POL storage room. Relocate the existing exhaust fan for maintenance pit exhaust as necessary to discharge to the exterior. The existing exhaust fans are ceiling suspended cabinet exhaust fans. The pit exhaust fan is located under the outboard motor roof next to the bay exterior wall and the POL exhaust fan is located nest to the south wall of the existing POL room. Both fans are suspended approximately 1'-0" below the ceiling. The manufacturer for the general exhaust cabinet fans is Twin City Fan Co.

3.1.8. Plumbing

(1) Trench Drains. Design trench drains for easy cleaning. Provide basket strainer to facilitate trash removal where trench drains discharge to piping systems. Convey waste to exterior oil/water separator prior to discharge to the sanitary sewer system.

(2) Emergency Eyewash/Shower. Provide one permanently installed emergency eyewash/shower in the maintenance bay. Per OSHA 1910.151(c) emergency eyewash/shower units shall be located such that a worker can reach one in 10 seconds. ANSI Z358.1 provides a guideline of 55 feet to meet this requirement. Water connections are routed to existing emergency Eyewash/Shower at the center of the south wall in the existing maintenance bay. Connections for the new bay Eyewash/Shower shall be tapped at the existing location.

(3) Compressed Air. Provide compressed air outlets with hose reels, and quick disconnect couplings in maintenance bay expansion. Match existing maintenance bay hose reels. Each drop shall include an isolation valve, filter and pressure regulator and condensate trap with drain cock. Existing hose reels are Lincoln manufactured hose reels located on the North and South walls.

Hose reels are wall mounted in the center of each bay work space (one work space per door) at approximately 7'-0" above finished floor. Hose reels contain 50'-0" hose lengths.

(4) POL. Provide POL outlets with hose reels, and quick disconnect couplings in maintenance bay expansion. Connect to the existing POL piping and to new POL storage room. The POL system is to remain operational throughout the construction phase. Match existing maintenance bay POL connections. Existing hose reels are Lincoln manufactured hose reels located on the South exterior wall. Hose reels are wall mounted in the center of each bay space at approximately 7'-0" above finished floor. Hose reels contain 50'-0" hose lengths.

(5) Relocate existing washrack hose bibbs to the new washrack location. Install new freezeproof hose bibbs as necessary to maintain a maximum of 100' distance between hose bibbs. Match existing building hose bibbs.

(6) Oil/Water Separation. An oil/water separator is in service for the existing facility. The Offeror shall determine the facility's oil separation requirements including the maintenance bay expansion. The oil/water separation requirement calculation shall be in accordance with International Plumbing Code. If capacity exists, continue use of the existing oil/water separator and connect the maintenance bay expansion to it. If capacity does not exist, the existing oil/water separator shall be supplemented with a second separator or a new oil/water separator shall be provided for the entire facility. The oil/water separator shall be connected to the existing sanitary sewer piping.

(7) Provide a 1" domestic water and 4" sanitary sewer connection to the scale weighing building located at recycling yard. The building and connections are existing at the building. DB Contractor to verify if sanitary sewer piping can be extended to new location. Extend the existing domestic water piping from the existing scale building location to the new relocated scale building location. The building is to be moved west in the recycle yard, see civil plans for new location.

3.1.9. Electrical and Telecommunications Systems. See Paragraph 6 for work to be performed by others (work indicated in Paragraph 3 shall be a part of this contract unless otherwise indicated in Paragraph 6), clarifications and additional requirements for the electric and telecommunications systems.

(1) Exterior Electrical Distribution System

(a) Parking Pad and Power Connections. Not required.

(2) Exterior Lighting

(a) Exterior Lighting General. Exterior lighting systems inside the TEMF security fence shall be provided for sidewalks, roadways, service yards, facility aprons and parking areas. Exterior lighting shall consist of high intensity discharge (HID) light fixtures, mounted on poles located within the ATFP fence line clear zone and elsewhere as required to attain illumination levels and uniformity. Poles located within the service yards, facility aprons and hardstand parking areas shall be located and protected to minimize damage from vehicles. Building mounted light fixtures may be used around the building perimeter to supplement pole mounted light fixtures. Building mounted light fixtures used solely for building perimeter and doorway lighting may be fluorescent. Illumination levels shall be 5 foot-candles for areas adjacent to the primary facility and no less than 0.5 foot-candles for parking areas. Exterior lighting shall be controlled by a photo sensor or astronomical time clock that is capable of automatically turning off the exterior lighting when sufficient daylight is available or the lighting is not required. See paragraph 6.9.2 for division of responsibility with Canoochee EMS for pole mounted light fixture installation.

(b) Perimeter Security Lighting. Protective lighting systems shall be provided in response to project specific requirements to deter trespassers and make them visible to guards. Levels of exterior lighting for protected areas shall conform to the requirements in the IESNA Lighting Handbook. Lighting circuits shall be controlled by a photo sensor with manual override.

(3) Exterior Communication Services

(a) Parking Pad and Data Connections. Not required.

(4) Interior Electrical and Telecommunications

(a) Electrical

i. Power Service. In the existing electrical room there is space for 3-phase, 200 ampere breaker with additional 3-phase, 200 ampere power capacity for this breaker in the main switch board. Installation shall conform to NFPA 70, National Electrical Code.

ii. Nonlinear Loads. The effect of nonlinear loads such as computers and other electronic devices shall be considered and accommodated as necessary. These loads generate harmonics, which

can overload conventionally sized conductors or equipment and thereby cause safety hazards and premature failures. Circuits serving such devices shall be equipped with a separate neutral conductor not shared with other circuits. Panel boards and any dry type transformers shall be rated accordingly.

iii. Lightning Protection System and Transient Voltage Surge Protection. Design shall be in accordance with NFPA 780 and other referenced criteria. Existing main electrical switchboard has transient voltage surge protection.

(b) Receptacles. Power receptacles shall be provided per NFPA 70 and in conjunction with the proposed equipment layouts.

(c) Special Power Requirements. Provide one welder's outlet for Government furnished equipment. Outlet shall be 208V, 1ph, 50A, NEMA 6-50R, located midway along either the east or west wall of the new maintenance bay.

(d) Hazardous Locations. Hazardous locations shall be clearly defined on the drawings by the designer based on the intended use of the facility and applicable criteria. Receptacles, devices, equipment and wiring in hazardous locations shall be designed (UL listed for the application) and installed in accordance with the NFPA codes. In the maintenance bay, the first 18 inches above the finished floor is defined as a hazardous location. Receptacles, devices and conduit routing to them shall be installed above the hazardous area, where possible.

(e) Lighting. Lighting and lighting controls shall comply with the recommendations of the Illumination Engineering Society of North America (IESNA) and the requirements of ASHRAE 90.1.

i. Maintenance Areas. Illumination of the maintenance bay expansion shall match existing consisting of 400 W metal halide high bay light fixtures. The fixture layout shall be coordinated with the traveling bridge crane requirements.

ii. Illumination Levels. Maintained illumination levels shall be 50 foot-candles in the maintenance bay expansion.

(f) Telecommunications Systems including - Telecommunications Pathways, Outlets and Cabling. Telecommunications cabling shall be Category 6 for all voice and data connections unless length of run warrants need for multimode fiber optic cable. Provide number and type of outlets as indicated in paragraph 6. Provide a single jack outlet for wall mounted GFGI phones in the Fire Riser Room. Additional outlet locations may be provided based on coordination with the facility User and where required for HVAC equipment or other equipment. Provide outlets per I3A technical criteria and in the maintenance area at the rate of one outlet per 500 square feet.

(g) Cable Television (CATV). Not required.

(h) Audio/Visual Systems. Not required.

i. Paging Systems. An extension of the existing paging system shall be provided for the maintenance bay expansion. The system shall be zoned for multiple bay operation and shall have input from the telephone system.

(i) Mass Notification System (MNS). A relocation and expansion of the existing mass notification system shall be provided as required by UFC 4-010-01. Coordinate tie-in of this system with the installation-wide system.

(j) Grounding. Each maintenance building shall have a ground grid around the building perimeter for grounding incoming service, building steel, lightning protection, telephone service, piping, and internal grounding requirements. Ground busbar shall be provided on walls of each maintenance area. A grounding point shall be provided in each maintenance area. Install an interior #2 AWG bare tinned copper ground loop around the perimeter of the Fluid Storage Room for dissipation of potential static charge. Bond ground loop to the building structure and grounding riser. Provide ten (10) #6 AWG bare copper pigtails complete with alligator clips on both ends for grounding of metallic barrels/dispensing equipment. The length of pigtails should be based on potential layout of equipment/drums and the location of the ground ring. Additional grounding may be provided based on project requirements. Systems shall conform to NFPA 70 National Electrical Code, NFPA 780 Standard for the Installation of Lightning Protection Systems, local codes and the Technical Guide for Installation Information Infrastructure Architecture (I3A).

(k) SIPRNET. Not required.

(l) Hydraulic Lift. Not required.

(m) Fire Detection and Alarm.

i. A relocation and expansion of the existing fire alarm and detection system shall be provided for the maintenance bay expansion. It shall comply with the requirements of UFC 3-600-01 and NFPA 72. The system shall be addressable and fully compatible with and integrated with the local installation wide central monitoring system. Coordinate fire alarm system requirements with the Fire Department's Representative during design.

ii. All initiating devices shall be connected, Class A, Style 6, to signal line circuits (SLC). All alarm appliances shall be connected to notification appliance circuits (NAC), Class A. A looped conduit system shall be provided so that if the conduit and all conductors within are severed at any point, all NAC and SLC shall remain functional.

iii. Breakglass manual fire alarm stations shall not be used.

iv. Over-voltage and surge protection shall be provided at the input power of all panels.

3.1.10. Compliance with the Energy Policy Act of 2005 (EPACT 2005)

(1) EPACT 2005 Requirement. The building , including the building envelope, HVAC, ventilation and exhaust systems, service water heating, power, and lighting systems shall be designed to achieve an energy consumption that is at least 40% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAT/IESNA Standard 90.1-204 (see paragraph 5.9 Energy Conservation).

(2) Target Energy Consumption Budget. The target energy consumption budget (excluding plug loads) for this facility located in DOE Climate Zone 04 is 62 kBTU per square foot per year of less.

(3) EPACT Methodology. Prescriptive or Compliance

3.1.11. Furniture. Not Required.

3.2 FUNCTIONAL AREA REQUIREMENTS

(1)	Maintenance Bay	1769 Net Square Feet
(2)	POL Storage	75 Net Square Feet
(3)	Fire Riser	87 Net Square Feet
(4)	Air Compressor	58 Net Square Feet
(5)	Motor Testing	117 Net Square Feet

4.0 APPLICABLE CRITERIA

Unless a specific document version or date is indicated, use criteria from the most current references, including any applicable addenda, unless otherwise stated in the contract or task order, as of the date of the Contractor's latest accepted proposal or date of issue of the contract or task order solicitation, whichever is later. In the event of conflict between References and/or Applicable Military Criteria, apply the most stringent requirement, unless otherwise specifically noted in the contract or task order.

4.1. INDUSTRY CRITERIA

Applicable design and construction criteria references are listed in Table 1 below. This list is not intended to include all criteria that may apply or to restrict design and construction to only those references listed. See also Paragraph 3 for additional facility-specific applicable criteria.

Table 1: Industry Criteria

Air Conditioning and Refrigeration Institute (ARI)	
ARI 310/380	Packaged Terminal Air-Conditioners and Heat Pumps
ARI 440	Room Fan-Coil and Unit Ventilator
ANSI/ARI 430-99	Central Station Air Handling Units
ARI 445	Room Air-Induction Units
ARI 880	Air Terminals
Air Movement and Control Association (AMCA)	
AMCA 210	Laboratory Methods of Testing Fans for Rating
American Architectural Manufacturers Association (AAMA)	
AAMA 605	Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
AAMA 607.1	Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum
AAMA 1503	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections
American Association of State Highway and Transportation Officials (AASHTO)	
	Roadside Design Guide [guardrails, roadside safety devices]

	Standard Specifications for Transportation Materials and Methods of Sampling and Testing [Road Construction Materials]
	Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals
	Guide for Design of Pavement Structures, Volumes 1 and 2 [pavement design guide]
	A Policy of Geometric Design of Highways and Streets
American Bearing Manufacturers Association (AFBMA)	
AFBMA Std. 9	Load Ratings and Fatigue Life for Ball Bearings
AFBMA Std. 11	Load Ratings and Fatigue Life for Roller Bearings
American Boiler Manufacturers Association (ABMA)	
ABMA ISEI	Industry Standards and Engineering Information
American Concrete Institute	
ACI 302.2R	Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials
ACI 318	Building Code Requirements for Structural Concrete
ACI SP-66	ACI Detailing Manual
ACI 530	Building Code Requirements for Masonry Structures
ADA Standards for Accessible Design	
See US Access Board	ADA and ABA Accessibility Guidelines for Buildings and Facilities, Chapters 3-10.
American Institute of Steel Construction (AISC)	
	Manual of Steel Construction – 13th Edition (or latest version)
American Iron and Steel Institute	
AISI S100	North American Specification for the Design of Cold-Formed Steel Structural Members

American National Standards Institute 11 (ANSI)	
ANSI Z21.10.1	Gas Water Heaters Vol. 1, Storage water Heaters with Input Ratings of 75,000 Btu per Hour or less
ANSI Z124.3	American National Standard for Plastic Lavatories
ANSI Z124.6	Plastic Sinks
ANSI Z21.45	Flexible Connectors of Other Than All-Metal Construction for Gas Appliances
ANSI/IEEE C2-2007	National Electrical Safety Code
ANSI/AF&PA NDS-2001	National Design Specification for Wood Construction
American Society of Civil Engineers (ASCE)	
ASCE 7	Minimum Design Loads for Buildings and Other Structures
ASCE 37	Design and Construction of Sanitary and Storm Sewers, Manuals and Reports on Engineering Practice [sanitary sewer and storm drain design criteria]
ASCE/SEI 31-03	Seismic Evaluation of Existing Buildings [Existing Building Alteration/Renovation]
ASCE/SEI 41-06	Seismic Rehabilitation of Existing Buildings [Existing Building Alteration/Renovation]
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)	
ASHRAE 90.1	ANSI/ASHRAE/IESNA 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings
ASHRAE Guideline 0	The Commissioning Process
ASHRAE Guideline 1.1	The HVAC Commissioning Process
ASHRAE Handbooks	Fundamentals, HVAC Applications, Systems and Equipment, Refrigeration (Applicable, except as otherwise specified)
ASHRAE Standard 15	Safety Standard for Refrigeration Systems
ASHRAE Standard 62.1	Ventilation for Acceptable Indoor Air Quality

ASHRAE Standard 55	Thermal Environmental Conditions for Human Occupancy (Design portion is applicable, except where precluded by other project requirements.)
American Society of Mechanical Engineers International (ASME)	
ASME BPVC SEC VII	Boiler and Pressure Vessel Code: Section VII Recommended Guidelines for the Care of Power Boilers
ASME A17.1	Safety Code for Elevators and Escalators
ASME B 31 (Series)	Piping Codes
American Water Works Association (AWWA)	
	Standards [standards for water line materials and construction]
American Welding Society	
	Welding Handbook
	Welding Codes and Specifications (as applicable to application, see International Building Code for example)
Architectural Woodwork Institute (AWI)	
Latest Version	AWI Quality Standards
Associated Air Balance Council (AABC)	
AABC MN-1	National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems
	AABC Associated Air Balance Council Testing and Balance Procedures
ASTM International	
ASTM C1060-90(1997)	Standard Practice for Thermographic Inspection of Insulation Installations in Envelope Cavities of Frame Buildings
ASTM E 779 (2003)	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization
ASTM E1827-96(2002)	Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door

Builders Hardware Manufacturers Association (BHMA)	
ANSI/BHMA	The Various BHMA American National Standards
Building Industry Consulting Service International	
	Telecommunications Distribution Methods Manual (TDMM)
	Customer-Owned Outside Plant Design Manual (CO-OSP)
Code of Federal Regulations (CFR)	
49 CFR 192	Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards
10 CFR 430	Energy Conservation Program for Consumer Products
Consumer Electronics Association	
CEA 709.1B	Control Network Protocol Specification
CEA 709.3	Free-Topology Twisted-Pair Channel Specification
CEA 852	Tunneling Component Network Protocols Over Internet Protocol Channels
Electronic Industries Association (EIA)	
ANSI/EIA/TIA 568	Structured Cabling Series
ANSI/EIA/TIA 569	Commercial Building Standard for Telecommunications Pathways and Spaces (includes ADDENDA)
ANSI/TIA/EIA-606	Administrative Standard for the Telecommunications Infrastructure of Commercial Buildings
J-STD EIA/TIA 607	Commercial Building Grounding and Bonding Requirements for Telecommunications
Federal Highway Administration (FHWA)	
	Manual on Uniform Traffic Control Devices for Streets and Highways [signage and pavement markings for streets and highways]
FHWA-NHI-01-021	Hydraulic Engineering Circular No. 22, Second Edition, URBAN DRAINAGE DESIGN MANUAL

Illuminating Engineering Society of North America (IESNA)	
IESNA RP-1	Office Lighting
IESNA RP-8	Roadway Lighting
IESNA Lighting Handbook	Reference and Application
Institute of Electrical and Electronics Engineers Inc. (IEEE)	
	Standard for Use of the International System of Units (SI): the Modern Metric System
Standard 1100	Recommended Practice for Powering and Grounding Sensitive Electronic Equipment
International Code Council (ICC)	
IBC	International Building Code Note: All references in the International Building Code to the International Electrical Code shall be considered to be references to NFPA 70. All references in the International Building Code to the International Fuel Gas Code shall be considered to be references to NFPA 54 and NFPA 58. All references in the International Building Code to the International Fire Code and Chapter 9 shall be considered to be references to Unified Facilities Criteria (UFC) 3-600-01.
IMC	International Mechanical Code – Note: For all references to “HEATING AND COOLING LOAD CALCULATIONS”, follow ASHRAE 90.1 Note: For all references to “VENTILATION”, follow ASHRAE 62.1
IRC	International Residential Code
IPC	International Plumbing Code
IEC	Energy Conservation Code (IEC) –Applicable only to the extent specifically referenced herein. Refer to Paragraph 5, ENERGY CONSERVATION requirements.
IGC	International Gas Code - not applicable. Follow NFPA 54, National Fuel Gas Code and NFPA 58, Liquified Petroleum Gas Code.

International Organization for Standardization (ISO)	
ISO 6781:1983	Qualitative detection of thermal irregularities in building envelopes – infrared method
LonMark International (LonMark)	
LonMark Interoperability Guidelines	(available at www.lonmark.org), including: Application Layer Guidelines, Layer 1-6 Guidelines, and External Interface File (XIF) Reference Guide
LonMark Resource Files	(available at www.lonmark.org), including Standard Network Variable Type (SNVT) definitions
Metal Building Manufacturers Association (MBMA)	
	Metal Building Systems Manual
Midwest Insulation Contractors Association (MICA)	
	National Commercial and Industrial Insulation Standards Manual
National Association of Corrosion Engineers International (NACE)	
NACE RP0169	Control of External Corrosion on Underground or Submerged Metallic Piping Systems
NACE RP0185	Extruded, Polyolefin Resin Coating Systems with Adhesives for Underground or Submerged Pipe
NACE RP0285	Corrosion Control of Underground Storage Tank Systems by Cathodic Protection
NACE RP0286	Electrical Isolation of Cathodically Protected Pipelines
National Electrical Manufacturers Association (NEMA)	
National Environmental Balancing Bureau (NEBB)	
	Procedural Standards Procedural Standards for Testing Adjusting Balancing of Environmental Systems
National Fire Protection Association (NFPA)	
NFPA 10	Standard for Portable Fire Extinguishers
NFPA 13	Installation of Sprinkler Systems

NFPA 13R	Residential Occupancies up to and Including Four Stories in Height Sprinkler Systems
NFPA 14	Standard for the Installation of Standpipes and Hose Systems
NFPA 20	Installation of Centrifugal Fire Pumps
NFPA 24 NFPA 25	Standard for the Installation of Private Fire Service Mains and Their Appurtenances [underground fire protection system design] Inspection, Testing And Maintenance Of Water-Based Fire Protection Systems
NFPA 30	Flammable and Combustible Liquids Code
NFPA 30A	Motor Fuel Dispensing Facilities and Repair Garages
NFPA 31	Installation of Oil Burning Equipment
NFPA 54	National Fuel Gas Code
NFPA 58	Liquefied Petroleum Gas Code
NFPA 70	National Electrical Code
NFPA 72	National Fire Alarm Code
NFPA 76	Fire Protection of Telecommunications Facilities
NFPA 80	Standard for Fire Doors and Fire Windows
NFPA 90a	Installation of Air Conditioning and Ventilating Systems
NFPA 96	Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
NFPA 101	Life Safety Code
NFPA 780	Standard for the Installation of Lightning Protection Systems
National Roofing Contractor's Association (NRCA)	
	Roofing and Waterproofing Manual
National Sanitation Foundation, International	

NSF/ANSI Std. 2, 3, 4, 5, 6, 7, 8, 12, 13, 18, 20, 21, 25, 29, 35, 36, 37, 51, 52, 59, 169	Food Equipment Standards
ANSI/UL Std. 73, 197, 471, 621, 763	Food Equipment Standards
CSA Std. C22.2 No. 109, 120, 195	Food Equipment Standards
Occupational Safety and Health Administration (OSHA)	
Title 29, Part 1926	OSHA Construction Industry Standards, Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction
Plumbing and Drainage Institute (PDI)	
PDI G 101	Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data
PDI WH201	Water Hammer Arrestors
Precast Concrete Institute	
PCI Design Handbook	Precast and Prestressed Concrete
Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)	
SMACNA HVAC Duct Construction Standards	HVAC Duct Construction Standards - Metal and Flexible
SMACNA Architectural Manual	Architectural Sheet Metal Manual
SMACNA HVAC TAB	HVAC Systems - Testing, Adjusting and Balancing
State/Local Regulations	
	State Department of Transportation Standard Specifications for Highway and Bridge Construction
	Sedimentation and Erosion Control Design Requirements
	Environmental Control Requirements
	Storm Water Management Requirements

Steel Door Institute (SDI)	
ANSI A250.8/SDI 100	Standard Steel Doors and Frames
Steel Deck Institute	
	SDI Diaphragm Design Manual
Steel Joist Institute	
	Catalog of Standard Specifications and Load Tables for Steel Joists and Joist Girders
Underwriters Laboratories (UL)	
UL 96A	Installation Requirements for Lightning Protection Systems
UL 300	Standard for Safety for Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas
UNITED STATES ACCESS BOARD: U.S. ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD	
ADA and ABA Accessibility Guidelines for Buildings and Facilities	ABA Accessibility Standard for DoD Facilities Derived from the ADA and ABA Accessibility Guidelines: Specifically includes: ABA Chapters 1 and 2 and Chapters 3 through 10. Use this reference in lieu of IBC Chapter 11. Excluded are: (a) Facilities, or portions of facilities, on a military installation that are designed and constructed for use exclusively by able-bodied military personnel (See Paragraph 3 for any reference to this exclusion). (b) Reserve and National Guard facilities, or portions of such facilities, owned by or under the control of the Department of Defense, that are designed and constructed for use exclusively by able-bodied military personnel. (See paragraph 3 for any reference to this exclusion).
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES	
	FDA National Food Code
U.S. GREEN BUILDING COUNCIL (USGBC)	
LEED-NC	Green Building Rating System for New Construction & Major Renovations
	Application Guide for Multiple Buildings and On-Campus Building

	Projects

4.2. MILITARY CRITERIA

The project shall conform to the following criteria. Certain design impacts and features due to these criteria are noted for the benefit of the offeror. However, all requirements of the referenced criteria will be applicable, whether noted or not, unless otherwise specified herein.

4.2.1. Energy Policy Act of 2005 (Public Law 109-58) (applies only to the extent specifically implemented in the contract, which may or may not directly cite or reference EPACT)

4.2.2. Executive Order 12770: Metric Usage In Federal Government

(a) Metric design and construction is required except when it increases construction cost. Offeror to determine most cost efficient system of measurement to be used for the project.

4.2.3. TB MED 530: Occupational and Environmental Health Food Sanitation

4.2.4. Unified Facilities Criteria (UFC) 3-410-01FA: Heating, Ventilating, and Air Conditioning - applicable only to the extent specified in paragraph 5, herein.

4.2.5. Deleted.

4.2.6. UFC 3-600-01 Design: Fire Protection Engineering for Facilities. Use the latest edition of the IBC in coordination with this UFC. Use Chapters 3, 6, 7, 33 and UFC 3-600-01. If any conflict occurs between these Chapters and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence. Use UFC 3-600-01 in lieu of IBC Chapters 4, 8,9,10.

4.2.7. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings

4.2.8. UFC 4-023-03 Design of Buildings to Resist Progressive Collapse (Use most recent version, regardless of references thereto in other publications)

(a) Note the option to use tie force method or alternate path design for Occupancy Category II.

4.2.9. UFC 4-021-01 Design and O&M: Mass Notification Systems

4.2.10. Technical Criteria for Installation Information Infrastructure Architecture (I3A)

(a) Email: DetrickISECI3Aguide@conus.army.mil

4.2.11. U.S. Army Information Systems Engineering Command (USAISEC) TG for the Integration of SECRET Internet Protocol (IP) Router Network (SIPRNET). See Paragraph 3 for applicability to specific facility type. May not apply to every facility. This is mandatory criteria for those facilities with SIPRNET.

4.2.11.1. Draft Guide Specification for Section 27 05 28 PROTECTIVE DISTRIBUTION SYSTEM (PDS) FOR SIPRNET COMMUNICATIONS SYSTEMS, found at http://rfpwizard.cecer.army.mil/HTML/docs/Refs/SECTION_270528-v3.pdf

5.0 GENERAL TECHNICAL REQUIREMENTS

This paragraph contains technical requirements with general applicability to Army facilities. See also Paragraph 3 for facility type-specific operational, functional and technical requirements. Residential or similar grade finishes and materials are not acceptable for inclusion in these buildings, unless otherwise specifically allowed.

5.1. SITE PLANNING AND DESIGN

5.1.1. STANDARDS AND CODES: The site planning and design shall conform to APPLICABLE CRITERIA and to paragraph 6, PROJECT SPECIFIC REQUIREMENTS.

5.1.2. SITE PLANNING OBJECTIVES: Group buildings in configurations that create a sense of community and promote pedestrian use. See paragraph 3 for additional site planning requirements relating to building functions.

5.1.2.1. Provide enclosures and or visual screening devices for Outdoor Utility such as dumpsters, emergency generators, transformers, heating, ventilation, and air conditioning units from streetscape and courtyard views to limit visual impact. Enclosures shall be compatible with the building they serve and accessible by vehicle. The location of dumpsters can have a significant visual impact and should be addressed as part of an overall building design and incorporated in site planning.

5.1.2.2. Where included in the project, dumpster pads shall be concrete (minimum of 8 inches thick on 4 inch base course, unless site conditions dictate more conservative requirements) and directly accessible by way of a paved service drive or parking lot with adequate overhead clearance for collection vehicles. Provide space at dumpster areas for recycling receptacles. Coordinate with Installation on recycling receptacle types, sizes and access requirements and provide space at dumpster areas to accommodate them.

5.1.2.3. Vehicular Circulation. Apply design vehicle templates provided by the American Association of State Highway and Transportation Officials (AASHTO) to the site design. The passenger car class includes passenger cars and light trucks, such as vans and pick-ups. The passenger car template is equivalent to the non-organizational – privately owned vehicle (POV). The truck class template includes single-unit trucks, recreation vehicles, buses, truck tractor-semi-trailer combinations, and trucks or truck tractors with semi-trailers in combination with full trailers. Provide vehicle clearances required to meet traffic safety for emergency vehicles, service vehicles, and moving vans. Provide required traffic control signage Site entrances and site drive aisles shall maximize spacing between drives, incorporate right-angle turns, and limit points of conflict between traffic. Design Services Drives to restrict access to unauthorized vehicles by removable bollards, gates, or other barriers to meet Anti-Terrorism/Force Protection (ATFP) requirements. Orient service drives to building entrances other than the primary pedestrian entry at the front of the building.

5.1.2.4. Provide Emergency Vehicle Access around the facility and shall be in accordance with AT/FP requirements. Maintain a 33-foot clear zone buffer for emergency vehicles, designed to prevent other vehicles from entering the AT/FP standoff to the building.

5.1.2.5. Clear and grub all trees and vegetation necessary for construction; but, save as many trees as possible. Protect trees to be saved during the construction process from equipment.

5.1.2.6. Stormwater Management. Employ design and construction strategies (Best Management Practices) that reduce stormwater runoff, reduce discharges of polluted water offsite and maintain or restore predevelopment hydrology with respect to temperature, rate, volume and duration of flow to the maximum extent practicable. See paragraph 6, PROJECT SPECIFIC requirements for additional information.

5.1.3. EXTERIOR SIGNAGE: Provide exterior signage in accordance with Appendix H, Exterior Signage. Provide exterior NO SMOKING signage that conveys building and grounds smoking policy.

5.1.4. EXISTING UTILITIES: Base utilities maps and capacities for this site are included as part of this RFP. See paragraph 6 for more detailed information.

5.2. SITE ENGINEERING

5.2.1. STANDARDS AND CODES: The site engineering shall conform to APPLICABLE CRITERIA.

5.2.2. SOILS:

5.2.2.1. A report has been prepared to characterize the subsurface conditions at the project site and is **appended to these specifications.** The report provides a general overview of the soil and geologic conditions with detailed descriptions at discrete boring locations. The Contractor's team shall include a licensed geotechnical engineer to interpret the report and develop earthwork and foundation recommendations and design parameters in which to base the contractor's design. If any additional subsurface investigation or laboratory analysis is required to better characterize the site or develop the final design, the Contractor shall perform it under the direction of a licensed geotechnical engineer. There will be no separate payment for the cost of additional tests. If differences between the Contractor's additional subsurface investigation and the government provided soils report or the reasonably expected conditions require material revisions in the design, an equitable adjustment may be made, in accordance with the provisions of the Differing Site Conditions clause. The basis for the adjustment would be the design and construction appropriate for the conditions described in the Government furnished report or the reasonably expected conditions, in comparison with any changes required by material differences in the actual conditions encountered, in accordance with the terms of contract clause Differing Site Conditions.

5.2.2.2. The contractor's licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal, as described in Section 01 33 16, *Design After Award*.

5.2.3. VEHICLE PAVEMENTS: (as applicable to the project)

5.2.3.1. Design procedures and materials shall conform to one of the following: 1) the USACE Pavement Transportation Computer Assisted Structural Engineering (PCASE) program, 2) American Association of State Highway and Transportation Officials (AASHTO) or, 3) the applicable state Department of Transportation standards in which the project is located. See paragraph 5.2.2.2 and Section 01 33 16 for required information for the Contractor's geotechnical evaluation report. The minimum flexible pavement section shall consist of 2 inches of asphalt and 6 inches of base or as required by the pavement design, whichever is greater, unless specifically identified by the Government to be a gravel road. Design roads and parking areas for a life expectance of 25 years with normal maintenance. Parking area for tactical vehicles (as applicable to the project) shall be Portland Cement Concrete (PCC) rigid pavement design. For concrete pavements, submit joint layout plan for review and concurrence. Design pavements for military tracked vehicles (as applicable to the project) IAW USACE PCASE. Traffic estimates for each roadway area will be as shown on the drawings or listed in Section 01 10 00 Paragraph 6.4.4. Pavement markings and traffic signage shall comply with the Installation requirements and with the Manual on Uniform Traffic Control Devices.

5.2.3.2. Parking Requirements.

(a) All handicap POV parking lots (where applicable in the facility specific requirements) shall meet the ADA and ABA Accessibility Guidelines for accessible parking spaces.

(b) Design POV parking spaces for the type of vehicles anticipated, but shall be a minimum of 9 ft by 18 ft for POVs, except for two wheel vehicles.

5.2.3.3. Sidewalks. Design the network of walks throughout the complex (where applicable) to facilitate pedestrian traffic among facilities, and minimize the need to use vehicles. Incorporate sidewalks to enhance the appearance of the site development, while creating a sense of entry at the primary patron entrances to the buildings. Minimum sidewalk requirements are in Paragraph 3, where applicable and/or paragraph 6 and/or site plans, where applicable..

5.2.4. CATHODIC PROTECTION: Provide cathodic protection systems for all underground metallic systems and metallic fittings/portions of non-metallic, underground systems, both inside and outside the building 5 foot line that are subject to corrosion. Coordinate final solutions with the installation to insure an approach that is consistent with installation cathodic protection programs.

5.2.5. UTILITIES: See paragraph 6.4.6 for specific information on ownership of utilities and utility requirements. Meter all utilities (gas, water, and electric, as applicable) to each facility. For Government owned utilities, install meters that are wireless data transmission capable as well as have a continuous manual reading option. All meters will be capable of at least hourly data logging and transmission and provide consumption data for gas, water, and

electricity. Gas and electric meters will also provide demand readings based on consumption over a maximum of any 15 minute period. Configure all meters to transmit at least daily even if no receiver for the data is currently available at the time of project acceptance. For privatized utilities, coordinate with the privatization utility(ies) for the proper meter base and meter installation.

5.2.6. PERMITS: The CONTRACTOR shall be responsible for obtaining all permits (local, state and federal) required for design and construction of all site features and utilities.

5.2.7. IRRIGATION. Landscape irrigation systems, if provided, shall comply with the following:

5.2.7.1. Irrigation Potable Water Use Reduction. Reduce irrigation potable water use by 100 percent using LEED credit WE1.1 baseline (no potable water used for irrigation), except where precluded by other project requirements.

5.2.8. EPA WATERSENSE PRODUCTS AND CONTRACTORS. Except where precluded by other project requirements, use EPA WaterSense labeled products and irrigation contractors that are certified through a WaterSense labeled program where available.

5.3. ARCHITECTURE AND INTERIOR DESIGN:

This element will be evaluated per APPLICABLE CRITERIA under the quality focus.

5.3.1. STANDARDS AND CODES: The architecture and interior design shall conform to APPLICABLE CRITERIA.

5.3.2. GENERAL: Overall architectural goal is to provide a functional, quality, visually appealing facility that is a source of pride for the installation and delivered within the available budget and schedule.

5.3.3. COMPUTATION OF AREAS: See APPENDIX Q for how to compute gross and net areas of the facility(ies).

5.3.4. BUILDING EXTERIOR: Design buildings to enhance or compliment the visual environment of the Installation. Where appropriate, reflect a human scale to the facility. Building entrance should be architecturally defined and easily seen. When practical, exterior materials, roof forms, and detailing shall be compatible with the surrounding development and adjacent buildings on the Installation and follow locally established architectural themes. Use durable materials that are easy to maintain. Exterior colors shall conform to the Installation requirements. See paragraph 6.

5.3.4.1. Building Numbers: Permanently attach exterior signage on two faces of each building indicating the assigned building number or address. Building number signage details and locations shall conform to Appendix H, Exterior Signage.

5.3.5. BUILDING INTERIOR

5.3.5.1. Space Configuration: Arrange spaces in an efficient and functional manner in accordance with area adjacency matrices.

5.3.5.2. Surfaces: Appearance retention is the top priority for building and furniture related finishes. Provide low maintenance, easily cleaned room finishes that are commercially standard for the facility occupancy specified, unless noted otherwise.

5.3.5.3. Color: The color, texture and pattern selections for the finishes of the building shall provide an aesthetically pleasing, comfortable, easily maintainable and functional environment for the occupants. Coordinate the building colors and finishes for a cohesive design. Select colors appropriate for the building type. Use color, texture and pattern to path or way find through the building. Trendy colors that will become dated shall be limited to non-permanent finishes such as carpet and paint. Select finisheswith regards to aesthetics, maintenance, durability, life safety and image. Limit the number of similar colors for each material. Use medium range colors for ceramic and porcelain tile groutto help hide soiling. Plastic laminate and solid surface materials shall have patterns that are mottled, flecked or speckled. Coordinate finish colors of fire extinguisher cabinets, receptacle bodies and plates, fire alarms / warning lights, emergency lighting, and other miscellaneous items with the building interior. Match color of equipment items on ceilings (speakers, smoke detectors, grills, etc.) the ceiling color.

5.3.5.4. Circulation: Circulation schemes must support easy way finding within the building.

5.3.5.5. Signage: Provide interior signage for overall way finding and life safety requirements. A comprehensive interior plan shall be from one manufacturer. Include the following sign types: (1) Lobby Directory, (2) Directional Signs; (3) Room Identification Signs; (4) Building Service Signs; (5) Regulatory Signs; (6) Official and Unofficial Signs (7) Visual Communication Boards (8) NO SMOKING signage that conveys building smoking policy. Use of emblems or logos may also be incorporated into the signage plan.

5.3.5.6. Window Treatment: Provide interior window treatments with adjustable control in all exterior window locations for control of day light coming in windows or privacy at night. Maintain uniformity of treatment color and material to the maximum extent possible within a building.

5.3.5.7. Casework: Unless, otherwise specified, all casework for Cabinetry and cases shall be “custom grade”, as described in the AWI Quality Standards.

5.3.6. COMPREHENSIVE INTERIOR DESIGN

5.3.6.1. Comprehensive Interior Design includes the integration of a Structural Interior Design (SID) and a Furniture, Fixtures and Equipment (FF&E) design and package. SID requires the design, selection and coordination of interior finish materials that are integral to or attached to the building structure. Completion of a SID involves the selection and specification of applied finishes for the building’s interior features including, but not limited to, walls, floors, ceilings, trims, doors, windows, window treatments, built-in furnishings and installed equipment, lighting, and signage. The SID package includes finish schedules, finish samples and any supporting interior elevations, details or plans necessary to communicate the building finish design and build out. The SID also provides basic space planning for the anticipated FF&E requirements in conjunction with the functional layout of the building and design issues such as life safety, privacy, acoustics, lighting, ventilation, and accessibility. See Section 01 33 16 for SID design procedures.

5.3.6.2. The FF&E design and package includes the design, selection, color coordination and of the required furnishing items necessary to meet the functional, operational, sustainability, and aesthetic needs of the facility coordinated with the interior finish materials in the SID. The FF&E package includes the specification, procurement documentation, placement plans, ordering and finish information on all freestanding furnishings and accessories, and a cost estimate. Coordinate the selection of furniture style, function and configuration with the defined requirements. Examples of FF&E items include, but are not limited to workstations, seating, files, tables, beds, wardrobes, draperies and accessories as well as marker boards, tack boards, and presentation screens. Criteria for furniture selection include function and ergonomics, maintenance, durability, sustainability, comfort and cost. See Section 01 33 16 for FFE design procedures.

5.4. STRUCTURAL DESIGN

5.4.1. STANDARDS AND CODES: The structural design shall conform to APPLICABLE CRITERIA.

5.4.2. GENERAL: The structural system must be compatible with the intended functions and components that allows for future flexibility and reconfigurations of the interior space. Do not locate columns, for instance, in rooms requiring visibility, circulation or open space, including, but not limited to entries, hallways, common areas, classrooms, etc. Select an economical structural system based upon facility size, projected load requirements and local availability of materials and labor. Base the structural design on accurate, site specific geotechnical information and anticipated loads for the building types and geographical location. Consider climate conditions, high humidity, industrial atmosphere, saltwater exposure, or other adverse conditions when selecting the type of cement and admixtures used in concrete, the concrete cover on reinforcing steel, the coatings on structural members, expansion joints, the level of corrosion protection, and the structural systems. Analyze, design and detail each building as a complete structural system. Design structural elements to preclude damage to finishes, partitions and other frangible, non-structural elements to prevent impaired operability of moveable components; and to prevent cladding leakage and roof ponding. Limit deflections of structural members to the allowable of the applicable material standard, e.g., ACI, AISC, Brick Industry Association, etc. When modular units or other pre-fabricated construction is used or combined with stick-built construction, fully coordinate and integrate the overall structural design between the two different or interfacing construction types. If the state that the project is located in requires separate, specific licensing for structural engineers (for instance, such as in Florida, California and others), then the structural engineer designer of record must be registered in that state.

5.4.3. LOADS: See paragraph 3 for facility specific (if applicable) and paragraph 6 for site and project specific structural loading criteria. Unless otherwise specified in paragraph 6, use Exposure Category C for wind. If not specified, use Category C unless the Designer of Record can satisfactorily justify another Exposure Category in its design analysis based on the facility Master Plan. Submit such exceptions for approval as early as possible and prior to the Interim Design Submittal in Section “Design After Award”. Design the ancillary building items, e.g. doors, window jambs and connections, overhead architectural features, systems and equipment bracing, ducting, piping, etc. for gravity, seismic, lateral loads and for the requirements of UFC 4-010-01, DOD Minimum Antiterrorism Standards for Buildings. Ensure and document that the design of glazed items includes, but is not limited to, the following items under the design loads prescribed in UFC 4-010-01:

(a) Supporting members of glazed elements, e.g. window jamb, sill, header

(b) Connections of glazed element to supporting members, e.g. window to header

(c) Connections of supporting members to each other, e.g. header to jamb

(d) Connections of supporting members to structural system, e.g. jamb to foundation.

5.4.4. TERMITE TREATMENT: (Except Alaska) Provide termite prevention treatment in accordance with Installation and local building code requirements, using licensed chemicals and licensed applicator firm.

5.5. THERMAL PERFORMANCE

5.5.1. STANDARDS AND CODES: Building construction and thermal insulation for mechanical systems shall conform to APPLICABLE CRITERIA.

5.5.2. BUILDING ENVELOPE SEALING PERFORMANCE REQUIREMENT. Design and construct the building envelope for office buildings, office portions of mixed office and open space (e.g., company operations facilities), dining, barracks and instructional/training facilities with a continuous air barrier to control air leakage into, or out of, the conditioned space. Clearly identify all air barrier components of each envelope assembly on construction documents and detail the joints, interconnections and penetrations of the air barrier components. Clearly identify the boundary limits of the building air barriers, and of the zone or zones to be tested for building air tightness on the drawings. Pending the publication of the 2010 version of ASHRAE 90.1, the use of painted interior walls is not an acceptable air barrier method.

5.5.2.1. Trace a continuous plane of air-tightness throughout the building envelope and make flexible and seal all moving joints.

5.5.2.2. The air barrier material(s) must have an air permeance not to exceed 0.004 cfm / sf at 0.3” wg (0.02 L/s.m2 @ 75 Pa) when tested in accordance with ASTM E 2178

5.5.2.3. Join and seal the air barrier material of each assembly in a flexible manner to the air barrier material of adjacent assemblies, allowing for the relative movement of these assemblies and components.

5.5.2.4. Support the air barrier so as to withstand the maximum positive and negative air pressure to be placed on the building without displacement, or damage, and transfer the load to the structure.

5.5.2.5. Seal all penetrations of the air barrier. If any unavoidable penetrations of the air barrier by electrical boxes, plumbing fixture boxes, and other assemblies are not airtight, make them airtight by sealing the assembly and the interface between the assembly and the air barrier or by extending the air barrier over the assembly.

5.5.2.6. The air barrier must be durable to last the anticipated service life of the assembly.

5.5.2.7. Do not install lighting fixtures with ventilation holes through the air barrier

5.5.2.8. Provide a motorized damper in the closed position and connected to the fire alarm system to open on call and fail in the open position for any fixed open louvers such as at elevator shafts.

5.5.2.9. Damper and control to close all ventilation or make-up air intakes and exhausts, atrium smoke exhausts and intakes, etc when leakage can occur during inactive periods.

5.5.2.10. Compartmentalize garages under buildings by providing air-tight vestibules at building access points.

5.5.2.11. Compartmentalize spaces under negative pressure such as boiler rooms and provide make-up air for combustion.

5.5.2.12. Performance Criteria and Substantiation: Submit the qualifications and experience of the testing entity for approval. Demonstrate performance of the continuous air barrier for the opaque building envelope by the following tests:

(a) Develop an Air Barrier Quality Assurance plan to assure that a competent air barrier inspector/specialist inspects the critical components prior to them being concealed. At a minimum, three onsite inspections are required during construction to assure the completeness of the construction and design.

(b) Test the completed building and demonstrate that the air leakage rate of the building envelope does not exceed 0.25cfm/ft2 at a pressure differential of 0.3" w.g.(75 Pa) in accordance with ASTM's E 779 (2003) or E-1827-96 (2002). Accomplish tests using either pressurization or depressurization or both. Divide the volume of air leakage in cfm @ 0.3" w.g. (L/s @ 75 Pa) by the area of the pressure boundary of the building, including roof or ceiling, walls and floor to produce the air leakage rate in cfm/ft2 @ 0.3" w.g. (L/s.m2 @ 75 Pa). Do not test the building until verifying that the continuous air barrier is in place and installed without failures in accordance with installation instructions so that repairs to the continuous air barrier, if needed to comply with the required air leakage rate, can be done in a timely manner.

(c) Test the completed building using Infrared Thermography testing. Use infrared cameras with a resolution of 0.1deg C or better. Perform testing on the building envelope in accordance with ISO 6781:1983 and ASTM C1060-90(1997). Determine air leakage pathways using ASTM E 1186-03 Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems, and perform corrective work as necessary to achieve the whole building air leakage rate specified in (a) above.

(d) Notify the Government at least three working days prior to the tests to provide the Government the opportunity to witness the tests. Provide the Government written test results confirming the results of all tests.

5.6. PLUMBING

5.6.1. STANDARDS AND CODES: The plumbing system shall conform to APPLICABLE CRITERIA.

5.6.2. PRECAUTIONS FOR EXPANSIVE SOILS: Where expansive soils are present, include design features for underslab piping systems and underground piping serving chillers, cooling towers, etc, to control forces resulting from soil heave. Some possible solutions include, but are not necessarily limited to, features such as flexible expansion joints, slip joints, horizontal offsets with ball joints, or multiple bell and spigot gasketed fittings. For structurally supported slabs, suspend piping from the structure with adequate space provided below the pipe for the anticipated soil movement.

5.6.3. HOT WATER SYSTEMS: For Hot Water heating and supply, provide a minimum temp of 140 Deg F in the storage tank and a maximum of 110 Deg F at the fixture, unless specific appliances or equipment specifically require higher temperature water supply.

5.6.4. SIZING HOT WATER SYSTEMS: Unless otherwise specified or directed in paragraph 3, design in accordance with ASHRAE Handbook Series (appropriate Chapters), ASHRAE Standard 90.1, and the energy conservation requirements of the contract. Size and place equipment so that it is easily accessible and removable for repair or replacement.

5.6.5. JANITOR CLOSETS: In janitor spaces/room/closets, provide at minimum, a service sink with heavy duty shelf and wall hung mop and broom rack(s).

5.6.6. FLOOR DRAINS: As a minimum, provide floor drains in mechanical rooms and areas, janitor spaces/rooms/closets and any other area that requires drainage from fixtures or equipment, drain downs, condensate, as necessary.

5.6.7. URINALS: Urinals shall be vitreous china, wall-mounted, wall outlet, non-water using, with integral drain line connection, and with sealed replaceable cartridge or integral liquid seal trap. Either type shall use a

biodegradable liquid to provide the seal and maintain a sanitary and odor-free environment. Install, test and maintain in accordance with manufacturer's recommendations. Slope the sanitary sewer branch line for non-water use urinals a minimum of 1/4 inch per foot. Do not use copper tube or pipe for drain lines that connect to the urinal. Manufacturer shall provide an operating manual and on-site training to installation operations personnel for the proper care and maintenance of the urinal. For complexes, non-water using urinals are not required for barracks type spaces.

5.6.8. BUILDING WATER USE REDUCTION. Reduce building potable water use in each building 30 percent using IPC fixture performance requirements baseline.

5.6.9. Do not use engineered vent or Sovent® type drainage systems.

5.6.10. Where the seasonal design temperature of the cold water entering a building is below the seasonal design dew point of the indoor ambient air, and where condensate drip will cause damage or create a hazard, insulate plumbing piping with a vapor barrier type of insulation to prevent condensation. Do not locate water or drainage piping over electrical wiring or equipment unless adequate protection against water (including condensation) damage is provided. Insulation alone is not adequate protection against condensation. Follow ASHRAE Fundamentals Chapter 23, Insulation for Mechanical Systems, IMC paragraph 1107 and International Energy Conservation Code for pipe insulation requirements.

5.6.11. Cover all drain, waste and vent piping to prevent mortar or other debris from being flushed down and blocking pipes during such construction activities.

5.7. ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

5.7.1. STANDARDS AND CODES: The electrical systems for all facilities shall conform to APPLICABLE CRITERIA.

5.7.2. MATERIALS AND EQUIPMENT: Materials, equipment and devices shall, as a minimum, meet the requirements of Underwriters Laboratories (UL) where UL standards are established for those items. Wiring for branch circuits shall be copper. Motors larger than one-half horsepower shall be three phase. All electrical systems shall be pre-wired and fully operational unless otherwise indicated. Wall mounted electrical devices (power receptacles, communication outlets and CATV outlets) shall have matching colors, mounting heights and faceplates.

5.7.3. POWER SERVICE: Primary service from the base electrical distribution system to the pad-mounted transformer and secondary service from the transformer to the building service electrical equipment room shall be underground. See paragraph 6 for additional site electrical requirements.

5.7.3.1. Spare Capacity: Provide 10% space for future circuit breakers in all panelboards serving residential areas of buildings and 15% spaces in all other panelboards.

5.7.4. TELECOMMUNICATION SERVICE: Connect the project's facilities to the Installation telecommunications (voice and data) system through the outside plant (OSP) telecommunications underground infrastructure cabling system per the I3A Criteria. Connect to the OSP cabling system from each facility main cross connect located in the telecommunications room.

5.7.5. LIGHTING: Comply with the recommendations of the Illumination Engineering Society of North America (IESNA), the National Energy Policy Act and Energy Star requirements for lighting products..

5.7.5.1. Interior Lighting:

(a) Reflective Surfaces: Coordinate interior architectural space surfaces and colors with the lighting systems to provide the most energy-efficient workable combinations.

(b) High Efficiency Fluorescent Lighting: Utilize NEMA premium electronic ballasts and energy efficient fluorescent lamps with a Correlated Color Temperature (CCT) of 4100K. Linear fluorescent and compact fluorescent fixtures shall have a Color Rendering Index of (CRI) of 87 or higher. Fluorescent lamps shall be the low mercury type qualifying as non-hazardous waste upon disposal. Do not use surface mounted fixtures on acoustical

tile ceilings. Provide an un-switched fixture with emergency ballast shall be provided at each entrance to the building.

(c) Solid State Lighting: Fixtures shall provide lighting with a minimum Correlated Color Temperature (CCT) of 4100K and shall have a Color Rendering Index of (CRI) of 75 or higher. Verify performance of the light producing solid state components by a test report in compliance with the requirements of IESNA LM 80. Verify performance of the solid state light fixtures by a test report in compliance with the requirements of IESNA LM 79. Provide lab results by a NVLAP certified laboratory. The light producing solid state components and drivers shall have a life expectancy of 50,000 operating hours while maintaining at least 70% of original illumination level. Provide a complete five year warranty for fixtures.

(d) Metal Halide Lighting (where applicable): Metal Halide lamp fixtures in the range of 150-500 Watts shall be pulse start type and have a minimum efficiency rating of 88%.

(e) Lighting Controls: ANSI/ASHRAE/IESNA 90.1 has specific lighting controls requirements. Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (classrooms, conference rooms) to promote the productivity, comfort and well being of the building occupants. In office spaces, the preferred lighting should be a 30 FC ambient lighting level with occupancy sensor controlled task lighting in the work spaces to provide a composite lighting level of 50 FC on the working surfaces. Consider incorporating daylighting techniques for the benefit of reducing lighting energy requirements while improving the quality of the indoor spaces. If daylight strategies are used, additional coordination is required with the architect and mechanical engineer. Additionally, incorporate electric lighting controls to take advantage of the potential energy savings.

(f) Exterior Lighting: See paragraph 6.9 for site specific information, if any, on exterior lighting systems. Minimize light pollution and light trespass by not over lighting and use cut-off type exterior luminaries.

5.7.6. TELECOMMUNICATION SYSTEM: Building telecommunications cabling systems (BCS) and OSP telecommunications cabling system shall conform to APPLICABLE CRITERIA, including but not limited to I3A Technical Criteria. An acceptable BCS encompasses, but is not limited to, copper and fiber optic (FO) entrance cable, termination equipment, copper and fiber backbone cable, copper and fiber horizontal distribution cable, workstation outlets, racks, cable management, patch panels, cable tray, cable ladder, conduits, grounding, and labeling.. Items included under OSP infrastructure encompass, but are not limited to, manhole and duct infrastructure, copper cable, fiber optic cable, cross connects, terminations, cable vaults, and copper and FO entrance cable.

5.7.6.1. Design, install, label and test all telecommunications systems in accordance with the I3A Criteria and ANSI/TIA/EIA 568, 569, and 606 standards. A Building Industry Consulting Services International (BICSI) Registered Communications Distribution Designer (RCDD) with at least 2 yrs related experience shall develop and stamp telecommunications design, and prepare the test plan. See paragraph 5.8.2.5 for design of environmental systems for Telecommunications Rooms.

5.7.6.2. The installers assigned to the installation of the telecommunications system or any of its components shall be regularly and professionally engaged in the business of the application, installation and testing of the specified telecommunications systems and equipment. Key personnel; i.e., supervisors and lead installers assigned to the installation of this system or any of its components shall be BICSI Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification for each of the key personnel. In lieu of BICSI certification, supervisors and installers shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products.

5.7.6.3. Perform a comprehensive end to end test of all circuits to include all copper and fiber optic cables upon completion of the BCS and prior to acceptance of the facility. Provide adequate advanced notification to the COR to allow COR and Installation personnel attendance The BCS circuits include but are not limited to all copper and fiber optic(FO) entrance cables, termination equipment, copper and fiber backbone cable, copper and fiber horizontal distribution cable, and workstation outlets. Test in accordance with ANSI/EIA/TIA 568 standards. Use test instrumentation that meets or exceeds the standard. Submit the official test report to include test procedures, parameters tested, values, discrepancies and corrective actions in electronic format. Test and accomplish all necessary corrective actions to ensure that the government receives a fully operational, standards based, code compliant telecommunications system.

5.7.7. LIGHTNING PROTECTION SYSTEM: Provide a lightning protection system where recommended by the Lightning Risk Assessment of NFPA 780, Annex L.

5.8. HEATING, VENTILATING, AND AIR CONDITIONING

5.8.1. STANDARDS AND CODES: The HVAC system shall conform to APPLICABLE CRITERIA.

5.8.2. DESIGN CONDITIONS.

5.8.2.1. Outdoor and indoor design conditions shall be in accordance with UFC 3-410-01FA. Outdoor air and exhaust ventilation requirements for indoor air quality shall be in accordance with ASHRAE 62.1. All Buildings with minimum LEED Silver requirement (or better) will earn LEED Credit EQ 7.1, Thermal Comfort-Design., except where precluded by other project requirements. Where the contract specifies indoor design temperature , airflow, humidity conditions, etc., use those parameters.

5.8.2.2. High Humidity Areas: Design HVAC systems in geographical areas meeting the definition for high humidity in UFC 3-410-01FA to comply with the special criteria therein for humid areas.

5.8.2.3. Cooling equipment may be oversized by up to 15 percent to account for recovery from night setforward. Heating equipment may be oversized by up to 30 percent to account for recovery from night setback. Design single zone systems and multi-zone systems to maintain an indoor design condition of 50% relative humidity for cooling only. For heating only where the indoor relative humidity is expected to fall below 20% for extended periods, add humidification to increase the indoor relative humidity to 30%. Provide ventilation air from a separate dedicated air handling unit (DOAU) for facilities using multiple single zone fan-coil type HVAC systems. Do not condition outside air through fan coil units. Avoid the use of direct expansion cooling coils in air handling units with constant running fans that handle outside air.

5.8.2.4. Locate all equipment so that service, adjustment and replacement of controls or internal components are readily accessible for easy maintenance.

5.8.2.5. Environmental Requirements for Telecommunications Rooms,(including SIPRNET ROOMS, where applicable for specific facility type). Comply with ANSI/EIA/TIA 569 and the I3A.

5.8.2.6. Fire dampers: dynamic type with a dynamic rating suitable for the maximum air velocity and pressure differential to which the damper is subjected. Test each fire damper with the air handling and distribution system running.

5.8.3. BUILDING AUTOMATION SYSTEM. The Building Automation System (BAS) shall be a single complete non-proprietary Direct Digital Control (DDC) system for control of the heating, ventilating and air conditioning (HVAC) and other building systems. The BAS shall be based on an Open implementation of BACnet using ASHRAE 135-2004 exclusively as the communications protocol for communication between DDC Hardware devices to allow multi-vendor interoperability. The building BAS shall include integration to a basewide supervisory monitoring and control (M&C) system.

5.8.3.1. The system shall be Open in that it is designed and installed such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without further dependence on the original hardware vendor or their agents. This includes, but is not limited to the following:

- Hardware shall be installed such that individual control equipment can be replaced by similar control equipment from other equipment manufacturers with no loss of system functionality.
- Necessary documentation (including rights to documentation and data), configuration information, configuration tools, application programs (with comments explaining program logic), application source code for programmable controllers, drivers, and other software shall be licensed to and remain with the Government such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without subsequent or future dependence on the Contractor.

5.8.3.2. All DDC Hardware shall:

- Be connected to a ASHRAE 135 MS/TP control network.
- Implement all required functionality of the application network interface via BACnet objects, properties, and

services

- Shall conform to basewide addressing schemes, particularly with regard to Device ID.
- Minimize the use of proprietary BACnet objects and properties
- Not use any of the following BACnet services for application control functionality or communication:
  - AtomicFile or AtomicFileWrite
  - ConfirmedTextMessage or UnconfirmedTextMessage
  - ConfirmedPrivateTransfer or UnconfirmedPrivateTransfer
- Communicate over the control network via ASHRAE 135 exclusively.
- Conform to the BACnet Testing Lab's Device Implementation Guidelines.
- Be capable of responding to Who-Is/I-Am and Who-Has/I-Have service requests.
- All settings and parameters used by the application shall be fully configurable:
  - to the greatest extent possible, via properties of BACnet objects that can be written to via BACnet services.
  - via properties of BACnet objects that can be written to via BACnet services for the following
- Setpoint
- Alarm limit
- Schedule modification
- Trend modification
  - All other settings and parameters that can not be written to via BACnet services shall be fully configurable via either:
- Properties of BACnet objects that can be written to with a configuration tool, or
- Hardware settings on the controller itself to support the application.
- Provide BACnet objects, properties, and services required to support the application and supervisory monitoring and control functionality including:
  - System start/stop and overrides.
  - Scheduling
  - Alarming
  - Trending
- To the greatest extent practical, not rely on the control network to perform the application
- Be BTL Listed

5.8.3.3. Include any device capable of communicating over IEEE 802.3 (Ethernet) in a DIACAP and Certificate of Networthiness (CoN) for this installation, regardless of whether the Ethernet connection is active at time of installation. Do not use devices with Ethernet connection capability not included in a DIACAP or without a DIACAP or without a CoN shall not be used.

5.8.3.4. Gateways may be used provided that each gateway communicates with and performs protocol translation for control hardware controlling one and only one package unit.

5.8.3.5. Perform all necessary actions needed to fully integrate the ASHRAE 135-based building control system to the UMCS. These actions include but are not limited to:

- Install BACnet MS/TP-to-IP routers and/or BACnet/IP Broadcast Management Devices (BBMD) in accordance with ASHRAE 135 Annex J as needed to connect the building control network to the UMCS IP network. Devices shall be capable of configuration via DHCP and Write-Broadcast-Distribution-Table messages but shall not rely on these services for configuration. All communication between the UMCS and building networks shall be via BACnet/IP and in accordance with ASHRAE 135. Any IP network work including access to existing networks shall be coordinated with the installation Network Enterprise Center (NEC).
- Configure M&C Software functionality including: graphical pages for System Graphic Displays including overrides, alarm handling, scheduling, trends for critical values needing long-term or permanent monitoring via trends, and demand limiting.
- Configure M&C software to provide hierarchically arranged screens to allow operator to configure (via BACnet services to the appropriate objects) all devices on the installation BACnet internetwork. The following adjustments shall be supported:
  - Setpoints
  - Alarm limits
  - Schedules
  - Trends

This requirement is separate from and in addition to the requirement to provide all necessary programming and configuration software.

5.8.3.6. Perform all necessary actions needed to integrate legacy systems to the UMCS. Configure M&C Software functionality including: graphical pages for System Graphic Displays including overrides, alarm handling, scheduling, trends for critical values needing long-term or permanent monitoring via trends, and demand limiting. Integration may be via drivers in the M&C Software or hardware gateways may be provided. Where hardware gateways are provided, include all hardware, software, software licenses, and configuration tools required for gateway operation, modification, and maintenance. Configure software driver or a hardware gateway to support M&C software functionality as listed above.

5.8.3.7. Provide the following to the Government for review prior to acceptance of the system:

- The latest version of all software including source code for application software (for programmable controllers), software licenses, and user manuals required to program, configure and operate the system.
- Points Schedule drawing that shows every DDC Hardware device. The Points Schedule shall contain the following information as a minimum for each device:
    - Device ID and network address (MS/TP network and MAC address, or IP address).
    - Input and Output Objects including Name, Type, Description, and relevant supported or required Properties.
    - Hardware I/O, including Type (AI, AO, BI, BO) and Description.
    - Alarm information including alarm limits and BACnet device IDs, object IDs, and property information.
    - Supervisory control information including BACnet device IDs, object IDs, and properties for trending and overrides.
    - Objects and Properties needed for device configuration.
    - Device IDs and objects (where applicable) of remote devices and objects that communicate with the given Device (e.g. clients and servers for BACnet services used by the given device).
    - Example Points Schedules are available at: https://eko.usace.army.mil/fa/besc/
- Riser diagram of the network showing all network cabling and hardware. Label hardware with BACnet Device IDs, BACnet network addresses, network names, and locations.
- A consolidated list of all Device IDs.
- Control System Schematic diagram and Sequence of Operation for each controlled system.
- Operation and Maintenance Instructions including procedures for system start-up, operation and shut-down, a routine maintenance checklist, and a qualified service organization list.
- Quality Control (QC) checklist (below) completed by the Contractor's Chief Quality Control (QC) Representative

Table 5-1: QC Checklist

5.8.3.8. Perform a Performance Verification Test (PVT) under Government supervision prior to system acceptance. During the PVT, demonstrate that the system performs as specified, including but not limited to demonstrating that the system is Open and correctly performs the Sequences of Operation.

5.8.3.9. Provide a 1 year unconditional warranty on the installed system and on all service call work. The warranty shall include labor and material necessary to restore the equipment involved in the initial service call to a fully operable condition.

5.8.3.10. Provide training at the project site on the installed building system . Upon completion of this training each student, using appropriate documentation, should be able to start the system, operate the system, recover the system after a failure, perform routine maintenance and describe the specific hardware, architecture and operation of the system.

5.8.4. TESTING, ADJUSTING AND BALANCING. Test and balance air and hydronic systems, using a firm certified for testing and balancing by the Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB), or the Testing Adjusting, and Balancing Bureau (TABB). The prime contractor shall hire the TAB firm directly, not through a subcontractor. Perform TAB in accordance with the requirements of the standard under which the TAB Firm's qualifications are approved, i.e., AABC MN-1, NEBB TABES, or SMACNA HVACTAB unless otherwise specified herein. All recommendations and suggested practices contained in the TAB Standard shall be considered mandatory. Use the provisions of the TAB Standard, including checklists, report forms, etc., as nearly

as practicable to satisfy the Contract requirements. Use the TAB Standard for all aspects of TAB, including qualifications for the TAB Firm and Specialist and calibration of TAB instruments. Where the instrument manufacturer calibration recommendations are more stringent than those listed in the TAB Standard, adhere to the manufacturer's recommendations. All quality assurance provisions of the TAB Standard such as performance guarantees shall be part of this contract. For systems or system components not covered in the TAB Standard, the TAB Specialist shall develop TAB procedures. Where new procedures, requirements, etc., applicable to the Contract requirements have been published or adopted by the body responsible for the TAB Standard used (AABC, NEBB, or TABB), the requirements and recommendations contained in these procedures and requirements are mandatory.

5.8.5. COMMISSIONING: Commission all HVAC systems and equipment, including controls, and all systems requiring commissioning for LEED Enhanced commissioning, in accordance with ASHRAE Guideline 1.1, ASHRAE Guideline 0 and LEED. Do not use the sampling techniques discussed in ASHRAE Guideline 1.1 and in ASHRAE Guideline 0. Commission 100% of the HVAC controls and equipment. Hire the Commissioning Authority (CA), certified as a CA by AABC, NEBB, or TABB, as described in Guideline 1.1. The CA will be an independent subcontractor and not an employee of the Contractor nor an employee or subcontractor of any other subcontractor on this project, including the design professionals (i.e., the DOR or their firm(s)). The CA will communicate and report directly to the Government in execution of commissioning activities. The Contracting Officer’s Representative will act as the Owner’s representative in performance of duties spelled out under OWNER in Annex F of ASHRAE Guideline 0. All buildings with Minimum LEED Silver (or better) requirement will earn LEED Credit EA3 Enhanced Commissioning.

5.9. ENERGY CONSERVATION

5.9.1. The building including the building envelope, HVAC systems, service water heating, power, and lighting systems shall meet the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Substantiation requirements are defined in Section 01 33 16, Design After Award.

5.9.2. Design all building systems and elements to meet the minimum requirements of ANSI/ASHRAE/IESNA 90.1. Design the buildings, including the building envelope, HVAC systems, service water heating, power, and lighting systems to achieve an energy consumption that is at least 40% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1. Energy calculation methodologies and substantiation requirements are defined in Section 01 33 16, Design After Award.

5.9.3. Purchase Energy Star products, except use FEMP designated products where FEMP is applicable to the type product. The term “Energy Star product” means a product that is rated for energy efficiency under an Energy Star program. The term “FEMP designated product” means a product that is designated under the Federal Energy Management Program of the Department of Energy as being among the highest 25 percent of equivalent products for energy efficiency. When selecting integral sized electric motors, choose NEMA PREMIUM type motors that conform to NEMA MG 1, minimum Class F insulation system. Motors with efficiencies lower than the NEMA PREMIUM standard may only be used in unique applications that require a high constant torque speed ratio (e.g., inverter duty or vector duty type motors that conform to NEMA MG 1, Part 30 or Part 31).

5.9.4. Solar Hot Water Heating. Provide at least 30% of the domestic hot water requirements through solar heating methodologies, unless the results of a Life Cycle Cost Analysis (LCCA) developed utilizing the Building Life Cycle Cost Program (BLCC) which demonstrates that the solar hot water system is not life cycle cost effective in comparison with other hot water heating systems. The type of system will be established during the contract or task order competition and award phase, including submission of an LCCA for government evaluation to justify non-selection of solar hot water heating. The LCCA uses a study period of 25 years and the Appendix K utility cost information. The LCCA shall include life cycle cost comparisons to a baseline system to provide domestic hot water without solar components, analyzing at least two different methodologies for providing solar hot water to compare against the baseline system.

5.9.5. Process Water Conservation. When potable water is used to improve a building’s energy efficiency, employ lifecycle cost effective water conservation measures, except where precluded by other project requirements.

5.9.6. Renewable Energy Features. The Government’s goal is to implement on-site renewable energy generation for Government use when lifecycle cost effective. See Paragraph 6, PROJECT SPECIFIC REQUIREMENTS for renewable energy requirements for this project.

5.10. FIRE PROTECTION

5.10.1. STANDARDS AND CODES Provide the fire protection system conforming to APPLICABLE CRITERIA.

5.10.2. Inspect and test all fire suppression equipment and systems, fire pumps, fire alarm and detection systems and mass notification systems in accordance with the applicable NFPA standards. The fire protection engineer of record shall witness final tests. The fire protection engineer of record shall certify that the equipment and systems are fully operational and meet the contract requirements. Two weeks prior to each final test, the contractor shall notify, in writing, the installation fire department and the installation public work representative of the test and invite them to witness the test.

5.10.3. Fire Extinguisher Cabinets: Provide fire extinguisher cabinets and locations for hanging portable fire extinguishers in accordance with NFPA 10 Standard for Portable Fire Extinguishers. The Government will furnish and install portable fire extinguishers, which are personal property, not real property installed equipment.

5.10.4. Fire alarm and detection system: Required fire alarm and detection systems shall be the addressable type. Fire alarm initiating devices, such as smoke detectors, heat detectors and manual pull stations shall be addressable. When the system is in alarm condition, the system shall annunciate the type and location of each alarm initiating device. Sprinkler water flow alarms shall be zoned by building and by floor. Supervisory alarm initiating devices, such as valve supervisory switches, fire pump running alarm, low-air pressure on dry sprinkler system, etc. shall be zoned by type and by room location.

5.10.5. Roof Access: Paragraph 2-9 of UFC 3-600-01 Fire Protection for Facilities will be modified in the next update to that UFC. Pending revision, comply with roof access and stairway requirements in accordance with the International Building Code. Where roof access is required by the IBC or other criteria, comply with UFC 4-010-01, Anti-Terrorist Force Protection, Standard 14. "Roof Access".

5.10.6. Fire Protection Engineer Qualifications: In accordance with UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES**,** the fire protection engineer of record shall be a registered professional engineer (P.E.) who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveys (NCEES), or a registered P.E. in a related engineering discipline with a minimum of 5 years experience, dedicated to fire protection engineering that can be verified with documentation.

5.11. SUSTAINABLE DESIGN

5.11.1. STANDARDS AND CODES: Sustainable design shall conform to APPLICABLE CRITERIA. See paragraph 6, PROJECT-SPECIFIC REQUIREMENTS for which version of LEED applies to this project. The LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects (AGMBC) applies to all projects. Averaging may be used for LEED compliance as permitted by the AGMBC but is restricted to only those buildings included in this project. Each building must individually comply with the requirements of paragraphs ENERGY CONSERVATION and BUILDING WATER USE REDUCTION.

5.11.2. LEED RATING, REGISTRATION, VALIDATION AND CERTIFICATION: See Paragraph PROJECT-SPECIFIC REQUIREMENTS for project minimum LEED rating/achievement level, for facilities that are exempt from the minimum LEED rating, for LEED registration and LEED certification requirements and for other project-specific information and requirements.

5.11.2.1. Innovation and Design Credits. LEED Innovation and Design (ID) credits are acceptable only if they are supported by formal written approval by GBCI (either published in USGBC Innovation and Design Credit Catalog or accompanied by a formal ruling from GBCI). LEED ID credits that require any Owner actions or commitments are acceptable only when Owner commitment is indicated in paragraph PROJECT-SPECIFIC REQUIREMENTS or Appendix LEED Project Credit Guidance

5.11.3. OPTIMIZE ENERGY PERFORMANCE. : Project must earn, as a minimum, the points associated with compliance with paragraph ENERGY CONSERVATION. LEED documentation differs from documentation requirements for paragraph ENERGY CONSERVATION and both must be provided. For LEED-NC v2.2 projects you may substitute ASHRAE 90.1 2007 Appendix G in its entirety for ASHRAE 90.1 2004 in accordance with USGBC Credit Interpretation Ruling dated 4/23/2008.

5.11.4. COMMISSIONING. See paragraph 5.8.5 COMMISSIONING for commissioning requirements. USACE templates for the required Basis of Design document and Commissioning Plan documents are available at http://en.sas.usace.army.mil (click on Engineering Criteria) and may be used at Contractor's option.

5.11.5. DAYLIGHTING. Except where precluded by other project requirements, do the following in at least 75 percent of all spaces occupied for critical visual tasks: achieve a 2 percent glazing factor (calculated in accordance with LEED credit EQ8.1) OR earn LEED Daylighting credit, provide appropriate glare control and provide either automatic dimming controls or occupant-accessible manual lighting controls.

5.11.6. LOW-EMITTING MATERIALS. Except where precluded by other project requirements, use materials with low pollutant emissions, including but not limited to composite wood products, adhesives, sealants, interior paints and finishes, carpet systems and furnishings,

5.11.7. CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT. Except where precluded by other project requirements, earn LEED credit EQ 3.1 Construction IAQ Management Plan, During Construction and credit EQ 3.2 Construction IAQ Management Plan, Before Occupancy.

5.11.8. RECYCLED CONTENT. In addition to complying with section RECYCLED/RECOVERED MATERIALS, earn LEED credit MR4.1, Recycled Content, 10 percent except where precluded by other project requirements.

5.11.9. BIOBASED AND ENVIRONMENTALLY PREFERABLE PRODUCTS. Except where precluded by other project requirements, use materials with biobased content, materials with rapidly renewable content, FSC certified wood products and products that have a lesser or reduced effect on human health and the environment over their lifecycle to the maximum extent practicable.

5.11.10. FEDERAL BIOBASED PRODUCTS PREFERRED PROCUREMENT PROGRAM (FB4P). The Farm Security and Rural Investment Act (FSRIA) of 2002 required the U.S. Department of Agriculture (USDA) to create procurement preferences for biobased products that are applicable to all federal procurement (to designate products for biobased content). For all designated products that are used in this project, meet USDA biobased content rules for them except use of a designated product with USDA biobased content is not required if the biobased product (a) is not available within a reasonable time, (b) fails to meet performance standard or (c) is available only at an unreasonable price. For biobased content product designations, see http://www.biopreferred.gov/ProposedAndFinalItemDesignations.aspx.

5.12. CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT: Achievement of 50% diversion, by weight, of all non-hazardous C&D waste debris is required. Reuse of excess soils, recycling of vegetation, alternative daily cover, and wood to energy are not considered diversion in this context, however the Contractor must tracked and report it. A waste management plan and waste diversion reports are required, as detailed in Section 01 57 20.00 10, ENVIRONMENTAL PROTECTION.

5.13. SECURITY (ANTI-TERRORISM STANDARDS): Unless otherwise specified in Project Specific Requirements, only the minimum protective measures as specified by the current Department of Defense Minimum Antiterrorism Standards for Buildings, UFC 4-010-01, are required for this project. The element of those standards that has the most significant impact on project planning is providing protection against explosives effects. That protection can either be achieved using conventional construction (including specific window requirements) in conjunction with establishing relatively large standoff distances to parking, roadways, and installation perimeters or through building hardening, which will allow lesser standoff distances. Even with the latter, the minimum standoff distances cannot be encroached upon. These setbacks will establish the maximum buildable area. All standards in Appendix B of UFC 4-010-01 must be followed and as many of the recommendations in Appendix C that can reasonably be accommodated should be included. The facility requirements listed in these specifications assume that the minimum standoff distances can be met, permitting conventional construction. Lesser standoff distances (with specific minimums) are not desired, however can be provided, but will require structural hardening for the building. See Project Specific Requirements for project specific siting constraints. The following list highlights the major points but the detailed requirements as presented in Appendix B of UFC 4-010-01 must be followed.

(a) Standoff distance from roads, parking and installation perimeter; and/or structural blast mitigation

(b) Blast resistant windows and skylights, including glazing, frames, anchors, and supports

(c) Progressive collapse resistance for all facilities 3 stories or higher. Unless determined otherwise by the Installation and noted in paragraphs 3 or 6, the building shall be considered to have areas of uncontrolled public access when designing for progressive collapse.

(d) Mass notification system (shall also conform to UFC 4-021-01, Mass Notification Systems)

(e) For facilities with mailrooms (see paragraph 3 for applicability) – mailrooms have separate HVAC systems and are sealed from rest of building

6.0 PROJECT SPECIFIC REQUIREMENTS

6.1. GENERAL

The requirements of this paragraph augment the requirements indicated in Paragraphs 3 through 5.

6.2. APPROVED DEVIATIONS

The following are approved deviations from the requirements stated in Paragraphs 3 through 5 that only apply to this project.

With regard to Paragraph 5.11 Sustainable Design, 6.14 Sustainable Design and Appendix P USGBC Registration of Army Projects, the following deviation shall apply: The project shall incorporate all feasible LEED credits but will not be registered with the USGBC for documentation of LEED credit achievement. Waste diversion documentation shall be required. All energy and storm water design analysis requirements shall apply. Project drawings and specifications shall incorporate all feasible LEED credits.

With regard to Paragraph 5.5.2 Building Envelope Sealing Performance Requirement. The following deviation shall apply: The building envelope sealing requirement is not applicable.

6.3. SITE PLANNING AND DESIGN

6.3.1. General:

The existing TEMF will remain occupied and operational throughout the construction of the addition and hardstand. Gain approval for, minimize, and coordinate any necessary disruption to the normal daily operations and access to the existing TEMF and its supporting structures and facilities. The contractor shall provide temporary systems as required to keep the existing building systems functional.

6.3.2. Site Structures and Amenities

Wash Rack: Exterior area adjacent to addition for washing vehicles. Supporting hose reels, hose bibs, and water pressure pump shall be in building or attached to new addition. Parking area at wash rack shall be designed to capture all water and debris resulting from wash activities and routing it to santiary sewer by first going through the existing grit separator and oil/water separator. The existing sand interceptor and oil interceptor shall be protected throughout construction and flushed out at the completion of construction. Grades adjacent to washrack shall be such that no rainfall that lands off of the wash rack surface shall be routed to the wash rack or its discharge.

Temporary Building: A 15' x 40' temporary building with wheels is currently located adjacent to the weighing scales in the existing recycling yard. The building shall be moved approximately 150' to the west in order to accommodate the organizational vehicle parking. All associated utilities, including but not limited to water, electrical, communications and sanitary sewer shall be provided at the new building location. Data cabling associated with the operation of the weighing scales shall also be provided from the scales to the new building location.

6.3.3. Site Functional Requirements:

6.3.3.1. Stormwater Management (SWM) Systems.

Stormwater management BMPs shall be in compliance with the State of Georgia Stormwater Manual. Provide detention and treatment per the State of Georgia Stormwater Manual, Coastal Stormwater Supplement, and EISA 2007 (95th percentile storm) for the new tactical vehicle hardstand. No wet ponds are permitted for detention or treatment.

6.3.3.2. Erosion and Sediment Control

Site erosion control and sedimentation plan shall be prepared by an Engineer registered in the State of Georgia who is a Level II Certified Design Professional by the Georgia Soil and Water Conservation Commission. Erosion control and sedimentation plans shall be in compliance with the State of Georgia Manual for Erosion Control and Sedimentation.

6.3.3.3. Vehicular Circulation.

The TEMF site is enclosed by a security fence with two access gates for vehicles, one on the east side of the site and one on the west side. Neither of the existing gates will be changed by this project. A third gate (manual, double swing) will be provided with the base bid near the southwest end of the new hardstand. The new portion of the tactical vehicle hardstand will be at least 13,389 SY in the base bid with an additional 1,360 SY as a bid option, including the new portions on the west side of the site and on the east side of the site. Additional concrete hardstand may be required to be removed and replaced to accomplish grading requirements for access to the New Addition. The entire tactical vehicle parking hardstand will be comprised of circulation and parking for the unit's assigned vehicles. The following parking stalls shall be provided: 3 - 12'x40', 7 - 15'x50', 31 - 12'x20', and 130 - 12'x25' in the base bid with an additional 97 - 12'x25' in the bid option, all within the fenced portion of the TEMF. An area for 65 - 12'x25' parking places is fenced off in the base bid in addition to the 169 spaces previously described.

6.4. SITE ENGINEERING

6.4.1. Existing Topographical Conditions

A three dimensional digital topographic and utility survey for this site has been prepared by the Government and included as a part of this contract. Any discrepancies which are found in the Government furnished survey shall be brought to the immediate attention of the Government for clarification. This survey includes the portion of the site west of the existing hardstand. Design drawings from the existing TEMF facility have also been included. Additional survey will be required in all areas of disturbance required to design and construct this project and shall be provided by the Contractor as part of their design and construction.

6.4.2. Existing Geotechnical conditions: See Appendix A for a preliminary geotechnical report.

A limited geotechnical investigation has been completed and a report prepared to characterize the subsurface conditions at the project site. The "preliminary" report provides a general overview of the soils and geologic conditions, and is furnished for informational and proposal purposes only and not for final design; the report is included in Appendix A of this RFP. The locations of and logs of the explorations are included in this report. Each proposer's design team shall include a licensed geotechnical engineer to interpret the report and to develop foundation and earthwork recommendations and design parameters on which to base the proposer's proposal. Any additional geotechnical investigations and laboratory analyses required to better characterize the project site and develop the final design shall be performed subsequent to contract award under the direction of a licensed geotechnical engineer and shall be the full responsibility of the Contractor.

6.4.3. Fire Flow Tests See Appendix D for results of fire flow tests to use for basis of design for fire flow and domestic water supply requirements.

Coordinate all flow tests with the COR. Perform any additional fire flow tests as required for design or by code at no additional expense to the government.

6.4.4. Pavement Engineering and Traffic Estimates:

Design all pavements within the TEMF security fence and access drives up to the fence to accommodate standard tactical vehicles assign to the unit. Typical tactical vehicles include buses, panel trucks, sedans, pick-up trucks, LMTVs, HMMWVs, and Strykers. Design shall also accommodate emergency vehicles and HS-20 loads. Provide concrete pavement for the tactical vehicle hardstand.

6.4.5. Traffic Signage and Pavement Markings

Provide all traffic signage in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).

6.4.6. Base Utility Information

See Appendix C and Appendix J for existing utility information.

The electrical distribution system is owned and operated by Canoochee EMC.

The water distribution system is owned and operated by the government. DPW contact is Fred Cavedo at 912-767-5499.

The sanitary sewer collection system is owned and operated by the government. DPW contact is Fred Cavedo at 912-767-5499.

The natural gas distribution system is owned and operated by the government. DPW contact is Fred Cavedo at 912-767-5499.

Cable television is privatized and operated by Comcast.

6.4.7. Cut and Fill

Slope pavements away from the building at a 5.0% for the first 10' to promote positive drainage away from the building. If elevation at point of connection to existing hardstand prevents the desired 5.0% slope, slope be 1.0% minimum, but as close to 5.0% as possible for the first 10'. Pavement slopes other than within 10' of building shall be 1.0% minimum.

6.4.8. Borrow Material

Borrow material is not available on the installation. Obtain all borrow material from off the government installation.

6.4.9. Haul Routes and Staging Areas

See Appendix J for Haul Route Map.

6.4.10. Clearing and Grubbing:

Clear and grub inside the project limits as required to complete construction.

6.4.11. Landscaping:

No landscaping other than turf will be provided in conjunction with this project.

6.4.12. Turf:

Establish turf on all disturbed areas not otherwise landscaped.

6.5. ARCHITECTURE

6.5.1. General: To the maximum extent possible within the contract cost limitation, the buildings shall conform to the look and feel of the architectural style and shall use the same colors as adjacent facilities as expressed herein . The Government will evaluate the extent to which the proposal is compatible with the architectural theme expressed in the RFP during the contract or task order competition. The first priority in order of importance is that

the design provides comparable building mass, size, height, and configuration compared to the architectural theme expressed herein. The second priority is that design is providing compatible exterior skin appearance based upon façade, architectural character (period or style), exterior detailing, matching nearby and installation material/color pallets, as described herein.

6.5.2. **Design**

6.5.2.1. Appendix F is provided "For Information Only", to establish the desired site and architectural themes for the area. Appendix F identifies the desired project look and feel based on Hunter Army Airfield**'s** Installation Architectural Theme from existing and proposed adjacent building forms; i.e. building exterior skin, roof lines, delineation of entrances, proportions of fenestration in relation to elevations, shade and shadow effects, materials, textures, exterior color schemes, and organizational layout.

6.5.2.2. The design should address Hunter Army Airfield's identified preferences. Implement these preferences considering the following:

(a) Achievable within the Construction Contract Cost Limitation (CCL)

(b) Meets Milestones within Maximum Performance Duration.

(c) Achieves Full Scope indentified in this Solicitation

(d) Best Life-Cycle Cost Design

(e) Meets the Specified Sustainable Design and LEED requirements

(f) Complies with Energy Conservation Requirements Specified in this RFP.

6.5.2.3. Priority #1. Visual Compatibility: Facility Massing (Size, Height, Spacing, Architectural Theme, etc.) Exterior Aesthetic Considerations: The buildings massing, exterior functional aesthetics, and character shall create a comprehensive and harmonious blend of design features that are sympathetic to the style and context of the Installation. The Installation's intent for this area is:

A utilitarian image appropriate for the area's industrial activities. A drawing showing a building elevation of the existing TEMF is included in Appendix J.

6.5.2.4. Priority #2. Architectural Compatibility: Exterior Design Elements (Materials, Style, Construction Details, etc.) Roofs, Exterior Skin, and Windows & Door Fenestrations should promote a visually appealing compatibility with the desired character while not sacrificing the integrity and technical competency of building systems.

6.5.2.5. See Appendix F for exterior colors that apply to Architectural character at Hunter Army Airfield. The manufacturers and materials referenced are intended to establish color only, and are not intended to limit manufacturers and material selections.

6.5.2.6. Additional architectural requirements:

(a) Install fall protection anchor points on all roofs with a slope greater than 2:12

(b) The expansion will be directly adjacent to the east exterior wall of the existing TEMF.

(c) The roof ridge and eaves lines of the maintenance bay expansion shall align with that of the existing TEMF. The existing and expansion finished floors shall be flush.

(d) The expansion will require the demolition of the existing POL Strorage Room, Fire Riser Room, Air Compressor Room, and the Outboard Motor Testing Area of the existing TEMF. These spaces will be replaced at an exterior wall of the maintenance bay expansion.

(e) With the exception of mechanical, electrical and plumbing items, undamaged building components salvaged in conjunction with the demolition required for the building expansion may be reused. The contractor shall develop a comprehensive reuse management plan that evaluates the anticipated materials to be reused. The plan shall be provided to the Government for approval.

6.5.3. Programmable Electronic Key Card Access Systems:

Access Control System (ACS). The access control system shall be provided at each exterior personnel door and be compatible with the existing system. System shall include control panel(s), magnetic locks, proximity card readers, balanced magnetic switches, access keypad and 12-hour battery back-up.

6.5.4. INTERIOR DESIGN

The interior finishes shall be durable, easy to maintain and sustainable.

Interior building signage requirements:

Interior building signage is not a requirement.

6.6. STRUCTURAL DESIGN

General

The maintenance bay addition shall be structurally isolated from the existing building. The existing structure is a metal building system. The structure for the addition may be, but does not have to be, a similar metal building system. The structure must be designed to meet the design criteria below, UFC 3-301-01, the International Building Code and the Savannah District Design Manual for Military Construction.

Structural Design Criteria

The project is classified as an Occupancy Category II Facility.

Minimum Design Wind Load Requirements

Determine wind loads in accordance with ACSE 7, and based upon the following parameters:

Design Wind Speed: 120

Exposure Category: C

Wind Load Importance Factor: Iw= 1.00

Minimum Design Snow Load Requirements

Determine snow loads in accordance with ACSE 7, and based upon the following parameters:

Design Ground Snow Load : 0 psf

Wind Load Importance Factor: Is = 1.00

Minimum Design Seismic Load Requirements

Determine seismic loads in accordance with ASCE 7, and based upon the following parameters:

Site Class: D

Short Period Spectral Response Acceleration: Ss = 38%*g*

1-Second Period Spectral Response Acceleration: S1 = 12%*g*

Seismic Load Importance Factor: *Ie*= 1.00

Minimum Roof Live Load

Provide for a minimum roof live load of 20 psf.

Minimum Floor Live Load

Provide for a minimum floor live load of 300 psf and 6000 lbs concentrated load

Roof Collateral Load

Provide for a roof collateral load adequate to account for all supported items.

Wind Load Drift

Limit building drift under the worst case load combination to H/480.

Foundation

Refer to Section 01 10 00 paragraph 6.4.2.

Minimum Antiterrorism Force Protection Design

All components of design shall conform to the DoD Minimum Antiterrorism Standards for Buildings, UFC 4-010-01. The building is less than three stories so designing specifically for progressive collapse is not required.

Bridge Crane

Provide for structural support of a bridge crane as described in Chapter 3.

Submittal Requirements (After Award)

The Design Built Contractor is required to provide three milestone submissions namely Concept, Final and Corrected Final. The depth of complexity of details required at each level submission is defined in the Chapter A-2 of the Savannah District Design Quality Manual for Military Construction. The instructions given herein supplement the requirements given in Chapter A-2.

Computer analyses are encouraged, however, it is mandatory to provide a write-up addressing the sketches for the computer input, summary of forces from the computer output which are used in the design, member sizes selected in the design, etc.

The design wind pressures will be shown on an isometric or 2D view of the building on one of the structural plates. The views shall be similar to those shown in figures 1609.6.2.2 of IBC 2009 and shall be accompanied by a table that identifies the component and cladding pressures for each zone. Pressures for arched and gable roof on open sheds shall be similarly shown.

All the design calculations should be indexed, well documented and laid out so that any structural engineer can follow the intent of the designer.

Seismic loads shall be computed in accordance with the latest IBC design manual. The project site is anticipated to classify as Site Class D; however, the Contractor's consulting geotechnical engineer must make the final determination for Site Class and recommended spectral accelerations for seismic design.

6.7. THERMAL PERFORMANCE

The requirements for thermal performance are stated in paragraphs 3 and 5.

6.8. PLUMBING

6.8.1 Facility Sanitary Sewer

(a) The existing sanitary sewer service to the existing TEMF is adequate to provide the additional service required for the maintenance bay expansion.

(b) Relocated sanitary sewer requirements shall connect to the existing sanitary sewer service while abiding by all applicable codes.

(c) New sanitary sewer requirements shall connect to the existing sanitary sewer service while abiding by all applicable codes.

6.8.2 Facility Sanitary Vent

(a) Relocated sanitary vent requirements shall be routed as necessary while abiding by all applicable codes.

(b) New sanitary vent requirements shall be routed as necessary while abiding by all applicable codes.

6.8.3 Facility Domestic Water

(a) The existing domestic water service to the existing TEMF is adequate to provide the additional service required for the maintenance bay expansion.

(b) Relocated domestic water fixtures shall connect to the existing domestic water service while abiding by all applicable codes.

(c) New domestic water fixtures shall connect to the existing domestic water service while abiding by all applicable codes.

(d) All piping exposed to unconditioned, outside conditions or installed in exterior walls shall be protected against freezing.

6.8.4 Facility Natural Gas

(a) The existing natural gas service to the existing TEMF is inadequate to provide the additional service required for the maintenance bay expansion.

(b) Provide a new gas meter with a connected load of 1239 CFH @ 14" W.C. plus the required amount to heat the maintenance bay expansion.

(1) Natural gas meter shall be compatable with the buildings DDC system.

(2) Natural Gas utility piping connection has enough capacity to supply 1239 CFH connected load and 120 cfh estimated expansion load.

(c) New natural gas fixtures shall connect to the existing natural gas service while abiding by all applicable codes.

(d) Provide correct size natural gas header from the new natural gas meter to the new natural gas fixtures at the maintenance bay expansion.

(e) Natural Gas connection shall be made at building entry point off of existing gas main and routed to new equipment. Piping shall be routed through corridor next to and at the same height as the existing Natural Gas piping.

6.8.5 Facility Compressed Air

(a) The existing compressed air system at the existing TEMF is adequate to provide the additional service required for the maintenance bay expansion.

(b) Existing compressed air piping shall connect to the relocated compressed air system while abiding by all applicable codes.

(c) New compressed air fixtures shall connect to the relocated compressed air system while abiding by all applicable codes.

(d) All new piping taps shall be made from the top of the piping main.

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

See Appendix C.4(A) Utility Connections, Hunter AAF, for clarification of the site electrical design and construction responsibilities of the Design-Build Contractor, the privatized utilities and government agencies, unless otherwise stated herein.

6.9.1. Site Electrical Service:

(a) No additional site electrical service scope is anticipated for the TEMF expansion, as there is sufficient capacity in the existing electrical service to accommodate the electrical requirements of the maintenance bay addition.

(b) For the relocation of the temporary building described in paragraph 6.3.2, the aerial drop providing 100A, 120/240V, 1PH electrical service to the temporay building shall be relocated or extended to the building's new location. D/B Contractor shall provide pole mounted weatherhead, meter socket and main disconnect, wood pole approximately 12' (above ground height), and underground circuit from pole to existng panel inside the temporary building. Coordinate with Canoochee EMC.

(c) Overhead circuits and poles in the foot print of the new parking area shall be removed by Canoochee EMC. Coordinate with Canoochee EMC.

(d) If the option to remove Building 612 is accepted, electrical service to Building 612 from the weatherhead out shall be removed by Canoochee EMC. Coordinate with Canoochee EMC.

6.9.2. Site Lighting:

(a) The local electric utility (Canoochee EMC) shall provide all parking lot lighting fixtures not attached to the building, including poles, fixtures, conductors, source of power and lighting control. Contrary to the statement in Appendix C.4(A) Paragraph D.2, Canoochee shall also provide lighting design using fixture types from their standard stock. D-B Contractor shall provide pole bases (foundations) and empty underground conduit with pull cord between source of power and pole bases. (See Appendix C.4(B) Canoochee EMC Project Responsibilities for additional information.)

(b) Parking lot lighting fixtures shall be 400 W metal halide on 30-foot poles to match existing. Fixtures shall meet dark sky requirements and provide cut-off shielding to minimize light trespass. Lighting levels in parking areas shall be no less than 1 foot-candle average maintained on the ground, and lighting levels on sidewalks shall be no less than 0.5 foot-candles average maintained on the ground.

6.9.3 Site Telecommunications:

(a) No additional site telecommunications scope is anticipated for the TEMF expansion, as there is sufficient capacity in the existing telecommunications service to the facility to accommodate the telecommunications requirements of the maintenance bay expansion.

(b) No additional site Cable Television scope is anticipated, as there are no TV outlets in the maintenance bay expansion.

(c) For the relocation of the temporary building described in paragraph 6.3.2, existing communications circuits will need to be extended to the new location of the building. Coordinate with the Network Enterprise Center (NEC). A signal circuit extending from the building to the truck scales (Fairbanks Scales Intalogix) will also need to be extended to the building's new location. This circuit consists of a cable containing three individually shielded pair of #18 AWG in 0.75 inch underground conduit.

(d) For the new parking lot, several overhead lines and poles will be relocated/removed. Coordinate with NEC and Canoochee EMC.

(e) If the option is taken to remove Building 612, telecommunications service to this building shall be removed. Coordinate with NEC.

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

Applicable design criteria shall include those referenced in Chapter A-5 of the Savannah District Design Manual for Military Construction.

See Appendix BB General Interior Electrical Requirements, Hunter AAF, for clarification of the interior electrical design and construction responsibilities of the Design-Build Contractor, the privatized utilities and government agencies, unless otherwise stated herein.

6.10.1. Facility Electrical:

(a) The existing 480Y/277-volt electrical service to the existing TEMF is adequate to provide power to the maintenance bay expansion.

(b) There is space in the existing main distribution panel for a 3-pole, 480-volt breaker for power to a hoist in the maintenance bay expansion.

(c) There are adequate single-pole spaces (and probably sufficient spare single-pole 20-amp breakers) in an existing 480Y/277-volt lighting panelboard to supply power for lighting in the maintenance bay expansion.

(d) If there is not sufficient spares/spaces in the existing 208Y/120-volt panelboards, there is space in the existing main distribution panel for a 3-pole, 480-volt breaker to feed a new dry-type transformer (480-208Y/120) and a new 208Y/120-volt panelboard to serve the 120/208-volt requirements of the maintenance bay expansion.

(e) There is an existing Surge Protective Device (SPD) at the existing main distribution panel.

(f) Existing electrically powered equipment relocated by the demolition work shall receive power from its original source.

(g) New panelboard(s) shall be dead-front construction.

(h) All wiring shall be in conduit. All conductors and buses shall be copper, not aluminum.

(i) MC cable shall not be permitted.

(j) General-purpose receptacles shall be NEMA 5-20R.

(k) Where Ground Fault Circuit Interrupters (GFCI) are required by code, GFCI receptacles shall be utilized in lieu of GFCI type circuit breakers.

(l) Grounding: Provide lightning protection and underground counterpoise loop around the maintenance bay expansion, interconnecting them with the existing systems of the existing TEMF. The lightning protection system shall be UL Master labeled.

(m) No interior electrical work is required for the relocation of the temporary building described in paragraph 6.3.2 other than reconnection of the service entrance.

6.10.2. Facility Lighting:

(a) In the maintenance bay of the expansion, high bay 400 W metal halide fixtures shall be used for ambient lighting.

(b) Emergency and egress lighting shall be provided inside the buildings per code. Emergency lighting in the maintenance bay will be supplied by self-contained wall mounted double-headed combination light/battery packs. In other areas, where fluorescent fixtures are used, emergency lighting shall be provided by emergency battery ballasts.

(c) No additional interior lighting is required for the relocation of the temporary building described in paragraph 6.3.2.

6.10.3. Facility Telecommunications:

(a) Voice/data System: Voice/data outlets required in the new maintenance bay shall be served from the existing NIPRNET (black) communications room in the existing TEMF. Provide one Cat 6 quad (four jack) outlet in the new maintenance bay.

(b) Paging System: Paging speakers shall be provided in the maintenance bay expansion and connected to the existing system. If the existing system's amplification is not adequate for the additional load, a larger amplifier of sufficient size or an addition amplifier shall be provided.

(c) Mass Notification System: The existing mass notification system shall be extended into the maintenance bay expansion, providing devices as required to cover the area. The existing mass notification system control panel shall be relocated to the new (relocated) fire sprinkler riser room and modified as necessary to accommodate the added devices.

(d) There is no requirement for SIPRNET outlets in the maintenance bay expansion.

(e) No intrusion detection system (IDS) is required in the maintenance bay expansion.

(f) Provisions (outlet boxes and empty conduit with pull cords) for access control system (ACS) devices shall be provided at the exterior man-doors in the new expansion maintenance bay.

6.11. HEATING, VENTILATING, AND AIR CONDITIONING

6.11.1 Design Conditions

(a) Use the heating and air conditioning outside design conditions for Hunter Army Airfield of Cooling 91WB/77 DB and Heating 31 DB.

6.11.2 Mechanical Equipment

(a) Rooftop mechanical equipment is not allowed.

6.11.3 Air Permit Submittal Requirements

(a) Pursuant to satisfying requirements under the Clean Air Act, at or before the 60 percent design stage, the A-E shall submit the following to the installation's environmental office:

(1) A listing of boilers and domestic water heaters that will be fired by natural gas, propane, and/or fuel oil.

(2) The fuel or fuels (primary and backup, if applicable) that will be utilized for each piece of equipment.

(3) The quantity of each particular size.

(4) The respective input firing rate. The document shall also provide a point of contact and an alternate point of contact, should the environmental office require additional information from the designer of record during the permitting process. Furthermore, copies of the document shall also be sent to the Savannah District, one to the Project Manager for placement in Central Files, and another to the Mechanical Section.

(5) This document shall not be sent prematurely, since any increase in boiler sizing subsequent to submission of the document will require revision to the permitting process. In any event, if there is a change in equipment sizing during refinement of the design process, an updated copy of said document shall be submitted per the guidance above.

(6) Additionally, the A-E is responsible for incorporating into the design the equipment accessories required for compliance with the governing environmental laws. This includes, but is not limited to, determining the need for individual metering and the level of emissions monitoring required. The A-E's concept design narrative shall specifically address those features that will be incorporated into the boiler system design to assure compliance with the applicable environmental laws of the State.

(7) Prior to the submission of form DD 1354 Acceptance of Real Property, the Contractor shall submit to EMD copies of all required Federal and/or State certifications associated with emission units, i.e. visible emissions certifications. The dates that the certifications are turned into EMD shall be noted in the remarks section of form DD 1354.

6.11.4 UMCS

Integrate the control system to the installation's existing UMCS. The existing UMCS is Williams Energy Managment Control System

Provide M&C Software with a license for no less than 1 clients

Provide M&C Software with a license for no less than 3 points.

6.12. ENERGY CONSERVATION

6.12.1. General

The requirements for Energy Conservation are stated in paragraphs 3 and 5.

6.12.2. Inclusion of Renewable Energy Features. The following renewable energy features have been determined lifecycle cost effective, are included in the project budget and shall be provided:

The requirements for Energy Conservation are stated in paragraphs 3 and 5.

6.13. FIRE PROTECTION

6.13.1. Fire Alarm System:

6.13.1.1. The existing fire alarm system shall be extended into the maintenance bay expansion, providing devices as required to cover the area.

6.13.1.2. The existing fire alarm system control panel including transmitter and antenna shall be relocated to the new (relocated) fire sprinkler riser room and modified as necessary to accommodate the added devices. During the relocation of the fire alarm control panel, a fire watch shall be provided for any outage of the fire alarm system lasting longer than four hours. This watch shall reamin in effect until the fire alarm system is restored.

6.13.1.3 In addition, new or relocated fire alarm notification devices shall be provided in the existing Contingency Pallet Storage room and Shipping/Receiving room due to user storage configurations and user installed office. These rooms are located at the west end of the existing building. Refer to Appendix CC for description.

6.13.2. Qualifications of Fire Protection Engineer: The design of the fire protection features shall be by a qualified fire protection engineer meeting one of the following conditions: a.) A registered professional engineer who has passed the National Council of Examiners for Engineering and Surveys (NCEES) fire protection engineering written examination. b.) A registered P.E. in a related engineering discipline with a minimum of 5 years' experience dedicated to fire protection engineering. The name and credentials (education, registration, experience) of the fire protection engineer shall be submitted with the initial contract documents and approved by the District fire protection engineer prior to proceeding with fire protection design.

6.13.3. Fire Protection and Life Safety Analysis. A fire protection and life safety design analysis shall be provided for this project. The analysis shall address both the new expansion and the existing facility. The analysis shall be submitted with the preliminary design submittal. The analysis shall include classification of occupancy (both per the IBC and NFPA 101); type of construction; height and area limitations (include calculations for allowable area increases); life safety provisions (exit travel distances, common path distances, dead end distances, exit unit width required and provided); building separation or exposure protection; specific compliance with NFPA codes and the IBC; requirements for fire-rated walls, doors, fire dampers, etc.; analysis of automatic suppression systems and protected areas; water supplies; smoke control systems; fire alarm system, including connection to the base-wide system; fire detection system; standpipe systems; fire extinguishers; interior finish ratings; and other pertinent fire protection data. The submittal shall include a life safety floor plan for all buildings in the project showing occupant loading, occupancy classifications and construction type, egress travel distances, exit capacities, areas with sprinkler protection, fire extinguisher locations, ratings of fire-resistive assemblies, and other data necessary to exhibit compliance with life safety code requirements.

6.13.4. Sprinkler System: The SOF TEMF Expansion shall be protected with automatic sprinkler systems. The sprinkler system in the existing facility shall be altered as required to provide protection for both the new expansion and the existing facility. Along with the demolition of the existing fire riser room, the existing fire riser will be relocated to the new fire riser room to serve the existing and new areas. Any interuption of fire protection for the facility must be coordinated with the local fire inspector. Wet pipe sprinkler systems shall be provided in areas that are heated and dry pipe sprinkler systems shall be provided in areas subject to freezing. All areas of the facility shall be protected. The sprinkler system design shall be in accordance with UFC 3-600-01 and NFPA 13. Design densities, design areas and exterior hose streams shall be in accordance with UFC 3-600-01. The sprinkler systems shall be designed and all piping sized with computer generated hydraulic calculations. The exterior hose stream demand shall be included in the hydraulic calculations. A complete sprinkler system design, including sprinklers, branch lines, floor mains and risers, shall be shown on the drawings. The sprinkler system plans shall include node and pipe identification used in the hydraulic calculations. All sprinkler system drains, including main drains, test drains, and auxiliary drains, shall be routed to 2' x 2' splash blocks at exterior grade. Sprinkler system design analysis and drawings shall be provided in the 60% and 100% design submittals. In addition, new sprinklers and existing sprinkler system evaluation is needed in and outside of the existing Contingency Pallet Storage room due to user storage configurations, user installed office, and user installed exterior canopy. Refer to Appendix CC for description.

6.13.5. Sprinkler Service Main and Riser: The sprinkler service main shall be a dedicated line from the distribution main. Sprinkler service and domestic service shall not be combined. The sprinkler service main shall be provided with an exterior post indicator valve (PIV) with tamper switch reporting to the fire alarm control panel (FACP). The ground floor entry penetration shall be sleeved per NFPA 13 requirements for seismic protection. The sprinkler entry riser shall include a double check backflow preventer, a fire department connection (FDC), and a wall hydrant for testing of backflow preventer. The sprinkler system shall include an indicating control valve, an alarm check valve, a water motor alarm and a flow switch reporting to the FACP. All control valves shall be OS&Y gate type and shall be provided with tamper switches connected to the FACP. Facilities with multiple floors shall be provided with floor control valves for each floor. The floor control valve assembly shall be in accordance with UFC 3-600-01, Figure 4-1.

6.13.6. Exterior Hose Stream: Exterior hose stream demand shall be in accordance with UFC 3-600-01. This shall be 250 gpm for light hazard and 500 gpm for ordinary hazard. Exterior hose stream demand shall be included in the sprinkler system hydraulic calculations.

6.13.7 Backflow Preventer: A double check backflow preventer shall be provided on the fire water main serving the building. This shall be located within the building. An exterior wall hydrant with dual hose connections with OS&Y valve shall be provided to allow testing of backflow preventer at design flow as required by NFPA 13.

6.13.8 Fire Department Connection: A fire department connection shall be provided for the building with sprinkler protection. It shall be located to be directly accessible to the fire department.

6.13.9 Protection of Piping Against Earthquake Damage. The Contractor shall confirm the seismic requirements for the project based on the requirements of the relevant codes and results of the geotechnical investigation. If required, sprinkler and fire pump piping systems shall be protected against damage from earthquakes. Seismic protection shall include flexible and rigid couplings, sway bracing, seismic separation assemblies where piping crosses building seismic separation joints, and other features as required by NFPA 13 for protection of piping against damage from earthquakes.

6.13.10. Fire Water Supply: Fire flow test data is provided in Appendix D. The contractor shall verify the fire flow data by conducting necessary fire flow tests at the project site during project design and shall base the design of fire protection system on the results of this test.

6.13.10.1 Fire Pump: The contractor shall determine if a fire pump is required based on fire flow test data and fire protection system design requirements. If required a complete fire pump installation shall be provided. Fire pump installation shall be in accordance with UFC 3-600-01, NFPA 13, NFPA 20, and UFGS 13920. Fire pump system design analysis and drawings shall be provided in the 60% and 100% design submittals.

6.13.11 Building Construction. Construction shall comply with requirements of UFC 3-600-01, the International Building Code and NFPA 101.

6.13.12 Interior Wall and Ceiling Finishes. Interior wall and ceiling finishes and movable partitions shall conform to the requirements of UFC 3-600-01 and NFPA 101.

6.13.13 Fire Extinguisher Cabinets and Brackets. Fire Extinguisher cabinets and brackets shall be provided when fire extinguishers are required by UFC 3-600-01 and NFPA 101. Size and placement of cabinets and brackets shall be in accordance with NFPA 10. Semi-recessed cabinets shall be provided in finished areas and brackets shall be provided in non-finished areas (such as utility rooms, shops, and vehicle bays). Fire extinguishers shall not be provided in this contract.

6.14. SUSTAINABLE DESIGN

6.14.1. LEED Rating Tool Version. This project shall be executed using LEED-NC Version 3.

6.14.2. LEED Minimum Rating. This project includes no facilities that are required to achieve a specific LEED achievement level. Project shall achieve and document all points required by other portions of the RFP and all points that are feasible, but there is no minimum required LEED achievement level.

6.14.3. Credit Validation: LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is not required. Contractor has the option to register the project, compiling of documentation at LEED OnLine and use the LEED Letter Templates. In this case, payment of registration fees and administration/team management of the online project will be by the Contractor.

6.14.4. Commissioning: See Appendix M for Owner’s Project Requirements document(s).

6.14.5. LEED Credits Coordination. The following information is provided relative to Sustainable Sites and other credits.

MR Credit 2 Construction Waste Management.

The Installation has an on-post recycling facility.

Regional Priority Credits (Version 3 only)

The project zip code is 31409.

See LEED Multiple Contractor Responsibilities Table(s) for additional information.

6.14.6. LEED Credit Preferences, Guidance and Resources. See Appendix L LEED Project Credit Guidance for supplemental information relating to individual credits.

6.14.7. Multiple Contractor Combined Project. When site work and building(s) are accomplished by separate contractors, it is a Multiple Contractor Combined Project for purposes of LEED scoring and documentation. This project is part of a Multiple Contractor Combined Project that includes site work and building(s) accomplished by separate contractors. See Appendix LEED Requirements for Multiple Contractor Combined Projects and Appendix LEED Multiple Contractor Responsibilities Table(s) for special requirements for this project.

6.14.8. Additional Information

Para 6.14.3 Contractor option to register the
project does not apply. Contractor shall not register the project.

6.15. ENVIRONMENTAL

The location of the organizational vehicle parking is a site currently bounded by the recycling center to the north, the haz mat storage facility to the west, Building 612 and Cook Boulevard to the south and the exisitng TEMF. There are no known environmental issues with the exisitng site with the exception of the potential for asbestos and lead based paint associated with the demolition of Building 612.

6.16. PERMITS

NPDES permit will be required.

6.17. DEMOLITION

Demolition shall include the following:

The buildings and structures associated with Building 612 as part of the bid option.

The POL Storage Room, Fire Riser Room, Air Compressor and Outboard Motor Testing Areas of the existing TEMF.

The existing TEMF east wall exterior masonry finish shall be removed down to the CMU wythe including, but not limited to: brick, steel angle brick lintels, flashing, rigid insulation, brick ties, mortar net and excess mortar. Clean and repair CMU in preparation for painting to match the existing interior finish.

The minimum amount of roofing material shall be removed to allow the tie-in of the new roof system which will match the existing roof appearance as possible, but does not need to be provided by the same manufacturer. Design and construction of the new roof system is required to be coordinated with the existing roof manufacturer to ensure warranty is not voided.

The exterior doors and frames in the east wall of the existing TEMF are to be removed. Patch and repair the resulting rough openings in preparation for painting to match the existing interior finish.

Existing equipment mounted to the east exterior wall shall be removed and reused or replaced. This equipment includes but is not limited to: Lighting wall packs, mass notification antennae, fire alarm devices, building signage and hose reels.

6.18. ADDITIONAL FACILITIES

No additional facilities will be required in conjunction with this project.

Temporary Building: A 15' x 40' temporary buidling with wheels is currently located adjacent to the weighing scales in the existing recycling yard. The building shall be moved approximatley 150' to the west in order to accommodate the organizational vehicle parking. All associated utilities, including but not limited to: water, gas, electrical, communications and sanitary sewer shall be provided at the new builidng location. Data cabling associated with the operation of the weighing scales shall also be provided from the scales to the new building location.

End of Section 01 10 00

SECTION 01 32 01.00 10
PROJECT SCHEDULE

1.0 GENERAL

1.1. REFERENCES

1.2. QUALIFICATION

2.0 PRODUCTS (NOT APPLICABLE)

3.0 EXECUTION

3.1. GENERAL REQUIREMENTS

3.2. BASIS FOR PAYMENT AND COST LOADING

3.3. PROJECT SCHEDULE DETAILED REQUIREMENTS

3.4. PROJECT SCHEDULE SUBMISSIONS

3.5. SUBMISSION REQUIREMENTS

3.6. PERIODIC SCHEDULE UPDATE MEETINGS

3.7. REQUESTS FOR TIME EXTENSIONS

3.8. DIRECTED CHANGES

3.9. WEEKLY PROGRESS MEETINGS

3.10. OWNERSHIP OF FLOAT

3.11. TRANSFER OF SCHEDULE DATA INTO RMS/QCS

1.0 GENERAL

1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- U.S. ARMY CORPS OF ENGINEERS (USACE) ER 1-1-11 (1995) Progress, Schedules, and Network Analysis Systems http://www.usace.army.mil/publications/eng-regs/er1-1-11/entire.pdf

1.2. QUALIFICATIONS

Designate an authorized representative who shall be responsible for the preparation of the schedule and all required updating (statusing) and preparation of reports. The authorized representative shall be experienced in scheduling projects similar in nature to this project and shall be experienced in the use of the scheduling software that meets the requirements of this specification.

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

3.1. GENERAL REQUIREMENTS

3.1.1. Submit a project schedule as specified herein for approval showing the sequence in which the Contractor proposes to perform the work and dates on which the Contractor contemplates starting and completing all schedule activities. The scheduling of the entire project, including the design and construction sequences is required. Contractor management personnel shall actively participate in its development. Designers, subcontractors and suppliers working on the project shall also contribute in developing an accurate project schedule. The schedule must be a forward planning as well as a project monitoring tool. The approved project schedule shall be used to measure the progress of the work and to aid in evaluating requests for excusable time extensions. The schedule shall be cost loaded and activity coded as specified herein. The schedule will provide the basis for all progress payments. If the Contractor fails to submit any schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule

3.1.2. Status the schedule on at least a monthly basis, as specified herein. If in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained. See paragraph 3.7.4.

3.1.3. Failure of the Contractor to comply with the requirements of the Contracting Officer shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of the contract.

3.2. BASIS FOR PAYMENT AND COST LOADING

The schedule shall be the basis for determining contract earnings during each update period and therefore the amount of each progress payment. Lack of an approved schedule update or qualified scheduling personnel will result in an inability of the Contracting Officer to evaluate contract earned value for the purposes of payment. Failure of the Contractor to provide all information, as specified herein will result in the disapproval of the preliminary, initial and subsequent schedule updates. In the event schedule revisions are directed by the Contracting Officer and those revisions have not been included in subsequent revisions or updates, the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until such revisions to the project schedule have been made. Activity cost loading shall be reasonable as determined by the Contracting Officer. The aggregate value of all activities coded to a contract CLIN as specified herein shall equal the value of the CLIN on the Schedule.

3.3. PROJECT SCHEDULE DETAILED REQUIREMENTS

The computer software system utilized to produce and update the project schedule shall be capable of meeting all requirements of this specification. Failure of the Contractor to meet the requirements of this specification will result in the disapproval of the schedule. Scheduling software that meets the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER-1-1-11(1995) referenced herein are Primavera Project Planner (P3) by Primavera, and Open Plan by Deltek.

3.3.1. Use of the Critical Path Method

Use the Critical Path Method (CPM) of network calculation to generate the project schedule. Prepare the project schedule using the Precedence Diagram Method (PDM).

3.3.2. Level of Detail Required

Develop the project schedule to an appropriate level of detail. Failure to develop the project schedule to an appropriate level of detail, as determined by the Contracting Officer, will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.3.2.1. Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities shall have Original Durations (OD) greater than 20 work days or 30 calendar days. Procurement activities are defined herein.

3.3.2.2. Design and Permit Activities

Include design and permit activities, including necessary conferences and follow-up actions and design package submission activities. Include the design schedule in the project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. This shall be at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. Include review and correction periods associated with each item.

3.3.2.3. Procurement Activities

Include activities associated with the submittal, approval, procurement, fabrication and delivery of long lead materials, equipment, fabricated assemblies and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days. A typical procurement sequence includes the string of activities: submit, approve/review, procure, fabricate, and deliver.

3.3.2.4. Mandatory Tasks

Include and properly schedule the following tasks (See also the Sample Preliminary Submittal Register Input Form):

3.3.2.4.1. Submission, review and acceptance of design packages, including BIM

3.3.2.4.2. Submission of mechanical/electrical/information systems layout drawings

3.3.2.4.3. Submission and approval of O & M manuals

3.3.2.4.4. Submission and approval of as-built drawings

3.3.2.4.5. Submission and approval of 1354 data and installed equipment lists

3.3.2.4.6. Submission and approval of testing and air balance (TAB)

3.3.2.4.7. Submission of TAB specialist design review report

3.3.2.4.8. Submission and approval of fire protection specialist

3.3.2.4.9. Submission and approval of testing and balancing of HVAC plus commissioning plans and data. Develop the schedule logic associated with testing and commissioning of mechanical systems to a level of detail consistent with the contract commissioning requirements.

3.3.2.4.10. Air and water balancing

3.3.2.4.11. HVAC commissioning

3.3.2.4.12. Controls testing plan submission

3.3.2.4.13. Controls testing

3.3.2.4.14. Performance Verification testing

3.3.2.4.15. Other systems testing, if required

3.3.2.4.16. Contractor's pre-final inspection

3.3.2.4.17. Correction of punch list from Contractor's pre-final inspection

3.3.2.4.18. Government's pre-final inspection

3.3.2.4.19. Correction of punch list from Government's pre-final inspection

3.3.2.4.20. Final Inspection

3.3.2.5. Government Activities. Show Government and other agency activities that could impact progress. These activities include but are not limited to: approvals, design reviews, review conferences, release for construction of design package(s), environmental permit approvals by State regulators, inspections, utility tie-ins, Government Furnished Property/Equipment (GFP) and Notice to Proceed for phasing requirements, if any.

3.3.2.6. Activity Responsibility Coding (RESP)

Assign Responsibility Code for all activities to the Prime Contractor, Subcontractor or Government agency responsible for performing the activity. Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government design reviews, environmental permit approvals by State regulators, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements. Code all activities not coded with a Government Responsibility Code to the Prime Contractor or Subcontractor responsible to perform the work. Activities shall not have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for USACE). Unacceptable code values are abbreviations of the names of subcontractors.

3.3.2.7. Activity Work Area Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities shall not have more than one Work Area Code. Not all activities are required to be Work Area coded. A lack of Work Area coding will indicate the activity is not resource or space constrained.

3.3.2.8. Contract Changes/Requests for Equitable Adjustment (REA) Coding (MODF)

Assign Activity code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by Contracting Officer, with a Contract Changes/REA Code. Key all Code values to

the Government's modification numbering system. Any activity or sequence of activities added to the schedule as a result of alleged constructive changes made by the Government may be added to a copy of the current schedule, subject to the approval of the Contracting Officer. Assign Activity codes for these activities with a Contract Changes/REA Code. Key the code values to the Contractor's numbering system. Approval to add these activities does not necessarily mean the Government accepts responsibility and therefore liability for such activities and any associated impacts to the schedule, but rather the Government recognizes such activities are appropriately added to the schedule for the purposes of maintaining a realistic and meaningful schedule. Such activities shall not be Responsibility Coded to the Government unless approved. An activity shall not have more than one Contract Changes/REA Code

3.3.2.9. Contract Line Item (CLIN) Coding (BIDI)

Code all activities to the CLIN on the Contract Line Item Schedule to which the activity belongs. An activity shall not contain more than one CLIN Item Code. CLIN Item code all activities, even when an activity is not cost loaded.

3.3.2.10. Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities, based upon the phase of work in which the activity occurs. Code activities to either a Design Phase or a Construction Phase. Code fast track design and construction phases proposed by the Contractor to allow filtering and organizing the schedule by fast track design and construction packages. If the contract specifies construction phasing with separately defined performance periods, identify a Construction Phase Code to allow filtering and organizing the schedule accordingly. Each activity shall have only one Phase of Work code.

3.3.2.11. Category of Work Coding (CATW)

Assign Category of Work code to all Activities based upon the category of work which the activity belongs. Category of Work Code must include, but is not limited to: Design, Design Submittal, design reviews, review conferences, Construction Submittal, Approvals (if any), Acceptance, Procurement, Fabrication, Delivery, Weather Sensitive Installation, Non-Weather Sensitive Installation, Start Up, Test, and Turnover. Assign a Category of Work code to each activity. Each activity shall have only one Category of Work Code.

3.3.2.12. Definable Features of Work Coding (FOW1, FOW2, FOW3)

Assign a Definable Feature of Work Code to appropriate activities based on the definable feature of work to which the activity belongs. Definable Feature of Work is defined in Specification Section 01 45 04.00 10, Contractor Quality Control. An activity shall not have more than one Definable Feature of Work Code. Not all activities are required to be Definable Feature of Work Coded.

3.3.3. Scheduled Project Completion and Activity Calendars

The schedule interval shall extend from NTP date to the required contract completion date. The contract completion activity (End Project) shall finish based on the required contract duration, as adjusted for any approved contract time extensions. The first scheduled work period shall be the day after NTP is acknowledged by the Contractor. Schedule activities on a calendar to which the activity logically belongs. Activities may be assigned to a 7 day calendar when the contract assigns calendar day durations for the activity such as a Government Acceptance activity. If the Contractor intends to perform physical work less than seven days per week, schedule the associated activities on a calendar with non-work periods identified including weekends and holidays. Assign the Category of Work Code - Weather Sensitive Installation to those activities that are weather sensitive. Original durations must account for anticipated normal adverse weather. The Government will interpret all work periods not identified as non-work periods on each calendar as meaning the Contractor intends to perform work during those periods.

3.3.3.1. Project Start Date

The schedule shall start no earlier than the date on which the NTP was acknowledged. Include as the first activity in the project schedule an activity called "Start Project" or "NTP". The "Start Project" activity shall have an "ES" constraint date equal to the date that the NTP was acknowledged, with a zero day duration.

3.3.3.2. Schedule Constraints and Open Ended Logic

Constrain completion of the last activity in the schedule by the contract completion date. Schedule calculations shall result in negative float when the calculated early finish date of the last activity is later than the contract completion date. Include as the last activity in the project schedule an activity called "End Project". The "End Project" activity shall have an "LF" constraint date equal to the contract completion date for the project, and with a zero day duration or by using the “project must finish by” date in the scheduling software. The schedule shall have no constrained dates other than those specified in the contract. The use of artificial float constraints such as “zero fee float” or “zero total float” are typically prohibited. There shall only be 2 open ended activities: Start Project (or NTP) with no predecessor logic and End Project with no successor logic.

3.3.3.3. Early Project Completion

In the event the Preliminary or Initial project schedule calculates an early completion date of the last activity prior to the contract completion date, the Contractor shall identify those activities that it intends to accelerate and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. The last activity shall have a late finish constraint equal to the contract completion date and the schedule will calculate positive float. The Government will not approve an early completion schedule with zero float on the longest path. The Government is under no obligation to accelerate activities for which it is responsible to support a proposed early contract completion.

3.3.4. Interim Completion Dates

Constrain contractually specified interim completion dates to show negative float when the calculated early finish date of the last activity in that phase is later than the specified interim completion date.

3.3.4.1. Start Phase

Include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The “Start Phase X" activity shall have an "ES" constraint date equal to the date on which the NTP was acknowledged, and a zero day duration.

3.3.4.2. End Phase

Include as the last activity for a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" constraint date equal to the specified completion date for that phase and a zero day duration.

3.3.4.3. Phase “X” Hammock

Include a hammock type activity for each project phase called "Phase X" where "X" refers to the phase of work. The "Phase X" hammock activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5. Default Progress Data Disallowed

Do not automatically update Actual Start and Finish dates with default mechanisms that may be included in the scheduling software. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the AS and AF dates on the Daily Quality Control report for every in-progress or completed activity, and failure to ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's updated schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. Updating of the percent complete and the remaining duration of any activity shall be independent functions. Disable program features which calculate one of these parameters from the other.

3.3.6. Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Contracting Officer. Propose logic corrections to eliminate all out of sequence progress or justify not changing the sequencing for approval prior to submitting an

updated project schedule. Correct out of sequence progress that continues for more than two update cycles by logic revision, as approved by the Contracting Officer.

3.3.7. Negative Lags and Start to Finish Relationships

Lag durations contained in the project schedule shall not have a negative value. Do not use Start to Finish relationships (SF).

3.3.8. Calculation Mode

Schedule calculations shall retain the logic between predecessors and successors even when the successor activity starts and the predecessor activity has not finished. Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") will not be allowed.

3.3.9. Milestones

Include milestone activities for each significant project event including but not limited to: milestone activities for each fast track design package released for construction; design complete; foundation/substructure construction complete; superstructure construction complete; building dry-in or enclosure complete to allow the initiation of finish activities; permanent power complete; and building systems commissioning complete.

3.4. PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1. Preliminary Project Schedule Submission

Submit the Preliminary Project Schedule, defining the Contractor's planned operations for the first 90 calendar days for approval within 15 calendar days after the NTP is acknowledged. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. Detail it for the first 90 calendar days. It may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as previously specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required Plan and Program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, the planned submissions of all early design packages, permitting activities, design review conference activities and other non-construction activities intended to occur within the first 90 calendar days. Schedule any construction activities planned for the first 90 calendar days after NTP. Constrain planned construction activities by Government acceptance of the associated design package(s) and all other specified Program and Plan approvals. Activity code any activities that are summary in nature after the first 90 calendar days with Responsibility Code (RESP) and Feature of Work code (FOW1, FOW2, FOW3)

3.4.2. Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after NTP. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. The Initial Schedule shall be at a reasonable level of detail as determined by the Contracting Officer. Include detailed design and permitting activities, including but not limited to identification of individual design packages, design submission, reviews and conferences; permit submissions and any required Government actions; and long lead procurement activities required prior to design completion. The Initial Project Schedule shall include the entire construction sequence and all fast track construction activities, with as much detail as is known at the time but, as a minimum, shall include all construction start and completion milestone activities, and detailed construction activities through the dry-in milestone, including all activity coding and cost loading. Include the remaining construction, including cost loading, but it may be scheduled summary in nature. As the design proceeds and design packages are developed, fully detail the remaining construction activities concurrent with the monthly schedule updating process. Constrain construction activities by Government acceptance of associated

designs. When the design is complete, incorporate into the then approved schedule update all remaining detailed construction activities that are planned to occur after the dry-in milestone.

3.4.3. Design Package Schedule Submission:

With each design package submitted to the Government, submit a frag-net schedule extracted from the then current Preliminary, Initial or Updated schedule which covers the activities associated with that Design Package including construction, procurement and permitting activities.

3.4.4. Periodic Schedule Updates

Based on the result of the meeting specified in PERIODIC SCHEDULE UPDATE MEETINGS, submit periodic schedule updates. These submissions shall enable the Contracting Officer to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgment of the Contracting Officer or authorized representative is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made. Update the schedule to include detailed lower WBS activities procurement and construction activities as the design progresses, but not later than the submission of the final, un-reviewed design submission for each separate design package. The Contracting Officer may require submission of detailed schedule activities for any distinct construction that is started prior to submission of a final design submission, if such activity is authorized.

3.4.5. Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11, Appendix A. This exact structure is mandatory, even if some fields are not used. A template SDEF compatible schedule backup file (sdef.prx) is available on the QCS website: www.rmssupport.com. The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per Day
2	RESP	4	Responsible Party (e.g. GC, subcontractor, USACE)
3	AREA	4	Area of Work
4	MODF	6	Modification or REA number
5	BIDI	6	Bid Item (CLIN)
6	PHAS	2	Phase of Work
7	CATW	1	Category of Work
8	FOW1	10	Feature of Work (used up to 10 characters in length)
9	FOW2	10	Feature of Work (used up to 20 characters in length)
10	FOW3	10	Feature of Work (used up to 30 characters in length)

3.5. SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1. Data CD's

Provide two sets of data CD's containing the project schedule in the backup format. Each CD shall also contain all previous update backup files. File medium shall be CD. Label each CD, indicating the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file names. Each schedule shall have a unique file name as determined by the Contractor.

3.5.2. Narrative Report

Provide a Narrative Report with the Preliminary, Initial, and each Periodic Update of the project schedule, as the basis of the progress payment request. The Narrative Report shall include: a description of activities along the 2 most critical paths where the total float is less than or equal to 20 work days, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to communicate to the Government, the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through its analysis. Identify and explain why any activities that, based their calculated late dates, should have either started or finished during the update period but did not.

3.5.3. Approved Changes Verification

Include only those project schedule changes in the schedule submission that have been previously approved by the Contracting Officer. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4. Schedule Reports

The format, filtering, organizing and sorting for each schedule report shall be as directed by the Contracting Officer. Typically reports shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. The following lists typical reports that will be requested. One or all of these reports may be requested for each schedule submission.

3.5.4.1. Activity Report

A list of all activities sorted according to activity number.

3.5.4.2. Logic Report

A list of detailed predecessor and successor activities for every activity in ascending order sorted by activity number.

3.5.4.3. Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.4.4. Earnings Report by CLIN

A compilation of the Contractor's Total Earnings on the project from the NTP to the data date. This report shall reflect the earnings of specific activities based on the agreements made in the schedule update meeting defined herein. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining progress payments. Group activities by CLIN Item number and sort by activity number. This report shall: sum all activities coded to a particular CLIN and provide a CLIN Item percent earned value; and complete and sum CLIN items to provide a total project percent complete. The printed report shall contain, for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Quantity to Date, Percent Complete (based on cost), and Earnings to Date.

3.5.5. Network Diagram

The network diagram is required for the Preliminary, Initial and Periodic Updates. Depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1. Continuous Flow

Show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.5.2. Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3. Critical Path

Clearly show the critical path.

3.5.5.4. Banding

Organize activities as directed to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5. S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

3.6. PERIODIC SCHEDULE UPDATE MEETINGS

Conduct periodic schedule update meetings for the purposes of reviewing the Contractor’s proposed out of sequence corrections, determining causes for delay, correcting logic, maintaining schedule accuracy and determining earned value. Meetings shall occur at least monthly within five days of the proposed schedule data date and after the Contractor has updated the schedule with Government concurrence respecting actual start dates, actual finish dates, remaining durations and percent complete for each activity it intend to status. Match the acutal start and finish dates with the dates exported, as described in paragraph 3.3.5. Provide a computer with the scheduling software loaded and a projector during the meeting which allows all meeting participants to view the proposed schedule update during the meeting. The meeting and resultant approvable schedule update shall be a condition precedent to a formal submission of the update as described in SUBMISSION REQUIREMENTS and to the submission of an invoice for payment. The meeting will be a working interactive exchange which will allow the Government and the Contractor the opportunity review the updated schedule on a real time and interactive basis. The Contractor’s authorized scheduling representative will organize, sort, filter and schedule the update as requested by the Government. The meeting will last no longer than 8 hours. A rough draft of the proposed activity logic corrections and narrative report shall be provided to the Government 48 hours in advance of the meeting. The Contractor's Project Manager and Authorized Scheduler shall attend the meeting with the Authorized Representative of the Contracting Officer.

3.6.1. Update Submission Following Progress Meeting

Submit a complete update of the project schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 working days after the periodic schedule update meeting, reflecting only those changes made during the previous update meeting.

3.6.2. Staus of Activities

Update statusing information, including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD) and Percent Complete shall be subject to the approval of the Government prior to the meeting. As a minimum, address the following items on an activity by activity basis during each progress meeting:

3.6.2.1. Actual Start and Finish Dates

Accurately status the AS and/or AF dates for each activity currently in-progress or completed since the last update The Government may allow an AF date to be assigned with the percent complete less than 100% to account for the value of work remaining but not restraining successor activities. Only assign AS dates when actual progress occurs on an activity.

3.6.2.2. Remaining Duration

Update the estimated RD for all incomplete activities independent of Percent Complete. Remaining durations may exceed the activity OD or may exceed the activity's prior update RD if the Government considers the current OD or RD to be understated based on current progress, insufficient work crews actually manning the job, unrealistic OD or deficiencies that must be corrected that restrain successor activities.

3.6.2.3. Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be statused 100 percent complete. To allow for proper schedule management, cost load the correction of punch list from Government pre-final inspection activity(ies) not less than 1% of the total contract value, which activity(ies) may be declared 100 percent complete upon completion and correction of all punch list work identified during Government pre-final inspection(s).

3.6.2.4. Logic Changes

Specifically identify and discuss all logic changes pertaining to NTP on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, and other changes that have been made pursuant to contract provisions. The Government will only approve logic revisions for the purpose of keeping the schedule valid in terms of its usefulness in calculating a realistic completion date, correcting erroneous logic ties, and accurately sequencing the work.

3.6.2.5. Other Changes

Other changes required due to delays in completion of any activity or group of activities include: 1) delays beyond the Contractor's control, such as strikes and unusual weather. 2) delays encountered due to submittals, Government Activities, deliveries or work stoppages which make re-planning the work necessary. 3) Changes required to correct a schedule that does not represent the actual or planned prosecution and progress of the work.

3.7. REQUESTS FOR TIME EXTENSIONS

In the event the Contractor believes it is entitled to an extension of the contract performance period, completion date, or any interim milestone date, furnish the following for a determination by the Contracting Officer: justification, project schedule data, and supporting evidence as the Contracting Officer may deem necessary. Submission of proof of excusable delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is a condition precedent to any approvals by the Government. In response to each Request For Proposal issued by the Government, the Contractor shall submit a schedule impact analysis demonstrating whether or not the change contemplated by the Government impacts the critical path.

3.7.1. Justification of Delay

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with its request. The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information.

Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay, will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.7.2. Submission Requirements

Submit a justification for each request for a change in the contract completion date of less than 2 weeks based upon the most recent schedule update at the time of the NTP or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

3.7.2.1. A list of affected activities, with their associated project schedule activity number.

3.7.2.2. A brief explanation of the causes of the change

3.7.2.3. An analysis of the overall impact of the changes proposed.

3.7.2.4. A sub-network of the affected area

Identify activities impacted in each justification for change by a unique activity code contained in the required data file.

3.7.3. Additional Submission Requirements

The Contracting Officer may request an interim update with revised activities for any requested time extension of over 2 weeks. Provide this disk within 4 days of the Contracting Officer's request.

3.7.4. If Progress Falls Behind the Approved Project Schedule

3.7.4.1. Should progress fall behind the approved schedule (more than 20 work days of negative float) due to Contractor generated problems, promptly provide a supplemental recovery or completion schedule that illustrates its efforts to regain time to assure a completion by the required contract completion date.

3.7.4.2. The supplemental recovery or completion schedule will not replace the original, approved schedule as the official contract schedule. Continue to update the original, approved schedule on at least a monthly basis. In addition, the Contractor and the Contracting Officer will monitor the supplemental recovery or completion schedule on at least a bi-weekly basis to determine its effect on regaining the rate of progress to assure project completion by the contractually required completion date.

3.7.4.3. Do not artificially improve progress by simply revising the schedule logic, modifying or adding constraints, or shortening future work activity durations. Resource and manpower load the supplemental recovery schedule or completion schedule with crew size and productivity for each remaining activity, indicating overtime, weekend work, and/or double shifts needed to regain the schedule, in accordance with FAR 52.236.15, without additional cost to the Government. Indicate assumptions made and the basis for any logic, constraint, or duration changes used in the creation of the supplemental recovery or completion schedule in a narrative submitted for the Contracting Officer’s approval. Any additional resources or manpower must be evident at the work site. Do not modify the official contract schedule to include these assumptions.

3.7.4.4. Failure to perform work and maintain progress in accordance with the supplemental recovery or completion schedule may result in an interim and final unsatisfactory performance rating and/or may result in corrective action by the Contracting Officer in accordance with FAR 52.236-15.

3.8. DIRECTED CHANGES

If the NTP is issued for changes prior to settlement of price and/or time, submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The Contracting Officer will approve proposed revisions to the schedule prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor with suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until revisions are submitted and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor shall continue to update the schedule with the Contracting Officer's revisions until a mutual agreement in the revisions is reached. If the Contractor fails to submit alternative revisions within 2 weeks of

receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9. WEEKLY PROGRESS MEETINGS

3.9.1. The Government and the Contractor shall meet weekly (or as otherwise mutually agreed to) between the meetings described in paragraph PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. The then current and approved schedule update shall be used for the purposes of this meeting and for the production and review of reports. The Contractor’s Project Manager and the Authorized Representative of the Contracting Officer shall attend. The weekly progress meeting will address the status of RFI’s, RFP’s and Submittals.

3.9.2. Provide a bar chart produced by the scheduling software, organized by Total Float and Sorted by Early Start Date, and a two week “look-ahead” schedule by filtering all schedule activities to show only current ongoing activities and activities schedule to start during the upcoming two weeks, organized by Work Area Code (AREA) and sorted by Early Start Date.

3.9.3. The Government and the Contractor shall jointly review the reports. If it appears that activities on the longest path(s) which are currently driving the calculated completion date (driving activities), are not progressing satisfactorily and therefore could jeopardize timely project completion, corrective action must be taken immediately. Corrective action includes but is not limited to: increasing the number of work crews; increasing the number of work shifts; increasing the number of hours worked per shift; and determining if Government responsibility coded activities require Government corrective action.

3.10. OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

3.11. TRANSFER OF SCHEDULE DATA INTO RMS/QCS

Download and upload the schedule data into the Resident Management System (RMS) prior to RMS databases being transferred to the Government and is considered to be additional supporting data in a form and detail required by the Contracting Officer pursuant to FAR 52.232-5 - Payments under Fixed-Price Construction Contracts. The receipt of a proper payment request pursuant to FAR 52.232-27 - Prompt Payment for Construction Contracts is contingent upon the Government receiving both acceptable and approvable hard copies and electronic export from QCS of the application for progress payment.

End of Section 01 32 01.00 10

SECTION 01 33 00
SUBMITTAL PROCEDURES

1.0 GENERAL

1.1. DEFINITIONS

1.2. NOT USED

1.3. SUBMITTAL CLASSIFICATION

1.4. APPROVED OR CONCURRED WITH SUBMITTALS

1.5. DISAPPROVED SUBMITTALS

1.6. WITHHOLDING OF PAYMENT

1.7. GENERAL

1.8. SUBMITTAL REGISTER

1.9. SCHEDULING

1.10. TRANSMITTAL FORM (ENG FORM 4025)

1.11. SUBMITTAL PROCEDURES

1.12. CONTROL OF SUBMITTALS

1.13. GOVERNMENT APPROVED SUBMITTALS

1.14. INFORMATION ONLY SUBMITTALS

1.15. STAMPS

1.0 GENERAL

1.1. DEFINITIONS

1.1.1. Submittal

Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.1.2. Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by SD numbers and titles as follows.

SD-01 Preconstruction Submittals

- Certificates of insurance.
- Surety bonds.
- List of proposed subcontractors.
- List of proposed products.
- Construction Progress Schedule.
- Submittal register.
- Schedule of prices.
- Accident Prevention Plan.
- Work plan.
- Quality control plan.
- Environmental protection plan.

SD-02 Shop Drawings

- Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.
- Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.
- Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

- Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.
- Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

- Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.
- Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.
- Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies that are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

- Calculations, mix designs, analyses or other data pertaining to a part of work.
- Design submittals, design substantiation submittals and extensions of design submittals.

SD-06 Test Reports

- Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must

have been within three years of date of contract award for the project.)

- Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.
- Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.
- Investigation reports.
- Daily checklists.
- Final acceptance test and operational test procedure.

SD-07 Certificates

- Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.
- Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.
- Confined space entry permits.
- Text of posted operating instructions.

SD-08 Manufacturer's Instructions

- Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

- Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- Factory test reports.

SD-10 Operation and Maintenance Data

- Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

SD-11 Closeout Submittals

- Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.1.3. Approving Authority

Office authorized to approve submittal.

1.1.4. Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2. NOT USED

1.3. SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.3.1. Designer of Record Approved (DA)

1.3.1.1. Designer of Record (DOR) approval is required for all extensions of design, critical materials, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". Provide the Government the number of copies designated hereinafter of all DOR approved submittals, after the DOR has taken appropriate action. The DOR shall ensure that submittals conform to the Solicitation, the Accepted Proposal and the completed design, however see below for those submittals proposing a deviation to the contract or a substitution of a material, system, or piece of equipment that was identified by manufacturer, brand name or model description in the accepted contract proposal.

1.3.1.2. The DOR shall ensure that the submittals comply with all applicable Buy American Act and Trade Agreement Act clauses in the contract. The DOR may confer with the Contracting Officer's Representative for advice and interpretation of those clauses, as necessary.

1.3.1.3. The Government may, but is not required to, review any or all DOR approved submittals for conformance to the solicitation, accepted proposal and the completed design. Except for submittals designated as deviating from the Solicitation, the Accepted Proposal or completed design, the Contractor may proceed with acquisition and installation upon DOR approval. Government Approved (GA)

1.3.2. Government Approved (GA)

Government approval is required for any item specifically designated as requiring Government approval in the Solicitation, for internal and external color finish selections and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.3.3. Government Conformance Review of Design (CR)

The Government will review all intermediate and final design submittals for conformance with the technical requirements of the solicitation. Section 01 33 16 **DESIGN AFTER AWARD** covers the design submittal and review process in detail. Review will be only for conformance with the applicable codes, standards and contract requirements. Design data includes the design documents described in Section 01 33 16 **DESIGN AFTER AWARD**. Generally, design submittals should be identified as SD-05 Design Data submittals.

1.3.4. Designer of Record Approved/Government Conformance Review (DA/CR)

1.3.4.1. Deviations to the Accepted Design. Designer of Record approval and the Government’s concurrence are required for any proposed deviation from the accepted design which still complies with the contract (the Solicitation and Accepted Proposal) before the Contractor is authorized to proceed with material acquisition or installation. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings.” If necessary to facilitate the project schedule, the Contractor and the DOR may discuss a submittal proposing a deviation with the Contracting Officer's Representative prior to officially submitting it to the Government. However, the Government reserves the right to review the submittal before providing an opinion, if it deems it necessary. In any case, the Government will not formally agree to or provide a preliminary opinion on any deviation without the DOR's approval or recommended approval. The Government reserves the right to non-concur with any deviation from the design, which may impact furniture, furnishings, equipment selections or operations decisions that were made, based on the reviewed and concurred design.

1.3.4.2. Substitutions. Unless prohibited or provided for otherwise elsewhere in the Contract, where the accepted contract proposal named products, systems, materials or equipment by manufacturer, brand name and/or by model number or other specific identification, and the Contractor desires to substitute manufacturer or model after award, submit a requested substitution for Government concurrence. Include substantiation, identifying information and the DOR’s approval, as meeting the contract requirements and that it is equal in function, performance, quality and salient features to that in the accepted contract proposal.

1.3.5. Designer of Record Approved/Government Approved (DA/GA)

Any proposed deviation to the solicitation and/or the accepted proposal constitutes a change to the contract. In addition to the above stated requirements for proposed deviations to the accepted design, both Designer of Record and Government Approval and, where applicable, a contract modification are required before the Contractor is

authorized to proceed with material acquisition or installation for any proposed deviation to the contract. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". The Government reserves the right to accept or reject any such proposed deviation at its discretion.

1.3.6. Information Only

All submittals not requiring Designer of Record or Government approval will be for information only. Provide the Government “For Information Only” copies of all submittals not requiring Government approval or concurrence, after the Designer of Record has taken the appropriate action.

1.4. APPROVED OR CONCURRED WITH SUBMITTALS

Do not construe the Contracting Officer's approval of or concurrence with submittals as a complete check, but only that design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Approval or concurrence will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work. The Government won’t consider re-submittals for the purpose of substituting previously approved materials or equipment unless accompanied by an explanation of why a substitution is necessary.

1.5. DISAPPROVED SUBMITTALS

Make all corrections required by the Contracting Officer, obtain the Designer of Record's approval when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Resubmit any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal as one requiring "approval" action, requiring both Designer of Record and Government approval. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, provide prompt notice in accordance with the Contract Clause "Changes" to the Contracting Officer.

1.6. WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if all required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.7. GENERAL

Make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, the Contractor’s Quality Control (CQC) System Manager and the Designer of Record, if applicable, shall check, approve, sign, and stamp all items, indicating action taken. Clearly idenify proposed deviations from the contract requirements. Include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Schedule and make submittals requiring Government approval prior to the acquisition of the material or equipment covered thereby. Pick up and dispose of samples remaining upon completion of the work in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.8. SUBMITTAL REGISTER (GA)

Develop a complete list of submittals, including each separate design package submittal. Submit the initial submittal register within 15 days after Notice to Proceed, including, as a minimum, the design packages and other initial submittals required elsewhere in the contract. The Designer of Record shall identify required submittals in the

specifications, and use the list to prepare the Submittal Register, utilizing the government-provided software, QCS (see Section 01 45 01.10), to create the ENG Form 4288. Appendix Ris a preliminary submittal register input form for use with the Quality Management System and the Resident Office Management System (QCS and RMS). The Government will provide the Contractor the actual Excel Spreadsheet version of this sample input form after award to modify and to use for input into QCS. The Excel Spreadsheet is not totally inputable into QCS, so additional keystroke input will be necessary. The sample input form is not all-inclusive. In addition, additional submittals may be required by other parts of the contract. After award, the parties will meet to discuss contract specific (or task order specific for a task order contract) distribution for the submittals all-inclusive and additional submittals may be required by other parts of the contract. Develop and complete the submittal register as the design is completed. Submit it to the Contracting Officer with the un-reviewed final design package submission or as soon as the design specifications are completed, if before the final design submission. When applicable, if the Contractor elects to fast track design and construction, using multiple design package submissions,update the submittal register to reflect the submittals associated with each design submission, clearly denoting all revisions to the previous submission. The submittal register serves as a scheduling document for submittals and for control of submittal actions throughout the contract period. Coordinate the submit dates and need dates used in the submittal register with dates in the Contractor prepared progress schedule. Submit montly updates to the submittal register showing the Contractor action codes and actual dates with Government action codes and actual dates or until all submittals have been satisfactorily completed. Revise and submit the submittal register when revising the progress schedule.

1.9. SCHEDULING

Schedule submittals covering component items forming a system or items that are interrelated to be coordinated and submitted concurrently. Schedule certifications to be submitted with the pertinent drawings. Allow adequate time (a minimum of 15 calendar days exclusive of mailing time) and show on the register for those items requiring Government approval or concurrence. No delay damages or time extensions will be allowed for time lost in late submittals by the Contractor.

1.10. TRANSMITTAL FORM (ENG FORM 4025)

Use the transmittal form (ENG Form 4025) for submitting submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor or are included in the QCS software if the Contractor is required to use QCS for this contract. Use a separate transmittal form for each specification section Complete this form by filling out all the heading blank spaces and identify each item submitted. Exercise special care to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.11. SUBMITTAL PROCEDURES

Make submittals as follows:

1.11.1. Procedures

The Government will further discuss detailed submittal procedures with the Contractor at the Post-Award Conference.

1.11.2. Deviations

For submittals which include proposed deviations requested by the Contractor, check the column "variation" of ENG Form 4025. Set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.12. CONTROL OF SUBMITTALS

Carefully control his procurement operations to ensure that each individual submittal is made on or before the scheduled submittal date shown on the approved "Submittal Register."

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

Upon completion of review of submittals requiring Government approval or concurrence, the Government will stamp and date the submittals as approved or concurred.. The Government will retain two (2) copies of the submittal and return two (2) copy(ies) of the submittal.

1.14. INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. The Government will retain zero(0) copies of information only submittals.

1.15. STAMPS

Use stamps similar to the following on the submittal data to certify that the submittal meets contract requirements:

CONTRACTOR

(FIRM NAME)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheet(s)

Signature: _____

Title: _____

Date: _____

For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record shall stamp and sign to certify that the submittal meets contract requirements.

SECTION 01 33 16
DESIGN AFTER AWARD

1.0 GENERAL INFORMATION

1.1. INTRODUCTION

1.2. DESIGNER OF RECORD

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

3.1. PRE-WORK ACTIVIES & CONFERENCES

3.1.1. Design Quality Control Plan

3.1.2. Post Award Conference

3.1.3. Partnering & Project Progress Processes

3.1.4. Initial Design Conference

3.1.5. Pre-Construction Conference

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

3.2.1. Site/Utilities

3.2.2. Interim Design Submittals

3.2.3. Over-the-Shoulder Progress Reviews

3.2.4. Final Design Submissions

3.2.5. Design Complete Submittals

3.2.6. Holiday Periods for Government Review or Actions

3.2.7. Late Submittals and Reviews

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

3.3.2. Tracking Design Review Comments

3.3.3. Design and Code Checklists

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

3.4.2. Procedures

3.4.3. Conference Documentation

3.5. INTERIM DESIGN REQUIREMENTS

3.5.1. Drawings

3.5.2. Design Analyses

3.5.3. Geotechnical Investigations and Reports

3.5.4. LEED Documentation

3.5.5. Energy Conservation

3.5.6. Specifications

3.5.7. Building Rendering

3.5.8. Interim Building Design Contents

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

3.7. FINAL DESIGN REQUIREMENTS

3.7.1. Drawings

3.7.2. Design Analysis

3.7.3. Specifications

3.7.4. Submittal Register

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

3.7.6. Acceptance and Release for Construction

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

3.9.2. Web based Design Submittals

3.9.3. Mailing of Design Submittals

3.10. AS-BUILT DOCUMENTS

ATTACHMENT A STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS

ATTACHMENT B FURNITURE, FIXTURES AND EQUIPMENT REQUIREMENTS

ATTACHMENT C TRACKING COMMENTS IN DRCHECKS

ATTACHMENT D SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

ATTACHMENT E LEED SUBMITTALS

ATTACHMENT F BUILDING INFORMATION MODELING REQUIREMENTS

ATTACHMENT G DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT

1.0 GENERAL INFORMATION

1.1. INTRODUCTION

1.1.1. The information contained in this section applies to the design required after award. After award, the Contractor will develop the accepted proposal into the completed design, as described herein.

1.1.2. The Contractor may elect to fast track the design and construction that is, proceed with construction of parts of the sitework and facilities prior to completion of the overall design. To facilitate fast tracking, the Contractor may elect to divide the design into no more than six (6) design packages per major facility type and no more than three (3) design packages for site and associated work. Designate how it will package the design, consistent with its overall plan for permitting (where applicable) and construction of the project. See Sections 01 33 00 SUBMITTAL PROCEDURES and 01 32 01.00 10 PROJECT SCHEDULE for requirements for identifying and scheduling the design packaging plan in the submittal register and project schedule. See also Sections 01 10 00 STATEMENT OF WORK and 01 57 20.00 10 ENVIRONMENTAL PROTECTION for any specified permit requirements. If early procurement of long-lead item construction materials or installed equipment, prior to completion of the associated design package, is necessary to facilitate the project schedule, also identify those long-lead items and how it will assure design integrity of the associated design package to meet the contract requirements (The Contract consists of the Solicitation requirements and the accepted proposal). Once the Government is satisfied that the long-lead items meet the contract requirements, the Contracting Officer will allow the Contractor to procure the items at its own risk.

1.1.3. The Contractor may proceed with the construction work included in a separate design package after the Government has reviewed the final (100%) design submission for that package, review comments have been addressed and resolved to the Government's satisfaction and the Contracting Officer (or the Administrative Contracting Officer) has agreed that the design package may be released for construction.

1.1.4. INTEGRATED DESIGN. To the maximum extent permitted for this project, use a collaborative, integrated design process for all stages of project delivery with comprehensive performance goals for siting, energy, water, materials and indoor environmental quality and ensures incorporation of these goals. Consider all stages of the building lifecycle, including deconstruction.

1.2. DESIGNER OF RECORD

Identify, for approval, the Designer of Record (“DOR”) that will be responsible for each area of design. One DOR may be responsible for more than one area. Listed, Professional Registered, DOR(s) shall account for all areas of design disciplines shall be accounted for by a listed. The DOR’s shall stamp, sign, and date each design drawing and other design deliverables under their responsible discipline at each design submittal stage (see contract clause Registration of Designers). If the deliverables are not ready for release for construction, identify them as "preliminary" or "not for release for construction" or by using some other appropriate designation. The DOR(s) shall also be responsible for maintaining the integrity of the design and for compliance with the contract requirements through construction and documentation of the as-built condition by coordination, review and approval of extensions of design, material, equipment and other construction submittals, review and approval or disapproval of requested deviations to the accepted design or to the contract, coordination with the Government of the above activities, and by performing other typical professional designer responsibilities.

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

3.1. PRE-WORK ACTIVITIES & CONFERENCES

3.1.1. Design Quality Control Plan

Submit for Government acceptance, a Design Quality Control Plan in accordance with Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL before design may proceed.

3.1.2. Post Award Conference

3.1.2.1. The government will conduct a post award contract administration conference at the project site, as soon as possible after contract award. This will be coordinated with issuance of the contract notice to proceed (NTP). The Contractor and major sub-contractor representatives shall participate. All designers need not attend this first meeting. Government representatives will include COE project delivery team members, facility users, facility command representatives, and installation representatives. The Government will provide an agenda, meeting goals, meeting place, and meeting time to participants prior to the meeting.

3.1.2.2. The post award conference shall include determination and introduction of contact persons, their authorities, contract administration requirements, discussion of expected project progress processes, and coordination of subsequent meetings for quality control (see Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL), Partnering (see below and SCR: Partnering), and the initial design conference (see below).

3.1.2.3. The government will introduce COE project delivery team members, facility users, facility command representatives, and installation representatives. The DB Contractor shall introduce major subcontractors, and other needed staff. Expectations and duties of each person shall be defined for all participants. A meeting roster shall be developed and distributed by the government with complete contact information including name, office, project role, phone, mailing and physical address, and email address.

3.1.3. Partnering & Project Progress Processes

3.1.3.1. The initial Partnering conference may be scheduled and conducted at any time with or following the post award conference. The Government proposes to form a partnership with the DB Contractor to develop a cohesive building team. This partnership will involve the COE project delivery team members, facility users, facility command representatives, installation representatives, Designers of Record, major subcontractors, contractor quality control staff, and contractor construction management staff. This partnership will strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership will be bilateral in membership and participation will be totally voluntary. All costs, excluding labor and travel expenses, shall be shared equally between the Government and the Contractor. The Contractor and Government shall be responsible for their own labor and travel costs. Normally, partnering meetings will be held at or in the vicinity of the project installation.

3.1.3.2. As part of the partnering process, the Government and Contractor shall develop, establish, and agree to comprehensive design development processes including conduct of conferences, expectations of design development at conferences, fast-tracking, design acceptance, Structural Interior Design (SID)/ Furniture, Fixtures & Equipment (FF&E) design approval, project closeout, etc. The government will explain contract requirements and the DB Contractor shall review their proposed project schedule and suggest ways to streamline processes.

3.1.4. Initial Design Conference

The initial design conference may be scheduled and conducted at the project installation any time after the post award conference, although it is recommended that the partnering process be initiated with or before the initial design conference. Any design work conducted after award and prior to this conference should be limited to site and is discouraged for other items. All Designers of Record shall participate in the conference. The purpose of the meeting is to introduce everyone and to make sure any needs the contractor has are assigned and due dates established as well as who will get the information. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning the BIM Implementation Plan demonstration at this meeting. The DB Contractor shall conduct the initial design conference.

3.1.5. Pre-Construction Conference

Before starting construction activities, the Contractor and Government will jointly conduct a pre-construction administrative conference to discuss any outstanding requirements and to review local installation requirements for start of construction. It is possible there will be multiple Pre-Construction Conferences based on the content of the design packages selected by the Contractor. The Government will provide minutes of this meeting to all participants.

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

The stages of design submittals described below define Government expectations with respect to process and content. The Contractor shall determine how to best plan and execute the design and review process for this project, within the parameters listed below. As a minimum, the Government expects to see at least one interim design submittal, at least one final design submittal before construction of a design package may proceed and at least one Design Complete submittal that documents the accepted design. The Contractor may sub-divide the design into separate packages for each stage of design and may proceed with construction of a package after the Government accepts the final design for that package. See discussion on waivers to submission of one or more intermediate design packages where the parties partner during the design process. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning BIM and the various stages of design submittals and over-the-shoulder progress reviews**.**

3.2.1. Site/Utilities

To facilitate fast-track design-construction activities the contractor may submit a final (100%) site and utility design as the first design submittal or it may elect to submit interim and final site and utility design submittals as explained below. Following review, resolution, and incorporation of all Government comments, and submittal of a satisfactory set of site/utility design documents, after completing all other pre-construction requirements in this contract and after the pre-construction meeting, the Government will allow the Contractor to proceed with site development activities, including demolition where applicable, within the parameters set forth in the accepted design submittal. For the first site and utility design submission, whether an interim or final, the submittal review, comment, and resolution times from this specification apply, except that the Contractor shall allow the Government a 14 calendar day review period, exclusive of mailing time. No on-site construction activities shall begin prior to written Government clearance to proceed.

3.2.2. Interim Design Submittals

The Contractor may submit either a single interim design for review, representing a complete package with all design disciplines, or split the interim design into smaller, individual design packages as it deems necessary for fast-track construction purposes. As required in Section 01 32 01.00 10 PROJECT SCHEDULE, the Contractor shall schedule its design and construction packaging plan to meet the contract completion period. This submission is the Government's primary opportunity to review the design for conformance to the solicitation and to the accepted contract proposal and to the Building Codes at a point where required revisions may be still made, while minimizing lost design effort to keep the design on track with the contract requirements. The requirements for the interim design review submittals and review conferences are described hereinafter. This is not necessarily a hold point for the design process; the Contractor may designate the interim design submittal(s) as a snapshot and proceed with design development at its own risk. See below for a waiver, where the parties establish an effective over-the-shoulder progress review procedure through the partnering process that would eliminate the need for or expedite a formal intermediate design review on one or more individual design packages.

3.2.3. Over-the-Shoulder Progress Reviews

To facilitate a streamlined design-build process, the Government and the Contractor may agree to one-on-one reviewer or small group reviews, electronically, on-line (if available within the Contractor's standard design practices) or at the Contractor's design offices or other agreed location, when practicable to the parties. The Government and Contractor will coordinate such reviews to minimize or eliminate disruptions to the design process. Any data required for these reviews shall normally be provided in electronic format, rather than in hard copy. If the Government and Contractor establish and implement an effective, mutually agreeable partnering procedure for regular (e.g., weekly) over-the shoulder review procedures that allow the Government reviewers the opportunity to keep fully informed of the progress, contents, design intent, design documentation, etc. of the design package, the Government will agree to waive or to expedite the formal intermediate design review period for that package. The Contractor shall still be required to submit the required intermediate design documentation, however the parties may agree to how that material will be provided, in lieu of a formal consolidated submission of the package. It should be noted that Government funding is extremely limited for non-local travel by design reviewers, so the maximum use of virtual teaming methods must be used. Some possible examples include electronic file sharing, interactive software with on-line or telephonic conferencing, televideo conferencing, etc. The Government must still perform its Code and Contract conformance reviews, so the Contractor is encouraged to partner with the reviewers to find ways to facilitate this process and to facilitate meeting or bettering the design-build schedule. The Contractor shall maintain a fully functional configuration management system as described herein to track design revisions, regardless of whether or not there is a need for a formal intermediate design review. The formal intermediate

review procedures shall form the contractual basis for the official schedule, in the event that the partnering process determines that the formal intermediate review process to be best suited for efficient project execution. However, the Government pledges to support and promote the partnering process to work with the Contractor to find ways to better the design schedule.

3.2.4. Final Design Submissions

This submittal is required for each design package prior to Government acceptance of that design package for construction. The requirements for the final design submittal review conferences and the Government's acceptance for start of construction are described herein after.

3.2.5. Design Complete Submittals

After the final design submission and review conference for a design package, revise the design package to incorporate the comments generated and resolved in the final review conferences, perform and document a back-check review and submit the final, design complete documents, which shall represent released for construction documents. The requirements for the design complete submittals are described hereinafter.

3.2.6. Holiday Periods for Government Review or Actions

Do not schedule meetings, Government reviews or responses during the last two weeks of December or other designated Government Holidays (including Friday after Thanksgiving). Exclude such dates and periods from any durations specified herein for Government actions.

3.2.7. Late Submittals and Reviews

If the Contractor cannot meet its scheduled submittal date for a design package, it must revise the proposed submittal date and notify the government in writing, at least one (1) week prior to the submittal, in order to accommodate the Government reviewers' other scheduled activities. If a design submittal is over one (1) day late in accordance with the latest revised design schedule, or if notification of a proposed design schedule change is less than seven (7) days from the anticipated design submission receipt date, the Government review period may be extended up to seven (7) days due to reviewers' schedule conflicts. If the Government is late in meeting its review commitment and the delay increases the Contractor's cost or delays completion of the project, the Suspension of Work and Defaults clauses provide the respective remedy or relief for the delay.

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

Develop and maintain effective, acceptable design configuration management (DCM) procedures to control and track all revisions to the design documents after the Interim Design Submission through submission of the As-Built documents. During the design process, this will facilitate and help streamline the design and review schedule. After the final design is accepted, this process provides control of and documents revisions to the accepted design (See Special Contract Requirement: Deviating From the Accepted Design). The system shall include appropriate authorities and concurrences to authorize revisions, including documentation as to why the revision must be made. The DCM data shall be available to the Government reviewers at all times. The Contractor may use its own internal system with interactive Government concurrences, where necessary or may use the Government's "DrChecks Design Review and Checking System" (see below and Attachment C).

3.3.2. Tracking Design Review Comments

Although the Contractor may use its own internal system for overall design configuration management, the Government and the Contractor shall use the DrChecks Design Review and Checking System to initiate, respond to, resolve and track Government design compliance review comments. This system may be useful for other data which needs to be interactive or otherwise available for shared use and retrieval. See Attachment C for details on how to establish an account and set-up the DrChecks system for use on the project.

3.3.3. Design and Code Checklists

Develop and complete various discipline-specific checklists to be used during the design and quality control of each submittal. Submit these completed checklists with each design submittal, as applicable, as part of the project documentation. See Section 01 45 04.00 10 Contractor Quality Control, Attachment D for a Sample Fire Protection and Life Safety Code review checklist and Attachment E for LEED SUBMITTALS.

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

At least one interim design submittal, review and review conference is required for each design package (except that, per paragraph 3.2.1, the Contractor may skip the interim design submission and proceed directly to final design on the sitework and utilities package). The DB Contractor may include additional interim design conferences or over-the-shoulder reviews, as needed, to assure continued government concurrence with the design work. Include the interim submittal review periods and conferences in the project schedule and indicate what part of the design work is at what percentage of completion. The required interim design conferences shall be held when interim design requirements are reached as described below. See also Paragraph: **Over-the-Shoulder Progress Reviews** for a waiver to the formal interim design review.

3.4.2. Procedures

After receipt of an Interim Design submission, allow the Government fourteen (14) calendar days after receipt of the submission to review and comment on the interim design submittal. For smaller design packages, especially those that involve only one or a few separate design disciplines, the parties may agree on a shorter review period or alternative review methods (e.g., over-the–shoulder or electronic file sharing), through the partnering process. For each interim design review submittal, the COR will furnish, to the Contractor, a single consolidated, validated listing of all comments from the various design sections and from other concerned agencies involved in the review process using the DrChecks Design Review and Checking System. The review will be for conformance with the technical requirements of the solicitation and the Contractor's RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he/she must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved. Furnish disposition of all comments, in writing, through DrChecks. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the COR in writing immediately. The Interim Review conference will be held for each design submittal at the installation. Bring the personnel that developed the design submittal to the review conference. The conference will take place the week after the receipt of the comments by the Contractor. For smaller fast-track packages that involve only a few reviewers, the parties may agree to alternative conferencing methods, such as teleconferencing, or televideo, where available, as determined through Partnering.

3.4.3. Conference Documentation

3.4.3.1. In order to facilitate and accelerate the Government code and contract conformance reviews, identify, track resolution of and maintain all comments and action items generated during the design process and make this available to the designers and reviewers prior to the Interim and subsequent design reviews.

3.4.3.2. The DB Contractor shall prepare meeting minutes and enter final resolution of all comments into DrChecks. Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Incorporate valid comments. The Government reserves the right to reject design document submittals if comments are significant. Participants shall determine if any comments are critical enough to require further design development prior to government concurrence. Participants shall also determine how to proceed in order to obtain government concurrence with the design work presented.

3.5. INTERIM DESIGN REQUIREMENTS

Interim design deliverables shall include drawings, specifications, and design analysis for the part of design that the Contractor considers ready for review.

3.5.1. Drawings

Include comments from any previous design conferences incorporated into the documents to provide an interim design for the “part” submitted.

3.5.2. Design Analyses

3.5.2.1. The designers of record shall prepare and present design analyses with calculations necessary to substantiate and support all design documents submitted. Address design substantiation required by the applicable codes and references and pay particular attention to the following listed items:

3.5.2.2. For parts including sitework, include site specific civil calculations.

3.5.2.3. For parts including structural work, include structural calculations.

(a) Identify all loads to be used for design.

(b) Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

(c) Provide calculations for all principal roof, floor, and foundation members and bracing and secondary members.

(d) Provide complete seismic analyses for all building structural, mechanical, electrical, architectural, and building features as dictated by the seismic zone for which the facility is being constructed.

(e) Computer generated calculations must identify the program name, source, and version. Provide input data, including loads, loading diagrams, node diagrams, and adequate documentation to illustrate the design. The schematic models used for input must show, as a minimum, nodes/joints, element/members, materials/properties, and all loadings, induced settlements/deflections, etc., and a list of load combinations. Include an output listing for maximum/minimum stresses/forces and deflections for each element and the reactions for each loading case and combination.

(f) See also the Security (Anti-Terrorism) requirements below for members subject to Anti-Terrorist Force Protection (ATFP) and Progressive Collapse requirements.

(g) Fully coordinate and integrate the overall structural design between two different or interfacing construction types, such as modular and stick-built or multistory, stacked modular construction. Provide substantiation of structural, consolidation/settlement analysis, etc., as applicable, through the interfaces.

3.5.2.4. For Security (Anti-Terrorism): Provide a design narrative and calculations where applicable, demonstrating compliance with each of the 22 standards in UFC 4-010-01, which includes Design of Buildings to Resist Progressive Collapse (use the most recent version of UFC 4-023-03, regardless of references to any specific version in UFC 4-010-01). Where sufficient standoff distance is not being provided, show calculations for blast resistance of the structural system and building envelope. Show complete calculations for members subjected to ATFP loads, e.g., support members of glazed items (jambs, headers, sills) connections of windows to support members and connections of support members to the rest of the structure. For 3 story and higher buildings, provide calculations to demonstrate compliance with progressive collapse requirements.

3.5.2.5. For parts including architectural work, include building floor area analysis.

3.5.2.6. For parts including mechanical work, include HVAC analysis and calculations. Include complete design calculations for mechanical systems. Include computations for sizing equipment, compressed air systems, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation is required (see paragraph 3.5.5.2 for list of acceptable software). Based on the results of calculations, provide a complete list of the materials and equipment proposed with the manufacturer's published cataloged product installation specifications and roughing-in data.

3.5.2.7. For parts including life safety, include building code analysis and sprinkler and other suppression systems. Notwithstanding the requirements of the Codes, address the following:

(a) A registered fire protection engineer (FPE) must perform all fire protection analyses. Provide the fire protection engineer’s qualifications. See Section 01 10 00, paragraph 5 for qualifications.

(b) Provide all references used in the design including Government design documents and industry standards used to generate the fire protection analysis.

(c) Provide classification of each building in accordance with fire zone, building floor areas and height and number of stories.

(d) Provide discussion and description of required fire protection requirements including extinguishing equipment, detection equipment, alarm equipment and water supply. Alarm and detection equipment shall interface to requirements of Electronic Systems.

(e) Provide hydraulic calculations based on water flow test for each sprinkler system to insure that flow and pressure requirements can be met with current water supply. Include copies of Contractor's water flow testing done to certify the available water source.

3.5.2.8. For parts including plumbing systems:

(a) List all references used in the design.

(b) Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

(c) Detail calculations for systems such as sizing of domestic hot water heater and piping; natural gas piping; LP gas piping and tanks, fuel oil piping and tanks, etc., as applicable.

(d) When the geotechnical report indicates expansive soils are present, indicate in the first piping design submittal how piping systems will be protected against damage or backfall/backflow due to soil heave (from penetration of slab to the 5 foot building line).

3.5.2.9. For elevator systems:

(a) List all criteria codes, documents and design conditions used.

(b) List any required permits and registrations for construction of items of special mechanical systems and equipment.

3.5.2.10. For parts including electrical work, include lighting calculations to determine maintained foot-candle levels, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations and arc fault calculations.

3.5.2.11. For parts including telecommunications voice/data (including SIPRNET, where applicable), include analysis for determining the number and placement of outlets

3.5.2.12. For Cathodic Protection Systems, provide the following stamped report by the licensed corrosion engineer or NACE specialist with the first design submission. The designer must be qualified to engage in the practice of corrosion control of buried or submerged metallic surfaces. He/she must be accredited or certified by the National Association of Corrosion Engineers (NACE) as a NACE Accredited Corrosion Specialist or a NACE certified Cathodic Protection Specialist, or must be a registered professional engineer with a minimum of five years experience in corrosion control and cathodic protection, Clearly describe structures, systems or components in soil or water to be protected. Describe methods proposed for protection of each.

3.5.2.13. Air Barrier System: Provide a narrative of the design and installation requirements for the Air Barrier system. As part of the design quality control process an air barrier consultant shall review drawing details to assure that details of critical Air Barrier components are properly detailed and incorporated during the design drawings and process (i.e. window flashing details, penetration in air barrier details, door flashing details, roofing/ceiling barrier interface details and etc.). Furnish the Government written review details and results.

3.5.3. Geotechnical Investigations and Reports:

3.5.3.1. The contractor’s licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal. Make this information available as early as possible during the over-the-shoulder progress review process. Summarize the subsurface conditions and provide recommendations for the design of appropriate utilities, foundations, floor slabs, retaining walls, embankments, and pavements. Include compaction requirements for fill and backfill under buildings, sidewalks, other structures and open areas. Recommend foundation systems to be used, allowable bearing pressures for footings, lateral load

resistance capacities for foundation systems, elevations for footings, grade beams, slabs, etc. Provide an assessment of post-construction settlement potential including total and differential. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required. Include calculations to support the recommendations for bearing capacity, settlement, and pavement sections. Include supporting documentation for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade modulus, California Bearing Ratio (CBR), etc. Provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control and the possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, old fill, old structures, soft areas, or unusual soil conditions. Include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems. Include the raw field data. Arrange a meeting with the Government subsequent to completion and evaluation of the site specific geotechnical exploration to outline any differences encountered that are inconsistent with the Government provided preliminary soils information. Clearly outline differences which require changes in the foundation type, or pavement and earthwork requirements from that possible and contemplated using the Government furnished preliminary soils investigation, which result in a change to the design or construction. Any equitable adjustment is subject to the provisions of the contract's Differing Site Conditions Clause.

3.5.3.2. Vehicle Pavements: The Contractor's geotechnical report shall contain flexible and rigid pavement designs, as applicable for the project, including design CBR and modulus of subgrade reaction and the required compaction effort for subgrades and pavement layers. Provide Information on the types of base course materials available in the area and design strengths.

3.5.3.3. The Contractor and the professional geotechnical engineer consultant shall certify in writing that the design of the project has been developed consistent with the Contractor's final geotechnical report. The certification shall be stamped by the consulting professional geotechnical engineer and shall be submitted with the first design submission. If revisions are made to the initial design submission, a new certification shall be provided with the final design submission.

3.5.4. LEED Documentation:

Assign a LEED Accredited Professional, responsible to track LEED planning, performance and documentation for each LEED credit through construction closeout. Incorporate LEED credits in the plans, specifications and design analyses. Develop LEED supporting documentation as a separable portion of the Design Analysis and provide with each required design submittal. Include the LEED Project checklist for each non-exempt facility (one checklist may be provided for multiple facilities in accordance with the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects and the LEED SUBMITTALS (Attachment E, herein) with each submittal. Final design submittal for each portion of the work must include all required design documentation relating to that portion of work (example - all site credit design documents with final site design). Submittal requirements are as indicated in Attachment E, LEED SUBMITTALS. Submit all documentation indicated on Attachment E as due at final design at final design submittal (for fast-track projects with multiple final design submittals, this shall be at the last scheduled final design submittal). All project documentation related to LEED shall conform to USGBC requirements for both content and format, including audit requirements and be separate from other design analyses. Maintain and update the LEED documentation throughout project progress to construction closeout and shall compile product data, receipts, calculations and other data necessary to substantiate and support all credits claimed. The Government may audit any or all individual credits. Audit documentation is not required to be submitted unless requested. These requirements apply to all projects. If the project requires the Contractor to obtain USGBC certification, the Contractor shall also be responsible for obtaining USGBC certification and shall provide written evidence of certification with the construction closeout LEED documentation submittal. Install the USGBC building plaque at the location indicated by the Government upon receipt. If Contractor obtains USGBC interim design review, submit the USGBC review to the Government within 30 days of receipt for information only.

3.5.4.1. LEED Documentation for Technology Solution Set. If the Solicitation provides a Prescriptive Technology Solution Set, use of the Technology Solution set has no effect on LEED documentation requirements. Provide all required LEED documentation, including energy analysis, in accordance with LEED requirements when using the Technology Solution Set.

3.5.5. Energy Conservation:

3.5.5.1. Refer to Section 01 10 00, Paragraph 5. Interim and Final Design submittals shall demonstrate that each building including the building envelope, HVAC systems, service water heating, power, and lighting systems meet the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Use Compliance Documentation forms available from ASHRAE and included in the ASHRAE 90.1 User's Manual for this purpose. The Architectural Section of the Design Analysis shall include completed forms titled "Building Envelope Compliance Documentation Parts I and II". The Heating Ventilating and Air Conditioning (HVAC) Section of the Design Analysis shall include a completed form titled "HVAC Simplified Approach Option - Part I" if this approach is allowed by the Standard. Otherwise, the HVAC Section of the Design Analysis shall include completed forms titled "HVAC Mandatory Provisions - Part II" and "HVAC Prescriptive Requirements - Part III". The Plumbing Section of the Design Analysis shall include a completed form titled "Service Water Heating Compliance Documentation". The Electrical Section of the Design Analysis shall include an explanatory statement on how the requirements of ASHRAE 90.1-2004 Chapter 8 Power were met. The Electrical Section of the Design Analysis shall also include a completed form titled "Lighting Compliance Documentation".

3.5.5.2. Interim and Final Design submittals which address energy consuming systems, (heating, cooling, service hot water, lighting, power, etc.) must also include calculations in a separate Energy Conservation Section of the Design Analysis which demonstrate and document (a) the baseline energy consumption for the facility or facilities under contract, that would meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1 and (b) the energy consumption of the facility or facilities under contract utilizing the materials and methods required by this construction contract. Use the USGBC Energy and Atmosphere (EA) Credit 1 compliance template / form or an equivalently detailed form for documenting compliance with the energy reduction requirements. This template / form is titled PERFORMANCE RATING METHOD and is available when the project is registered for LEED. The calculation methodology used for this documentation and analysis shall follow the guidelines set forth in Appendix G of ASHRAE 90.1, with two exceptions: a) receptacle and process loads may be omitted from the calculation; and b) the definition of the terms in the formula for Percentage Improvement found in paragraph G1.2 are modified as follows: Baseline Building Performance shall mean the annual energy consumption calculated for a building design intended for use as a baseline for rating above standard design meeting the minimum requirements of the energy standard, and Proposed Building Performance shall mean annual energy consumption calculated for the proposed building design intended for construction. This calculation shall address all energy consuming systems in a single integrated methodology. Include laboratory fume hoods and kitchen ventilation loads in the energy calculation. They are not considered process loads. Individual calculations for heating, cooling, power, lighting, power, etc. systems will not be acceptable. The following building simulation software is acceptable for use in calculating building energy consumption: Hourly Analysis Program (HAP) by Carrier Corp., TRACE 700 by Trane Corp., DOE-2 by US Department of Energy, EnergyPlus by DOD/DOE.

3.5.6. Specifications

Specifications may be any one of the major, well known master guide specification sources (use only one source) such as MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Unified Facility Guide Specifications (UFGS using MASTERFORMAT 2004 numbering system), etc. (including specifications from these sources). Manufacturers' product specifications, utilizing CSI's Manu-Spec, three part format may be used in conjunction with the selected specifications. The designers of record shall edit and expand the appropriate Specifications to insure that all project design requirements, current code requirements, and regulatory requirements are met. Specifications shall clearly identify, where appropriate, specific products chosen to meet the contract requirements (i.e., manufacturers' brand names and model numbers or similar product information).

3.5.7. Building Rendering

Present and provide a draft color computer, artist, or hand drawn rendering with the conceptual design submittal of the building exterior. Perspective renderings shall include a slightly overhead view of the entire building to encompass elevations and the roof configuration of the building. After Government review and acceptance, provide a final rendering, including the following:

Three (3) 18" x 24" color prints, framed and matted behind glass with project title underneath the print.

One (1) Image file (high resolution) in JPG format on CD for those in the submittal distribution list.

3.5.8. Interim Building Design Contents

The following list represents what the Government considers should be included in the overall completed design for a facility or project. It is not intended to limit the contractor from providing different or additional information as needed to support the design presented, including the require design analyses discussed above. As the Contractor develops individual design packages and submits them for Interim review, include as much of the applicable information for an individual design package as is developed at the Interim design level for review purposes. These pieces shall be developed as the design progresses toward the design complete stage.

3.5.8.1. Lawn and Landscaping Irrigation System

3.5.8.2. Landscape, Planting and Turfing

3.5.8.3. Architectural

(a) Design Narrative

(b) Architectural Floor Plans, Typical Wall and Roof Sections, Elevations

(c) Finish schedule

(d) All required equipment

(e) Special graphics requirements

(f) Door and Window Schedules

(g) Hardware sets using BHMA designations

(h) Composite floor plan showing all pre-wired workstations

(i) Structural Interior Design (SID) package: See ATTACHMENT A for specific requirements

(j) Furniture, Fixtures & Equipment (FF&E) design package: See ATTACHMENT B for specific requirements

(k) Air Barrier Design: Details of all Air Barrier components, (i.e. window flashing details, penetrations in air barrier details, door flashing details, roofing/ceiling barrier interface details and etc.)

3.5.8.4. Structural Systems. Include:

(a) Drawings showing principal members for roof and floor framing plans as applicable

(b) Foundation plan showing main foundation elements where applicable

(c) Typical sections for roof, floor, and foundation conditions

3.5.8.5. Plumbing Systems

(a) Show locations and general arrangement of plumbing fixtures and major equipment

(b) Plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Include natural gas (and meter as required), (natural gas and meter as required), (LP gas), (fuel oil) and other specialty systems as applicable.

(c) Include equipment and fixture connection schedules with descriptions, capacities, locations, connection sizes and other information as required

3.5.8.6. HVAC Systems

(a) Mechanical Floor Plans: The floor plans shall show all principle architectural features of the building which will affect the mechanical design. The floor plans shall also show the following:

(1) Room designations.

(2) Mechanical legend and applicable notes.

(3) Location and size of all ductwork and piping.

(4) Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards).

(5) Pre-Fabricated Paint Spray Booth (where applicable to project scope)

(6) Paint Preparation Area (where applicable to project scope)

(7) Exhaust fans and specialized exhaust systems.

(8) Thermostat location.

(9) Location of heating/cooling plant (i.e., boiler, chiller, cooling tower, etc).

(10) Location of all air handling equipment.

(11) Air balancing information.

(12) Flue size and location.

(13) Piping diagram for forced hot water system (if used).

(b) Equipment Schedule: Provide complete equipment schedules. Include:

(1) Capacity

(2) Electrical characteristics

(3) Efficiency (if applicable)

(4) Manufacturer's name

(5) Optional features to be provided

(6) Physical size

(7) Minimum maintenance clearances

(a) Details: Provide construction details, sections, elevations, etc., only where required for clarification of methods and materials of design.

(b) HVAC Controls: Submit complete HVAC controls equipment schedules, sequences of operation, wiring and logic diagrams, Input/Output Tables, equipment schedules, and all associated information. See the Statement of Work for additional specific requirements.

3.5.8.7. Fire Protection and Life Safety.

(a) Provide plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Include the following types of information:

(1) The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.

(2) The location and coverage of any fire detection systems

(3) The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.)

(4) The location of any other major fire protection equipment

(5) Indicate any hazardous areas and their classification

(6) Schedule describing the internal systems with the following information: fire hazard and occupancy classifications, building construction type, GPM/square foot sprinkler density, area of operation and other as required

(b) Working plans and all other materials submitted shall meet NFPA 13 requirements, with respect to required minimum level of detail.

3.5.8.8. Elevators. Provide:

(a) Description of the proposed control system

(b) Description, approximate capacity and location of any special mechanical equipment for elevators.

3.5.8.9. Electrical Systems.

(a) Electrical Floor Plan(s): Show all principle architectural features of the building which will affect the electrical design. Show the following:

(1) Room designations.

(2) Electrical legend and applicable notes.

(3) Lighting fixtures, properly identified.

(4) Switches for control of lighting.

(5) Receptacles.

(6) Location and designation of panelboards. Clearly indicate type of mounting required (flush or surface) and reflect accordingly in specifications.

(7) Service entrance (conduit and main disconnect).

(8) Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.

(b) Building Riser Diagram(s) (from pad-mounted transformer to unit load center panelboard): Indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.

(c) Load Center Panelboard Schedule(s): Indicate the following information:

(1) Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting.

(2) Branch Circuit Designations.

(3) Load Designations.

(4) Circuit Breaker Characteristics. (Number of Poles, Trip Rating, AIC Rating)

(5) Branch Circuit Connected Loads (AMPS).

(6) Special Features

(d) Lighting Fixture Schedule(s): Indicate the following information:

(1) Fixture Designation.

(2) General Fixture Description.

(3) Number and Type of Lamp(s).

(4) Type of Mounting.

(5) Special Features.

(e) Details: Provide construction details, sections, elevations, etc. only where required for clarification of methods and materials of design.

3.5.8.10. Electronic Systems including the following responsibilities:

(a) Fire Detection and Alarm System. Design shall include layout drawings for all devices and a riser diagram showing the control panel, annunciator panel, all zones, radio transmitter and interfaces to other systems (HVAC, sprinkler, etc.)

(b) Fire Suppression System Control. Specify all components of the Fire Suppression (FS) System in the FS section of the specifications. Clearly describe how the system will operate and interact with other systems such as the fire alarm system. Include a riser diagram on the drawings showing principal components and interconnections with other systems. Include FS system components on drawing legend. Designate all components shown on floor plans “FS system components” (as opposed to “Fire Alarm components”). Show location of FS control panels, HVAC control devices, sensors, and 120V power panel connections on floor plans. Indicate zoning of areas by numbers (1, 2, 3) and detectors sub-zoned for cross zoning by letter designations (A and B). Differentiate between ceiling mounted and under floor detectors with distinct symbols and indicate sub-zone of each.

(c) Public Address System

(d) Special Grounding Systems. Completely reflect all design requirements in the specifications and drawings. Specifications shall require field tests (in the construction phase), witnessed by the Government, to determine the effectiveness of the grounding system. Include drawings showing existing construction, if any.

(e) Cathodic Protection.

(f) Intrusion Detection, Card Access System

(g) Central Control and Monitoring System

(h) Mass Notification System

(i) Electrical Power Distribution Systems

3.5.8.11. Separate detailed Telecommunications drawings for Information Systems including the following responsibilities:

(a) Telecommunications Cabling

(b) Supporting Infrastructure

(a) Outside Plant (OSP) Cabling - Campus or Site Plans - Exterior Pathways and Inter-Building Backbones

(a) Include a layout of the voice/data outlets (including voice only wall & pay phones) on telecommunication floor plan drawing, location of SIPRNET data outlets (where applicable), and a legend and symbol definition to indicate height above finished floor. Show size of conduit and cable type and size on Riser Diagram. Do not show conduit runs between backboard and outlets on the floor plans. Show underground distribution conduit and cable with sizing from point of presence to entrance facility of building.

(b) Layout of complete building per floor - Serving Zone Boundaries, Backbone Systems, and Horizontal Pathways including Serving Zones Drawings - Drop Locations and Cable ID's

(c) Communication Equipment Rooms - Plan Views - Tech and AMEP/Elevations - Racks and Walls. Elevations with a detailed look at all telecomm rooms. Indicate technology layout (racks, ladder-racks, etc.), mechanical/electrical layout, rack elevation and backboard elevation. They may also be an enlargement of a congested area of T1 or T2 series drawing.

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

A final design review and review conference will be held upon completion of final design at the project installation, or – where equipment is available - by video teleconference or a combination thereof, for any design package to receive Government acceptance to allow release of the design package for construction. For smaller separate design packages, the parties may agree on alternative reviews and conferences (e.g., conference calls and electronic file sharing, etc.) through the Partnering process. Include the final design conference in the project schedule and shall indicate what part of the design work is at 100% completion. The final design conference will be held after the Government has had seven (7) calendar days after receipt of the submission to review the final design package and supporting data. For smaller packages, especially those involving only one or a few design disciplines the parties may agree on a shorter period.

3.7. FINAL DESIGN REQUIREMENTS

Final design deliverables for a design package shall consist of 100% complete drawings, specifications, submittal register and design analyses for Government review and acceptance. The 100% design submission shall consist of drawings, specifications, updated design analyses and any permits required by the contract for each package submitted. In order to expedite the final design review, prior to the conference, ensure that the design configuration management data and all review comment resolutions are up-to-date. Include the 100% SID and 100% FF&E binders for government approval. The Contractor shall have performed independent technical reviews (ITR's) and back-checks of previous comment resolutions, as required by Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL, including providing documentation thereof. Use DrChecks or other acceptable comment tracking system during the ITR and submit the results with each final design package

3.7.1. Drawings

3.7.1.1. Submit drawings complete with all contract requirements incorporated into the documents to provide a 100% design for each package submitted.

3.7.1.2. Prepare all drawings with the Computer-Aided Design and Drafting (CADD)/Computer-Aided Design (CAD) system, organized and easily referenced electronically, presenting complete construction information.

3.7.1.3. Drawings shall be complete. The Contractor is encouraged to utilize graphics, views, notes, and details which make the drawings easier to review or to construct but is also encouraged to keep such materials to those that are necessary.

3.7.1.4. Provide detail drawings that illustrate conformance with the contract. Include room finish schedules, corresponding color/finish/special items schedules, and exterior finish schedules that agree with the submitted SID binders.

3.7.1.5. The design documents shall be in compliance with the latest version of the A/E/C CAD Standard, available at https://cadbim.usace.army.mil/CAD. Use the approved vertical Corps of Engineers title blocks and borders on all drawings with the appropriate firm name included within the title block area.

3.7.1.6. CAD System and Building Information Modeling (BIM) (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order.)

All CAD files shall be fully compatible with MicroStation V8 or higher. Save all design CAD files as MicroStation V8 or higher files. All submitted BIM Models and associated Facility Data shall be fully compatible with Bentley BIM v8 with associated USACE Bentley BIM v8 Workspace file formats.

(a) CAD Data Final File Format: During the design development capture geo-referenced coordinates of all changes made to the existing site (facility footprint, utility line installations and alterations, roads, parking areas, etc) as a result of this contract. There is no mandatory methodology for how the geo-referenced coordinates will be captured, however, Engineering and Construction Bulletin No. 2006-15, Subject: Standardizing Computer Aided Design (CAD) and Geographic Information Systems (GIS) Deliverables for all Military Design and Construction Projects identifies the format for final as-built drawings and data sets to be delivered to the government. Close-out requirements at the as-built stage; require final geo-referenced GIS Database of the new facility along with all exterior modifications. The Government will incorporate this data set into the Installation's GIS Masterplan or Enterprise GIS System. See also, Section 01 78 02.00 10 Closeout Submittals.

(b) Electronic Drawing Files: In addition to the native CAD design files, provide separate electronic drawing files (in editable CAD format and Adobe Acrobat PDF version 7.0 or higher) for each project drawing.

(c) Each file (both CAD and PDF) shall represent one complete drawing from the drawing set, including the date, submittal phase, and border. Each drawing file shall be completely independent of any data in any other file, including fonts and shapes not included with the basic CAD software program utilized. Fonts that are not included as part of the default CAD software package installation or recognized as an allowable font by the A/E/C CAD Standard are not acceptable in delivered CAD files. All displayed graphic elements on all levels of the drawing files shall be part of the project drawing image. The drawing files shall not contain any graphic element that is not part of the drawing image.

(d) Deliver BIM Model and associated Facility Data files in their native format. At a minimum, BIM files shall address major architecture design elements, major structural components, mechanical systems and electrical/communication distribution and elements as defined in Attachment F. See Attachment F for additional BIM requirements.

(e) Drawing Index: Provide an index of drawings sheet in CAD as part of the drawing set, and an electronic list in Microsoft Excel of all drawings on the CD. Include the electronic file name, the sheet reference number, the sheet number, and the sheet title, containing the data for each drawing.

(f) Hard Copies: Plot submitted hard copy drawings directly from the "electronic drawing files" and copy for quantities and sizes indicated in the distribution list at the end of this specification section. The Designers of Record shall stamp, sign and date original hard copy sheets as Released For Construction, and provide copies for distribution from this set.

3.7.2. Design Analyses

3.7.2.1. The designers of record shall update, finalize and present design analyses with calculations necessary to substantiate and support all design documents submitted.

3.7.2.2. The responsible DOR shall stamp, sign and date the design analysis. Identify the software used where, applicable (name, version, vendor). Generally, provide design analyses, individually, in an original (file copy) and one copy for the assigned government reviewer.

3.7.2.3. All disciplines review the LEED design analysis in conjunction with their discipline-specific design analysis; include a copy of the separable LEED design analysis in all design analysis submittals.

3.7.2.4. Do not combine multi-disciplined volumes of design-analysis, unless multiple copies are provided to facilitate multiple reviewers (one copy per each separate design analysis included in a volume).

3.7.3. Specifications

Specifications shall be 100% complete and in final form.

3.7.4. Submittal Register

Prepare and update the Submittal Register and submit it with the 100% design specifications (see Specification Section 01 33 00, SUBMITTAL PROCEDURES) with each design package. Include the required submittals for each specification section in a design package in the submittal register.

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation's inventory of real property. The Government will furnish the DB Contractor's design manager a DD Form 1354 checklist to use to produce a draft Form 1354. Submit the completed checklist and prepared draft Form DD 1354 with the 100% design in the Design Analysis. The Corps will use these documents to complete the final DD 1354 upon completion of construction.

3.7.6. Acceptance and Release for Construction

3.7.6.1. At the conclusion of the Final Design Review (after resolutions to the comments have been agreed upon between DOR and Government reviewers), the Contracting Officer or the ACO will accept the Final Design Submission for the design package in writing and allow construction to start for that design package. The Government may withhold acceptance until all major corrections have been made or if the final design submission requires so many corrections, even though minor, that it isn't considered acceptably complete.

3.7.6.2. Government review and acceptance of design submittals is for contract conformance only and shall not relieve the Contractor from responsibility to fully adhere to the requirements of the contract, including the Contractor’s accepted contract proposal, or limit the Contractor’s responsibility of design as prescribed under Special Contract Requirement: “Responsibility of the Contractor for Design” or limit the Government’s rights under the terms of the contract. The Government reserves the right to rescind inadvertent acceptance of design submittals containing contract deviations not separately and expressly identified in the submittal for Government consideration and approval.

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

After the Final Design Submission and Review Conference and after Government acceptance of the Final Design submission, revise the design documents for the design package to incorporate the comments generated and resolved in the final review conference, perform and document a back-check review and submit the final, design complete documents. Label the final design complete documents “FOR CONSTRUCTION” or use similar language. In addition to the final drawings and specifications, the following deliverables are required for distribution and field use. The deliverable includes all documentation and supporting design analysis in final form, as well as the final review comments, disposition and the back-check. As part of the quality assurance process, the Government may perform a back-check of the released for construction documentation. Promptly correct any errors or omissions found during the Government back-check. The Government may withhold retainage from progress payments for work or materials associated with a final design package until this submittal has been received and the Government determines that it is complete.

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

General: The documents which the Contractor shall submit to the Government for each submittal are listed and generally described in preceding paragraphs in this Section. Provide copies of each design submittal and design substantiation as follows (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order):

Activity and Address	Drawing Size (Full Size) **Full** Full Sets/ *Partial Sets	Design Analyses & Specs Full Sets/ *Partial Sets	Drawing Size (Half Size) **HALF** Full Sets/ *Partial Sets	Non-BIM Data CD-ROM or DVD as Necessary (PDF& **.dgn**)	Furniture Submittal (Per Attachment B)	Structural Interior Design Submittal	BIM Data DVD (Per Attach F)
Commander, U.S.Army Engineer District **[Not Supplied - DistrictInfoGeneral : CONSTRUCTION_DISTRICT]**	0/0	5/0	5/0	1	1	0	0
Commander, U.S.Army Engineer District, Center of Standardization **[Not Supplied - SubmittalReqDistribution : COS]**	0/0	0/0	0/0	0	N/A	0	0
Installation	0/0	12/0	12/0	12	2	0	0
U.S.Army Corps of Engineers Construction Area Office	0/0	3/0	3/0	1	1	0	0
Information Systems Engineering Command (ISEC)	0/0	0/0	0/0	1	N/A	N/A	1
Other Offices	0/0	4/0	4/0	4	N/A	0	0

***NOTE: For partial sets of drawings, specifications and design analyses, see paragraph 3.9.3.3, below.**

****NOTE: When specified below in 3.9.2, furnish Installation copies of Drawings as paper copies, in lieu of the option to provide secure web-based submittals.**

3.9.2. Web based Design Submittals

Web based design submittals will be acceptable as an alternative to the paper copies listed in the Table above, provided a single hard-copy PDF based record set is provided to the Contracting Officer for record purposes.

Where the contract requires the Contractor to submit documents to permitting authorities, still provide those authorities paper copies (or in an alternate format where required by the authority). Web based design submittal information shall be provided with adequate security and availability to allow unlimited access those specifically authorized to Government reviewers while preventing unauthorized access or modification. File sizes must be of manageable size for reviewers to quickly download or open on their computers. As a minimum, drawings shall be full scale on American National Standards Institute (ANSI) D sheets (34" x 22"). In addition to the optional website, provide the BIM data submission on DVD to each activity and address noted above in paragraph 3.9.1 for each BIM submission required in Attachment F.

3.9.3. Mailing of Design Submittals

3.9.3.1. Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract (or individual task order if this is an indefinite delivery/indefinite quantity, task order contract). Mail the submittals to nine (9) different addresses. Assemble drawing sheets, specs, design analyses, etc. into individual sets; do not combine duplicate pages from individual sets so that the government has to assemble a set.

3.9.3.2. Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

3.9.3.3. Provide partial sets of drawings, specifications, design analyses, etc., as designated in the Table in paragraph 3.9.1, to those reviewers who only need to review their applicable portions of the design, such as the various utilities. The details of which office receives what portion of the design documentation will be worked out after award.

3.10. AS-BUILT DOCUMENTS

Provide as-built drawings and specifications in accordance with Section 01 78 02.00 10, CLOSEOUT SUBMITTALS. Update LEED design phase documentation during construction as needed to reflect construction changes and advancing project completion status (example - Commissioning Plan updates during construction phase) and include updated LEED documentation in construction closeout submittal.

ATTACHMENT A
STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS

1.0 GENERAL INFORMATION

Structural Interior Design includes all building related elements and components generally part of the building itself, such as wall finishes, ceilings finishes, floor coverings, marker/bulletin boards, blinds, signage and built in casework. Develop the SID in conjunction with the furniture footprint.

2.0 STRUCURAL INTERIOR DESIGN (SID) REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

2.1. FORMAT AND SCHEDULE

Prepare and submit for approval an interior and exterior building finishes scheme for an interim design submittal. The DOR shall meet with and discuss the finish schemes with the appropriate Government officials prior to preparation of the schemes to be presented. Present original sets of the schemes to reviewers at an interim design conference.

At the conclusion of the interim phase, after resolutions to the comments have been agreed upon between DOR and Government reviewers, the Contractor may proceed to final design with the interior finishes scheme presented.

The SID information and samples are to be submitted in 8 ½" x 11" format using three ring binders with pockets on the inside of the cover. When there are numerous pages with thick samples, use more than one binder. Large D-ring binders are preferred to O-ring binders. Use page protectors that are strong enough to keep pages from tearing out. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Fold out items must have a maximum spread of 25 ½". Provide cover and spine inserts sheets identifying the document as "Structural Interior Design" package. Include the project title and location, project number, Contractor/A/E name and phone number(s), submittal stage and date.

Design submittal requirements include, but are not limited to:

2.1.1. Narrative of the Structural Interior Design Objectives

The SID shall include a narrative that discusses the building related finishes. Include topics that relate to base standards, life safety, sustainable design issues, aesthetics, durability and maintainability, discuss the development and features as they relate to the occupants requirements and the building design.

2.1.2. Interior Color Boards

Identify and key each item item on the color boards to the contract documents to provide a clear indication of how and where each item will be used. Arrange finish samples to the maximum extent possible by room type in order to illustrate room color coordination. Label all samples on the color boards with the manufacturer's name, patterns and colors name and number. Key or code samples to match key code system used on contract drawings.

Material and finish samples shall indicate true pattern, color and texture. Provide photographs or colored photocopies of materials or fabrics to show large overall patterns in conjunction with actual samples to show the actual colors. Finish samples must be large enough to show a complete pattern or design where practical.

Color boards shall include but not be limited to original color samples of the following:

All walls finishes and ceiling finishes, including corner guards, acrylic wainscoting and wall guards/chair rail finishes

All tile information, including tile grout color and tile patterns.

- All flooring finishes, including patterns.
- All door, door frame finishes and door hardware finishes
- All signage, wall base, toilet partitions, locker finishes and operable/folding partitions and trim

- All millwork materials and finishes (cabinets, counter tops, etc.)
- All window frame finishes and window treatments (sills, blinds, etc.)

Color board samples shall reflect all actual finish textures, patterns and colors required as specified. Patterned samples shall be of sufficient size to adequately show pattern and its repeat if a repeat occurs.

2.1.3. Exterior Color Boards

Prepare exterior finishes color boards in similar format as the interior finishes color boards, for presentation to the reviewers during an interim design conference. Provide original color samples of all exterior finishes including but not limited to the following:

- All Roof Finishes
- All Brick and Cast Stone Samples
- All Exterior Insulation and Finish Samples
- All Glass Color Samples
- All Exterior Metals Finishes
- All Window & Door Frame Finishes
- All Specialty Item Finishes, including trim

Identify each item on the exterior finishes color boards and key to the building elevations to provide a clear indication of how and where each item will be used.

2.2. STRUCTURAL INTERIOR DESIGN DOCUMENTS

2.2.1. General

Structural interior design related drawings must indicate the placement of extents of SID material, finishes and colors and must be sufficiently detailed to define all interior work. The following is a list of minimum requirements:

2.2.2. Finish Color Schedule

Provide finish color schedule(s) in the contract documents. Provide a finish code, material type, manufacturer, series, and color designations. Key the finish code to the color board samples and drawings.

2.2.3. Interior Finish Plans

Indicate wall and floor patterns and color placement, material transitions and extents of interior finishes.

2.2.4. Furniture Footprint Plans

Provide furniture footprint plans showing the outline of all freestanding and systems furniture for coordination of all other disciplines.

2.2.5. Interior Signage

Include interior signage plans or schedules showing location and quantities of all interior signage. Key each interior sign to a quantitative list indicating size, quantity of each type and signage text.

2.2.6. Interior Elevations, Sections and Details

Indicate material, color and finish placement.

ATTACHMENT B
FURNITURE, FIXTURES & EQUIPMENT (FF&E) REQUIREMENTS

1.0 FF&E REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

1.1. FORMAT AND SCHEDULE

Prepare and submit for approval a comprehensive FF&E scheme for an interim design submittal. The Contractor's interior designer, not a furniture dealer, shall develop the design. FF&E is the selection, layout, specification and documentation of furniture includes but is not limited to workstations, seating, tables, storage and shelving, filing, trash receptacles, clocks, framed artwork, artificial plants, and other accessories. Contract documentation is required to facilitate pricing, procurement and installation. The FF&E package is based on the furniture footprint developed in the Structural Interior Design (SID) portion of the interior design. Develop the FF&E package concurrently with the building design to ensure that there is coordination between the electrical outlets, switches, J-boxes, communication outlets and connections, and lighting as appropriate. In addition, coordinate layout with other building features such as architectural elements, thermostats, location of TV's, GF/GI equipment (for example computers, printers, copiers, shredders, faxes), etc. Locate furniture in front of windows only if the top of the item falls below the window and unless otherwise noted, do not attach furniture including furniture systems to the building. If project has SIPRNET and/or NIPRNET, coordinate furniture layout with SIPRNET and NIPRNET separation requirements. Verify that access required by DOIM for SIPRNET box and conduit is provided. The DOR shall interview appropriate Government personnel to determine FF&E requirements for furniture and furnishings prior to preparation of the scheme to be presented. Determine FFE items and quantities by, but not limited to: (1) the number of personnel to occupy the building, (2) job functions and related furniture/office equipment to support the job function, (3) room functions, (4) rank and grade. Present original sets of the scheme to reviewers at an interim design conference upon completion of the interim architectural submittal or three months prior to the submittal of the final FF&E package (whichever comes first).

Design may proceed to final with the FF&E scheme presented at the conclusion of the interim phase, after resolutions to the comments have been agreed upon between DOR and Government reviewers.

Provide six copies of the electronic versions of all documents upon completion of the final architectural submittal or ten months prior to the contract completion date (whichever comes first), to ensure adequate time for furniture acquisition. Provide unbound, electronic drawings in CAD and BIM. Provide all files needed to v,/iew complete drawings. Submit all text documents in Microsoft Word or Excel..

Submit four copies of the final and complete FF&E information and samples in 8 ½" x 11" format using three ring binders with pockets on the inside of the cover upon completion of the final architectural submittal or ten months prior to the contract completion date (whichever comes first). Use more than one binder when there are numerous pages with thick samples. Large D-ring binders are preferred to O-ring binders. Use page protectors that are strong enough to keep pages from tearing out for upholstery and finish boards. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Fold out items must have a maximum spread of 25 ½". Provide cover and spine inserts sheets identifying the document as "Furniture, Fixtures & Equipment" package and include the project title and location, project number, Contractor/A/E name and phone number(s), submittal stage and date.

Provide electronic copies of all documents upon completion of the final architectural submittal or ten months prior to the contract completion date (whichever comes first), to ensure adequate time for furniture acquisition. Provide six compact disks with all drawings files needed to view the complete drawings unbound and in the latest version AutoCAD. Provide six additional compact disks of all text documents in Microsoft Word or Excel.

Design submittal requirements include, but are not limited to:

1.1.1. Narrative of Interior Design Objectives

Provide a narrative description of the furniture, to include functional, safety and ergonomic considerations, durability, sustainability, aesthetics, and compatibility with the building design.

1.1.2. Furniture Order Form

Prepare one Furnishings Order Form for each item specified in the design. This form identifies all information required to order each individual item. In addition to the project name and location, project number, and submittal phase, the order form must include:

(a) Furniture item illustration and code

(b) Furniture item name

(c) Job name, location, and date

(d) General Services Administration (GSA) FSC Group, part, and section

(e) Manufacturer, Product name and Product model number or National Stock Number (NSN)

(f) Finish name and number (code to finish samples)

(g) Fabric name and number, minimum Wyzenbeek Abrasion Test double rubs (code to fabric samples)

(h) Dimensions

(i) Item location by room number and room name

(j) Quantity per room

(k) Total quantity

(l) Special instructions for procurement ordering and/or installation (if applicable)

(m) Written Product Description: include a non-proprietary paragraph listing the salient features of the item to include but not limited to:

(1) required features and characteristics

(2) ergonomic requirements

(3) functional requirements

(4) testing requirements

(5) furniture style

(6) construction materials

(7) minimum warranty

The following is an example for “m” features and characteristics, ergonomic requirements and functional requirements:

Chair Description:

(1) Mid-Back Ergonomic Task Chair

(2) Pneumatic Gaslift; Five Star Base

(3) Mesh Back; Upholstered Seat

(4) Height and Width Adjustable Task Arms:

a. Arm Height: 6”- 11” (+-1/2”)

b. Arm Width: 2”– 4” adjustment

(5) Height Adjustable Lumbar Support

(6) Adjustable Seat Height 16”-21” (+- 1”)

(7) Sliding Seat Depth Adjustment 15”-18” (+-1”)

(8) Standard Hard Casters (for carpeted areas)

(9) Overall Measurements:

a. Overall width: 25” - 27”

b. Overall depth: 25”– 28”

(10) Must have a minimum of the following adjustments (In addition to the above):

a. 360 Degree Swivel

b. Knee-Tilt with Tilt Tension

c. Back angle

d. Forward Tilt

e. Forward Tilt and Upright Tilt Lock

For projects with systems furniture, also provide a written description of the following minimum requirements:

(1) Type furniture systems (panel, stacking panels, spine wall, desk based system, or a combination)

(2) Minimum noise reduction coefficient (NRC)

(3) Minimum sound transfer coefficient (STC)

(4) Minimum flame spread and smoke development

(5) UL testing for task lighting and electrical system

(6) Panel widths and heights and their locations (this may be done on the drawings)Worksurface types and sizes (this may be done on the drawings)

(7) Worksurface edge type

(8) Varying panel/cover finish materials and locations (locations may be shown on the drawings)

(9) Storage requirements

(10) Keyboard requirements

(11) Lock and keying requirements

(12) Accessory components (examples: tack boards, marker boards, paper management)

(13) Electrical and communication raceway requirement; type, capacity and location (base, beltline, below and/or above beltline)

(14) Locations of communication cables (base, beltline, below and/or above beltline, top channel)

(15) Types of electrical outlets

(16) Types of communication jacks; provided and installed by others

(17) Locations of electrical outlets and communication jacks (this may be done on the drawings)

(18) Type of cable (examples: Cat. 5, Cat. 6, fiber optic; UTP or STP, etc.) system needs to support; provided and installed by others

1.1.3. Alternate Manufacturer List

Provide a table consisting of major furniture items that lists the manufacturers products specified on the Order Form and two alternate manufacturers. Major furniture items include, but are not limited to, casegoods, furniture systems, seating, and tables. Organize matrix by item code and item name. Supply alternates that are available on GSA Schedule and meet the requirements of the Furniture Order Form. One of the two alternates must be from UNICOR if possible. Provide manufacturer name address, telephone number, product series and product name for each alternate manufacturer.

1.1.4. FF&E Procurement List

Provide a table that lists all FF&E furniture, mission unique equipment and building Contractor Furnished/Contractor Installed (CF/CI) items. Give each item a code and name and designate whether item will be procured as part of the FF&E furniture, mission unique equipment or the building construction contract. Use the item code to key all FF&E documents including location plans, color boards, data sheets, cost estimate, etc.

1.1.5. Points of Contact (POCs)

Provide a comprehensive list of POCs needed to implement the FF&E package. This would include but not be limited to appropriate project team members, using activity contacts, interior design representatives, construction contractors and installers involved in the project. In addition to name, address, phone, fax and email, include each contact's job function. Divide the FF&E package into different sections based on this listing, applies to order forms and cost estimates.

1.1.6. Color Boards

Provide color boards for all finishes and fabrics for all FF&E items. Finishes to be included but not limited to paint, laminate, wood finish, fabric, etc.

1.1.7. Itemized Furniture Cost Estimate

Provide an itemized cost estimate of furnishings keyed to the plans and specifications of products included in the package. This cost estimate should be based on GSA price schedules. The cost estimate must include separate line items for general contingency, installation, electrical hook-up for systems furniture or other furniture requiring hardwiring by a licensed electrician, freight charges and any other related costs. Installation and freight quotes from vendors should be use in lieu of a percentage allowance when available. Include a written statement that the pricing is based on GSA schedules. An estimate developed by a furniture dealership may be provided as support information for the estimate, but must be separate from the contractor provided estimate.

1.2. INTERIOR DESIGN DOCUMENTS

1.2.1. Overall Furniture and Area Plans

Provide floor Plans showing locations and quantities of all freestanding, and workstation furniture proposed for each floor of the building. Key each room to a large scale Furniture Placement Plan showing the furniture configuration, of all furniture. Provide enlarged area plans with a key plan identifying the area in which the building is located. Key all the items on the drawings by furniture item code. Do not provide manufacturer specific information such as product names and numbers on drawings, Drawings shall be non-proprietary. This is typical for FFE on all plans, including those mentioned below.

1.2.2. Workstation Plans

Show each typical workstation configuration in plan view, elevations or isometric view. Drawings shall illustrate panels and all major components for each typical workstation configuration. Identify workstations using the same numbering system as shown on the project drawings. Key components to a legend on each sheet which identifies and describes the components along with dimensions. Provide the plan, elevations and isometric of each typical workstation together on the same drawing sheet.

1.2.3. Panel Plans

Show panel locations and critical dimensions from finished face of walls, columns, panels including clearances and aisle widths. Key panel assemblies to a legend which shall include width, height, configuration of frames, panel fabric and finishes (if there are different selections existing within a project), powered or non-powered panel and wall mount locations.

1.2.4. Desk Plans

Provide typical free standing desk configurations in plan view, elevation or isometric view and identify components to clearly represent each desk configuration.

1.2.5. Reflected Ceiling Plans

Provide typical plans showing ceiling finishes and heights, lighting fixtures, heating ventilation and air conditioning supply and return, and sprinkler head placement for coordination of furniture.

1.2.6. Electrical and Telecommunication Plans

Show power provisions including type and locations of feeder components, activated outlets and other electrical componentsShow locations and quantities of outlets for workstations. Clearly identify different outlets, i.e. electrical, LAN and telecommunication receptacles indicating each type proposed. Show wiring configuration, (circuiting, switching, internal and external connections) and provide as applicable.

1.2.7. Artwork Placement Plans

Provide an Artwork Placement Plan to show location of artwork, assign an artwork item code to each piece of artwork. As an alternative, artwork can be located on the Furniture Plans. Provide a schedule that identifies each piece by room name and number. Provide installation instructions; include mounting height.

1.2.8. Window Drapery Plans

Provide Interior Window Drapery Plans. Key each drapery treatment to a schedule showing color, pattern, material, drapery size and type, draw direction, location and quantities.

1.3. FURNITURE SELECTION

1.3.1. Select furniture from the GSA Schedules. Specify furniture available open market when an item is not available on the GSA Schedules. Provide justification fort items not available on the GSA Schedules.

1.3.2. To the greatest extent possible when specifying furniture work within a manufacturer's family of furniture for selections, example: Steelcase, Turnstone, Brayton International, Metro, and Vecta are all Steelcase companies. Each alternate should also be specified from a manufacturer's family of furniture, example: first set of alternates would be specified from Knoll's family of furniture and the second from Herman Miller family of furniture. It may be necessary to make some selections from other than a manufacturer's family of furniture if costs are not reasonable for particular items, some items are not available or appropriate for the facility or the items are not on GSA Schedule. If this occurs, consider specifying product from an open line that is accessible by numerous dealerships. Select office furniture including case goods, tables, storage, seating, etc. that is compatible in style, finish and color. Select furniture that complies with ANSI/BIFMA and from manufacturer's standard product line as shown in the most recent published price list and/or amendment and not custom product.

1.4. CONSTRUCTION

1.4.1. Provide knee space at workstations and tables that is not obstructed by panels/legs that interfere with knee space of seated person and specificy modesty panels at walls to be of a height or be hinged to allow access to building wall electrical outlets and communication jacks. Provide desks, storage and tables with leveling devices to compensate for uneven floors.

1.4.2. Specify workstations and storage of steel construction. Provide worksurface tops constructed to prevent warpage. Provide user friendly features such as radius edges. Do not use sharp edges and exposed connections and ensure the underside of desks, tables and worksurfaces are completely and smoothly finished. Provide abutting worksurfaces that mate closely and are of equal heights when used in side-by-side configurations in order to provide a continuous and level worksurface.

1.4.3. Drawers shall stay securely closed when in the closed position and protect wires from damage during drawer operation. Include a safety catch to prevent accidental removal when fully open

1.4.4. Unless otherwise noted, provide lockable desks and workstations, filing cabinets and storage. Key all locks within a one person office the same; key all one person offices within a building differently. If an office or open office area has more than one workstation, key all the workstations differently, but key all locks within an individual workstation the same. Use tempered glass glazing when glazing is required. Use light-emitting diode (LED)/solid state lighting where task lighting is required in furniture.

1.5. FINISHES AND UPHOLSTERY

1.5.1. Specify neutral colors for casegoods, furniture systems, storage and tables. Specify desk worksurfaces and table tops that are not too light or too dark in color and have a pattern to help hide soiling. Accent colors are

allowed in break and lounge areas. Keep placement of furniture systems panel fabric accent colors to a minimum. All finishes shall be cleanable with ordinary household cleaning solutions.

1.5.2. Use manufacturer's standard fabrics; including textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Customers Own Material (COM) can be used in headquarter buildings in command suites with executive furniture. Coordinate specific locations with Corps of Engineers Interior Designer.

1.5.3. Specify seating upholstery that meets Wyzenbeek Abrasion Test, 55,000 minimum rubs. Specify a soil retardant finish for woven fabrics if Crypton or vinyl upholstery is not provided for seating in dining areas. Use manufacturer's standard fabrics. This includes textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Specify upholstery and finish colors and patterns that help hide soiling. Specify finishes that can be cleaned with ordinary household cleaning solutions.

1.6. ACCESSORIES

1.6.1. Specify all accessories required for completely finished furniture installation. Provide filing cabinets and storage for office supplies. Provide tack surfaces at workstations with overhead storage. Provide tackable surfaces at workstations with overhead storage.

1.6.2. Not Used.

1.6.3. Workstations are to be equipped with stable keyboard trays that have height adjustability, tilting capability, including negative tilt, have a mouse pad at same height as the keyboard tray that can accommodate both left and right handed users, and retractable under worksurface.

1.7. MISSION UNIQUE EQUIPMENT

Funding for FF&E furniture items and mission unique equipment (MUE) items are from two different sources. Separate the designs and procurement documentation for FFE items and MUE. MUE includes, but is not limited to, items such as industrial shelving, workbenches, appliances, fitness equipment, IT equipment and supporting carts. The User will purchase and install mission unique equipment items, unless otherwise noted. Identify locations of known MUE items such as industrial shelving, workbenches, appliances, etc. for space planning purposes.

1.8. SUSTAINABILITY

1.8.1. For all designs provided regardless of facility type, make every effort to implement all aspects of sustainability to the greatest extent possible for all the selections made in the FF&E package. This includes but is not limited to the selection of products that consider: **Material Chemistry and Safety of Inputs** (What chemicals are used in the construction of the selections?); **Recyclability** (Do the selections contain recycled content?); **Disassembly** (Can the selections be disassembled at the end of their useful life to recycle their materials?).

1.8.2. Make selections to the greatest extent possible of products that possess current McDonough Braungart Design Chemistry (MBDC) certification or other "third-party" certified Cradle to Cradle program, Forest Stewardship Council (FSC) certification, GREENGAURD certification or similar "third-party" certified products consisting of low-emitting materials.

1.9. FURNITURE SYSTEMS

1.9.1. General.

Where appropriate, design furniture systems in open office areas. Coordinate style and color of furniture systems with other storage, seating, etc. in open office areas. Minimize the number of workstation typicals and the parts and pieces required for the design to assist in future reconfiguration and inventorying.

1.9.2. Connector Systems.

Specify a connector system that allows removal of a single panel or spine wall within a typical workstation configuration without requiring disassembly of the workstation or removal of adjacent panels. Specify connector

system with tight connections and continuous visual seals. When Acoustical panels are used, provide connector system with continuous acoustical seals. Specify concealed clips, screws, and other construction elements, where possible.

1.9.3. Panels and Spine Walls

Specify panels and spine walls with hinged or removable covers that permit easy access to the raceway when required but are securely mounted and cannot be accidentally dislodged under normal conditions. Panels shall be capable of structurally supporting more than 1 fully loaded component per panel per side. Raceways are to be an integral part of the panel and must be able to support lay-in cabling and have a large capacity for electrical and IT. Do not thread cables through the frame.

1.9.4. Electrical And Information/Technology (IT)

Design furniture with electrical systems that meets requirements of UL 1286 when powered panels are required and UL approved task lights that meet requirements of NFPA 70. Dependent on user requirements and Section 01 10 00, paragraph 3 requirements, it is recommended that workstation electrical and IT wiring entry come from the building walls to eliminate the use of power poles and access at the floor. Design electrical and IT systems that are easily accessed in the spine wall and panels without having to move return panels and components. Electrical and IT management will be easily accessible by removable wall covers which can be removed while workstation components are still attached. Specify connector system that has continuation of electrical and IT wiring within workstations and workstation to workstation.

1.9.5. Pedestals

Specify pedestals that are interchangeable from left to right, and right to left, and retain pedestal locking system capability.

1.10. EXECUTIVE FURNITURE

1.10.1. Design for executive furniture in command areas, coordinate specific locations with Corps of Engineers Interior Designer. Use upgraded furniture, upholsteries and finishes in command suites. This includes but is not limited to wood casegoods, seating and tables. Select executive furniture casegoods from a single manufacturer and style line, to include workstations, credenzas, filing, and storage, etc.

1.10.2. Specify furniture with wood veneer finish (except worksurfaces) with mitered solid wood edge of same wood type. Provide worksurface plastic laminate that closely matches adjacent wood veneer. Other executive office furniture such as seating, tables, executive conference room furniture, etc. shall be compatible in style, finish and color with executive furniture casegoods.

1.11. SEATING

1.11.1. General

Specify appropriate chair casters and glides for the floor finish where the seating is located. Universal casters that are appropriate for both hard surface flooring and carpet are preferred. All seating shall support up to a minimum of 250 lbs.

1.11.2. Desk and Guest Seating

Select ergonomic desk chairs with casters, non-upholstered adjustable arms, waterfall front, swivel, tilt, variable back lock, adjustable back height or adjustable lumbar support, pneumatic seat height adjustment, and padded, contoured upholstered seat and back. Desk and guest chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Depending on scale of desk chair provide seat pan forward and back adjustment to increase or decrease depth of seat pan. All desk chairs shall have an adjustable seat height range of 4 1/2", range to include 16 1/2-20". Select guest chairs that are compatible in style, finish and color with the desk chairs.

1.11.3. Conference Room Seating

At tables, select ergonomic conference seating with casters, non-upholstered arms, waterfall front, swivel, tilt, pneumatic seat height adjustment, and padded, contoured seat and back, unless otherwise noted. Select arm height and/or design that allows seating to be moved up closely to the table top. Conference chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Perimeter conference chairs shall be compatible in style, finish and color with conference seating at the tables.

1.11.4. Lounge, Waiting and Reception Area Seating

Select seating with arms and cushioned, upholstered seat and back. In heavy use areas, arms shall be easily cleaned such as non-upholstered arms or upholstered arms with wood arm caps unless otherwise noted.

1.11.5. Break Room Seating

Select stackable seating that is easily cleaned. Seating shall be appropriate for table and counter heights as applicable with non-upholstered arms if arms are required. Chairs shall have metal legs and composite materials for seats.

1.11.6. Lounge, Waiting and Reception Furniture.

Design for end and coffee tables with plastic laminate tops that are compatible in style finish and color with the seating.

1.12. FILING AND STORAGE.

Select storage and shelving units that meet customer’s functional load requirements for stored items. Specify counterweights for filing cabinets when required by the manufacturer for stability. File drawers shall allow only one drawer to be opened at a time. Provide heavy duty storage and shelving if information is not available.

1.13. TRAINING TABLES.

Don’t use plastic laminate self edge. Training tables shall be reconfigurable, moveable and storable; lighter weight folding with dollies or castered as necessary. Specify dollies if required.

1.14. FURNITURE WARRANTIES.

Specify manufacturer's performance guarantees or warranties that include parts, labor and transportation as follows:

Furniture System, unless otherwise noted – 10 year minimum
Furniture System Task Lights – 2 year minimum, excluding bulbs
Furniture System Fabric – 3 year minimum
Desks - 10 year minimum
Seating, unless otherwise noted - 10 year minimum
Seating Mechanisms and Pneumatic Cylinders - 10 years
Fabric - 3 years minimum
Filing and Storage - 10 year minimum
Tables, unless otherwise noted - 10 year minimum
Table Mechanisms – 5 year
Table Ganging Device - 1 year
Items not listed above - 1 year minimum

ATTACHMENT C
TRACKING COMMENTS IN DRCHECKS

1.0 General

The Government and DB Contractor shall set up the project in Dr Checks. Throughout the design process, the parties shall enter, track, and back-check comments using the DrChecks system. Government reviewers enter design review comments into DrChecks. Designers of Record shall annotate comments timely and specifically to indicate exactly what action will be taken or why the action is not required. Comments considered critical by the conference participants shall be flagged as such.

2.0 DrChecks Review Comments

The Contractor and the Government shall monitor DrChecks to assure all comments are annotated and agreed to by the designers and reviewers prior to the next submittal. The DrChecks comments and responses shall be printed and included in the design analysis for record.

2.1. Conference participants (reviewers) will expect coordination between Design Analysis calculations and the submitted design. Reviewers will also focus on the design submittal's satisfaction of the contract requirements.

2.2. The Designers of Record shall answer each comment in DrChecks with a formal response prior to the next submittal, clearly indicating what action will be taken and what drawing/spec will change. Designers of Record are encouraged to directly contact reviewers to discuss and agree to the formal comment responses rather than relying only on DrChecks and review meetings to discuss comments. With the next design conference, reviewers will back-check answers to the comments against the submittal, in addition to reviewing additional design work.

2.3. Comments that, in the DB Contractor's opinion, require effort outside the scope of the contract shall be clearly indicated as such in DrChecks. The DB Contractor shall not proceed with work outside the contract until a modification to the contract is properly executed, if one is necessary.

3.0 DrChecks Initial Account Set-Up

To initialize an office's use of DrChecks, choose a contact person within the office to call the DrChecks Help Desk at 800-428-HELP, M-F, 8AM-5PM, Central time. This POC will be given an office password to distribute to others in the office. Individuals can then go to the hyperlink at http://www.projnet.org and register as a first time user. Upon registration, each user will be given a personal password to the DrChecks system.

3.1. Once the office and individuals are registered, the COE's project manager or lead reviewer will assign the individuals and/or offices to the specific project for review. At this point, persons assigned can make comments, annotate comments, and close comments, depending on their particular assignment.

4.0 DrChecks Reviewer Role

The Contractor is the technical reviewer and the Government is the compliance reviewer of the DB designers design documents. Each reviewer enters their own comments into the Dr Checks system. To enter comments:

4.1. Log into DrChecks.

4.2. Click on the appropriate project.

4.3. Click on the appropriate review conference. An Add comment screen will appear.

4.4. Select or fill out the appropriate sections (particularly comment discipline and type of document for sorting) of the comment form and enter the comment in the space provided.

4.5. Click the Add Comment button. The comment will be added to the database and a fresh screen will appear for the next comment you have.

4.6. Once comments are all entered, exit DrChecks by choosing “My Account” and then Logout.

5.0 DrChecks Comment Evaluation

The role of the designers of record is to evaluate and respond to the comments entered by the Government reviewers and by the DB Contractor. To respond to comments:

5.1. Log into DrChecks.

5.2. Click on the appropriate project.

5.3. Under “Evaluate” click on the number under “Pending”.

5.4. Locate the comments that require your evaluation. (Note: If you know the comment number you can use the Quick Pick window on your home page in DrChecks; enter the number and click on go.)

5.5. Select the appropriate evaluation (concur, non-concur, for information only, or check and resolve) and add the response.

5.6. Click on the Add button. The evaluation will be added to the database and a fresh screen will appear with the next comment.

5.7. Once evaluations are all entered, exit DrChecks by choosing “My Account” and then Logout.

6.0 DrChecks Back-check

At the following design conference, participants will back-check comment annotations against newly presented documents to verify that the designers' responses are acceptable and completed. The Contractor and Government reviewers shall either enter additional back-check comments, as necessary or close those that are resolved as a result of the design conferences:

6.1. Log into DrChecks.

6.2. Click on the appropriate project.

6.3. Under “My Backcheck” click on the number under “Pending”.

6.4. If you agree with the designer’s response select “Close Comment” and add a closing response if desired.

6.5. If you do not agree with the designer’s response or the submittal does not reflect the response given, select “Issue Open”, enter additional information.

6.6. Click on the Add button. The back-check will be added to the database and a fresh screen will appear with the next comment.

6.7. Once back-checks are all entered, exit DrChecks by choosing “My Account” and then Logout. The design is completed and final when there are no pending comments to be evaluated and there are no pending or open comments under back-check.

ATTACHMENT D
SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

Instructions: Use the information outlined in this document to provide the minimum requirement for development of Fire Protection and Life Safety Code submittals for all building projects. Additional and supplemental information may be used to further develop the code review. Insert N/A after criteria, which may be “not applicable”.

1.0 SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

1.1. Project Name (insert name and location)

1.2. Applicable Codes and Standards

1.2.1. Unified Facilities Criteria (UFC): 3-600-01, Design: Fire Protection Engineering For Facilities

1.2.2. International Building Code (IBC) for fire resistance requirements, allowable floor area, building height limitations and building separation distance requirements, except as modified by UFC 3-600-01.

1.2.3. National Fire Protection Association (NFPA) 101 Life Safety Code (latest edition), for building egress and life safety and applicable criteria in UFC 3-600-01.

1.2.4. ADA and ABA Accessiblity Guidelines. For Buildings and Facilities See Section 01 10 00, Paragraph 3 for facility specific criteria.

1.3. Occupancy Classification
IBC chapters 3 and 4

1.4. Construction Type
IBC chapter 6

1.5. Area Limitations
IBC chapter 5, table 503

1.6. Allowable Floor Areas
IBC section 503, 505

1.7. Allowable area increases
IBC section 506, 507

1.8. Maximum Height of Buildings
IBC section 504

1.9. Fire-resistive substitution

1.10. Occupancy Separations
IBC table 302.3.2

1.11. Fire Resistive Requirements

1.11.1. Exterior Walls - [_____] hour rating, IBC table 601, 602

1.11.2. Interior Bearing walls - [_____] hour rating

1.11.3. Structural frame - [_____] hour rating

1.11.4. Permanent partitions - [_____] hour rating

1.11.5. Shaft enclosures - [_____] hour rating

1.11.6. Floors & Floor-Ceilings - [_____] hour rating

1.11.7. Roofs and Roof Ceilings - [_____] hour rating

1.12. Automatic Sprinklers and others used to determine the need for automatic Extinguishing Equipment, Extinguishing Systems, Foam Systems, Standpipe

1.12.1. UFC 3-600-01, chapters 4 and 6 systems, wet chemical systems, etc. State which systems are required and to what criteria they will be designed.

1.12.2. UFC 3-600-01, Appendix B Occupancy Classification. Note the classification for each room. This may be accomplished by classifying the entire building and noting exceptions for rooms that differ (E.g. The entire building is Light Hazard except boiler room and storage rooms which are [_____], etc.)

1.12.3. UFC 3-600-01, Chapter 3 Sprinkler Design Density, Sprinkler Design Area, Water Demand for Hose Streams (supply pressure and source requirements).

1.12.4. UFC 3-600-01, Chapter 4 Coverage per sprinkler head. Extended coverage sprinkler heads are not permitted.

1.12.5. Available Water Supply. Provide the results of the water flow tests showing the available water supply static pressure and residual pressure at flow. Based on this data and the estimated flow and pressure required for the sprinkler system, determine the need for a fire pump.

1.12.6. NFPA 13, Para. 8.16.4.6.1. Provide backflow preventer valves as required by the local municipality, authority, or water purveyor. Provide a test valve located downstream of the backflow preventer for flow testing the backflow preventer at full system demand flow. Route the discharge to an appropriate location outside the building.

1.13. Kitchen Cooking Exhaust Equipment

Describe when kitchen cooking exhaust equipment is provided for the project. Type of extinguishing systems for the equipment should be provided. per NFPA 96. Show all interlocks with manual release switches, fuel shutoff valves, electrical shunt trips, exhaust fans, and building alarms.

1.14. Portable Fire Extinguishers, fire classification and travel distance. per NFPA 10

1.15. Enclosure Protection and Penetration Requirements. - Opening Protectives and Through Penetrations

1.15.1. IBC Section712, 715 and Table 715.3. Mechanical rooms, exit stairways, storage rooms, janitor [_____] hour rating. IBC Table 302.1.1

1.15.2. Fire Blocks, Draft Stops, Through Penetrations and Opening Protectives

1.16. Fire Dampers. Describe where fire dampers and smoke dampers are to be used (IBC Section 716 and NFPA 90A}. State whether isolation smoke dampers are required at the air handler.

1.17. Detection Alarm and Communication. UFC 3-600-01, (Chapter 5); NFPA 101 para. 3.4 (chapters 12-42); NFPA 72

1.18. Mass Notification. Describe building/facility mass notification system (UFC 4-021-01) type and type of base-wide mass notification/communication system. State whether the visible notification appliances will be combined with the fire alarm system or kept separate. (Note: Navy has taken position to combine visible notification appliances with fire alarm).

1.19. Interior Finishes (classification). NFPA 101.10.2.3 and NFPA 101.7.1.4

1.20. Means of Egress

1.20.1. Separation of Means of Egress, NFPA 101 chapters 7 and 12-42; NFPA101.7.1.3

1.20.2. Occupant Load, NFPA101.7.3.1 and chapters 12-42.

1.20.3. Egress Capacity (stairs, corridors, ramps and doors) NFPA101.7.3.3

1.20.4. Number of Means of Egress, NFPA101.7.4 and chapters 12-42.

1.20.5. Dead end limits and Common Path of Travel, NFPA 101.7.5.1.6 and chapters 12-42.

1.20.6. Accessible Means of Egress (for accessible buildings), NFPA101.7.5.4

1.20.7. Measurement of Travel Distance to Exits, NFPA101.7.6 and chapters 12-42.

1.20.8. Discharge from Exits, NFPA101.7.7.2

1.20.9. Illumination of Means of Egress, NFPA101.7.8

1.20.10. Emergency Lighting, NFPA101.7.9

1.20.11. Marking of Means of Egress, NFPA101.7.10

1.21. Elevators, UFC 3-600-01, Chapter 6; IBC and ASME A17.1 - 2000,(Safety Code for Elevators and Escalators)

1.22. Accessibility Requirements, ADA and ABA Accessibility Guidelines for Buildings and Facilities

1.23. Certification of Fire Protection and Life Safety Code Requirements. (Note: Edit the Fire team membership if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features for this project in accordance with the attached completed form(s).

1.24. Designer of Record. Certification of Fire protection and Life Safety Code Requirements. (Note: Edit the Fire team members if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features of this project.

Fire Protection Engineer of Record:

_____

Signature and Stamp

Date

OR

Architect of Record:

_____

Signature and Stamp

Date

Mechanical Engineer of Record:

_____

Signature and Stamp

Date

Electrical Engineer of Record:

_____

Signature/Date

ATTACHMENT E
LEED SUBMITTALS

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	**LEED-NC v3 Submittals (OCT09)**		Provide for Credit Audit Only		Date Submitted (to be filled in by Contractor)	Government Reviewer's Use
PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
GENERAL							
	GENERAL - All calculations shall be in accordance with LEED 2009 Reference Guide.						
	GENERAL: Obtain excel version of this spreadsheet at http://en.sas.usace.army.mil/enWeb, "Engineering Criteria".						
	GENERAL - For all credits, narrative/comments may be added to describe special circumstances or considerations regarding the project's credit approach.						
	GENERAL - Include all required LEED drawings indicated below in contract drawings with applicable discipline drawings, labeled For Reference Only.						
	NOTE: Each submittal indicated with "**" differs from LEED certified project submittals by either having a different due date or being an added submittal not required by GBCI.						
	NOTE: Projects seeking LEED certification need only submit to GBCI whatever documentation is acceptable to GBCI (for example, licensed professional certifications). This checklist identifies what must be submitted to the Government for internal review purposes. Government review of LEED documentation in no way supercedes or modifies the requirements and rulings of of GBCI for purposes of compliance with project requirement to obtain LEED certifiaction.						
	GENERAL - Audit documentation may include but is not limited to what is indicated in this table.						
			Closeout		List of all Final Design submittals revised after final design to reflect actual closeout conditions. Revised Final Design submittals. - OR - Statement confirming that no changes have been made since final design that effect final design submittal documents.		Proj Engr (PE)
CATEGORY 1 - SUSTAINABLE SITES							
SSPR1		Construction Activity Pollution Prevention (PREREQUISITE)	**Final Design		List of drawings and specifications that address the erosion control, particulate/dust control and sedimentation control measures to be implemented.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			**Final Design		Narrative that indicates which compliance path was used (NPDES or Local standards) and describes the measures to be implemented on the project. If a local standard was followed, provide specific information to demonstrate that the local standard is equal to or more stringent than the NPDES program.		CIV
SS1		Site Selection	Final Design		Statement confirming that project does not meet any of the prohibited criteria.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design	X	LEED Site plan drawing that shows all proposed development, line depicting boundary of all bodies of water and/or wetlands within 100 feet of project boundary and a line depicting 5' elevation above 100 year flood line that falls within project boundary. Not required if neither condition applies.		CIV
SS2		Development Density & Community Connectivity	Final Design		Option 1: LEED Site vicinity plan showing project site and surrounding development. Show density boundary or note drawing scale.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design		Option 1: Table indicating, for project site and all surrounding sites within density radius (keyed to site vicinity plan), site area and building area. Project development density calculation. Density radius calculation. Development density calculation within density radius.		CIV
			Final Design		Option 2: LEED Site vicinity plan showing project site, the 1/2 mile community radius, pedestrian walkways and the locations of the residential development(s) and Basic Services surrounding the project site.		CIV
			Final Design		Option 2: List (including business name and type) of all Basic Services facilities within the 1/2 mile radius, keyed to site vicinity plan.		CIV
SS3		Brownfield Redevelopment	Final Design		Narrative describing contamination and the remediation activities included in project. Include statement indicating how site was determined to be a brownfield.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
SS4.1		Alternative Transportation: Public Transportation Access	Final Design		Statement indicating which option for compliance applies. State whether public transportation is existing or proposed and, if proposed, cite source of this information.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design		Option 1: LEED Site vicinity plan showing project site, mass transit stops and pedestrian path to them with path distance noted.		CIV
			Final Design		Option 2: LEED Site vicinity plan showing project site, bus stops and pedestrian path to them with path distance noted.		CIV
SS4.2		Alternative Transportation: Bicycle Storage & Changing Rooms	Final Design		FTE calculation. Bicycle storage spaces calculation. Shower/changing facilities calculation.		CIV
			Final Design		List of drawings that show the location(s) of bicycle storage areas. Statement indicating distance from building entrance.		CIV
			Final Design		List of drawings that show the location(s) of shower/changing facilities and, if located outside the buiding, statement indicating distance from building entrance.		ARC

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PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
SS4.3		Alternative Transportation: Low Emitting & Fuel Efficient Vehicles	Final Design		Statement indicating which option for compliance applies. FTE calculation. Statement indicating total parking capacity of site.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design		Option 1: Low-emission & fuel-efficient vehicle calculation.		CIV
			Final Design		Option 1: List of drawings and specification references that show location and number of preferred parking spaces for low-emission & fuel-efficient vehicles and signage.		CIV
			Final Design		Option 1: Statement indicating quantity, make, model and manufacturer of low-emission & fuel-efficient vehicles to be provided. Statement confirming vehicles are zero-emission or indicating ACEEE vehicle scores.		CIV
			Final Design		Option 2: Low-emission & fuel-efficient vehicle parking calculation.		CIV
			Final Design		Option 2: List of drawings and specification references that show location and number of preferred parking spaces and signage.		CIV
			Final Design		Option 3: Low-emission & fuel-efficient vehicle refueling station calculation.		CIV
			Final Design		Option 3: List of drawings and specifications indicating location and number of refueling stations, fuel type and fueling capacity for each station for an 8-hour period.		CIV
			Closeout	X	Option 3: Construction product submittals indicating what was provided and confirming compliance with respect to fuel type and fueling capacity for each station for an 8-hour period.		CIV
SS4.4		Alternative Transportation: Parking Capacity	Final Design		Statement indicating which option for compliance applies.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design		Option 1: Preferred parking calculation including number of spaces required, total provided, preferred spaces provided and percentage.		CIV
			Final Design		Option 2: FTE calculation. Preferred parking calculation including number of spaces provided, preferred spaces provided and percentage.		CIV
			Final Design		Options 1 and 2: List of drawings and specification references that show location and number of preferred parking spaces and signage.		CIV
			Final Design		Option 3: Narrative indicating number of spaces required and provided and describing infrastructure and support programs with description of project features to support them.		CIV
SS5.1		Site Development: Protect or Restore Habitat	**Final Design		Option 1: List of drawing and specification references that convey site disturbance limits.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			**Final Design		Option 2: LEED site plan drawing that delineates boundaries of each preserved and restored habitat area with area (sf) noted for each.		CIV
			**Final Design		Option 2: Percentage calculation of restored/preserved habitat to total site area. List of drawings and specification references that convey restoration planting requirements.		CIV
SS5.2		Site Development: Maximize Open Space	Final Design		Option 2: LEED site plan drawing delineating boundary of vegetated open space adjacent to building with areas of building footprint and designated open space noted.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
SS6.1		Stormwater Design: Quantity Control	Final Design		Statement indicating which option for compliance applies.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design		Option 1: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf) -OR - Narrative describing site conditions, measures and controls to be implemented to prevent excessive stream velocities and erosion.		CIV
			Final Design		Option 2: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf). Indicate percent reduction in each.		CIV
SS6.2		Stormwater Design: Quality Control	Final Design		For non-structural controls, list all BMPs used and, for each, describe the function of the BMP and indicate the percent annual rainfall treated. List all structural controls and, for each, describe the pollutant removal and indicate the percent annual rainfall treated.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
SS7.1		Heat Island Effect: Non-Roof	**Final Design		LEED site plan drawing indicating locations and quantities of each paving type, including areas of shaded pavement. Percentage calculation indicating percentage of reflective/shaded/open grid area.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV

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PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
SS7.2		Heat Island Effect: Roof	Final Design		Option 1: Percentage calculation indicating percentage of SRI compliant roof area. List of drawings and specification references that convey SRI requirements and roof slopes.		ARC
			Final Design		Option 1: List of specified roof materials indicating, for each, type, manufacturer, product name and identification if known, SRI value and roof slope.		ARC
			**Closeout		Option 1: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope.		PE
			Closeout	X	Option 1: Manufacturer published product data or certification confirming SRI		PE
			Final Design		Option 2: Percentage calculation indicating percentage of vegetated roof area.		ARC
			Final Design		Option 3: Combined reflective and green roof calculation.		ARC
			Final Design		Option 3: List of specified roof materials indicating, for each, type, manufacturer, product name and identification if known, SRI value and roof slope.		ARC
			**Closeout		Option 3: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope.		PE
			Closeout	X	Option 3: Manufacturer published product data or certification confirming SRI		PE
SS8		Light Pollution Reduction	Final Design		Interior Lighting: List of drawings and specification references that convey interior lighting requirements (location and type of all installed interior lighting, location of non-opaque exterior envelope surfaces, allowing confirmation that maximum candela value from interiorfixtures does not intersect non-opaque building envelope surfaces). - OR - List of drawings and specification references that show automatic lighting controls compliance with credit requirement.		ELEC
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		ELEC
			Final Design		Exterior Lighting: List of drawings and specification references that convey exterior lighting requirements (location and type of all site lighting and building façade/landscape lighting).		ELEC
			Final Design		Exterior Site Lighting Power Density (LPD): Tabulation for exterior site lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all site lighting.		ELEC
			Final Design		Exterior Building Facade/Landscape Lighting Power Density (LPD): Tabulation for exterior building facade/landscape lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all building facade/landscape lighting.		ELEC
			Final Design		Exterior Lighting IESNA Zone: Indicate which IESNA zone is applicable to the project.		ELEC
			Final Design		Exterior Lighting Site Lumen table indicating, for each fixture type, quantity installed, initial lamp lumens per luminaire, initial lamp lumens above 90 degrees from Nadir, total lamp lumens and total lamp lumens above 90 degrees. Percentage of site lamp lumens above 90 degrees from nadir to total lamp lumens.		ELEC
			Final Design		Exterior Lighting Narrative describing analysis used for addressing requirements for light trespass at site boundary and beyond.		ELEC
CATEGORY 2 – WATER EFFICIENCY							
WEPR1		Water Use Reduction: 20% Reduction	Final Design		Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio.		MEC
			Final Design		Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users		MEC
			Final Design		Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation.		MEC

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PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
			Final Design		Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage.		MEC
			Final Design		Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage.		MEC
			Closeout	X	Manufacturer published product data or certification confirming fixture water usage.		PE
WE1.1		Water Efficient Landscaping: Reduce by 50%	Final Design		Statement indicating which option for compliance applies.		CIV
			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
			Final Design		Calculation indicating, for baseline and design case, total water applied, total potable water applied, total non-potable water applied. Design case percent potable water reduction. If nonpotable water is used, indicate source of nonpotable water.		CIV
			Final Design		List of landscape plan drawings.		CIV
			Final Design		Narrative describing landscaping and irrigation design strategies, including water use calculation methodology used to determine savings and, if non-potable water is used, specific information about source and available quantity.		CIV
WE1.2		Water Efficient Landscaping: No Potable Water Use or No Irrigation	Same as WE1.1		Same as WE1.1		CIV
WE2		Innovative Wastewater Technologies	Final Design		Statement confirming which option for compliance applies.		MEC
			Final Design		Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio.		MEC
			Final Design		Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users		MEC
			Final Design		Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation.		MEC
			Final Design		Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage.		MEC
			Final Design		Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage.		MEC
			Final Design		Option 1: If onsite non-potable water is used, identify source(s), indicate annual quantity from each source and indicate total annual quantity from all onsite non-potable water sources.		MEC
			Final Design		Option 1: Summary calculation indicating baseline annual water consumption, design case annual water consumption, non-potable annual water consumption and total percentage annual water savings.		MEC
			Final Design		Option 2: Statement confirming on-site treatment of all generated wastewater to tertiary standards and all treated wastewater is either infiltrated or used on-site.		MEC
			Final Design		Option 2: List of drawing and specification references that convey design of on-site wastewater treatment features.		CIV
			Final Design		Option 2: On-site water treatment quantity calculation indicating all on-site wastewater source(s), annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from each source and totals for annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from all sources.		CIV
			Final Design		Option 2: Wastewater summary calculation indicating design case annual flush fixture water usage, annual on-site water treatment and percentage sewage convyance reduction.		MEC
			Final Design		Narrative describing project strategy for reduction of potable water use for sewage conveyance, including specific information on reclaimed water usage and treated wastewater usage.		MEC
WE3		Water Use Reduction: 30% - 40% Reduction	Same as WEPR1		Same as WEPR1		MEC
CATEGORY 3 – ENERGY AND ATMOSPHERE							

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EAPR1		Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	**Final Design		**Owner's Project Requirements document		ALL
			**Final Design		**Basis of Design document for commissioned systems		MEC, ELEC
			**Final Design		**Commissioning Plan		MEC, ELEC
			Closeout		Statement confirming all commissioning requirements have been incorporated into construction documents.		PE
			Closeout		Commissioning Report		PE
EAPR2		Minimum Energy Performance (PREREQUISITE)	Final Design		Statement listing the mandatory provisions of ASHRAE 90.1 that project meets relative to compliance with this prerequisite and indicating which compliance path was used.		MEC ELEC ARC
			Final Design		Statement indicating which compliance path option applies.		MEC
			Final Design		Option 1: Statement confirming simulation software capabilities and confirming assumptions and methodology.		MEC
			Final Design		Option 1: General information including simulation program, principal heating source, percent new construction and renovation, weather file, climate zone and Energy Star Target Finder score.		MEC
			Final Design		Option 1: Space summary listing, for each building use, the conditioned area, unconditioned area and total area and include total area for each category		MEC
			Final Design		Option 1: List of all simulation output advisory message data and show difference between baseline and proposed design		MEC
			Final Design		Option 1: Comparison summary for energy model inputs including description of baseline and design case energy model inputs, showing both by element type		MEC
			Final Design		Option 1: Energy type summary lising, for each energy type, utility rate description, units of energy and units of demand		MEC
			Final Design		Option 1: Statement indicating whether project uses on-site renewable energy. If yes, list all sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost		MEC
			Final Design		Option 1: If analysis includes exceptional calculation methods, statement describing how exceptional calculation measure cost savings is determined		MEC
			Final Design		Option 1: If analysis includes exceptional calculation methods, for each exceptional calculation method indicate energy types and, for each energy type, annual energy savings, annual cost savings, and brief descriptive narrative		MEC
			Final Design		Option 1: Baseline performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand for all four orientations. For each orientation indicate total annual energy use for each orientation and total annual process energy use.		MEC
			Final Design		Option 1: Baseline energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost.		MEC
			Final Design		Option 1: Proposed Design performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand, baseline annual and peak energy demand and percent savings. Indicate total annual energy use and total annual process energy use for both proposed design and baseline and percent savings.		MEC
			Final Design		Option 1: Proposed Design energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost.		MEC
			Final Design		Option 1: Energy cost and consumption by energy type report indicating, for each energy type, proposed design and baseline annual use and annual cost, percent savings annual use and annual cost. Indicate for renewable energy annual energy generated and annual cost. Indicate exceptional calculations annual energy savings and annual cost savings. Indicate building total annual energy use, annual energy cost for proposed design and baseline and indicate percent savings annual energy use and annual energy cost.		MEC

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			Final Design		Option 1: Compliance summaries from energy simulation software. If software does not produce compliance summaries provide output summaries and example input summaries for baseline and proposed design supporting data in the tables. Output summaries must include simulated energy consumption by end use and total energy use and cost by energy type. Example input summaries should represent most common systems and must include occupancy, use pattern, assumed envelope component sizes and descriptive features and assumed mechanical equipment types and descriptive features		MEC
			Final Design		Option 1: Energy rate tariff from project energy providers (only if not using LEED Reference Guide default rates)		MEC
EAPR3		Fundamental Refrigerant Management (PREREQUISITE)	Final Design		Statement indicating which option for compliance applies.		MEC
			Final Design		Option 2: Narrative describing phase out plan, including specific information on phase out dates and refrigerant quantities.		MEC
EA1		Optimize Energy Performance	Final Design		Statement indicating which compliance path option applies.		MEC
			Final Design		Option 1: Statement confirming simulation software capabilities and confirming assumptions and methodology.		MEC
			Final Design		Option 1: General information including simulation program, principal heating source, percent new construction and renovation, weather file, climate zone and Energy Star Target Finder score.		MEC
			Final Design		Option 1: Space summary listing, for each building use, the conditioned area, unconditioned area and total area and include total area for each category		MEC
			Final Design		Option 1: List of all simulation output advisory message data and show difference between baseline and proposed design		MEC
			Final Design		Option 1: Comparison summary for energy model inputs including description of baseline and design case energy model inputs, showing both by element type		MEC
			Final Design		Option 1: Energy type summary lising, for each energy type, utility rate description, units of energy and units of demand		MEC
			Final Design		Option 1: Statement indicating whether project uses on-site renewable energy. If yes, list all sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost		MEC
			Final Design		Option 1: If analysis includes exceptional calculation methods, statement describing how exceptional calculation measure cost savings is determined		MEC
			Final Design		Option 1: If analysis includes exceptional calculation methods, for each exceptional calculation method indicate energy types and, for each energy type, annual energy savings, annual cost savings, and brief descriptive narrative		MEC
			Final Design		Option 1: Baseline performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand for all four orientations. For each orientation indicate total annual energy use for each orientation and total annual process energy use.		MEC
			Final Design		Option 1: Baseline energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost.		MEC
			Final Design		Option 1: Proposed Design performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand, baseline annual and peak energy demand and percent savings. Indicate total annual energy use and total annual process energy use for both proposed design and baseline and percent savings.		MEC
			Final Design		Option 1: Proposed Design energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost.		MEC
			Final Design		Option 1: Energy cost and consumption by energy type report indicating, for each energy type, proposed design and baseline annual use and annual cost, percent savings annual use and annual cost. Indicate for renewable energy annual energy generated and annual cost. Indicate exceptional calculations annual energy savings and annual cost savings. Indicate building total annual energy use, annual energy cost for proposed design and baseline and indicate percent savings annual energy use and annual energy cost.		MEC

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			Final Design		Option 1: Compliance summaries from energy simulation software. If software does not produce compliance summaries provide output summaries and example input summaries for baseline and proposed design supporting data in the tables. Output summaries must include simulated energy consumption by end use and total energy use and cost by energy type. Example input summaries should represent most common systems and must include occupancy, use pattern, assumed envelope component sizes and descriptive features and assumed mechanical equipment types and descriptive features		MEC
			Final Design		Option 1: Energy rate tariff from project energy providers (only if not using LEED Reference Guide default rates)		MEC
EA2.1		On-Site Renewable Energy	Final Design		Statement indicating which compliance path option applies.		ELEC
			Final Design		List all on-site renewable energy sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost. Indicate total annual energy use (all sources), total annual energy cost (all sources) and percent renewable energy cost.		ELEC MEC
			Final Design		Option 1: Indicate, for renewable energy,proposed design total annual energy generated and annual cost.		ELEC MEC
			Final Design		Option 2: Indicate CBECS building type and building gross area. Provide the following CBECS data: median annual electrical intensity, median annual non-electrical fuel intensity, average electric energy cost, average non-electric fuel cost, annual electric energy use and cost, annual non-electric fuel use and cost.		ELEC MEC
			Final Design		Option 2: Narrative describing renewable systems and explaining calculation method used to estimate annual energy generated, including factors influencing performance.		ELEC MEC
EA2.2		On-Site Renewable Energy	Same as EA2.1		Same as EA2.1		ELEC MEC
EA2.3		On-Site Renewable Energy	Same as EA2.1		Same as EA2.1		ELEC MEC
EA3		Enhanced Commissioning	**Final Design		**Owner's Project Requirements document (OPR)		ALL
			**Final Design		**Basis of Design document for commissioned systems (BOD)		ELEC MEC
			**Final Design		**Commissioning Plan		ELEC MEC
			Closeout		Statement confirming all commissioning requirements have been incorporated into construction documents.		PE
			Closeout		**Commissioning Report		PE
			**Final Design		Statement by CxA confirming Commissioning Design Review		
			Closeout		Statement by CxA confirming review of Contractor submittals for compliance with OPR and BOD		PE
			Closeout		**Systems Manual		PE
			Closeout		Statement by CxA confirming completion of O&M staff and occupant training		PE
			Closeout		**Scope of work for post-occupancy review of building operation, including plan for resolution of outstanding issues		PE
			**Predesign		Statement confirming CxA qualifications and contractual relationships relative to work on this project, demonstrating that CxA is an independent third party.		MEC
EA4		Enhanced Refrigerant Management	Final Design		Refrigerant impact calculation table with all building data and calculation values as shown in LEED 2009 Reference Guide Example Calculations		MEC
			Final Design		Narrative describing any special circumstances or explanatory remarks		
			Closeout	X	Cut sheets highlighting refrigerant data for all HVAC components.		PE
EA5		Measurement & Verification	Closeout		Statement indicating which compliance path option applies.		PE
			Closeout		Measurement and Verification Plan including Corrective Action Plan		PE
			Closeout		**Scope of work for post-occupancy implementation of M&V plan including corrective action plan.		PE
EA6		Green Power	Closeout		Statement indicating which compliance path option applies.		PE
			Closeout		Option 1: Indicate proposed design total annual electric energy usage		PE
			Closeout		Option 2: Indicate actual total annual electric energy usage		PE
			Closeout		Option 3: Calculation indicating building type, total gross area, median electrical intensity and annual electric energy use		PE

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			Closeout		Green power provider summary table indicating, for each purchase type, provider name, annual quantity green power purchased and contract term. Indicate total annual green power use and indicate percent green power		PE
			Closeout		Narrative describing how Green Power or Green Tags are purchased		PE
CATEGORY 4 – MATERIALS AND RESOURCES							
MRPR1		Storage & Collection of Recyclables (PREREQUISITE)	Final Design		Statement confirming that recycling area will accommodate recycling of plastic, metal, paper, cardboard and glass. Narrative indicating any other materials addressed and coordination with pickup.		ARC
MR1.1		Building Reuse: Maintain 55% of Existing Walls, Floors & Roof	**Final Design		If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building.		ARC
			**Final Design		Spreadsheet listing, for each building structural/envelope element, the existing area and reused area. Total percent reused.		ARC
MR1.2		Building Reuse: Maintain 75% of Existing Walls, Floors & Roof	Same as MR1.1		Same as MR1.1		ARC
MR1.3		Building Reuse: Maintain 95% of Existing Walls, Floors & Roof	Same as MR1.1		Same as MR1.1		ARC
MR1.4		Building Reuse: Maintain 50% of Interior Non-Structural Elements	**Final Design		If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building.		ARC
			**Final Design		Spreadsheet listing, for each building interior non-structural element, the existing area and reused area. Total percent reused.		ARC
MR2.1		Construction Waste Management: Divert 50% From Disposal	**Preconstruction		Waste Management Plan		PE
			**Construction Quarterly and Closeout		Spreadsheet calculations indicating material description, disposal/diversion location (or recycling hauler), weight, total waste generated, total waste diverted, diversion percentage		PE
			**Construction Quarterly and Closeout		Receipts/tickets for all items on spreadsheet		PE
MR2.2		Construction Waste Management: Divert 75% From Disposal	Same as MR2.1		Same as MR2.1		PE
MR3.1		Materials Reuse: 5%	Closeout		Statement indicating total materials value and whether default or actual.		PE
			Closeout		Spreadsheet calculations indicating, for each reused/salvaged material, material description, source or vendor, cost. Total reused/salvaged materials percentage.		PE
MR3.2		Materials Reuse: 10%	Same as MR3.1		Same as MR3.1		PE
MR4.1		Recycled Content: 10% (post-consumer + 1/2 pre-consumer)	Closeout		Statement indicating total materials value and whether default or actual.		PE
			Closeout		Spreadsheet calculations indicating, for each recycled content material, material name/description, manufacturer, cost, post-consumer recycled content percent, pre-consumer recycled content percent, source of recycled content data. Total post-consumer content materials cost, total pre-consumer content materials cost, total combined recycled content materials cost, recycled content materials percentage.		PE
			Final Design or NLT Preconstruction		**Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.		PE
			Closeout	X	Manufacturer published product data or certification, confirming recycled content percentages in spreadsheet		PE
MR4.2		Recycled Content: 20% (post-consumer + 1/2 pre-consumer)	Same as MR4.1		Same as MR4.1		PE
MR5.1		Regional Materials:10% Extracted, Processed & Manufactured Regionally	Closeout		Statement indicating total materials value and whether default or actual.		PE
			Closeout		Spreadsheet calculations indicating, for each regional material, material name/description, manufacturer, cost, percent compliant, harvest distance, manufacture distance, source of manufacture and harvest location data. Total regional materials cost, regional materials percentage.		PE
			Preconstruction		**Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.		PE
			Closeout	X	Manufacturer published product data or certification confirming regional material percentages in spreadsheet		PE

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MR5.2		Regional Materials:20% Extracted, Processed & Manufactured Regionally	Same as MR5.1		Same as MR5.1		PE
MR6		Rapidly Renewable Materials	Closeout		Statement indicating total materials value and whether default or actual.		PE
			Closeout		Spreadsheet calculations indicating, for each rapidly renewable material, material name/description, manufacturer, cost, rapidly renewable content percent, rapidly renewable product value. Total rapidly renewable product value, rapidly renewable materials percentage.		PE
			Final Design		**Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.		ARC
			Closeout	X	Manufacturer published product data or certification confirming rapidly renewable material percentages in spreadsheet		PE
MR7		Certified Wood	Closeout		Statement indicating total materials value and whether default or actual.		PE
			Closeout		Spreadsheet calculations indicating, for each certified wood material, material name/description, vendor, cost, wood component percent, certified wood percent of wood component, FSC chain of custody certificate number. Total certified wood product value, certified wood materials percentage.		PE
			Final Design or NLT Preconstruction		**Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.		PE
			Closeout	X	Vendor invoices, FSC chain of custody certificates and anufacturer published product data or certification confirming all certified wood materials percentages in spreadsheet.		PE
INDOOR ENVIRONMENTAL QUALITY							
EQPR1		Minimum IAQ Performance (PREREQUISITE)	Final Design		Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements.		MEC
			Final Design		Narrative describing the project's ventilation design, including specifics about fresh air intake volumes and special considerations.		MEC
EQPR2		Environmental Tobacco Smoke (ETS) Control (PREREQUISITE)	Final Design		Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements.		ARC
			Final Design		List of drawing and specification references that convey conformance to applicable requirements (signage, exhaust system, room separation details, etc).		ARC
EQ1		Outdoor Air Delivery Monitoring	Final Design		Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements.		MEC
			Final Design		List of drawing and specification references that convey conformance to applicable requirements.		MEC
			Final Design		Narrative describing the project's ventilation design and CO2 monitoring system, including specifics about monitors, operational parameters and setpoints.		MEC
			Closeout	X	Cut sheets for CO2 monitoring system.		PE
EQ2		Increased Ventilation	Final Design		Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements.		MEC
			Final Design		Narrative describing the project's ventilation design, including specifics about zone fresh air intake volumes and demonstrating compliance.		MEC
			Final Design		Option 2: Narrative describing design method used for determining natural ventilation design, including calculation methodology/model results and demonstrating compliance.		MEC
			Final Design		List of drawing and specification references that convey conformance to applicable requirements.		MEC
EQ3.1		Construction IAQ Management Plan: During Construction	**Preconstruction		Construction IAQ Management Plan		PE
			Closeout		Statement confirming whether air handling units were operated during construction		PE
			Closeout		Dated jobsite photos showing examples of IAQ management plan practices being implemented. Label photos to indicate which practice they demonstrate. Minimum one photo of each practice at each building.		PE

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			Closeout		Spreadsheet indicating, for each filter installed during construction, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy.		PE
EQ3.2		Construction IAQ Management Plan: Before Occupancy	**Preconstruction		Construction IAQ Management Plan		PE
			Closeout		Statement indicating which option for compliance applies and confirming that required activities have occurred that meet the applicable requirements.		PE
			Closeout		Option 1a: Narrative describing the project's flushout process, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance.		PE
			Closeout		Option 1b: Narrative describing the project's pre-occupancy and post-occupancy flushout processes, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance.		PE
			Closeout		Option 2: Narrative describing the project's IAQ testing process, including specifics about contaminants tested for, locations, remaining work at time of test, retest parameters and special considerations (if any).		PE
			Closeout		Option 2: IAQ testing report demonstrating compliance.		PE
EQ4.1		Low Emitting Materials: Adhesives & Sealants	Closeout		Spreadsheet indicating, for each applicable indoor adhesive, sealant and sealant primer used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data.		PE
			Closeout		Spreadsheet indicating, for each applicable indoor aerosol adhesive, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor aerosol adhesives were used for the project.		PE
			Closeout	X	Manufacturer published product data or certification confirming material VOCs in spreadsheet		PE
EQ4.2		Low Emitting Materials: Paints & Coatings	Closeout		Spreadsheet indicating, for each applicable indoor paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data.		PE
			Closeout		Spreadsheet indicating, for each applicable indoor anti-corrosive/anti-rust paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor anti-corrosive/anti-rust paints were used for the project .		PE
			Closeout	X	Manufacturer published product data or certification confirming material VOCs in spreadsheet		PE
EQ4.3		Low Emitting Materials: Flooring Systems	Closeout		Spreadsheet indicating, for each indoor flooring system used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data.		PE
			Closeout		Spreadsheet indicating, for each indoor carpet cushion used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data - OR - Statement confirming no indoor carpet cushion was used for the project.		PE
			Closeout	X	Manufacturer published product data or certification confirming material compliance label in spreadsheet		PE
EQ4.4		Low Emitting Materials: Composite Wood & Agrifiber Products	Closeout		Spreadsheet indicating, for each indoor composite wood and agrifiber product used, the manufacturer, product name/model number, if it contains added urea formaldehyde (yes/no) and source of LEED compliance data.		PE
			Closeout	X	Manufacturer published product data or certification confirming material urea formaldehyde in spreadsheet		PE
EQ5		Indoor Chemical & Pollutant Source Control	Closeout		Spreadsheet indicating, for each permanent entryway system used, the manufacturer, product name/model number and description of system.		PE
			Final Design		List of drawing and specification references that convey locations and installation methods for entryway systems.		ARC
			Final Design		Spreadsheet indicating, for each chemical use area, the room number, room name, description of room separation features (walls, floor/ceilings, openings) and pressure differential from surrounding spaces with doors closed - OR - Statement confirming that project includes no chemical use areas and that no hazardous cleaning materials are needed for building maintenance.		ARC MEC
			Final Design		If project includes chemical use areas: List of drawing and specification references that convey locations of chemical use areas, room separation features and exhaust system.		ARC MEC

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			Final Design		If project includes places where water and chemical concentrate mixing occurs: List of drawing and specification references that convey provisions for containment of hazardous liquid wastes OR - Statement confirming that project includes no places where water and chemical concentrate mixing occurs.		ARC MEC
			Closeout		If project includes chemical use areas: Spreadsheet indicating, for AHUs/mechanical ventilation equipment serving occupied areas, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy (yes/no) - OR - Statement confirming that project does not use mechanical equipment for ventilation of occupied areas.		PE
EQ6.1		Controllability of Systems: Lighting	Final Design		Calculation indicating total number of individual workstations, number of workstations with individual lighting controls and the percentage of workstations with individual lighting controls.		ELEC
			Final Design		For each shared multi-occupant space, provide a brief description of lighting controls.		ELEC
			Final Design		Narrative describing lighting control strategy, including type and location of individual controls and type and location of controls in shared multi-occupant spaces.		ELEC
EQ6.2		Controllability of Systems: Thermal Comfort	Final Design		Calculation indicating total number of individual workstations, number of workstations with individual thermal comfort controls and the percentage of workstations with individual thermal comfort controls.		MEC
			Final Design		For each shared multi-occupant space, provide a brief description of thermal comfort controls.		MEC
			Final Design		Narrative describing thermal comfort control strategy, including type and location of individual and shared multi-occupant controls.		MEC
EQ7.1		Thermal Comfort: Design	Final Design		Design criteria spreadsheet indicating, for spring, summer, fall and winter, maximum indoor space design temperature, minimum indoor space design temperature and maximum indoor space design humidity.		MEC
			Final Design		Narrative describing method used to establish thermal comfort control conditions and how systems design addresses the design criteria, including compliance with the referenced standard.		MEC
EQ7.2		Thermal Comfort: Verification	Final Design		Narrative describing the scope of work for the thermal comfort survey, including corrective action plan development		MEC
			Final Design		List of drawing and specification references that convey permanent monitoring system.		MEC
EQ8.1		Daylight & Views: Daylight 75% of Spaces	Final Design		Option 2: Table indicating all regularly occupied spaces with space area and space area with compliant daylight zone. Sum of regularly occupied areas and regularly occupied areas withcompliant daylight zone. Percentage calculation of areas withcompliant daylight zone to total regularly occupied areas.		ARC
			Final Design		Option 1: Simulation model method, software and output data		ELEC
			Final Design		Option 1: Table indicating all regularly occupied spaces with space area, space area with minimum 25 footcandles daylighting illumination, and method of providing glare control. Sum of regularly occupied areas and regularly occupied areas with 25 fc daylighting. Percentage calculation of areas with 25 fc daylighting to total regularly occupied areas.		ELEC
			Final Design		For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space.		ARC
			Final Design		List of drawing and specification references that convey exterior glazed opening head and sill heights, glazing performance properties and glare control/sunlight redirection devices.		ARC
			Closeout	X	Manufacturer published product data or certification confirming glazing Tvis in spreadsheet		PE
EQ8.2		Daylight & Views: Views for 90% of Spaces	Final Design		Table indicating all regularly occupied spaces with space area and space area with access to views. Sum of regularly occupied areas and regularly occupied areas with access to views. Percentage calculation of areas with views to total regularly occupied areas.		ARC
			Final Design		For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space.		ARC
			Final Design		LEED Floor plan drawings showing line of sight diagramming of views areas in each regularly occupied space. List of drawing/specification references that convey exterior glazed opening head and sill heights.		ARC
INNOVATION & DESIGN PROCESS							

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	**LEED-NC v3 Submittals (OCT09)**		Provide for Credit Audit Only		Date Submitted (to be filled in by Contractor)	Government Reviewer's Use
PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
IDc1.1		Innovation in Design	Final Design		Narrative decribing intent, requirement for credit, project approach to the credit. List of drawings and specification references that convey implementation of credit. All other documentation that validates claimed credit.		
IDc1.2		Innovation in Design	Final Design				
IDc1.3		Innovation in Design	Final Design				
IDc1.4		Innovation in Design	Final Design				
IDc2		LEED Accredited Professional	Final Design		Narrative indicating name of LEED AP, company name of LEED AP, description of LEED AP's role and responsiblilities in the project.		ARC

ATTACHMENT F
Version 02-03-2010

BUILDING INFORMATION MODELING REQUIREMENTS

1.0 Section 1 - Submittal Format

1.1. Design Deliverables. Develop all designs using Building Information Modeling (BIM) and Computer Aided Design (CAD) software. Design submittal drawings shall be Full size, suitable for half-size scaled reproduction.

2.0 Section 2 – Design Requirements

2.1. BIM Model and Facility Data. Contractor shall use BIM application(s) and software(s) to develop project designs. "Facility Data" is defined as associated intelligent attribute data. The "Model" is defined as 3D graphics that includes Facility Data and output as described in the paragraph 'Output' below. Contractors will use the Model to produce accurate Construction Documents. All submitted BIM Models and associated Facility Data shall be fully compatible with [Not Supplied - SubmittalReqCADDSystem : BENTLEY_VERSION] with associated USACE Bentley BIM Workspace

2.1.1. Reference. Refer to ERDC TR-06-10, "U.S. Army Corps of Engineers Building Information Modeling Road Map" from the CAD/BIM Technology Center website for more information on the USACE BIM implementation goals.

2.2. Drawings. Deliver CAD files used for the creation of the Construction Documents Drawings per requirements in Section 01 33 16, the criteria of the USACE [Not Supplied - DistrictInfoGeneral : ISSUING_DISTRICT] District, and as noted herein. Specification of a CAD file format for these Drawings does not limit which BIM application(s) or software(s) may be used for project development and execution.

2.2.1. IFC Support. The Contractor's selected BIM application(s) and software(s) must support the IFC (Industry Foundation Class - see www.iai-tech.org). Submit any deviations from or additions to the IFC property sets for any new spaces, systems, and equipment for Government approval.

2.2.2. Submittal Requirements. BIM submittals shall conform to the requirements of Sections 3 and 4 below.

2.2.3. BIM Project Execution Plan.

2.2.3.1. Develop a BIM Project Execution Plan ("Plan" or "PxP") documenting the BIM and analysis technologies selected for the Project Model (integrated with the AEC CAD Standard) from concept development through As-Builts as a design, production, coordination, construction, and documentation tool and the collaborative process by which it shall be executed. See Section 7 for additional guidance on developing the Plan.

2.2.4. BIM Requirements.

2.2.4.1. Facility Data. Develop the Facility Data consisting of a set of intelligent elements for the Model (e.g., doors, air handlers, electrical panels). This Facility Data shall include all material definitions and attributes that are necessary for the Project facility design and construction. Additional data in support of Section 6 Contractor Electives is encouraged.

2.2.4.2. Model Content. The Model and Facility Data shall include, at a minimum, the requirements of Section 4 below.

2.2.4.3. Model Granularity. Models may vary in level of detail for individual elements within a model, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'0") scaled drawing (e.g. at least 1/16th, 1/8th and 1/4th), or appropriately scaled civil drawings.

2.2.4.4. Output. Submitted CAD drawings (e.g., plans, elevations, sections, schedules, details, etc.) shall be derived (commonly known as extractions, views or sheets) and maintained from the submitted Model and Facility Data.

2.3. Quality Control. Implement quality control (QC) parameters for the Model, including:

2.3.1. Model Standards Checks. QC validation used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements. Report non-compliant elements and corrective action plan to correct non-compliant elements. Provide the government with detailed justification and request government approval for any non-compliant element which the contractor proposes to be allowed to remain in the Model.

2.3.2. CAD Standards Checks. QC checking performed to ensure that the fonts, dimensions, line styles, levels and other construction document formatting issues are followed per the A/E/C CADD Standard.

2.3.3. Other Parameters. Develop such other QC parameters as Contractor deems appropriate for the Project and provide to the Government for concurrence.

2.4. Design and Construction Reviews. Perform design and construction reviews at each submittal stage under Section 3 to test the Model, including:

2.4.1. Visual Checks. Check to ensure the design intent has been followed and that there are no unintended elements in the Model.

2.4.2. Interference Management Checks. Locate conflicting spatial data in the Model where two elements are occupying the same space. Log hard interferences (e.g., mechanical vs. structural or mechanical vs. mechanical overlaps in the same location) and soft interferences, (e.g., conflicts regarding equipment clearance, service access, fireproofing, insulation) in a written report and resolve.

2.4.3. IFC Coordination View. Provide an IFC Coordination View in IFC Express format for all deliverables. Provide exported property set data for all IFC supported named building elements.

2.4.4. Other Parameters. Develop such other Review parameters as the Contractor deems appropriate for the Project and provide to the Government for concurrence.

3.0 Section 3 – Design Stage Submittal Requirements

3.1. General Submittal Requirements.

3.1.1. Provide submittals in compliance with BIM Project Execution Plan deliverables at stages as described hereinafter.

3.1.2. At each Stage in Paragraphs 3.3 through 3.6, provide a Contractor-certified written report confirming that consistency checks as identified in Paragraphs 2.3 and 2.4 have been completed. This report shall be discussed as part of the review process and shall address cross-discipline interferences, if any.

3.1.3. At each Stage in Paragraphs 3.3 through 3.6, provide the Government with:

- The Model, Facility Data, and CAD Data files.

- A 3-D interactive review format of the Model in Bentley Navigator, Autodesk Navisworks, Adobe 3D PDF 7.0 (or later), Google Earth KMZ or other format per Plan requirements. The file format for reviews can change between submittals.

- A list of all submitted files. The list should include a description, directory, and file name for each file submitted. For all CAD sheets, include the sheet title and sheet number. Identify files that have been produced from the submitted Model and Facility Data.

3.1.4. The Government shall confirm acceptability of all submittals identified in Section 3 in coordination with the USACE [Not Supplied - DistrictInfoGeneral : ISSUING_DISTRICT] BIM Manager

3.2. Initial Design Conference Submittal.

3.2.1. Submit a digital copy of the Plan where, in addition to Paragraph 3.1.4, the USACE [Not Supplied - DistrictInfoGeneral : ISSUING_DISTRICT] District BIM Manager will confirm acceptability of the Plan or advise as to additional processes or activities necessary to be incorporated.

3.2.2. Within thirty (30) days after the approval of the Plan, conduct a demonstration to review the Plan for clarification, and to verify the functionality of Model technology workflow and processes. If modifications are required, the Contractor shall complete the modifications and resubmit the Plan and perform subsequent demonstration for Government acceptance. There will be no payment for design or construction until the Plan is acceptable to the Government. The Government may also withhold payment for design and construction for unacceptable performance in executing the approved Plan.

3.3. Interim Design Submittals.

3.3.1. BIM and CAD Data. The Model shall include the requirements identified in Paragraph 2.2.4 as applicable to the Interim Design package(s).

3.4. Final Design Submissions and Design Complete Submittals.

3.4.1. BIM and CAD Data. The Model shall include the requirements identified in Paragraph 2.2.4. Acceptance according to Paragraph 3.1.4 is required before commencement of construction, as described in Paragraph 3.7.6 of Section 01 33 16.

3.5. Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model, including interference management and design change tracking information.

3.6. Final As-Builts BIM and CAD Data Submittal. Submit the final Model, Facility Data, and CAD files reflecting as-built conditions for Government Approval, as specified in Section 01 78 02.00 10, PROJECT CLOSEOUT.

4.0 Section 4 – BIM Model Minimum Requirements and Output

4.1. General Provisions. The deliverable Model shall be developed to include the systems described below as they would be built and the processes of installing them, and to reflect final as-built conditions. The deliverable model at the interim design stage and at the final design stage (“released for construction”) shall be developed to include as many of the systems described below as are necessary and appropriate at that design stage.

4.2. Architectural/Interior Design. The Architectural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.2.1. Spaces. The Model shall include spaces defining accurate net square footage and net volume, and holding data for the room finish schedule for including room names and numbers. Include Programmatic Information provided by the Government or validated program to verify design space against programmed space, using this information to validate area quantities.

4.2.2. Walls and Curtain Walls. Each wall shall be depicted to the exact height, length, width and ratings (thermal, acoustic, fire) to properly reflect wall types. The Model shall include all walls, both interior and exterior, and the necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

4.2.3. Doors, Windows and Louvers. Doors, windows and louvers shall be depicted to represent their actual size, type and location. Doors and windows shall be modeled with the necessary intelligence to produce accurate window and door schedules.

4.2.4. Roof. The Model shall include the roof configuration, drainage system, penetrations, specialties, and the necessary intelligence to produce accurate plans, building sections and generic wall sections where roof design elements are depicted.

4.2.5. Floors. The floor slab shall be developed in the structural Model and then referenced by the architectural Model for each floor of the Project building.

4.2.6. Ceilings. All heights and other dimensions of ceilings, including soffits, ceiling materials, or other special conditions shall be depicted in the Model with the necessary intelligence to produce accurate plans, building sections and generic wall sections where ceiling design elements are depicted.

4.2.7. Vertical Circulation. All continuous vertical components (i.e., non-structural shafts, architectural stairs, handrails and guardrails) shall be accurately depicted and shall include the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.

4.2.8. Architectural Specialties and Woodwork. All architectural specialties (i.e., toilet room accessories, toilet partitions, grab bars, lockers, and display cases) and woodwork (i.e., cabinetry and counters) shall be accurately depicted with the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.

4.2.9. Signage. The Model shall include all signage and the necessary intelligence to produce accurate plans and schedules.

4.2.10. Schedules. Provide door, window, hardware sets using BHMA designations, flooring, wall finish, and signage schedules from the Model, indicating the type, materials and finishes used in the design.

4.3. Furniture. The furniture systems Model may vary in level of detail for individual elements within a Model, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing, and have necessary intelligence to produce accurate plans. Representation of furniture elements is to be 2D. Contractor may provide a minimal number of 3D representations as examples. Examples of furniture include, but are not limited to, desks, furniture systems, seating, tables, and office storage.

4.3.1. Furniture Coordination. Furniture that makes use of electrical, data or other features shall include the necessary intelligence to produce coordinated documents and data.

4.4. Equipment. The Model may vary in level of detail for individual elements within a Model. Equipment shall be depicted to meet layout requirements with the necessary intelligence to produce accurate plans and minimum schedules depicting their configuration. Examples of equipment include but are not limited to copiers, printers, refrigerators, ice machines and microwaves.

4.4.1. Schedules. Provide furniture and equipment schedules from the model indicating the materials, finishes, mechanical, and electrical requirements.

4.5. Structural. The structural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.5.1. Foundations. All necessary foundation and/or footing elements, with necessary intelligence to produce accurate plans and elevations.

4.5.2. Floor Slabs. Structural floor slabs shall be depicted, including all necessary recesses, curbs, pads, closure pours, and major penetrations accurately depicted.

4.5.3. Structural Steel. All steel columns, primary and secondary framing members, and steel bracing for the roof and floor systems (including decks), including all necessary intelligence to produce accurate structural steel framing plans and related building/wall sections.

4.5.4. Cast-in-Place Concrete. All walls, columns, and beams, including necessary intelligence to produce accurate plans and building/wall sections depicting cast-in-place concrete elements.

4.5.5. Expansion/Contraction Joints. Joints shall be accurately depicted.

4.5.6. Stairs. The structural Model shall include all necessary openings and framing members for stair systems, including necessary intelligence to produce accurate plans and building/wall sections depicting stair design elements.

4.5.7. Shafts and Pits. The structural Model shall include all necessary shafts, pits, and openings, including necessary intelligence to produce accurate plans and building/wall sections depicting these design elements.

4.6. Mechanical. The mechanical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Small diameter (less than 1-1/2” NPS) field-routed piping is not required in the model. Additional minimum Model requirements include:

4.6.1. HVAC. All necessary heating, ventilating, air-conditioning and specialty equipment, including air distribution ducts for supply, return, and ventilation and exhaust ducts, including control system, registers, diffusers, grills and hydronic baseboards with necessary intelligence to produce accurate plans, elevations, building/wall sections and schedules.

4.6.1.1. Mechanical Piping. All necessary piping and fixture layouts, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, and schedules.

4.6.2. Plumbing. All necessary plumbing piping and fixture layouts, floor and area drains, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules.

4.6.3. Equipment Clearances. All HVAC and Plumbing equipment clearances shall be modeled for use in interference management and maintenance access requirements.

4.6.4. Elevator Equipment. The Model shall include the necessary equipment and control system, including necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

4.7. Electrical/Telecommunications. The electrical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Small diameter (less than 1-1/2”Ø) field-routed conduit is not required in the model. Additional minimum Model requirements include:

4.7.1. Interior Electrical Power and Lighting. All necessary interior electrical components (i.e., lighting, receptacles, special and general purpose power receptacles, lighting fixtures, panelboards, cable trays and control systems), including necessary intelligence to produce accurate plans, details and schedules. Lighting and power built into furniture/equipment shall be modeled.

4.7.2. Special Electrical Systems. All necessary special electrical components (i.e., security, Mass Notification, Public Address, nurse call and other special occupancies, and control systems), including necessary intelligence to produce accurate plans, details and schedules.

4.7.3. Grounding Systems. All necessary grounding components (i.e., lightning protection systems, static grounding systems, communications grounding systems, bonding), including necessary intelligence to produce accurate plans, details and schedules.

4.7.4. Communications. All existing and new communications service controls and connections, both above ground and underground with necessary intelligence to produce accurate plans, details and schedules. Cable tray routing shall be modeled without detail of cable contents.

4.7.5. Exterior Building Lighting. All necessary exterior lighting with necessary intelligence to produce accurate plans, elevations and schedules. The exterior building lighting Model shall include all necessary lighting, relevant existing and proposed support utility lines and equipment required with necessary intelligence to produce accurate plans, details and schedules.

4.7.6. Equipment Clearances. The model shall incorporate and define all electrical and communications working spaces, clearances, and required access

4.8. Fire Protection. The fire protection system Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.8.1. Fire Protection System. All relevant fire protection components (i.e., branch piping, sprinkler heads, fittings, drains, pumps, tanks, sensors, control panels) with necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules. All fire protection piping shall be modeled.

4.8.2. Fire Alarms. Fire alarm/mass notification devices and detection system shall be indicated with necessary intelligence to produce accurate plans depicting them.

4.9. Civil. The civil Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a one inch (1”=100’) scaled drawing. Additional minimum Model requirements include:

4.9.1. Terrain (DTM). All relevant site conditions and proposed grading, including necessary intelligence to produce accurate Project site topographical plans and cross sections.

4.9.2. Drainage. All existing and new drainage piping, including upgrades thereto, including necessary intelligence to produce accurate plans and profiles for the Project site.

4.9.3. Storm Water and Sanitary Sewers. All existing and new sewer structures and piping, including upgrades thereto, on the Project site with necessary connections to mains or other distribution points as appropriate, including necessary intelligence to produce accurate plans and profiles for the Project site.

4.9.4. Utilities. All necessary new utilities connections from the Project building(s) to the existing or newly-created utilities, and all existing above ground and underground utility conduits, including necessary intelligence to produce accurate plans and site-sections.

4.9.5. Roads and Parking. All necessary roadways and parking lots or parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections.

5.0 Section 5 - Ownership and Rights in Data

5.1. Ownership. The Government has ownership of and rights at the date of Closeout Submittal to all CAD files, BIM Model, and Facility Data developed for the Project in accordance with FAR Part 27, clauses incorporated in Section 00 72 00, Contract Clauses and Special Contract Requirement 1.14 GOVERNMENT RE-USE OF DESIGN (Section 00 73 00). The Government may make use of this data following any deliverable.

6.0 Section 6 – Contractor Electives

6.1. Applicable Criteria. If the Contractor elected to include one or more of the following features as an elective in its accepted contract proposal for additional credit during the source selection, as described in the proposal submission requirements and evaluation criteria, the following criteria are requirements, as applicable to those elective feature(s).

6.2. COBIE Compliance. The Model and Facility Data for the Project shall fulfill Construction Operations Building Information Exchange (COBIE) requirements as defined by the Whole Building Design Guide organization, including all requirements for the indexing and submission of Portable Document Format (PDF) and other appropriate file formats that would otherwise be printed and submitted in compliance with Project operations and maintenance handover requirements.

6.3. Project Scheduling using the Model. In the BIM Execution Plan and during the Preliminary BIM Execution Plan Review, provide an overview of the use of BIM in the development and support of the project construction schedule.

6.3.1. Submittal Requirements. During the Submittal stages, the Contractor shall deliver the construction schedule with information derived from the Model.

6.3.1.1. Construction Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model for project scheduling.

6.4. Cost Estimating. In the BIM Execution Plan and during the Preliminary BIM Execution Plan Review, provide an overview of the use of BIM in the development and support of cost estimating requirements, or other applications such as cost analysis and estimate validation.

6.4.1. Submittal Requirements. During the Submittal stages, the Contractor shall deliver cost estimating information derived from the Model.

6.4.2. Project completion. At project completion, the Contractor shall provide an MII (Micro Computer Aided Cost Estimating System Generation II) Cost Estimate which follows the USACE Cost Engineering Military Work Breakdown System (WBS), a modified Uniformat, to at least the sub-systems level and uses quantity information supplied directly from BIM output to the maximum extent possible, though other "Gap" quantity information will be included as necessary for a complete and accurate cost estimate.

6.4.2.1. Sub system level extracted quantities from the BIM for use within the estimate shall be provided according to how detailed line items or tasks should be installed/built so that accurate costs can be developed and/or reflected. Therefore, when developing a BIM, the designer shall be cognizant of what tasks need to be separated appropriately at the beginning stages of model development, such as tasks done on the first floor versus the same task on higher floors that will be more labor intensive and therefore need to have a separate quantity and be priced differently. Tasks and their extracted quantities from the BIM shall be broken done by their location (proximity in the structure) as well as the complexity of its installation.

6.4.2.2. At all design stages it shall be understood that BIM output as described in this document will not generate all quantities that are necessary in order to develop a complete and accurate cost estimate of the project based on the design. An example of this would be plumbing that is less than 1.5" diameter and therefore not expected to be modeled due to granularity; this information is commonly referred to as The Gap. Quantities from The Gap and their associated costs shall be included in the final project actual cost estimates as well.

6.5. Other Analyses and Reports. Structural, energy and efficiency, EPACT 2005 & EISA 2007, lighting design, daylighting, electrical power, psychrometric processing, shading, programming, LEED, fire protection, code compliance, Life Cycle Cost, acoustic, plumbing.

7.0 Section 7 – BIM Project Execution Plan Template

7.1. Contractors will utilize the latest version of the USACE BIM PROJECT EXECUTION PLAN (USACE PxP) Template to develop an acceptable Plan. The template can be downloaded from the CAD/BIM Technology Center website.

ATTACHMENT G
DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT

Organize electronic design submittal files in a subdirectory/file structure in accordance with the following table. The Contractor may suggest a slightly different structure, subject to the discretion of the government.

Design Submittal Directory and Subdirectory File Arrangement.

Directory	Sub-Directory	Sub-Directory or Files	Files
Submittal/Package Name	Narratives	PDF file or files with updated design narrative for each applicable design discipline	
	Drawings	PDF (subdirectory)	Single PDF file with all applicable drawing sheets - bookmarked by sheet number and name
		BIM (subdirectory) See Attachment F.	BIM project folder (with files) per the USACE Workspace. Include an Excel drawing index file with each drawing sheet listed by sheet #, name and corresponding dgn file name (Final Design & Design Complete only)
	Design Analysis & Calculations	Individual PDF files containing design analysis and calculations for each discipline applicable to the submittal	
		PDF file with Fire Protection and Life Safety Code Review checklist	
	LEED	PDF file with updated Leed Check List	
		PDF file or files with LEED Templates for each point with applicable documentation included in each file.	
		LEED SUBMITTALS	
	Energy Analysis	PDF with baseline energy consumption analysis	
		PDF with actual building energy consumption analysis	
	Specifications	Single PDF file with table of contents and all applicable specifications sections.	
		Submittal Register (Final Design & Design Complete submittal only)	
	Design Quality Control	PDF file or files with DQC checklist(s) and/or statements	
	Building Rendering(s)	PDF file of rendering for each building type included in contract (Final Design & Design Complete).	

SECTION 01 45 01.10
QUALITY CONTROL SYSTEM (QCS)

1.0 GENERAL

1.1. CORRESPONDENCE AND ELECTRONIC COMMUNICATIONS

1.2. QCS SOFTWARE

1.3. SYSTEM REQUIREMENTS

1.4. RELATED INFORMATION

1.5. CONTRACT DATABASE

1.6. DATABASE MAINTENANCE

1.7. IMPLEMENTATION

1.8. DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

1.9. MONTHLY COORDINATION MEETING

1.10. NOTIFICATION OF NONCOMPLIANCE

1.0 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. The Contractor module, user manuals, updates, and training information can be downloaded from the RMS web site. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data
- Request for Information
- Accident Reporting
- Safety Exposure Manhours

1.1. CORRESPONDENCE AND ELECTRONIC COMMUNICATIONS

For ease and speed of communications, both Government and Contractor will exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.2. OTHER FACTORS

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01 32 01.00 10, PROJECT SCHEDULE, Section 01 33 00, SUBMITTAL PROCEDURES, and Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.3. QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.4. SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

(a) Hardware

- IBM-compatible PC with 1000 MHz Pentium or higher processor
- 256 MB RAM for workstation / 512+ MB RAM for server
- 1 GB hard drive disk space for sole use by the QCS system
- Compact disk (CD) Reader, 8x speed or higher
- SVGA or higher resolution monitor (1024 x 768, 256 colors)
- Mouse or other pointing devise
- Windows compatible printer (Laser printer must have 4+ MB of RAM)
- Connection to the Internet, minimum 56K BPS

(b) Software

- MS Windows 2000 or higher
- MS Word 2000 or newer
- Latest version of : Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher
- Electronic mail (E-mail), MAPI compatible
- Virus protection software that is regularly upgraded with all issued manufacturer's updates

1.5. RELATED INFORMATION

1.5.1. QCS USER GUIDE

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.5.2. CONTRACTOR QUALITY CONTROL (CQC) TRAINING

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.6. CONTRACT DATABASE

Prior to the pre-construction conference, the Government will provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by using the government's SFTP repository built into QCS import/export function. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.7. DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government, e.g., daily reports, submittals, RFI's, schedule updates, payment requests, etc. shall be submitted using the government's SFTP repository built into QCS export function. If permitted by the Contracting Officer, email or CD-ROM may be used instead (see Paragraph DATA SUBMISSION VIA CD-ROM). The QCS database typically shall include current data on the following items:

1.7.1. ADMINISTRATION

1.7.1.1. Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format.

1.7.1.2. Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format.

1.7.1.3. Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main)

office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

All Requests For Information (RFI) shall be exchanged using the Built-in RFI generator and tracker in QCS.

1.7.1.4. Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.7.1.5. Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.7.2. FINANCES

1.7.2.1. Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the design and construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.7.2.2. Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet prompt payment certification, and payment invoice in QCS. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment request, prompt payment certification, and payment invoice with supporting data by using the government's SFTP repository built into QCS export function. If permitted by the Contracting Officer, E-mail or a CD-ROM may be used. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.7.3. Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a QCS update reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.7.3.1. Daily Contractor Quality Control (CQC) Reports

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government within 24 hours after the date covered by the report. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.7.3.2. Deficiency Tracking

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.7.3.3. QC Requirements

The Contractor shall develop and maintain a complete list of QC testing and required structural and life safety special inspections required by the International Code Council (ICC), transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.7.3.4. Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.7.3.5. Labor and Equipment Hours

The Contractor shall log labor and equipment exposure hours on a daily basis. This data will be rolled up into a monthly exposure report.

1.7.3.6. Accident/Safety Tracking Reporting

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This supplemental entry is not to be considered as a substitute for completion of mandatory notification and reports, e.g., ENG Form 3394 and OSHA Form 300.

1.7.3.7. Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.7.3.8. Hazard Analysis

The Contractor shall use QCS to develop a hazard analysis for each feature of work included in its CQC Plan. The hazard analysis shall address any hazards, or potential hazards, that may be associated with the work

1.7.4. Submittal Management

The Government will provide the submittal register form, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. The Contractor and Designer of Record (DOR) shall develop and maintain a complete list of all submittals, including completion of all data columns and shall manage all submittals. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. QCS and RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.7.5. Schedule

The Contractor shall develop a design and construction schedule consisting of pay activities, in accordance with Section 01 32 01.00 10, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01 32 01.00 10 PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.7.5.1. Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data from RMS, and schedule data using SDEF.

1.8. IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.9. DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of QCS data is by using the government's SFTP repository built into QCS export function.. Other data should be submitted using E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of CD-ROM for data transfer. Data on CDs shall be exported using the QCS built-in export function. If used, CD-ROMs will be submitted in accordance with the following:

1.9.1. File Medium

The Contractor shall submit required data on CD-ROMs. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.9.2. Disk Or Cd-Rom Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.9.3. File Names

The files will be automatically named by the QCS software. The naming convention established by the QCS software shall not be altered in any way by the Contractor.

1.10. MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions.

The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.11. NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

End of Section 01 45 01.10

SECTION 01 45 04.00 10
CONTRACTOR QUALITY CONTROL

1.0 GENERAL

1.1. REFERENCES

1.2. PAYMENT

2.0 PRODUCTS (NOT APPLICABLE)

3.0 EXECUTION

3.1. GENERAL REQUIREMENTS

3.2. QUALITY CONTROL PLAN

3.3. COORDINATION MEETING

3.4. QUALITY CONTROL ORGANIZATION

3.5. SUBMITTALS AND DELIVERABLES

3.6. CONTROL

3.7. TESTS

3.8. COMPLETION INSPECTION

3.9. DOCUMENTATION

3.10. NOTIFICATION OF NONCOMPLIANCE

1.0 GENERAL

1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Refer to the latest edition, as of the date of the contract solicitation.

- ASTM INTERNATIONAL (ASTM)
- ASTM D 3740 Minimum Requirements for Agencies

  Engaged in the Testing and/or Inspection
  of Soil and Rock as Used in Engineering
  Design and Construction
- ASTM E 329 Agencies Engaged in the Testing

  and/or Inspection of Materials Used in
  Construction
- U.S. ARMY CORPS OF ENGINEERS (USACE)

  ER 1110-1-12 Quality Management

1.2. PAYMENT

There will be no separate payment for providing and maintaining an effective Quality Control program. Include all costs associated therewith in the applicable unit prices or lump-sum prices contained in the Contract Line Item Schedule.

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

3.1. GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product, which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The site project superintendent is responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2. QUALITY CONTROL PLAN

Furnish for Government review, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Design and construction may begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. The Government will not permit work outside of the features of work included in an accepted interim plan to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. Where the applicable Code issued by the International Code Council calls for an inspection by the Building Official, the Contractor shall include the inspections in the Quality Control Plan and shall perform the inspections. The Designer of Record shall develop a program for any special inspections required by the applicable International Codes and the Contractor shall perform these inspections, using qualified inspectors. Include the special inspection plan in the QC Plan.

3.2.1. Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers, and purchasing agents:

3.2.1.1. A description of the quality control organization. Include a chart showing lines of authority and an acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. A CQC System Manager shall report to the project superintendent or someone higher in the contractor's organization.

3.2.1.2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function. Also include those responsible for performing and documenting the inspections required by the International Codes and the special inspection program developed by the designer of record.

3.2.1.3. A copy of the letter to the CQC System Manager, signed by an authorized official of the firm, which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Furnish copies of these letters.

3.2.1.4. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

3.2.1.5. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Use only Government approved Laboratory facilities.

3.2.1.6. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

3.2.1.7. Procedures for tracking design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

3.2.1.8. Reporting procedures, including proposed reporting formats.

3.2.1.9. A list of the definable features of work. A definable feature of work is a task, which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.1.10. A list of all inspections required by the International Codes and the special inspection program required by the code and this contract.

3.2.2. Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control (DQC) plan:

3.2.2.1. The Contractor's QCP Plan shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, competent, independent reviewers identified in the DQC Plan shall review all documents. Use personnel who were not involved in the design effort to produce the design to perform the independent technical review (ITR). The ITR is intended as a quality control check of the design. Include, at least, but not necessarily limited to, a review of the contract requirements (the accepted contract or task order proposal and amended RFP), the basis of design, design calculations, the design configuration management documentation and check the design documents for

errors, omissions, and for coordination and design integration. The ITR team is not required to examine, compare or comment concerning alternate design solutions but should concentrate on ensuring that the design meets the contract requirements. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

3.2.2.2. Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit these completed checklists at each design phase as part of the project documentation.

3.2.2.3. A Design Quality Control Manager, who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated, shall implement the DQC Plan This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. Notify the Government, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

3.2.3. Acceptance of Plan

Government acceptance of the Contractor's plan is required prior to the start of design and construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4. Notification of Changes

After acceptance of the CQC Plan, notify the Government in writing of any proposed change. Proposed changes are subject to Government acceptance.

3.3. COORDINATION MEETING

After the Postaward Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, the Contractor and the Government shall meet and discuss the Contractor's quality control system. Submit the CQC Plan for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. The Government will prepare minutes of the meeting for signature by both parties. . The minutes shall become a part of the contract file. There may be occasions when either party will call for subsequent conferences to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4. QUALITY CONTROL ORGANIZATION

3.4.1. Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure contract compliance. The CQC organization shall also include personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly furnish complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2. CQC System Manager

Identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System

Manager shall be a graduate engineer, graduate architect, or a BA/BS graduate of an ACCE accredited construction management college program. The CQC system Manager may alternately be an engineering technician with at least 2 years of college and an ICC certification as a Commercial Building Inspector (Residential Building Inspector certification will be required for Military Family Housing projects). In addition, the CQC system manager shall have a minimum of 5 years construction experience on construction similar to this contract. The CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. Assign the CQC System Manager no other duties (except may also serve as Safety and Health Officer, if qualified and if allowed by Section 00 73 00). Identify an alternate for the CQC System Manager in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager but the alternate may have other duties in addition to serving in a temporary capacity as the acting QC manager.

3.4.3. CQC Personnel

3.4.3.1. In addition to CQC personnel specified elsewhere in the contract provide specialized CQC personnel to assist the CQC System Manager in accordance with paragraph titled Area Qualifications.

3.4.3.2. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; **are not intended to be full time, but must be physically present at the construction site during work on their areas of responsibility**; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan. **One person may cover more than one area, provided that they are qualified to perform QC activities for the designated areas below and provided that they have adequate time to perform their duties:**

3.4.4. Experience Matrix

3.4.4.1. Area Qualifications

3.4.4.1.1. Civil - Graduate Civil Engineer or (BA/BS) graduate in construction management with 4 years experience in the type of work being performed on this project or engineering technician with 5 yrs related experience.

3.4.4.1.2. Mechanical - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Mechanical Inspector with 5 yrs related experience.

3.4.4.1.3. Electrical - Graduate Electrical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Electrical Inspector with 5 yrs related experience.

3.4.4.1.4. Structural - Graduate Structural Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or person with an ICC certification as a Reinforced Concrete Special Inspector and Structural Steel and Bolting Special Inspector (as applicable to the type of construction involved) with 5 yrs related experience.

3.4.4.1.5. Plumbing - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience, or person with an ICC certification as a Commercial Plumbing Inspector with 5 yrs related experience.

3.4.4.1.6. Concrete, Pavements and Soils Materials Technician (present while performing tests) with 2 yrs experience for the appropriate area

3.4.4.1.7. Testing, Adjusting and Balancing Specialist must be a member (TAB) Personnel of AABC or an experienced technician of the firm certified by the NEBB (present while testing, adjusting, balancing).

3.4.4.1.8. Design Quality Control Manager Registered Architect or Professional Engineer (not required on the construction site)

3.4.4.1.9. Registered Fire Protection Engineer with 4 years related experience or engineering technician with 5 yrs related experience (but see requirements for Fire Protection Engineer of Record to witness final testing in Section 01 10 00, paragraph 5.10, Fire Protection).

3.4.4.1.10. QC personnel assigned to the installation of the telecommunication system or any of its components shall be Building Industry Consulting Services International (BICSI) Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification. In lieu of BICSI certification, QC personnel shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products. QC personnel shall witness and certify the testing of telecommunications cabling and equipment.

3.4.5. Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors". This course is periodically offered at [Not Supplied - ConstructionReqQC : COURSE_LOCATION]. Inquire of the District or Division sponsoring the course for fees and other expenses involved, if any, for attendance at this course.

3.4.6. Organizational Changes

When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5. SUBMITTALS AND DELIVERABLES

Make submittals as specified in Section 01 33 00 ***SUBMITTAL PROCEDURES***. The CQC organization shall certify that all submittals and deliverables are in compliance with the contract requirements.

3.6. CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The CQC organization shall conduct at least three phases of control for each definable feature of the construction work as follows:

3.6.1. Preparatory Phase

Perform this phase prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

3.6.1.1. A review of each paragraph of applicable specifications, reference codes, and standards. Make a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field at the preparatory inspection. Maintain these copies in the field, available for use by Government personnel until final acceptance of the work.

3.6.1.2. A review of the contract drawings.

3.6.1.3. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

3.6.1.4. Review of provisions that have been made to provide required control inspection and testing.

3.6.1.5. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

3.6.1.6. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

3.6.1.7. A review of the appropriate activity hazard analysis to assure safety requirements are met.

3.6.1.8. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

3.6.1.9. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

3.6.1.10. Discussion of the initial control phase.

3.6.1.11. Notify the Government at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2. Initial Phase

Accomplish this phase at the beginning of a definable feature of work. Include the following actions:

3.6.2.1. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

3.6.2.2. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

3.6.2.3. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

3.6.2.4. Resolve all differences.

3.6.2.5. Check safety to include compliance with and upgrading of the Accident Prevention plan and activity hazard analysis. Review the activity analysis with each worker.

3.6.2.6. Notify the Government at least 24 hours in advance of beginning the initial phase. The CQC System Manager shall prepare and attach to the daily CQC report separate minutes of this phase. Indicate exact location of initial phase for future reference and comparison with follow-up phases.

3.6.2.7. Repeat the initial phase any time acceptable specified quality standards are not being met.

3.6.3. Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Conduct final follow-up checks and correct deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.6.4. Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7. TESTS

3.7.1. Testing Procedure

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements and project design documents. Upon request, furnish to the Government

duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory, or establish an approved testing laboratory at the project site. The Contractor may elect to use a laboratory certified and accredited by the Concrete and cement Reference Laboratory (CCRL) or by AASHTO Materials Reference Laboratory (AMRL) for testing procedures that those organizations certify. The Contractor shall perform the following activities and record and provide the following data:

3.7.1.1. Verify that testing procedures comply with contract requirements and project design documents.

3.7.1.2. Verify that facilities and testing equipment are available and comply with testing standards.

3.7.1.3. Check test instrument calibration data against certified standards.

3.7.1.4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

3.7.1.5. Include results of all tests taken, both passing and failing tests, recorded on the CQC report for the date taken. Include specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2. Testing Laboratories

3.7.2.1. Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2. Capability Recheck

If the selected laboratory fails the capability check, the Government will assess the Contractor a charge of $1,375 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3. Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4. Furnishing or Transportation of Samples for Government Quality Assurance Testing

The Contractor is responsible for costs incidental to the transportation of samples or materials. Deliver samples of materials for test verification and acceptance testing by the Government to the Corps of Engineers Laboratory, f.o.b., at the following address:

- For delivery by mail:

  [Not Supplied - ConstructionReqQC : LAB_NAME]

  [Not Supplied - ConstructionReqQC : LAB_ATTN]

  [Not Supplied - ConstructionReqQC : LAB_MAIL]

  [Not Supplied - ConstructionReqQC : LAB_STATE]
- For other deliveries:

  [Not Supplied - ConstructionReqQC : LAB_NAME_OTHER]

[Not Supplied - ConstructionReqQC : LAB_ATTN_OTHER]

[Not Supplied - ConstructionReqQC : LAB_MAIL_OTHER]

[Not Supplied - ConstructionReqQC : LAB_STATE_OTHER]

The area or resident office will coordinate, exact delivery location, and dates for each specific test.

3.8. COMPLETION INSPECTION

3.8.1. Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. Prepare a punch list of items which do not conform to the approved drawings and specifications and include in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2. Pre-Final Inspection

As soon as practicable after the notification above, the Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Correct any items noted on the Pre-Final inspection in a timely manner. Accomplish these inspections and any deficiency corrections required by this paragraph within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3. Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall attend the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups and major commands may also attend. The Government will formally schedule the final acceptance inspection based upon results of the Pre-Final inspection. Provide notice to the Government at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9. DOCUMENTATION

3.9.1. Maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers using government-provided software, QCS (see Section 01 45 01.10). The report includes, as a minimum, the following information:

3.9.1.1. Contractor/subcontractor and their area of responsibility.

3.9.1.2. Operating plant/equipment with hours worked, idle, or down for repair.

3.9.1.3. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

3.9.1.4. Test and/or control activities performed with results and references to specifications/drawings requirements. Identify the applicable control phase (Preparatory, Initial, Follow-up). List deficiencies noted, along with corrective action.

3.9.1.5. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

3.9.1.6. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

3.9.1.7. Offsite surveillance activities, including actions taken.

3.9.1.8. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

3.9.1.9. Instructions given/received and conflicts in plans and/or specifications.

3.9.1.10. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identity of the ITR team, the ITR review comments, responses and the record of resolution of the comments.

3.9.2. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Furnish the original and one copy of these records in report form to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, submit one report for every 7 days of no work and on the last day of a no work period. Account for all calendar days throughout the life of the contract. The first report following a day of no work shall be for that day only. The CQC System Manager shall sign and date reports. The report shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel. The Contractor may submit these forms electronically, in lieu of hard copy.

3.10. NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may 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 shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

End of Section 01 45 04.00 10

SECTION 01 50 02
TEMPORARY CONSTRUCTION FACILITIES

1.0 OVERVIEW

1.1. GENERAL REQUIREMENTS

1.2. AVAILABILITY AND USE OF UTILITY SERVICES

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.4. PROTECTION AND MAINTENANCE OF TRAFFIC

1.5. MAINTENANCE OF CONSTRUCTION SITE

1.0 OVERVIEW

1.1. GENERAL REQUIREMENTS

1.1.1. Site Plan

Prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Also indicate if the use of a supplemental or other staging area is desired.

1.2. AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1. See Section 00 72 00, Contract Clauses and Section 00 73 00, Special Contract Requirements, for Utility Availability requirements.

1.2.2. Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

1.2.3. Telephone

Make arrangements and pay all costs for desired telephone facilities.

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1. Bulletin Board

Immediately upon beginning of onsite work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Display legible copies of the aforementioned data until work is completed. Remove the bulletin board from the site upon completion of the project.

1.3.2. Project and Safety Signs

Erect a project sign and a site safety sign with informational details as provided by the Government at the Post award conference, within 15 days prior to any work activity on project site. Update the safety sign data daily, with light colored metallic or non-metallic numerals. Remove the signs from the site upon completion of the project. Engineer Pamphlet EP 310-1-6a contains the standardized layout and construction details for the signs. It can be found through a GOOGLE Search or try http://www.usace.army.mil/publications/eng-pamphlets/ep310-1-6a/s-16.pdf.

1.4. PROTECTION AND MAINTENANCE OF TRAFFIC

Provide access and temporary relocated roads as necessary to maintain traffic. Maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Take measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property.

The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. Investigate the adequacy of existing roads and the allowable load limit on these roads. Repair any damage to roads caused by construction operations.

1.4.1. Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Construct haul roads with suitable grades and widths. Avoid sharp curves, blind corners, and dangerous cross traffic. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Provide adequate lighting to assure full and clear visibility for full width of haul road and work areas during any night work operations. Remove haul roads designated by the Contracting Officer upon completion of the work and restore those areas.

1.4.2. Barricades

Erect and maintain temporary barricades to limit public access to hazardous areas. Barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.5. MAINTENANCE OF CONSTRUCTION SITE

Mow grass and vegetation located within the boundaries of the construction site for the duration of the project, from NTP to contract completion. Edge or neatly trim grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers from NTP to contract completion.

End of Section 01 50 02

SECTION 01 57 20.00 10
ENVIRONMENTAL PROTECTION

1.0 GENERAL REQUIREMENTS

1.1. SUBCONTRACTORS

1.2. ENVIRONMENTAL PROTECTION PLAN

1.3. PROTECTION FEATURES

1.4. ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

1.5. NOTIFICATION

2.0 PRODUCTS (NOT USED)

3.0 EXECUTION

3.1. LAND RESOURCES

3.2. WATER RESOURCES

3.3. AIR RESOURCES

3.4. CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

3.5. RECYCLING AND WASTE MINIMIZATION

3.6. HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

3.7. BIOLOGICAL RESOURCES

3.8. INTEGRATED PEST MANAGEMENT

3.9. PREVIOUSLY USED EQUIPMENT

3.10. MILITARY MUNITIONS

3.11. TRAINING OF CONTRACTOR PERSONNEL

3.12. POST CONSTRUCTION CLEANUP

1.0 GENERAL REQUIREMENTS

Minimize environmental pollution and damage that may occur as the result of construction operations. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this contract. Comply with all applicable environmental Federal, State, and local laws and regulations. The Contractor shall be responsible for any delays resulting from failure to comply with environmental laws and regulations

1.1. SUBCONTRACTORS

Ensure compliance with this section by subcontractors.

1.2. ENVIRONMENTAL PROTECTION PLAN

1.2.1. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address during construction. Define issues of concern within the Environmental Protection Plan as outlined in this section. Address each topic in the plan at a level of detail commensurate with the environmental issue and required construction task(s). Identify and discuss topics or issues which are not identified in this section, but which the Contractor considers necessary, after those items formally identified in this section. Prior to commencing construction activities or delivery of materials to the site, submit the Plan for review and Government approval. The Contractor shall meet with the Government prior to implementation of the Environmental Protection Plan, for the purpose of discussing the implementation of the initial plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. Maintain and keep the Environmental Protection Plan current onsite.

1.2.2. Compliance

No requirement in this Section shall be construed as relieving the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

1.2.3. Contents

The plan shall include, but shall not be limited to, the following:

1.2.3.1. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.

1.2.3.2. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable

1.2.3.3. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel

1.2.3.4. Description of the Contractor's environmental protection personnel training program

1.2.3.5. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. Include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan.

1.2.3.6. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site

1.2.3.7. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

1.2.3.8. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.

1.2.3.9. Drawing showing the location of on-installation borrow areas.

1.2.3.10. A spill control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. The spill control plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

(a) The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Government and the local Fire Department in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.

(b) The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup

(c) Training requirements for Contractor's personnel and methods of accomplishing the training

(d) A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

(e) The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency

(f) The methods and procedures to be used for expeditious contaminant cleanup

1.2.3.11. A solid waste management plan identifying waste minimization, collection, and disposals methods, waste streams (type and quantity), and locations for solid waste diversion/disposal including clearing debris and C&D waste that is diverted (salvaged, reused, or recycled). Detail the contractor's actions to comply with, and to participate in, Federal, state, regional, local government, and installation sponsored recycling programs to reduce the volume of solid waste at the source. Identify any subcontractors responsible for the transportation, salvage and disposal of solid waste. Submit licenses or permits for solid waste disposal sites that are not a commercial operating facility. Attach evidence of the facility's ability to accept the solid waste to this plan. A construction and demolition waste management plan, similar to the plan specified in the UFGS 01 74 19 (formerly 01572) may be used as the non-hazardous solid waste management plan. Provide a Non-Hazardous Solid Waste Diversion Report. Submit the report on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted and each quarter thereafter (e.g. the first working day of January, April, July, and October) until the end of the project. Additionally, a summary report, with all data fields, is required at the end of the project. The report shall indicate the total type and amount of waste generated, total type and amount of waste diverted, type and amount of waste sent to waste-to-energy facility and alternative daily cover, in tons along with the percent that was diverted. Maintain, track and report construction and demolition waste data in a manner such that the installation can enter the data into the Army SWAR database, which separates data by type of material. A cumulative report in LEED Letter Template format may be used but must be modified to include the date disposed of/diverted and include the above stated diversion data. NOTE: The Solid Waste Diversion Reports are separate documentation than the LEED documentation.

1.2.3.12. DELETED.

1.2.3.13. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.

1.2.3.14. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the intended actions to prevent introduction of such materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of

these materials. In accordance with EM 385-1-1, include a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time in the contaminant prevention plan. Update the plan as new hazardous materials are brought on site or removed from the site. Reference this plan in the storm water pollution prevention plan, as applicable.

1.2.3.15. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines. If a settling/retention pond is required, include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented and any required permits. If surface discharge will be the method of disposal, include a copy of the permit and associated documents as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, include documentation that the waste water treatment plant Operator has approved the flow rate, volume, and type of discharge.

1.2.3.16. A historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on the project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in the area are discovered during construction. Include methods to assure the protection of known or discovered resources and shall identify lines of communication between Contractor personnel and the Government.

1.2.3.17. A pesticide treatment plan, updated, as information becomes available. Include: sequence of treatment, dates, times, locations, pesticide trade name, EPA registration numbers, authorized uses, chemical composition, formulation, original and applied concentration, application rates of active ingredient (i.e. pounds of active ingredient applied), equipment used for application and calibration of equipment. The Contractor is responsible for Federal, State, Regional and Local pest management record keeping and reporting requirements as well as any additional Installation specific requirements. Follow AR 200-1, Chapter 5, Pest Management, Section 5-4, “Program Requirements” for data required to be reported to the Installation.

1.3. PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES AND IMPROVEMENTS. Prior to start of any onsite construction activities, the Contractor and the Government shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. Both the Contractor and the Government will sign this survey, upon mutual agreement as to its accuracy and completeness. The Contractor develop a plan that depicts how it will protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

1.4. ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the Contractor, from the drawings, plans and specifications which may have an environmental impact will be subject to approval by the Government and may require an extended review, processing, and approval time. The Government reserves the right to disapprove alternate methods, even if they are more cost effective, if the Government determines that the proposed alternate method will have an adverse environmental impact.

1.5. NOTIFICATION

The Government will notify the Contractor in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice, inform the Government of the proposed corrective action and take such action when approved by the Government. The Government may issue an order stopping all or part of the

work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the Contractor for any such suspensions. This is in addition to any other actions the Government may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

2.0 PRODUCTS (NOT USED)

3.0 EXECUTION

3.1. LAND RESOURCES

Confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. Do not attach or fasten any ropes, cables, or guys to any trees for anchorage unless specifically authorized. Provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Remove all stone, soil, or other materials displaced into uncleared areas..

3.1.1. Work Area Limits

Prior to commencing construction activities, mark the areas that need not be disturbed under this contract. Mark or fence isolated areas within the general work area which are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. Personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.1.2. Landscape

Clearly identify trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved by marking, fencing, or wrapping with boards, or any other approved techniques. Restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.1.3. Erosion and Sediment Controls

Provide erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. Coordinate with approving authorities (federal, state, etc.) for specific requirements to be included in the plan. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's construction activities. Keep the area of bare soil exposed at any one time by construction operations to a minimum necessary. Construct or install temporary and permanent erosion and sediment control best management practices (BMPs). BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. Remove any temporary measures after the area has been stabilized.

3.1.4. Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Government. Make only approved temporary movement or relocation of Contractor facilities. Provide erosion and sediment controls for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Control temporary excavation and embankments for plant and/or work areas to protect adjacent areas.

3.2. WATER RESOURCES

Monitor construction activities to prevent pollution of surface and ground waters. Do not apply toxic or hazardous chemicals to soil or vegetation unless otherwise indicated. Monitor all water areas affected by construction activities. For construction activities immediately adjacent to impaired surface waters, the Contractor shall be capable of quantifying sediment or pollutant loading to that surface water when required by state or federally issued Clean Water Act permits.

3.2.1. Stream Crossings

Stream crossings shall allow movement of materials or equipment without violating water pollution control standards of the Federal, State, and local governments or impede state-designated flows.

3.2.2. Wetlands

Do not enter, disturb, destroy, or allow discharge of contaminants into any wetlands.

3.3. AIR RESOURCES

Comply with all Federal and State air emission and performance laws and standards for equipment operation, activities, or processes.

3.3.1. Particulates

Control dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants, including weekends, holidays and hours when work is not in progress. Maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators or other methods are permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. Provide sufficient, competent equipment available to accomplish these tasks. Perform particulate control as the work proceeds and whenever a particulate nuisance or hazard occurs. Comply with all State and local visibility regulations.

3.3.2. Odors

Control odors from construction activities at all times. Odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.

3.3.3. Sound Intrusions

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the state and Installation rules.

3.3.4. Burning

Burning is not allowed on the project site unless specified in other sections of the specifications or by written authorization. Specific times, locations, and manners of burning shall be subject to approval.

3.4. CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

Disposal of wastes shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

3.4.1. Solid Wastes

Place solid wastes (excluding clearing debris) in containers which are emptied on a regular schedule. Conduct handling, storage, and disposal to prevent contamination. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with solid waste. Transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. The minimum acceptable off-site solid waste disposal option is a Subtitle D RCRA permitted landfill. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. Comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.4.2. Chemicals and Chemical Wastes

Dispense chemicals, ensuring no spillage to the ground or water. Perform and document periodic inspections of dispensing areas to identify leakage and initiate corrective action. The Government may periodically review this documentation. Collect chemical waste in corrosion resistant, compatible containers. Monitor and remove collection drums to a staging or storage area when contents are within 6 inches of the top. Classify, manage, store, and dispose of wastes in accordance with Federal, State, and local laws and regulations.

3.4.3. Contractor Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable state and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. At a minimum, manage and store hazardous waste in compliance with 40 CFR 262. Take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. Segregate hazardous waste from other materials and wastes; protect it from the weather by placing it in a safe covered location and take precautionary measures, such as berming or other appropriate measures, against accidental spillage. Store, describe, package, label, mark, and placard hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, state, and local laws and regulations. Transport Contractor generated hazardous waste off Government property in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. Dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Immediately report spills of hazardous or toxic materials to the Government and the Facility Environmental Office. Contractor will be responsible for cleanup and cleanup costs due to spills. Contractor is responsible for the disposition of Contractor generated hazardous waste and excess hazardous materials.

3.4.4. Fuel and Lubricants

Conduct storage, fueling and lubrication of equipment and motor vehicles in a manner that affords the maximum protection against spill and evaporation. Manage and store fuel, lubricants and oil in accordance with all Federal, State, Regional, and local laws and regulations.

3.5. RECYCLING AND WASTE MINIMIZATION

Participate in State and local government sponsored recycling programs. The Contractor is further encouraged to minimize solid waste generation throughout the duration of the project. Line and berm fueling areas and establish storm water control structures at discharge points for site run-off. Keep a liquid containment clean-up kit available at the fueling area.

3.6. HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Existing historical, archaeological, and cultural resources within the Contractor's work area are shown on the drawings. Protect and preserve these resources during the life of the Contract. Temporarily suspend all activities that may damage or alter such resources, if any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found during excavation or other construction activities. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, notify the Government so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Cease all activities that may result in impact to or the destruction of these resources. Secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.7. BIOLOGICAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitat. Protect threatened and endangered animal and plant species including their habitat in accordance with Federal, State, Regional, and local laws and regulations.

3.8. INTEGRATED PEST MANAGEMENT

Coordinate, through the Government, with the Installation Pest Management Coordinator (IPMC) at the earliest possible time prior to pesticide application, in order to minimize impacts to existing fauna and flora. Discuss

integrated pest management strategies with the IPMC and receive concurrence from the IPMC, through the COR, prior to the application of any pesticide associated with these specifications. Give IMPC personnel the opportunity to be present at all meetings concerning treatment measures for pest or disease control and during application of the pesticide. The use and management of pesticides are regulated under 40 CFR 152 - 186.

3.8.1. Pesticide Delivery and Storage

Deliver pesticides, approved for use on the Installation, to the site in the original, unopened containers bearing legible labels indicating the EPA registration number and the manufacturer's registered uses.

3.8.2. Qualifications

Use the services of a subcontractor for pesticide application whose principal business is pest control. The subcontractor shall be licensed and certified in the state where the work is to be performed.

3.8.3. Pesticide Handling Requirements

Formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions.

3.8.4. Application

A state certified pesticide applicator shall apply pesticides in accordance with EPA label restrictions and recommendations.

3.9. PREVIOUSLY USED EQUIPMENT

Clean all previously used construction equipment prior to bringing it onto the project site. Ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the USDA jurisdictional office for additional cleaning requirements.

3.10. MILITARY MUNITIONS

Immediately stop work in that area and immediately inform the Government, in the event military munitions, as defined in 40 CFR 260, are discovered or uncovered.

3.11. TRAINING OF CONTRACTOR PERSONNEL

Train personnel in all phases of environmental protection and pollution control. Conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. Conduct additional meetings for new personnel and when site conditions change. The training and meeting agenda shall include methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.12. POST CONSTRUCTION CLEANUP

Clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing , obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade, fill and seed the entire disturbed area, unless otherwise indicated.

SECTION 01 62 35
RECYCLED/RECOVERED MATERIAL

1.0 GENERAL

1.1. REFERENCES

1.2. OBJECTIVES

1.3. EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

1.4. EPA PROPOSED ITEMS INCORPORATED IN THE WORK

1.5. EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

1.0 GENERAL

1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
- 40 CFR 247 Comprehensive Procurement Guideline for Products Containing Recovered Materials

1.2. OBJECTIVES

Government procurement policy is to acquire, in a cost effective manner, items containing the highest percentage of recycled and recovered materials practicable consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials. The Environmental Protection Agency (EPA) has designated certain items which must contain a specified percent range of recovered or recycled materials. The Contractor shall make all reasonable efforts to use recycled and recovered materials in providing the EPA designated products and in otherwise utilizing recycled and recovered materials in the execution of the work.

1.3. EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

Materials that have been designated by EPA as being products which are or can be made with recovered or recycled materials, when incorporated into the work under this contract, shall contain at least the minimum percentage of recycled or recovered materials indicated by EPA unless adequate justification (non-availability) for non-use is provided. When a designated item is specified as an option to a non-designated item, the designated item requirements apply only if the designated item is used in the work.

1.4. EPA PROPOSED ITEMS INCORPORATED IN THE WORK

Products other than those designated by EPA are still being researched and are being considered for future Comprehensive Procurement Guideline (CPG) designation. It is recommended that these items, when incorporated in the work under this contract, contain the highest practicable percentage of recycled or recovered materials, provided specified requirements are also met.

1.5. EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

There are many products listed in 40 CFR 247 which have been designated or proposed by EPA to include recycled or recovered materials that may be use by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled or recovered materials and that these products be recycled when no longer needed.

End of Section 01 62 35

SECTION 01 78 02.00 10
CLOSEOUT SUBMITTALS

1.0 OVERVIEW

1.1. SUBMITTALS

1.2. PROJECT RECORD DOCUMENTS

1.3. EQUIPMENT DATA

1.4. CONSTRUCTION WARRANTY MANAGEMENT

1.5. MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

1.6. OPERATION AND MAINTENANCE MANUALS

1.7. FIELD TRAINING

1.8. PRICING OF CONTRACTOR-FURNISHED AND INSTALLED PROPERTY AND GOVERNMENT-FURNISHED CONTRACTOR-INSTALLED PROPERTY

1.9. LEED REVIEW MEETINGS

1.10. RED ZONE MEETING

1.11. FINAL CLEANING

1.12. INTERIM FORM DD1354 "TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

EXHIBIT 1 SAMPLE RED ZONE MEETING CHECKLIST

1.0 OVERVIEW

1.1. SUBMITTALS

Government approval is required for any submittals with a "G" designation; submittals not having a "G" designation are for Designer of Record approval or for information only. Submit the following in accordance with Section 01 33 00 submittals***:***

SD-02 Shop Drawings

– As-Built Drawings - G

▪ Drawings showing final as-built conditions of the project. Provide electronic drawing files as specified in Section 01 33 16, 3 sets of blue-line prints and one set of the approved working as-built drawings.

SD-03 Product Data

– As-Built Record of Equipment and Materials

▪ Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

– Construction Warranty Management Plan

▪ Three sets of the construction warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

– Warranty Tags

▪ Two record copies of the warranty tags showing the layout and design.

– Final Cleaning

▪ Two copies of the listing of completed final clean-up items.

1.2. PROJECT RECORD DOCUMENTS

1.2.1. As-Built Drawings – G

An as-built drawing is a construction drawing revised to reflect the final as-built conditions of the project as a result of modifications and corrections to the project design required during construction. The final as-built drawings shall not have the appearance of marked up drawings, but that of professionally prepared drawings as if they were the "as designed" drawings.

1.2.2. Maintenance of As-Built Drawings

1.2.2.1. The Configuration Management Plan shall describe how the Contractor will maintain up-to-date drawings, how it will control and designate revisions to the drawings and specifications (In accordance with Special Contract Requirement: ***Deviating from the Accepted Design*** and Section 01 33 16: ***Design after Award***, the Designer of Record's approval is necessary for any revisions to the accepted design).

1.2.2.2. Make timely updates, carefully maintaining a record set of working as-built drawings at the job site, marked in red, of all changes and corrections from the construction drawings. Enter changes and corrections on drawings promptly to reflect "Current Construction". Perform this update no less frequently than weekly for the blue line drawings and update no less frequently than quarterly for the CADD/CAD and BIM files, which were prepared previously in accordance with Section 01 33 16. Include a confirmation that the as-builts are up to date with the submission of the monthly project schedule.

1.2.2.3. If the DB Contractor fails to maintain the as-built drawings as required herein, the Government will retain from the monthly progress payment, an amount representing the estimated monthly cost of maintaining the as-built drawings. Final payment with respect to separately priced facilities or the contract as a whole will be withheld until the Contractor submits acceptable as-built drawings and the Government approves them.

1.2.2.4. The marked-up set of drawings shall reflect any changes, alterations, adjustments or modifications. Changes must be reflected on all sheets affected by the change. Changes shall include marking the drawings to reflect structural details, foundation layouts, equipment sizes, and other extensions of design.

1.2.2.5. Typically, room numbers shown on the drawings are selected for design convenience and do not represent the actual numbers intended for use by the end user. Final as-built drawings shall reflect actual room numbers adopted by the end user.

1.2.2.6. If there is no separate contract line item (CLIN) for as-built drawings, the Government will withhold the amount of $35,000, or 1% of the present construction value, whichever is the greater, until the final as-built drawing submittal has been approved by the Government.

1.2.3. Underground Utilities

The drawings shall indicate, in addition to all changes and corrections, 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, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Locate Valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Record average elevation of the top of each run or underground structure..

1.2.4. Partial Occupancy

For projects where portions of construction are to be occupied or activated before overall project completion, including portions of utility systems, supply as-built drawings for those portions of the facility being occupied or activated at the time the facility is occupied or activated. Show this same as-built information previously furnished on the final set of as-built drawings.

1.2.5. As-Built Conditions That are Different From the construction Drawings

Accurately reflect all as-built conditions that are different, such as dimensions, road alignments and grades, and drainage and elevations, from the construction drawings on each drawing. If the as-built condition is accurately reflected on a shop drawing, then furnish that shop drawing in CADD format. Reference the final as-built construction drawing the shop drawing file that includes the as-built information. In turn, the shop drawing shall reference the applicable construction as-built drawing. Delete any options shown on drawings and not selected clearly reflect options selected on final as-built drawings.

1.2.6. Additional As-Built Information that Exceeds the Detail Shown on the construction Drawings:

These as-built conditions include those that reflect structural details, foundation layouts, equipment, sizes, mechanical and electrical room layouts and other extensions of design, that were not shown in the project design documents because the exact details were not known until after the time of approved shop drawings. It is recognized that these shop drawing submittals (revised showing as-built conditions) will serve as the as-built record without actual incorporation into the construction drawings, piping, and equipment drawings. Include locations of all explorations, logs of all explorations, and results of all laboratory testing, including those provided by the Government. Furnish all such shop drawings in CADD /CADformat. Include fire protection details, such as wiring, performed for the design of the project.

1.2.7. Final As-Built Drawings

Submit final as-built CADD/CAD and BIM Model(s) and Facility Data files at the time of Beneficial Occupancy of the project or at a designated phase of the project. In the event the Contractor accomplishes additional work after this submittal, which changes the as-built conditions, submit a new DVD with all drawing sheets and three blue-line copies of affected sheets which depict additional changes.

1.2.8. Title Blocks

In accordance with the configuration management plan, clearly mark title blocks to indicate final as-built drawings.

1.2.9. Other As-Built Documents

Provide scans of all other documents such as design analysis, catalog cuts, certification documents that are not available in native electronic format in an organized manner in Adobe.pdf format.

1.2.9.1. LEED Documentation

Update LEED documentation on at least a monthly basis and have it available for review by the Government on the jobsite at all times during construction. Submit the final LEED Project Checklist(s), final LEED submittals checklist and complete project documentation, verifying the final LEED score and establishing the final rating. Provide full support to the validation review process, including credit audits. See also the LEED documentation requirements in Section 01 33 16, DESIGN AFTER AWARD.

1.2.9.2. GIS Documentation

Provide final geo-referenced GIS database of the new building footprint along with any changes made to exterior of the building. The intent of capturing the final building footprint and exterior modifications in a GIS database is to provide the installation with a data set of the comprehensive changes made to the landscape as a result of the construction project. The Government will incorporate this data set into the installations existing GIS MasterPlan or Enterprise GIS system. The GIS database deliverable shall follow a standard template provided to the Contractor by the Government, adhere to detailed specifications outlined in ECB No 2006-15, and be documented using the Federal Geographic Data Committee (FGDC) metadata standard.

1.3. EQUIPMENT DATA

1.3.1. Real Property Equipment

Provide an Equipment-in-Place list of all installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. Include the cost of each piece of installed property F.O.B. construction site. For each of the items which is specified herein to be guaranteed for a specified period from the date of acceptance thereof, provide the following information: The name, serial and model number address of equipment supplier, or manufacturer originating the guaranteed item. The Contractor's guarantee to the Government of these items will not be limited by the terms of any manufacturer's guarantee to the Contractor. Furnish the list as one (1) reproducible and three (3) copies thirty (30) calendar days before completion of any segment of the contract work which has an incremental completion date.

1.3.2. Maintenance and Parts Data

Furnish a brochure, catalog cut, parts list, manufacturer's data sheet or other publication showing detailed parts data on all other equipment subject to repair and maintenance procedures not otherwise required in Operations and Maintenance Manuals specified elsewhere in this contract. Distribution of directives shall follow the same requirements as listed in paragraph above.

1.3.3. Construction Specifications

Furnish permanent electronic files of final as-built construction specifications, including modifications thereto, with the as-built drawings.

1.4. CONSTRUCTION WARRANTY MANAGEMENT

1.4.1. Prior to the end of the one year warranty, the Government may conduct an infrared roof survey on any project involving a membrane roofing system. This survey will be conducted in accordance with ASTM C1153-90, "Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging". The Contractor shall replace all damaged materials and locate and repair sources of moisture penetration.

1.4.2. Management

1.4.2.1. Warranty Management Plan

Develop a warranty management plan containing information relevant to the clause ***Warranty of Construction*** in FAR 52.246-21. Submit the warranty management plan for Government approval at least 30 days before the planned pre-warranty conference. In the event of phased turn-over of the contract, update the Warranty Management Plan as necessary to include latest information required. Include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Submit warranty information made available during the construction phase prior to each monthly pay estimate. Assemble information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. The Contractor, Government, including the Customer Representative shall jointly conduct warranty inspections, 4 months and 9 months, after acceptance. The warranty management plan shall include, but shall not be limited to, the following information:

(1) Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the contractors, subcontractors, manufacturers or suppliers involved.

(2) Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

(3) A list for each warranted equipment, item, feature of construction or system indicating:

(i) Name of item.

(ii) Model and serial numbers.

(iii) Location where installed.

(iv) Name and phone numbers of manufacturers or suppliers.

(v) Names, addresses and telephone numbers of sources of spare parts.

(vi) Warranties and terms of warranty. Include one-year overall warranty of construction. Indicate those items, which have extended warranties with separate warranty expiration dates.

(vii) Cross-reference to warranty certificates as applicable.

(viii) Starting point and duration of warranty period.

(ix) Summary of maintenance procedures required to continue the warranty in force.

(x) Cross-reference to specific pertinent Operation and Maintenance manuals.

(xi) Organization, names and phone numbers of persons to call for warranty service.

(xii) Typical response time and repair time expected for various warranted equipment.

(4) The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

(5) Procedure and status of tagging of all equipment covered by extended warranties.

(6) Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.4.3. Performance Bond

1.4.3.1. The Contractor's Performance Bond will remain effective throughout the construction warranty period.

1.4.3.2. In the event the Contractor or his designated representative(s) fails to commence and diligently pursue any work required under this clause, and in a manner pursuant to the requirements thereof, the Government shall have

a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Government shall have the work performed by others, and after completion of the work, may make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

1.4.3.3. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Government will have the right to recoup expenses from the bonding company.

1.4.3.4. Following oral or written notification of required warranty repair work, the Contractor will respond as dictated by para. 1.4.5. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Government to proceed against the Contractor as outlined in the paragraph 1.4.5.5 and/or above.

1.4.4. Pre-Warranty Conference

Prior to contract completion, or completion of any phase or portion of contract to be turned over, and at a time designated by the Contracting Officer, the Contractor shall meet with the Government to develop a mutual understanding with respect to the requirements of this clause. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Government for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warrantied construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of his responsibilities in connection with other portions of this provision.

1.4.5. Contractor's Response to Warranty Service Requirements.

Following Government oral or written notification, which may include authorized installation maintenance personnel, the Contractor shall respond to warranty service requirements in accordance with the "Warranty Service Priority List" and the three categories of priorities listed below. Submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframe specified, the Government will perform the work and backcharge the construction warranty payment item established.

1.4.5.1. First Priority Code 1 Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

1.4.5.2. Second Priority Code 2 Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

1.4.5.3. Third Priority Code 3 All other work to be initiated within 3 work days and work continuously to completion or relief.

1.4.5.4. The "Warranty Service Priority List" is as follows:

- Code 1 - Air Conditioning System

(a) Buildings with computer equipment.

(b) Barracks, mess halls (entire building down).

- Code 2 - Air Conditioning Systems

(a) Recreational support.

(b) Air conditioning leak in part of building, if causing damage.

(c) Air conditioning system not cooling properly

(d) Admin buildings with Automated Data Processing (ADP) equipment not on priority list.

- Code 1 - Doors

(a) Overhead doors not operational.

- Code 1 - Electrical

(a) Power failure (entire area or any building operational after 1600 hours).

(b) Traffic control devices.

(c) Security lights.

(d) Smoke detectors and fire alarm systems

(e) Power or lighting failure to an area, facility, portion of a facility, which may adversely impact health, safety, security, or the installation's mission requirement, or which may result in damage to property.

- Code 2 - Electrical

(a) Power failure (no power) for unoccupied buildings or portions thereof or branch circuits within occupied buildings, not listed as Code 1.

(a) Receptacle and lights, not listed as code 1.

- Code 3 - Electrical

(a) Street, parking area lights

- Code 1 - Gas

(a) Leaks and breaks.

(b) No gas to cantonment area.

- Code 1 - Heat

(a) Area power failure affecting heat.

(b) Heater in unit not working.

- Code 2 Heat

(a) All heating system failures not listed as Code 1.

- Code 3 - Interior

(a) Floor damage

(b) Paint chipping or peeling

- Code 1 - Intrusion Detection Systems - N/A.
- Code 2 - Intrusion Detection Systems other than those listed under Code 1
- Code 1 - Kitchen Equipment

(a) Dishwasher.

(b) All other equipment hampering preparation of a meal.

- Code 2 - Kitchen Equipment

(a) All other equipment not listed under Code 1.

- Code 2 - Plumbing

(a) Flush valves not operating properly

(b) Fixture drain, supply line commode, or water pipe leaking.

(c) Commode leaking at base.

- Code 3 - Plumbing

(a) Leaking faucets

- Code 1 - Refrigeration

(a) Mess Hall.

(b) Medical storage.

- Code 2 - Refrigeration

(a) Mess hall - other than walk-in refrigerators and freezers.

- Code 1 - Roof Leaks

(a) Temporary repairs will be made where major damage to property is occurring.

- Code 2 - Roof Leaks

(a) Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

- Code 1 - Sprinkler System

(a) All sprinkler systems, valves, manholes, deluge systems, and air systems to sprinklers.

- Code 1 - Tank Wash Racks (Bird Baths)

(a) All systems which prevent tank wash.

- Code 1 - Water (Exterior)

(a) Normal operation of water pump station.

- Code 2 - Water (Exterior)

(a) No water to facility.

- Code 1 - Water, Hot (and Steam)

(a) Barracks (entire building).

- Code 2 - Water, Hot

(a) No hot water in portion of building listed under Code 1

1.4.5.5. Should parts be required to complete the work and the parts are not immediately available, the Contractor shall have a maximum of 12 hours after arrival at the job site to provide the Government, with firm written proposals for emergency alternatives and temporary repairs for Government participation with the Contractor to provide emergency relief until the required parts are available on site for the Contractor to perform permanent warranty repair. The Contractors proposals shall include a firm date and time that the required parts shall be available on site to complete the permanent warranty repair. The Government will evaluate the proposed alternatives and negotiate the alternative considered to be in the best interest of the Government to reduce the impact of the emergency condition. Alternatives considered by the Government will include the alternative for the Contractor to "Do Nothing" while waiting until the required parts are available to perform permanent warranty repair. Negotiating a proposal which will require Government participation and the expenditure of Government funds shall constitute a separate procurement action by the using service.

1.4.6. Equipment Warranty Identification Tags

1.4.6.1. Provide warranty identification tags at the time of installation and prior to substantial completion shall provide warranty identification tags on all Contractor and Government furnished equipment which the Contractor has installed.

(a) The tags shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure-sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Tag each component of contractor furnished equipment that has differing warranties on its components.

(b) Submit sample tags, representing how the other tags will look, for Government review and approval.

(c) Tags for Warrantied Equipment: The tag for this equipment shall be similar to the following: Exact format and size will be as approved.

EQUIPMENT WARRANTY - CONTRACTOR FURNISHED EQUIPMENT

MFG NAME MODEL NO.

SERIAL NO.

CONTRACT NO.

CONTRACTOR NAME

CONTRACTOR WARRANTY EXPIRES

MFG WARRANTY(IES) EXPIRE

EQUIPMENT WARRANTY - GOVERNMENT FURNISHED EQUIPMENT

MFG NAME MODEL NO.

SERIAL NO.

CONTRACT NO.

DATE EQUIP PLACED IN SERVICE

MFG WARRANTY(IES) EXPIRE

(d) If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag

1.4.6.2. Execution: Complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment.

1.5. MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

Submit; all reports, statements, certificates, and completed checklists for testing, adjusting, balancing, and commissioning of mechanical systems prior to final inspection and transfer of the completed facility for approval, as specified in applicable technical specification sections.

1.6. OPERATION AND MAINTENANCE MANUALS

1.6.1. General Requirements

1.6.1.1. Inasmuch as the operations and maintenance manuals are required to operate and maintain the facility, the operations and maintenance (O&M) manuals will be considered a requirement prior to substantial completion of any facility to be turned over to the Government. Beneficial occupancy of all or portions of a facility prior to substantial completion will not relieve the Contractor of liquidated damages, if substantial completion exceeds the required completion date.

1.6.1.2. Provide one permanent electronic copy on CD-ROM and 2 hard copies of the Equipment Operating, Maintenance, and Repair Manuals. Provide separate manuals for each utility system as defined hereinafter. Submit Operations and Maintenance manuals for approval before field training or 90 days before substantial completion (whichever occurs earlier). If there is no separate CLIN for O&M Manuals, the Government will withhold an amount representing $20,000, as non-progressed work, until submittal and approval of all O&M manuals are complete.

1.6.2. Definitions

1.6.2.1. Equipment

A single piece of equipment operating alone or in conjunction with other equipment to accomplish a system function.

1.6.2.2. System

A combination of one or more pieces of equipment which function together to accomplish an intended purpose (i.e. HVAC system is composed of many individual pieces of equipment such as fans, motors, compressors, valves, sensors, relays, etc.)

1.6.3. Hard Cover Binders

The manuals shall be hard cover with posts, or 3-ring binders, so sheets may be easily substituted. Print the following identification on the cover: the words "EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS," the project name, building number, and an indication of utility or systems covered, the name of the Contractor, and the Contract number. Manuals shall be approximately 8-1/2 by 11-inches with large sheets folded in and capable of being easily pulled out for reference. All manuals for the project must be similar in appearance, and be of professional quality.

1.6.4. Warning Page

Provide a warning page to warn of potential dangers (if they exist, such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, high pressures, etc.). Place the warning page inside the front cover and in front of the title page. Include any necessary Material Safety Data Sheets (MDSD) here.

1.6.5. Title Page

The title page shall include the same information shown on the cover and show the name of the preparing firm and the date of publication.

1.6.6. Table of Contents

Each volume of the set of manuals for this project shall include a table of contents, for the entire set, broken down by volume.

1.6.7. GENERAL

Organize manuals according to the following format, and include information for each item of equipment Submit a draft outline and table of contents for approval at 50% contract completion.

TABLE OF CONTENTS

PART I: Introduction

- Equipment Description
- Functional Description
- Installation Description

PART II: Operating Principles

PART III: Safety

PART IV: Preventive Maintenance

- Preventive Maintenance Checklist, Lubrication
- Charts and Diagrams

PART V: Spare Parts Lists

- Troubleshooting Guide
- Adjustments
- Common Repairs and Parts Replacement

PART VI: Illustrations

1.6.7.1. Part I-Introduction

Part I shall provide an introduction, equipment or system description, functional description and theory of operation, and installation instructions for each piece of equipment. Include complete instructions for uncrating, assembly, connection to the power source and pre-operating lubrication in the installation instructions as applicable. Illustrations, including wiring and cabling diagrams, are required as appropriate in this section. Include halftone pictures of the equipment in the introduction and equipment description, as well as system layout drawings with each item of equipment located and marked. Do not use copies of previously submitted shop drawings in these manuals.

1.6.7.2. Part II-Operating Principles

Part II shall provide complete instructions for operating the system, and each piece of equipment. Illustrations, halftone pictures, tables, charts, procedures, and diagrams are required when applicable. This will include step-by-step procedures for start-up and shutdown of both the system and each component piece of equipments, as well as adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions. Show performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates here, also. Marked-up catalogs or catalog pages do not satisfy this requirement. Present performance information as concisely as possible with only data pertaining to equipment actually installed. Include actual test data collected for Contractor performance here.

1.6.7.3. Part III-Safety

Part III shall contain the general and specific safety requirements peculiar to each item of equipment. Repeat safety information as notes cautions and warnings in other sections where appropriate to operations described.

1.6.7.4. Part IV-Preventive Maintenance

Part IV shall contain a troubleshooting guide, including detailed instructions for all common adjustments and alignment procedures, including a detailed maintenance schedule. Also include a diagnostic chart showing symptoms and solutions to problems. Include test hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings. Include instructions for the removal, disassembly, repair, reassembly, and replacement of parts and assemblies where applicable and the task is not obvious.

1.6.7.5. Part V-Spare Parts List

Part V shall contain a tabulation of description data and parts location illustrations for all mechanical and electrical parts. The heading of the parts list shall clearly identify the supplier, purchase order number, and equipment. Include the unit price for each part. List parts by major assemblies, and arrange the listing in columnar form. Include names and addresses of the nearest manufacturer's representatives, as well as any special warranty information. Provide a list of spare parts that are recommended to be kept in stock by the Government installation.

1.6.7.6. Part VI-Illustrations

Part VI shall contain assembly drawings for the complete equipment or system and for all major components. Include complete wiring diagrams and schematics. Other illustrations, such as exploded views, block diagrams, and cutaway drawings, are required as appropriate.

1.6.8. Framed Instructions

Post framed instructions are required for substantial completion. Post framed instructions under glass or in laminated plastic, including wiring and control diagrams showing the complete layout of the entire system, including equipment, ductwork, piping valves, dampers, and control sequence at a location near the equipment described. Prepare condensed operating instructions explaining preventive maintenance procedures methods of checking the system for normal safe operation, valve schedule and procedures for safely starting and stopping the system in type form, framed as specified above for the wiring and control diagrams and posted beside the diagrams. Submit proposed diagrams, instructions, and other sheets prior to posting. Post the framed instructions before field training.

1.6.9. (Reserved. See 1.7 for Field Training)

1.6.10. System/Equipment Requirements

1.6.10.1. Facility Heating System

Provide information on the following equipment: boilers, water treatment, chemical feed pumps and tanks, converters, heat exchangers, pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

1.6.10.2. Air-Conditioning Systems

Provide information in chillers, packaged air-conditioning equipment, towers, water treatment, chemical feed pumps and tanks, air-cooled condensers, pumps, compressors, air handling units, and valves (associated with air-conditioning systems).

1.6.10.3. Temperature Control and HVAC Distribution Systems

Provide all information described for the following equipment: valves, fans, air handling units, pumps, boilers, converters and heat exchangers, chillers, water cooled condensers, cooling towers, and fin-tube radiation, control air compressors, control components (sensors, controllers, adapters and actuators), and flow measuring equipment.

1.6.10.4. Central Heating Plants

Provide the information described for the following equipment: boilers, converters, heat exchangers, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment, de-aerators, tanks (flash, expansion, return waters, etc.), water softeners, and valves.

1.6.10.5. Heating Distribution Systems

Provide the information described for the following equipment: valves, fans, pumps, converters and heat exchangers, steam traps, tanks (expansion, flash, etc.), and piping systems.

1.6.10.6. Exterior Electrical Systems

Provide information on the following equipment: power transformers, relays, reclosers, breakers, and capacitor bank controls.

1.6.10.7. Interior Electrical Systems

Provide information on the following equipment: relays, motor control centers, switchgear, solid state circuit breakers, motor controller, EPS lighting systems, wiring diagrams and troubleshooting flow chart on control systems, and special grounding systems.

1.6.10.8. Energy Monitoring and Control Systems

The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

1.6.10.9. Domestic Water Systems

Provide the identified information on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

1.6.10.10. Wastewater Treatment Systems

Provide the identified information on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentations, laboratory test equipment chemical feeders, valves, scrapers, skimmers, comminutors, blowers, switching gear, and automatic controls.

1.6.10.11. Fire Protection Systems

Provide information on the following equipment: alarm valves, manual valves, regulators, foam and gas storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

1.6.10.12. Fire Alarm and Detection Systems

(1) The maintenance manual shall include description of maintenance for all equipment, including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

(2) Provide all software; database with complete identification of programmable portions of system equipment and devices, and all other system programming data on all modes of the system; connecting cables; and proprietary equipment necessary for the operation, maintenance, testing, repair and programming, etc. of the system and that may be required for implementation of future changes to the fire system (additional and/or relocated initiating devices, notification devices, etc.

(3) Provide all system and equipment technical data and computer software with the requisite rights to Government use, in accordance with the applicable contract clauses.

(4) Training shall include software and programming required for the effective operation, maintenance, testing, diagnostics and expansion of the system.

1.6.10.13. Plumbing Systems

Provide information on the following equipment: water heaters, valves, pressure regulators backflow preventors, piping materials, and plumbing fixtures.

1.6.10.14. Liquid Fuels Systems

Provide information on the following equipment: tanks, automatic valves manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidic controls.

1.6.10.15. Cathodic Protection Systems

Provide information on the following material and equipment: rectifiers, meters, anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

1.6.10.16. Generator Installations

Provide information on the following equipment: generator sets, automatic transfer panels, governors, exciters, regulators starting systems, switchgear, and protective devices.

1.6.10.17. Miscellaneous Systems

Provide information on the following: communication and ADP systems, security and intrusion alarm, elevators, material handling, active solar, photovoltaic, nurse call, paging, intercom, closed circuit TV, irrigation, sound and material delivery systems, kitchen, refrigeration, disposal, ice making equipment, and other similar type special systems not otherwise specified.

1.6.10.18. Laboratory, Environmental and Pollution Control Systems

Provide information on the following equipment: wet scrubbers, quench chambers, scrub tanks, liquid oil separators, and fume hoods.

1.7. FIELD TRAINING

Field Training is a requirement for substantial completion. Conduct a training course for the operating staff for each particular system. Conduct the training is to be conducted during hours of normal working time after the system is functionally complete. The field instructions shall cover all of the items contained in the Equipment Operating, Maintenance and Repair Manuals. The training will include both classroom and "hands-on" training. Submit a lesson plan outlining the information to be discussed during training periods. Submit this lesson plan for approval 90 days before contract completion before the field training occurs. Record training on DVD and furnish to the Government within ten (10) days following training. Document all training and furnish a list of all attendees.

1.8. PRICING OF CONTRACTOR-FURNISHED AND INSTALLED PROPERTY AND GOVERNMENT-FURNISHED CONTRACTOR-INSTALLED PROPERTY

Promptly furnish and require any sub-contractor or supplier to furnish, in like manner, unit prices and descriptive data required by the Government for Property Record purposes of fixtures and equipment furnished and/or installed by the Contractor or sub-contractor, except prices do not need to be provided for Government-Furnished Property.

1.9. LEED REVIEW MEETINGS

1.9.1. Pre-Closeout Meeting. Approximately 30 days before submittal of LEED closeout documentation, the Contractor and the Government's project delivery team (including Installation representative) will meet to review the documentation, determine which, if any, credits will be audited and identify any corrections/missing items prior to the closeout LEED documentation submittal.

1.9.2. Approximately 14 days after submittal of LEED closeout documentation, the Contractor and the Government's project delivery team (including Installation representative) will meet to review the LEED closeout

documentation. The review conference will include discussion of and resolution of all review comments to ensure consensus on achievement of credits and satisfactory documentation. At the review conference a final score will be determined and endorsed in writing by all parties.

1.10. RED ZONE MEETING

At approximately 80% of contract completion or 60 days before the anticipated Beneficial Occupancy Date (BOD), whichever occurs first, the Contractor and the Government's project delivery team will conduct what is known as the Red Zone Meeting to discuss the close-out process, to schedule the events and review responsibilities for actions necessary to produce a timely physical, as well as fiscal, project close-out. The Red Zone meeting derives its name from the football term used to describe the team effort to move the ball the last 20 yards into the end zone. The close-out of a construction project sometimes can be equally as hard and most definitely requires the whole team's efforts. The ACO will chair the meeting. If not already provided, shortly before the meeting, the Contractor shall provide an electronic copy or access to the CADD as-built drawings, completed commensurate with the amount of work completed at the time of the Red Zone Meeting, as an indicator of the Contractors' understanding of and ability to meet the USACE CADD Standards and to ensure that the Contractor is making progress with CADD As-Built requirements. EXHIBIT 1 is a generic meeting checklist.

1.11. FINAL CLEANING

Clean the premises in accordance with FAR clause 52.236-12 and additional requirements stated here. Remove stains, foreign substances, and temporary labels from surfaces. Vacuum carpet and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean or replace filters of operating equipment if cleaning isn't possible or practicable. Remove debris from roofs, drainage systems, gutters, and downspouts. Sweep paved areas and rake clean landscaped areas. Remove waste, surplus materials, and rubbish from the site. Remove all temporary structures, barricades, project signs, fences and construction facilities. Submit a list of completed clean-up items on the day of final inspection.

1.12. INTERIM FORM DD1354 "TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete, update draft provided with the final design package(s) (see Section 01 33 16, paragraph 3.7.5) and submit an accounting of all installed property on Interim Form DD1354 "Transfer and Acceptance of Military Real Property." Include any additional assets/improvements/alterations and cost updates from the Draft DD Form 1354. Contact the COR for any project specific information necessary to complete the DD Form 1354. This form will be a topic for the Red Zone Meeting discussed above. For information purposes, a blank DD Form 1354 (fill-able) in ADOBE (PDF) may be obtained at the following web site: http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd1354.pdf Submit the completed Checklist for Form DD1354 of Government-Furnished and Contractor-Furnished/Contractor Installed items. Attach this list to the updated DD Form 1354. Instructions for completing the form and a blank checklist (fill-able) in ADOBE (PDF) may be obtained at the following web site:
http://www.wbdg.org/ccb/DOD/UFC/ufc_1_300_08.pdf

EXHIBIT 1

SAMPLE

Red Zone Meeting Checklist

Date:_____

Contract No.	
Description / Location	
Contractor	
Contracting Officer	

Action	Completion Milestone	√
Inspections		
Fire		
Safety		
Pre-final		
Mechanical Test & Balance		
Commissioning		
Landscaping Complete		
Erosion Control		
Beneficial Occupancy Date (BOD)		
Furniture Installation		
Comm Installation		
As-Built Drawings		
Provide all O&M manuals, tools, shop drawings, spare parts, etc. to customer		
Training of O&M Personnel		
Provide Warranty documents to Customer		
Contract completion		

Ribbon cutting		
Payroll Clearances		
DD Form 2626 - Construction Contractor Performance Evaluation		
DD Form 2631 – A-E Performance Rated after Construction		
Status of Pending Mods and REA's/Claims		
Final Payment Completed		
Release of Claims		
Return of Unobligated Funds		
Move Project from CIP to General Ledger		
Financial completion		

End of Section 01 78 02.00 10

SUBSURFACE EXPLORATION REPORT
(PRELIMINARY)

SOF Tactical Equipment Maintenance Facility Expansion
PN 69759, FY-11
Hunter Army Airfield, Georgia

By
Soils Section
Geotechnical & HTRW Branch
U.S. Army Engineer District, Savannah

September 2010

TABLE OF CONTENTS

SUBJECT	PAGE
1. PURPOSE	1
2. QUALIFICATION OF REPORT	1
3. PROJECT DESCRIPTION	1
4. EXPLORATION PROCEDURES	1
a. Site Reconnaissance	1
b. Field Exploration	2
5. SITE AND SUBSURFACE CONDITIONS	2
a. Site Description	2
b. Regional and Site Geology	3
c. Subsurface Conditions	3
d. Groundwater Conditions	4
6. DRAWINGS	4
7. SPECIFICATIONS	4
8. FINAL GEOTECHNICAL EVALUATION REPORT	5

ATTACHMENTS

ATTACHMENT A

Exploration Location Plan

ATTACHMENT B

Legends and Logs of Explorations

SUBSURFACE EXPLORATION REPORT
(PRELIMINARY)

SOF Tactical Equipment Maintenance Facility Expansion
PN 69759, FY-11
Hunter Army Airfield, Georgia

1. PURPOSE. The Government has conducted a preliminary geotechnical investigation for the proposed project. This subsurface characterization report provides a general overview of the site conditions, including subsurface soil and groundwater conditions, with detailed descriptions at individual exploration locations.

2. QUALIFICATION OF REPORT. The preliminary field explorations performed for this report were made to determine the subsurface soil and groundwater conditions and were not intended to serve as an assessment of site environmental conditions. No effort was made to define, delineate, or designate any areas of environmental concern or of contamination. The contractor's team shall include a licensed geotechnical engineer to interpret the report and develop foundation and earthwork recommendations and design parameters. If any additional subsurface investigations or laboratory analyses are required to better characterize the site or to develop the final design, they shall be performed under the direction of a licensed geotechnical engineer and shall be the full responsibility of the contractor. A final geotechnical evaluation report shall be prepared by the licensed geotechnical engineer and submitted along with the first foundation design submittal.

3. PROJECT DESCRIPTION. The proposed project consists of the design, site preparation, and construction of an expansion of the Special Operations Forces Tactical Equipment Maintenance Facility (SOF TEMF) which was constructed in 2006. The existing TEMF provides permanent tactical equipment maintenance and storage facilities for the 1st Battalion, 75th Ranger Regiment. The expansion will include a 2,150 square foot building addition to the east side of the existing vehicle maintenance shop for the purpose of servicing Stryker vehicles, an arms vault, and organizational vehicle parking. Organizational parking will consist of approximately three acres of concrete hardstand. Supporting facilities include utilities, lighting, curb and gutter, sidewalks, storm drainage, and landscaping.

4. EXPLORATION PROCEDURES.

a. Site Reconnaissance. Prior to the field exploration, the proposed project site and surrounding areas were visually inspected by a geotechnical engineer. The observations were used in planning the exploration, in determining areas of special interest, and in relating site conditions to known geologic conditions in the area.

b. Field Exploration.

(1) Subsurface conditions at the site were explored by six soil test borings, designated B-101 through B-104, B-106, and B-107. B-105 was not drilled. The approximate exploration locations are shown on the plan included in Attachment A. The soil test borings were performed to depths ranging from 5 to 30 feet below ground surface.

(2) The exploration locations were established in the field by an engineer using a hand-held Global Positioning System (GPS) device having an accuracy of plus or minus 10 feet. The ground surface elevations at the boring locations were determined by interpolation from the site topography survey. The locations shown on the exploration location plan and the elevation on the logs should be considered approximate.

(3) Soil explorations were performed by Savannah District. Soil test borings were drilled using a truck-mounted Failing 1500 drill rig; a 2 ¼-inch I.D. hollow stem auger was used to advance the borehole. Split-barrel sampling with Standard Penetration Testing (SPT) was performed at intervals shown on the boring log. All soil sampling and Standard Penetration Testing were in substantial accordance with ASTM D 1586. In the Standard Penetration Test, a soil sample is obtained with a standard 1 3/8-inch I.D. by 2 inch O.D. split-barrel sampler. The sampler is first seated 6 inches and then driven an additional 12 inches with blows from a 140-pound hammer falling a distance of 30 inches. The number of blows required to drive the sampler the final 12 inches is recorded and is termed the "standard penetration resistance," or the "N-value." Penetration resistance, when properly evaluated, is an index of the soil's strength, density, and foundation support capability. The water level was measured in the borehole during drilling and/or after 24 hours and recorded on the boring logs.

(4) Additional exploration data from the design/construction of the original TEMF (SOF Equipment Maintenance Complex PN 53498 FY-06) has been included in this report. Exploration data includes four soil test borings (B-7, B-13, B-18, and B-19), two test pits (TP-4 and TP-5), and one cone penetrometer test (CPT-6) ranging in depth from 6.5 to 25 feet. Explorations were performed by Savannah District. Locations of the explorations are shown on the plan included in Attachment A.

(5) All soil test boring, test pit, and CPT logs graphically depicting soil descriptions and observed ground-water levels are included in Attachment B.

5. SITE AND SUBSURFACE CONDITIONS.

a. Site Description. The site of the proposed TEMF expansion is located in the cantonment area of Hunter Army Airfield (HAAF). The site is surrounded by Stephen Douglas Street, Westley Avenue, Cook Boulevard, and Macarthur Circle. The site currently contains the TEMF and organization/POV parking, both grassed and paved. Several fences divide the site into areas accessed by different gates. The site is generally flat and varies in elevation from 18 to 20 feet mean sea level (msl).

b. Regional and Site Geology. The project is located in the Coastal Plain physiographic province immediately south of the Fall Line, the demarcation separating the Coastal Plain from the Piedmont province. The Coastal Plain consists mainly of marine sediments including sands, clays, silts, and various mixtures of each. The soils were deposited during successive periods of fluctuating sea level and moving shoreline. The soils tend to have random distribution and properties. Upland sediments may be interlaid with shoreline deposits in areas where the Piedmont Physiographic Province is relatively close. Topography in this region of the Coastal Plain is generally flat to gently rolling.

c. Subsurface Conditions.

(1) Exploration data performed for this project: Asphalt, concrete hardstand, gravel, or topsoil was encountered in the top several inches of most of the borings. Below the surface layer, the soil profile of the site is very homogeneous consisting of fine to medium-grained silty sand or poorly graded sand. Based on the Unified Soil Classification System, these soils were visually classified as SM and SP, respectively. Boring B-103 encountered wood fragments and root debris within the first two feet. Two borings (B-106 and B-107) were drilled within and adjacent to the proposed building addition footprint. Boring B-106 was drilled within the proposed footprint and had to be terminated at a depth of 5 feet due to encountering an unidentified concrete object. Standard penetration resistances, or N-values, of the soils of borings drilled in the vicinity of the proposed building addition ranged from 16 to 100+ with an average of 36. These values indicate a medium to very dense condition. N-values of the soils located within the parking areas range from 7 to 65 indicating a loose to very dense condition.

(2) Exploration data performed for the original construction of the TEMF: Soils documented from explorations performed for the original TEMF reflect the conditions described in the above paragraph. Silty sand and poorly graded sand were encountered in all explorations. A small amount of fat clay and lean silt, a Unified Soil Classification of CH and ML respectively, was encountered in test pit TP-4 within the top three feet. One boring and one test pit excavation noted wood fragments, tree roots, terra cotta clay pipe, concrete debris, and abandoned cable lines. TP-4 was noted as containing approximately three feet of fill material at the ground surface. N-values of the SPT borings ranged from 4 to 45 indicating a loose to dense condition. Note that these N-values reflect conditions prior to the original construction of the TEMF in 2006, i.e. prior to any required foundation preparations and prior to these soils experiencing loading by the existing TEMF and hardstand.

(3) The Foundation Design Report for the existing TEMF called for excavation “under and five feet beyond the proposed footprints of each building to the depths indicated…. Excavate two feet below the footprint of the paved areas.” It is recommended that additional explorations be performed to determine if similar requirements need to be applied for the expansion project in order to remove potential buried debris that could affect the building foundation or hardstand.

(4) The above subsurface descriptions are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The stratifications shown on the

logs represent the conditions only at the actual sounding locations. Variations may occur and should be expected between sounding locations. The stratification lines shown on the logs represent the approximate boundaries between the subsurface materials; the actual transitions are typically more gradual.

d. Groundwater Conditions.

(1) Of the explorations performed for the expansion project, water levels were measured in the boreholes during drilling, and again 24 hours after termination of drilling for two of the borings. Groundwater was encountered in all boreholes drilled to depths of 10 feet or greater. Groundwater levels ranged from 7 to 9.5 feet below ground surface during drilling. 24-hour readings were measured in boreholes B-102 and B-103. 24-hour readings were measured to be 9.5 and 7.5 feet below ground surface, respectively. The 24-hour water level is generally considered the true groundwater level. Groundwater was not encountered in borehole B-106.

(2) Of the explorations performed for the existing TEMF project, groundwater was encountered in one boring (B-7) and one test pit (TP-4), both at depths of 7 feet, as measured during drilling/excavation. A 24-hour reading was taken and B-7 and was measured at 20 feet below ground surface. Groundwater was not encountered in any of the other borings or test pits.

(3) A “perched water” condition occurs when water seeping downward is blocked by an impermeable soil layer, such as clayey sand or clay, and saturates the more permeable soil above it. The true groundwater level can be several to many feet below the perched water level. Although the majority of the soils encountered at the project site are more permeable poorly graded to silty sands, a perched water condition could potentially be encountered during construction.

(3) Groundwater levels will fluctuate with seasonal and climatic variations, variations in subsurface soil conditions, and construction operations. Therefore, groundwater conditions in the future and at other locations on the site, may differ from the conditions encountered at the exploration locations on the dates the borings were performed for this investigation.

6. DRAWINGS.

The explorations shown in Attachment A and the soil test boring, test pit, and CPT logs in Attachment B shall be shown on the final design and on the project as-built drawings completed by the design-build contractor. In addition, the selected design-build contractor shall show all boring logs, test pits logs, CPT soundings, laboratory soils test data, etc. used for design on the final design drawings and on the as-built drawings.

7. SPECIFICATIONS.

It is recommended that the design-build contractor use the Savannah District’s EARTHWORK specification, 31 00 00, when editing the specifications for this project. The specification (SpecsIntact format) can be obtained from the website http://en.sas.usace.army.mil/enweb/httproot/ae/index.htm or by request to the project manager.

A specification addressing termite treatment shall also be included, e.g. 31 31 16 Soil Treatment for Subterranean Termite Control.

8. FINAL GEOTECHNICAL EVALUATION REPORT.

A final geotechnical evaluation report shall be prepared by the contractor's licensed geotechnical engineer and submitted along with the first foundation design submittal. This report shall summarize the subsurface conditions and provide recommendations for the design of appropriate foundations, floor slabs, retaining walls, embankments, and pavements. The report shall recommend the type foundation system to be used, lateral load resistance capacities for foundation systems, allowable bearing elevations for footings, grade beams, slabs, etc. An assessment of post-construction settlement potential, including total and differential, shall be provided. The final report shall also address how the TEMF addition's foundation will tie into the foundation of the existing TEMF. Any effects to the existing foundation produced by the addition shall be evaluated. Recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls shall be provided. The report shall include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required. Calculations shall be included to support the recommendations for bearing capacity, settlement, and pavement sections. Supporting documentation shall be included for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade modulus, California Bearing Ratio (CBR), etc. In addition, the report shall provide earthwork recommendations; expected frost penetration; expected groundwater levels; recommendations for dewatering and groundwater control; and possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, undocumented fill, old structures, soft areas, or unusual soil conditions. The design-build construction contractor should assume that they will be responsible for final connections to all site utilities (including connections from new utilities to existing utilities) unless specified otherwise in the RFP specifications.

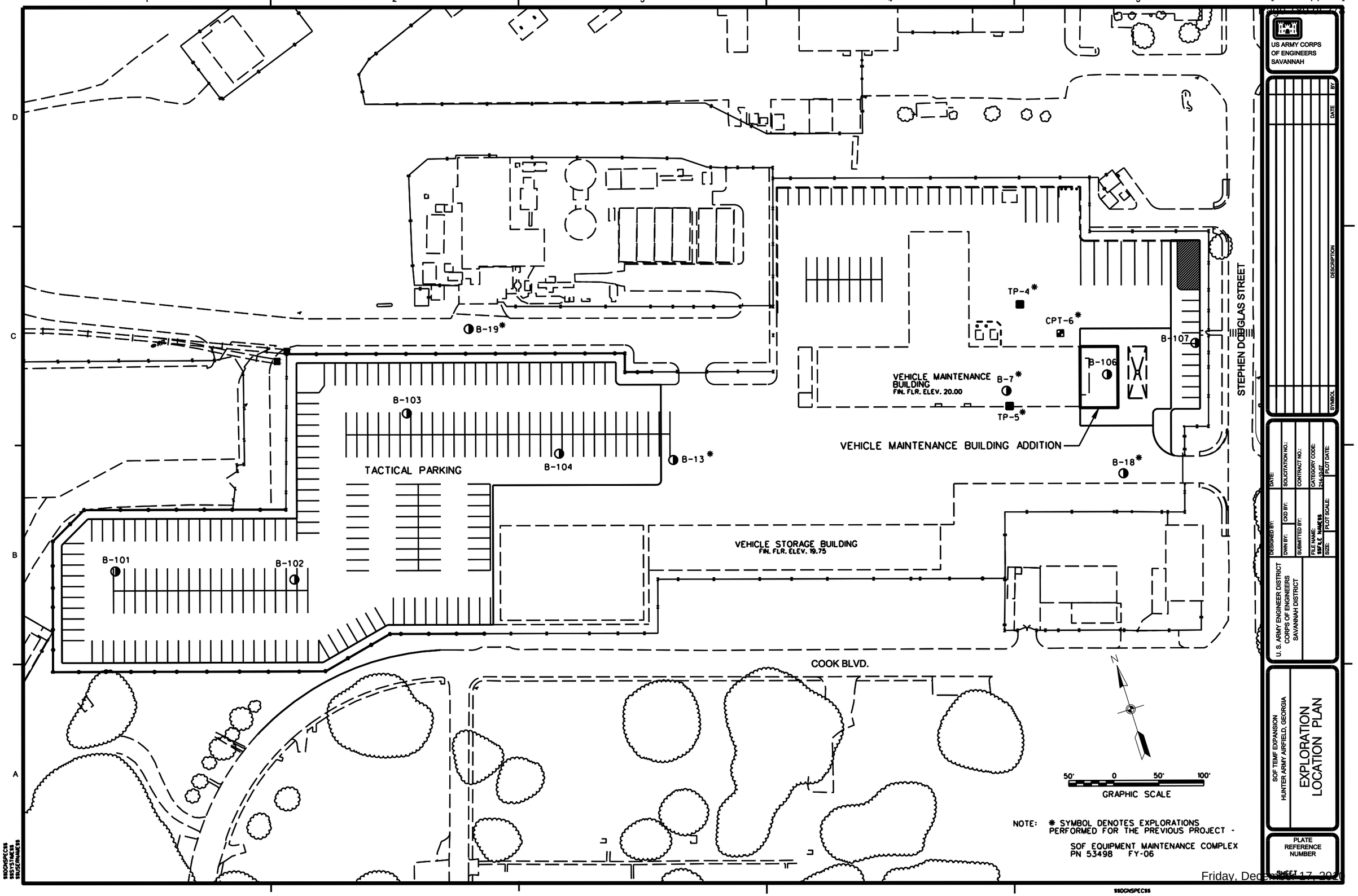
Lucia A. Newberry

Lucia A. Newberry, P.E.
Civil Engineer
Savannah District

ATTACHMENT A

Exploration Location Plan

[Not Supplied]



ATTACHMENT B

Legends and Logs of Explorations

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

DRILLING LOG

DIVISION	South Atlantic Division
INSTALLATION	Hunter Army Airfield
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF TEMF Expansion FY-11, PN 69759
9. COORDINATE SYSTEM	State Plane - Georgia East
HORIZONTAL	NAD83
VERTICAL	NAVD88
10. SIZE AND TYPE OF BIT	3-1/4" Continuous Spiral Auger
2. HOLE NUMBER	B-101
LOCATION COORDINATES	N 740082.56 E 974531.98
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
3. DRILLING AGENCY	U.S. Army Corps of Engineers - Savannah District
12. TOTAL SAMPLES	DISTURBED 5 / UNDISTURBED 0
4. NAME OF DRILLER	John Haskew
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 8/11/10 / COMPLETED 8/11/10
6. THICKNESS OF OVERBURDEN	>10'
16. ELEVATION TOP OF BORING	19' (Estimated from plans)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	10'
18. SIGNATURE AND TITLE OF INSPECTOR	George Louis, Inspector

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			(SM), fine; dark brown, trace organics, trace gravel/asphalt debris.	40	S-1			4, 17, 19	36
			Fine to medium; brown mottled with dark brown.	53	S-2			6, 8, 7	15
			Gray to dark brown.	53	S-3			6, 9, 12	21
			Dark brown.	33	S-4			3, 2, 6	8
			Gray to tan.	33	S-5			3, 4, 3	7
9.0	10.0								

0 5 10

BOTTOM OF BOREHOLE AT 10.0 ft

Water Level Data

Reading	Depth	Notes	
During drilling	9.5		8/11/2010

DRILLING LOG

DIVISION	South Atlantic Division
INSTALLATION	Hunter Army Airfield
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF TEMF Expansion FY-11, PN 69759
9. COORDINATE SYSTEM	State Plane - Georgia East
HORIZONTAL	NAD83
VERTICAL	NAVD88
10. SIZE AND TYPE OF BIT	3-1/4" Continuous Spiral Auger
2. HOLE NUMBER	B-102
LOCATION COORDINATES	N 740013.8 E 974718.92
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
3. DRILLING AGENCY	U.S. Army Corps of Engineers - Savannah District
12. TOTAL SAMPLES	DISTURBED 5 / UNDISTURBED 0
4. NAME OF DRILLER	John Haskew
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 8/11/10 / COMPLETED 8/11/10
6. THICKNESS OF OVERBURDEN	>10'
16. ELEVATION TOP OF BORING	19' (Estimated from plans)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	10'
18. SIGNATURE AND TITLE OF INSPECTOR	George Louis, Inspector

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
18.9	0.1		Ashpalt, 1.2".						
			(SM), fine; brown, trace gravel.	67	S-1			6, 19, 19	38
			Fine to medium; tan mottled with dark brown, trace gravel.	60	S-2			5, 8, 10	18
				67	S-3			8, 8, 7	15
			Tan.	72	S-4			3, 5, 12	17
				72	S-5			4, 4, 8	12
9.0	10.0								

BOTTOM OF BOREHOLE AT 10.0 ft

Water Level Data

Reading	Depth	Notes	
During drilling	7.5		8/11/2010
24 hours	9.5		8/12/2010

DRILLING LOG

DIVISION	South Atlantic Division
INSTALLATION	Hunter Army Airfield
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF TEMF Expansion FY-11, PN 69759
9. COORDINATE SYSTEM	State Plane - Georgia East; HORIZONTAL: NAD83; VERTICAL: NAVD88
10. SIZE AND TYPE OF BIT	3-1/4" Continuous Spiral Auger
2. HOLE NUMBER	B-103
LOCATION COORDINATES	N 740152.42 E 974893.54
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
3. DRILLING AGENCY	U.S. Army Corps of Engineers - Savannah District
12. TOTAL SAMPLES	DISTURBED: 5; UNDISTURBED: 0
4. NAME OF DRILLER	John Haskew
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: ---; BEARING:
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED: 8/10/10; COMPLETED: 8/10/10
6. THICKNESS OF OVERBURDEN	>10'
16. ELEVATION TOP OF BORING	18.5' (Estimated from plans)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	10'
18. SIGNATURE AND TITLE OF INSPECTOR	George Louis, Inspector

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
18.1	0.4		Gravel, 5".	27	S-1			11, 21, 25	46
17.0	1.5		(SP), fine; gray, some gravel.						
			(SM), fine to medium; gray to dark brown, little organics, wood fragments/root debris.	44	S-2			20, 25, 20	45
			Tan mottled with dark brown.	67	S-3			3, 5, 9	14
			Trace organics.		S-4		recovery not recorded	7, 9, 9	18
			Tan.	100	S-5			6, 9, 12	21
8.5	10.0								

BOTTOM OF BOREHOLE AT 10.0 ft

Water Level Data

Reading	Depth	Notes	
During drilling	8.5		8/10/2010
24 hours	7.5		8/11/2010

DRILLING LOG

DIVISION	South Atlantic Division
INSTALLATION	Hunter Army Airfield
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF TEMF Expansion FY-11, PN 69759
9. COORDINATE SYSTEM	State Plane - Georgia East; HORIZONTAL: NAD83; VERTICAL: NAVD88
10. SIZE AND TYPE OF BIT	3-1/4" Continuous Spiral Auger
2. HOLE NUMBER	B-104
LOCATION COORDINATES	N 740059.15 E 975041.7
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
3. DRILLING AGENCY	U.S. Army Corps of Engineers - Savannah District
12. TOTAL SAMPLES	DISTURBED: 5; UNDISTURBED: 0
4. NAME OF DRILLER	John Haskew
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED; DEG FROM VERTICAL: --- ; BEARING:
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED: 8/11/10; COMPLETED: 8/11/10
6. THICKNESS OF OVERBURDEN	>10'
16. ELEVATION TOP OF BORING	18.5' (Estimated from plans)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	10'
18. SIGNATURE AND TITLE OF INSPECTOR	George Louis, Inspector

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
18.2	0.3		Asphalt, 3.6".						
			(SM), fine; tan to dark brown, trace gravel.	67	S-1			19, 37, 21	58
				55	S-2			9, 5, 5	10
				27	S-3			3, 4, 3	7
			Fine to medium; tan mottled with brown, trace organics.	77	S-4			11, 25, 40	65
					S-5		recovery not recorded	9, 19, 20	39
8.5	10.0								

BOTTOM OF BOREHOLE AT 10.0 ft

Water Level Data

Reading	Depth	Notes	
During drilling	7		8/11/2010

DRILLING LOG

DIVISION	South Atlantic Division
INSTALLATION	Hunter Army Airfield
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF TEMF Expansion FY-11, PN 69759
9. COORDINATE SYSTEM	State Plane - Georgia East
HORIZONTAL	NAD83
VERTICAL	NAVD88
10. SIZE AND TYPE OF BIT	3-1/4" Continuous Spiral Auger
2. HOLE NUMBER	B-106
LOCATION COORDINATES	N 739960.16 E 975648.91
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
3. DRILLING AGENCY	U.S. Army Corps of Engineers - Savannah District
12. TOTAL SAMPLES	DISTURBED 3 / UNDISTURBED 0
4. NAME OF DRILLER	John Haskew
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 8/13/10 / COMPLETED 8/13/10
6. THICKNESS OF OVERBURDEN	>5'
16. ELEVATION TOP OF BORING	19.5' (Estimated from plans)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	5'
18. SIGNATURE AND TITLE OF INSPECTOR	George Louis, Inspector

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
18.8	0.7		Concrete hardstand, 8.4".				recovery not recorded		
			(SM), fine to medium; gray to dark brown, some gravel, trace organics.		S-1			30, 40, 30	100+
			Yellow to dark brown, little gravel.		S-2			20, 26, 17	43
			Light brown to dark brown, trace gravel.		S-3		boring terminated at 5' because concrete was encountered water not encountered	9, 10, 14	24
14.5	5.0								

BOTTOM OF BOREHOLE AT 5.0 ft

DRILLING LOG

DIVISION	South Atlantic Division
INSTALLATION	Hunter Army Airfield
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF TEMF Expansion FY-11, PN 69759
9. COORDINATE SYSTEM	State Plane - Georgia East
HORIZONTAL	NAD83
VERTICAL	NAVD88
10. SIZE AND TYPE OF BIT	3-1/4" Continuous Spiral Auger
2. HOLE NUMBER	B-107
LOCATION COORDINATES	N 739963.68 E 975752.58
11. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
3. DRILLING AGENCY	U.S. Army Corps of Engineers - Savannah District
12. TOTAL SAMPLES	DISTURBED 10 / UNDISTURBED 0
4. NAME OF DRILLER	John Haskew
13. TOTAL NUMBER CORE BOXES	0
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG FROM VERTICAL	---
BEARING	
14. ELEVATION GROUND WATER	See Remarks
15. DATE BORING	STARTED 8/11/10 / COMPLETED 8/11/10
6. THICKNESS OF OVERBURDEN	>30'
16. ELEVATION TOP OF BORING	20' (Estimated from plans)
7. DEPTH DRILLED INTO ROCK	0'
17. TOTAL CORE RECOVERY FOR BORING	N/A
8. TOTAL DEPTH OF BORING	30'
18. SIGNATURE AND TITLE OF INSPECTOR	George Louis, Inspector

ELEV	DEPTH	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	RQD %	REMARKS	Blows/ 0.5 ft	N-Value
			(SM), fine; dark brown, trace organics, trace gravel.	44	S-1			4, 17, 19	36
			Tan to dark brown.	72	S-2			9, 10, 9	19
			Fine to medium; gray to dark gray, trace gravel.	72	S-3			7, 10, 9	19
			Dark gray mottled with light gray.	72	S-4			16, 28, 29	57
			Gray.	67	S-5			4, 6, 10	16
					S-6		no recovery	21, 30, 23	53
			Fine; gray.	33	S-7			11, 7, 17	24
				87	S-8			7, 9, 14	23
			Trace clay.	40	S-9			10, 18, 23	41
-10.0	30.0		Trace clay, trace organics.	47	S-10			6, 7, 11	18

BOTTOM OF BOREHOLE AT 30.0 ft

Water Level Data

Reading	Depth	Notes	
During drilling	9.5		8/11/2010

DRILLING LOG

DIVISION	SOUTH ATLANTIC
INSTALLATION	HUNTER AAF, GEORGIA
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF VEHICLE MAINTENANCE COMPLEX L.I. 53498, FY-05
2. LOCATION	SEE BORING LOCATION PLAN
3. DRILLING AGENCY	SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number)	B-7
5. NAME OF DRILLER	HORACE FULCHER
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED _____ DEGREES FROM VERTICAL
7. THICKNESS OF OVERBURDEN	> 25.0'
8. DEPTH DRILLED INTO ROCK	0.0
9. TOTAL DEPTH OF HOLE	25.0'
10. SIZE AND TYPE OF BIT	4" SPIRAL AUGER AND 1 3/8 INCH SPLITSPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	CME 550
13. TOTAL NUMBER OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10 / UNDISTURBED 0
14. TOTAL NUMBER OF CORE BOXES	N/A
15. ELEVATION GROUNDWATER	SEE REMARKS
16. DATE HOLE	STARTED 17 NOV 04 / COMPLETED 17 NOV 04
17. ELEVATION TOP OF HOLE	19.0'
18. TOTAL CORE RECOVERY FOR BORING	N/A %
19. SIGNATURE OF INSPECTOR	TRACEY TAPLEY

ELEVATION (FEET) a	DEPTH (FEET) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	RECOVERY in e	JAR OR SAMPLE NO. f	REMARKS (Drilling time, water loss, etc.) g	
			ASPHALT (0.3')				
			(SP) DARK BROWN, FINE, POORLY GRADED SAND, TRACE TO NO FINES	.6	1	3-4-5	9
			MOTTLED LIGHT AND DARK BROWN	.6	2	2-2-3	5
			(SM) MOTTLED LIGHT AND DARK BROWN, FINE, SILTY SAND	.6	3	3-4-6	10
	5		DARK BROWN TO BLACK, WET, SLIGHTLY ORGANIC				
			(SP) VERY LIGHT GRAY, FINE, POORLY GRADED SAND, TRACE TO NO FINES	1.0	4/5	6-11-16	27
			GRAY				
	10		(SM) DARK BROWN TO BLACK, FINE, SILTY SAND, SLIGHTLY ORGANIC	1.4	6/7	5-12-17	29
			(SP) VERY LIGHT BROWN, FINE, POORLY GRADED SAND				
			OLIVE GRAY	.6	8	5-7-7	14
	15						
				1.0	9	2-3-4	7
	20					ROTARY MUD DRILLING WITH 4 3/4 INCH FISHTAIL BIT STARTED AT 20' IN DEPTH	
			SOME OLIVE GRAY LENSES OF FINE, CLAYEY SAND, 0.2'-0.3' THICK	.5	10	2-2-5	7
	25		BOTTOM OF BORING AT 25.0'			GROUNDWATER ENCOUNTERED AT 7.0' DURING DRILLING. WATER LEVEL AFTER 24 HOURS WAS AT 19.9'	

DRILLING LOG

DIVISION	SOUTH ATLANTIC
INSTALLATION	HUNTER AAF, GEORGIA
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF VEHICLE MAINTENANCE COMPLEX L.I. 53498, FY-05
2. LOCATION	SEE BORING LOCATION PLAN
3. DRILLING AGENCY	SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number)	B-13
5. NAME OF DRILLER	HORACE FULCHER
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED _____ DEGREES FROM VERTICAL
7. THICKNESS OF OVERBURDEN	> 15.0'
8. DEPTH DRILLED INTO ROCK	0.0
9. TOTAL DEPTH OF HOLE	15.0'
10. SIZE AND TYPE OF BIT	4" SPIRAL AUGER AND 1 3/8 INCH SPLITSPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	CME 550
13. TOTAL NUMBER OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7 / UNDISTURBED 0
14. TOTAL NUMBER OF CORE BOXES	N/A
15. ELEVATION GROUNDWATER	SEE REMARKS
16. DATE HOLE	STARTED 18 NOV 04 / COMPLETED 18 NOV 04
17. ELEVATION TOP OF HOLE	18.8' (EST. FROM PLAN)
18. TOTAL CORE RECOVERY FOR BORING	N/A %
19. SIGNATURE OF INSPECTOR	TRACEY TAPLEY

ELEVATION (FEET) a	DEPTH (FEET) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	RECOVERY ft e	JAR OR SAMPLE NO. f	REMARKS (Drilling time, water loss, etc.) g	
			ASPHALT (0.4')				
			(SM) BLACK TO DARK BROWN, FINE, SILTY SAND	1.0	1	8-20-18	38
			MOTTLED LIGHT BROWN/BROWN/ DARK BROWN	.8	2	5-13-14	27
			DARK BROWN	.6	3	4-2-3	5
	5						
			MOIST	.7	4	2-4-2	6
			BLACK, SPONGY, WET, SOME ORGANICS	.9	5	10-13-3	16
	10		DARK BROWN				
			(SP) LIGHT GREEN-GRAY, FINE GRAINED, POORLY GRADED SAND	1.0	6/7	3-6-15	21
	15		BOTTOM OF BORING AT 15'			GROUNDWATER NOT ENCOUNTERED DURING DRILLING, WATER LEVEL AFTER 24 HOURS WAS NOT MEASURED	

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION HUNTER AAF, GEORGIA	SHEET 1 OF 1 SHEETS

1. PROJECT SOF VEHICLE MAINTENANCE COMPLEX L.I. 53498, FY-05	10. SIZE AND TYPE OF BIT 4" AUGER AND 1 3/8 INCH SPLITSPOON
2. LOCATION SEE BORING LOCATION PLAN	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
3. DRILLING AGENCY SAVANNAH DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL CME 550
4. HOLE NO. (As shown on drawing title and file number) B-18	13. TOTAL NUMBER OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4; UNDISTURBED 0
5. NAME OF DRILLER DANNY HEWETT	14. TOTAL NUMBER OF CORE BOXES N/A
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEGREES FROM VERTICAL	15. ELEVATION GROUNDWATER SEE REMARKS
7. THICKNESS OF OVERBURDEN > 7.5'	16. DATE HOLE: STARTED 16 NOV 04; COMPLETED 16 NOV 04
8. DEPTH DRILLED INTO ROCK 0.0	17. ELEVATION TOP OF HOLE 18.7' (EST. FROM PLAN)
9. TOTAL DEPTH OF HOLE 7.5'	18. TOTAL CORE RECOVERY FOR BORING N/A %
	19. SIGNATURE OF INSPECTOR *TRACEY TAPLEY*

ELEVATION (FEET) a	DEPTH (FEET) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	RECOVERY ft e	JAR OR SAMPLE NO. f	REMARKS (Drilling time, water loss, etc.) g	
			ASPHALT, 0.3'				
	1		(SM) BLACK, SILTY SAND	1.0	1	6-16-14	30
	2		ROOT AND WOOD FRAGMENTS	.8	2	5-10-9	19
	3						
	4		DARK BROWN TO BLACK	.5	3	2-2-2	4
	5						
	6					NOTE: SAMPLE IN JAR FROM AUGER	17
	7			0.0	4	4-6-11	
			BOTTOM OF BORING AT 7.5'			GROUNDWATER NOT ENCOUNTERED DURING DRILLING. WATER LEVEL AFTER 24 HOURS WAS NOT MEASURED	

DRILLING LOG

DIVISION	SOUTH ATLANTIC
INSTALLATION	HUNTER AAF, GEORGIA
SHEET	1 OF 1 SHEETS
1. PROJECT	SOF VEHICLE MAINTENANCE COMPLEX L.I. 53498, FY-05
2. LOCATION	SEE BORING LOCATION PLAN
3. DRILLING AGENCY	SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number)	B-19
5. NAME OF DRILLER	DANNY HEWETT
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED _____ DEGREES FROM VERTICAL
7. THICKNESS OF OVERBURDEN	> 7.5'
8. DEPTH DRILLED INTO ROCK	0.0
9. TOTAL DEPTH OF HOLE	7.5'
10. SIZE AND TYPE OF BIT	4" AUGER AND 1 3/8 INCH SPLITSPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	CME 550
13. TOTAL NUMBER OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4 / UNDISTURBED 0
14. TOTAL NUMBER OF CORE BOXES	N/A
15. ELEVATION GROUNDWATER	SEE REMARKS
16. DATE HOLE	STARTED 16 NOV 04 / COMPLETED 16 NOV 04
17. ELEVATION TOP OF HOLE	18.7' (EST. FROM PLAN)
18. TOTAL CORE RECOVERY FOR BORING	N/A %
19. SIGNATURE OF INSPECTOR	TRACEY TAPLEY

ELEVATION (FEET) a	DEPTH (FEET) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	RECOVERY ft e	JAR OR SAMPLE NO. f	REMARKS (Drilling time, water loss, etc.) g	
			ASPHALT, 0.3' THICK				
	1		(SM) DARK BROWN, FINE, SILTY SAND				45
	2		BROWN, LESS SILTY	1.0	1	10-24-21	
	3		MOTTLED/MIXED DARK BROWN/BROWN				36
			REDDISH BROWN COMPACTED	1.1	2	14-11-25	
	4						43
	5			.8	3	10-19-24	
	6		LIGHT GRAYISH BROWN, TRACE FINES				28
	7			1.0	4	7-13-15	
			BOTTOM OF BORING AT 7.5'			GROUNDWATER NOT ENCOUNTERED DURING DRILLING. WATER LEVEL AFTER 24 HOURS WAS NOT MEASURED	

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION HUNTER AAF, GEORGIA	SHEET 1 OF 1 SHEETS

1. PROJECT	SOF VEHICLE MAINTENANCE COMPLEX L.I. 53498, FY-05
2. LOCATION	SEE BORING LOCATION PLAN
3. DRILLING AGENCY	SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number)	TP-4
5. NAME OF DRILLER	STEVE WIDINCAMP
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED _____ DEGREES FROM VERTICAL
7. THICKNESS OF OVERBURDEN	> 7.0'
8. DEPTH DRILLED INTO ROCK	0.0
9. TOTAL DEPTH OF HOLE	7.0'
10. SIZE AND TYPE OF BIT	18 INCH BUCKET
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	JOHN DEERE 110 BACKHOE
13. TOTAL NUMBER OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 2 / UNDISTURBED 0
14. TOTAL NUMBER OF CORE BOXES	N/A
15. ELEVATION GROUNDWATER	SEE REMARKS
16. DATE HOLE	STARTED 4 FEB 05 / COMPLETED 4 FEB 05
17. ELEVATION TOP OF HOLE	18.2 (EST. FROM PLAN)
18. TOTAL CORE RECOVERY FOR BORING	N/A %
19. SIGNATURE OF INSPECTOR	PHILIP E. SMITH, PE

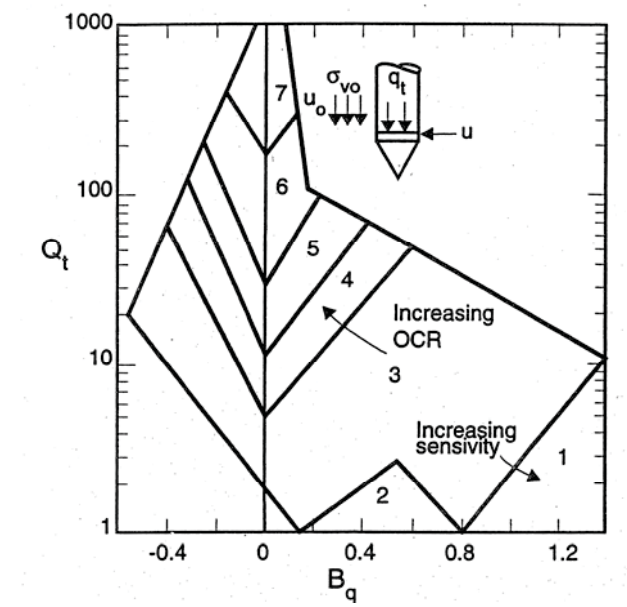
ELEVATION (FEET) a	DEPTH (FEET) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	RECOVERY ft e	JAR OR SAMPLE NO. f	REMARKS (Drilling time, water loss, etc.) g
			GRAVEL SURFACE, WITH SAND, LITTLE GRASS ROOTS			FILL MATERIAL, 0-3.1'
	1		SILT (ML), WHITE, DRY (HARD)			TOP 2' ENCOUNTERED OLD TERRA COTTA CLAY PIPE, SEVERAL CONCRETE OBSTRUCTIONS, ONE APPEARED TO BE STORM OR SANITARY SEW, 1-MULTI-STRAND CABLE, UNINSULATED WIRES.
			SILTY SAND (SM), DARK BROWN, FINE, SOME GRAVEL, MOIST			
	2		POORLY GRADED SAND (SP), TAN, MED			
			SILTY SAND (SM), BLACK, FINE, FINE ROOTS		1	
	3		FAT CLAY (CH), BLUE MIXED WITH BROWN SILTY SAND		2	
	4		SILTY SAND (SM), DARK BROWN, FINE, FINE ROOTS			
			NO ROOTS			
	5					
	6		GRAY, VERY MOIST TO WET			
	7		BOTTOM OF TEST PIT AT 7.0'			GROUND WATER ENCOUNTERED AT 7.0' DURING TEST PIT EXCAVATION. TEST PIT BACKFILLED IMMEDIATELY FOR SAFETY.

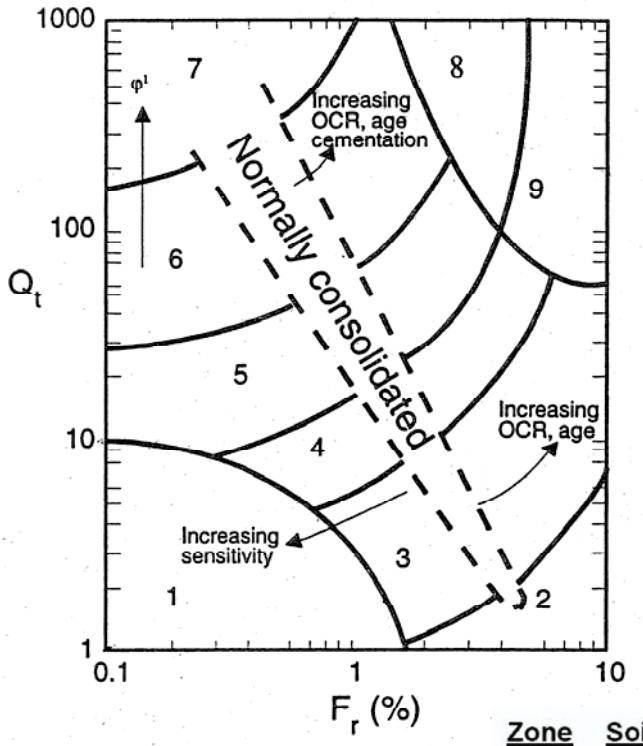
DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION HUNTER AAF, GEORGIA	SHEET 1 OF 1 SHEETS

1. PROJECT	SOF VEHICLE MAINTENANCE COMPLEX L.I. 53498, FY-05
2. LOCATION	SEE BORING LOCATION PLAN
3. DRILLING AGENCY	SAVANNAH DISTRICT
4. HOLE NO. (As shown on drawing title and file number)	TP-5
5. NAME OF DRILLER	STEVE WIDINCAMP
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED _____ DEGREES FROM VERTICAL
7. THICKNESS OF OVERBURDEN	> 5.5
8. DEPTH DRILLED INTO ROCK	0.0
9. TOTAL DEPTH OF HOLE	5.5
10. SIZE AND TYPE OF BIT	18 INCH BUCKET
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	JOHN DEERE 110 BACKHOE
13. TOTAL NUMBER OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 1 / UNDISTURBED 0
14. TOTAL NUMBER OF CORE BOXES	N/A
15. ELEVATION GROUNDWATER	SEE REMARKS
16. DATE HOLE	STARTED 4 FEB 05 / COMPLETED 4 FEB 05
17. ELEVATION TOP OF HOLE	19.0' (EST. FROM PLAN)
18. TOTAL CORE RECOVERY FOR BORING	N/A %
19. SIGNATURE OF INSPECTOR	PHILIP E. SMITH, PE

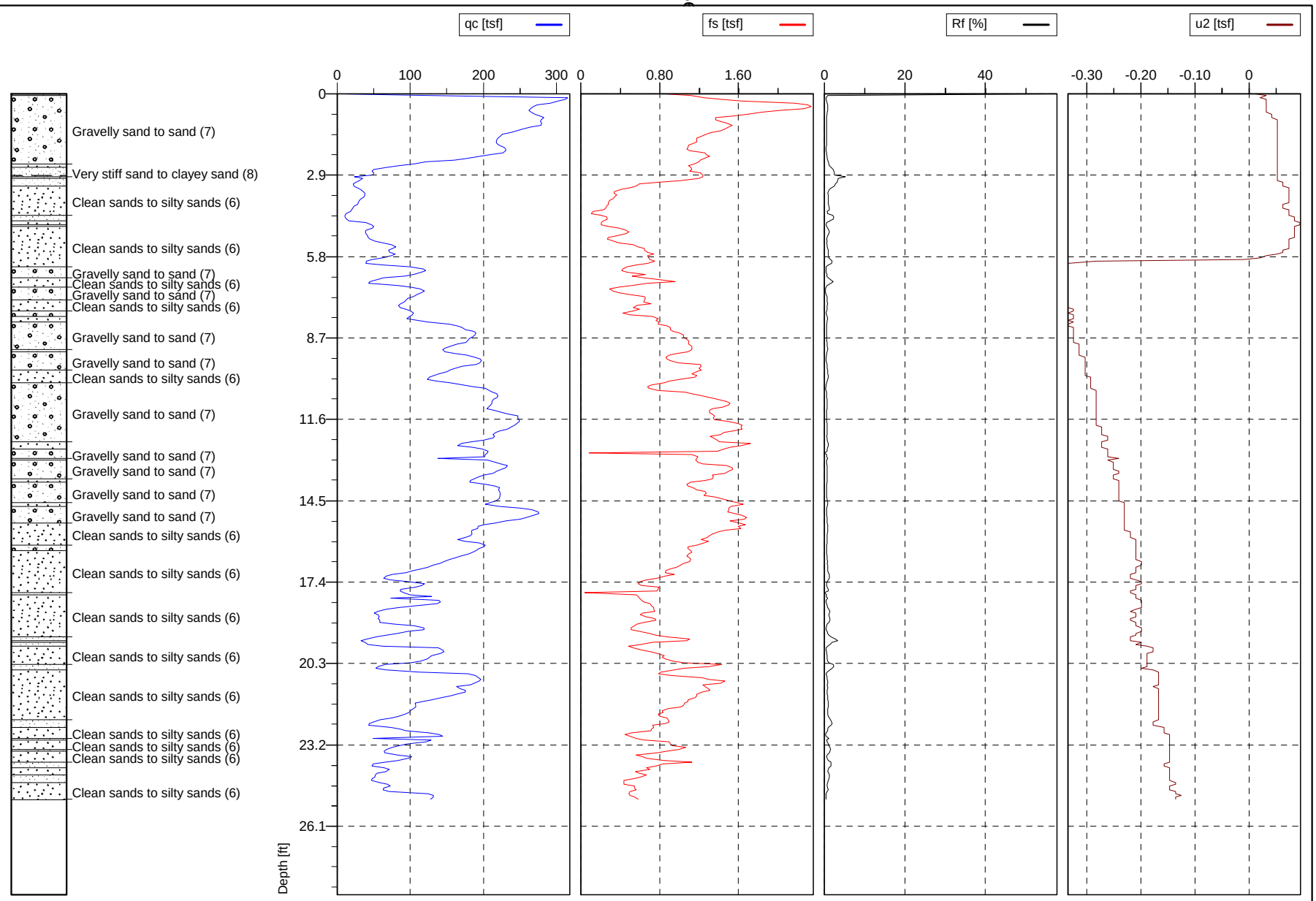
ELEVATION (FEET) a	DEPTH (FEET) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	RECOVERY ft e	JAR OR SAMPLE NO. f	REMARKS (Drilling time, water loss, etc.) g
			SILTY SAND (SM), GRAY, FINE, SOME GRAVEL, GRASS ROOTS			
	1		POORLY GRADED SAND (SP), MULTIPLE SHADES OF TAN, FINE, TRACE OF FINE ROOTS			
	2				1	
	3		SILTY SAND (SM), LIGHT AND DARK GRAY, FINE, TRACE OF FINE ROOTS			
	4		NO ROOTS			
	5					
	6		LIGHT GRAY			
	7		BOTTOM OF TEST PIT AT 6.5			NO GROUND WATER ENCOUNTERED. TEST PIT BACKFILLED IMMEDIATELY FOR SAFETY.

Normalized Soil Behavior Types - Robertson & Campanella (1990)





Zone	Soil Behavior Type
1	Sensitive, fine grained
2	Organic soils-peats
3	Clays-clay to silty clay
4	Silt mixtures; clayey silt to silty clay
5	Sand mixtures; silty sand to sandy silt
6	Sands; clean sands to silty sands
7	Gravelly sand to sand
8	Very stiff sand to clayey sand
9	very stiff fine grained



GEO soft

U2

Cone No: 0
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HAAF, B-6	Position:	Ground level:	Test no: B-6
Project ID: LI:53498, FY-06	Client:	Date: 12/3/2004	Scale: 1 : 60
Project: SOF EQUIPMENT MAINTENANCE COMPLEX.		Page: 1/2	Fig: 1
USACE, SAVANNAH DISTRICT GEOTECHNICAL AND HTRW BRANCH. SOIL CLASSIFICATION BY FRICTION RATIO (ROBERTSON 1990).		File: HAAF B-6.CPT	

List of Drawings

PN 69759 Hunter AAF Tactical Equipment Maintenance Facility (TEMF) Expansion

Appendix J

G-001	Cover Sheet - Index of Drawings and Abbreviations
G-002	Location Plan
VF001	Site Survey Notes and Legends
VF101	Overall Site Survey
VF102	Site Survey
VF103	Site Survey
CS101	Site Plan
A-101	Overall Floor Plan
A-102	Floor Plan and Elevation
A-201	Building Elevation

Appendix C.1 - Potable Water and Fire Water

This TEMF Addition (referred to as the "Addition") is the scope of this D-B RFP. All services to the TEMF are of adequate capacity and shall be extended or expanded into the Addition.

The existing fire riser room on the existing exterior wall will be relocated to the exterior of the Addition. Relocate the fire riser and domestic water riser to the new fire riser room. Remove the existing pipe from underneath the Addition.

The temporary building near the recycling scales that requires relocation has domestic water service. Disconnect and reconnect the domestic water service for this building and demolish and install new water lines as required to reestablish water service to the relocated temporary building.

Appendix C.2 - Sanitary Sewer

This TEMF Addition (referred to as the "Addition") is the scope of this D-B RFP. All services to the TEMF are of adequate capacity and shall be extended or expanded into the Addition.

The Addition Sanitary Sewer shall tie into either the TEMF sewer service or tie into an existing sanitary sewer manhole on the TEMF site. If the Addition Sanitary Sewer Service connection to the existing system is made outside the existing TEMF, the Addition D-B Contractor shall provide a sewer cleanout at the 5 foot demarcation line.

The temporary building near the recycling scales that requires relocation has sanitary sewer service which includes a small lift station. Disconnect and reconnect the sanitary sewer service for this building and demolish and install new sanitary sewer lines as required to reestablish sanitary sewer service to the relocated temporary building.

Appendix C.3 - Natural Gas

This TEMF Addition (referred to as the "Addition") is the scope of this D-B RFP. All services to the TEMF are of adequate capacity and shall be extended or expanded into the Addition. The existing meter and regulator will require up-sizing to handle the existing TEMF and the Addition. These new apparatuses shall seamlessly interface with the TEMF.

Appendix C.4 - Electric

Appendix C.4(A) – Utility Connections, Hunter AAF

Appendix C.4(B) – Canoochee EMC Project Responsibilities at Hunter AAF

(There are no electrical utility connections required for this expansion. There is adequate spare capacity in the electrical service to the existing TEMF.)

(Site lighting shall be coordinated with the local electric utility company (Canoochee EMC). See Appendix C.4(B) and paragraph 6.9 for site lighting requirements.)

Appendix C.4A – Utility Connections

UTILITY CONNECTIONS
HUNTER AAF, GEORGIA

24 July 2009

A. SITE ELECTRICAL GENERAL REQUIREMENTS

1. Site coordination meetings shall be held at the start of design and when necessary thereafter. Meetings shall include all applicable parties including the installation Directorate of Public Works (DPW), Signal Network Enterprise Center (Signal N. E. C.), the privatized electric utility company, the local cable television (CATV) company, the Design-Build Contractor and the Contracting Officer's Representative (COR). All design, demolition and construction work including schedules, capacities, equipment selection, equipment locations, utility routing, connection points and final connection responsibilities shall be addressed.

2. All coordination including exchanges of information between the Design-Build Contractor and the installation DPW, Signal N. E. C., the privatized electric utility company, the local CATV company information and other utility entities shall be routed through the COR unless otherwise directed.

3. All electrical systems shall comply with the Hunter AAF Installation Design Guide (accessible at http://en.sas.usace.army.mil/) unless otherwise noted. Requirements mandated by this RFP or mandated by criteria referenced by this RFP shall supersede the requirements of the Hunter AAF Installation Design Guide. Criteria such as Army Technical Manuals (TMs) referenced by the Hunter AAF Installation Design Guide but not referenced by this RFP shall not be regarded as mandatory.

4. The Design-Build Contractor shall coordinate the installation of all privatized utilities to avoid conflicts and ensure all utilities are in place prior to landscaping.

B. ELECTRICAL PRIMARY DISTRIBUTION

1. The existing primary power distribution system at Hunter AAF is a 12470/7200 volts, three-phase, four-wire, grounded wye system. The primary distribution system is owned, managed, and maintained by a privatized electric utility company.

2. The primary distribution conduit and manhole system, conductors, switches, sectionalizing cabinets, transformers with concrete pads, grounding, and metering shall be provided by the privatized electric utility company. The primary distribution system shall be designed and constructed in accordance with the Hunter AAF Installation Design Guide, IEEE C2 National Electrical Safety Code and the RUS standards. No above ground distribution equipment shall be located within 33 feet of buildings.

3. The privatized electric utility company at Hunter AAF is Canoochee EMC. The point of contact is Daniel Phillips at (912) 459-1113 x 6004. All work done by the electric utility company shall be under a separate contract with the Government. This work is NOT part of this RFP.

4. The Design-Build Contractor shall develop a schedule with the electric utility company concerning transformer delivery times and any offsite utility upgrade projects required to provide power to this project. All schedules shall be coordinated to insure that all projects are completed without compromising the Beneficial Occupancy Date. The Design-Build Contractor shall furnish demand load data to the privatized utility and the COR in a timely manner to facilitate transformer procurement.

5. The privatized electric utility company shall demolish existing exterior primary lines and equipment no longer required on the project site(s).

6. Outages on the existing systems shall be scheduled for off peak times (nights and weekends) and shall be approved by DPW. A minimum of 2 weeks advance notification of outage shall be given. Full preparation shall be done before the outage to minimize the downtime duration.

C. ELECTRICAL SECONDARY DISTRIBUTION

1. The Design-Build Contractor shall be responsible for installing secondary service ductlines between the building service entrance and the secondary compartment of the transformer. Secondary service ductlines shall be direct-burial, thick wall type except concrete encasement shall be provided in areas subject to vehicular traffic. Transitions from below-grade to above-grade shall be galvanized rigid steel. Fittings for steel conduit shall be steel threaded or compression type. Secondary service ductlines shall include one spare duct sized to match the filled ducts.

2. The Design-Build Contractor shall be responsible for installing secondary service cable from the building service equipment to the point of metering. Coordinate the location for the meter with the privatized electric utility company. (Services greater than 600 amp capacity are typically metered at the service transformer).

3. The privatized electric utility company shall be responsible for installing secondary service cable from the point of metering to the secondary compartment of the transformer.

4. For all services, installation of the cable terminators and connection to the transformer shall be done by the electric utility company. The Design-Build Contractor shall coordinate transformer sizes and locations and shall obtain transformer impedances from the privatized electric utility company to perform electrical calculations.

5. The Design-Build Contractor shall provide a 1-inch conduit from the electric utility meter to a data collection point located inside the building communications room.

D. SITE LIGHTING

1. Site lighting, defined as all exterior lighting outside of the building 5 foot line, is owned and maintained by the privatized electric utility company. Site lighting includes but is not limited to roadway, walkway, parking, hardstand, physical training (PT) field, sports and area lighting.

2. Site lighting within the project site shall be designed by the Design-Build Contractor. The design shall comply with the recommendations of the Illuminating Engineering Society of North America (IESNA) and shall be based on standard full-cutoff fixtures of the electric utility company approved for use at Hunter AAF. The Design-Build Contractor shall coordinate the lighting design and conduit routing with Canoochee EMC to ensure timely procurement and installation of equipment by the utility.

3. The Design-Build Contractor shall procure and install site lighting foundations and conduit. Site lighting poles, fixtures, conductors and lighting control panels shall be procured and installed by the electric utility company. Site lighting circuits shall be fed from utility transformers; no site lighting circuits shall originate within a building.

4. The privatized electric utility company at Hunter AAF is Canoochee EMC. The point of contact is Daniel Phillips at (912) 459-1113 x 6004. All work done by the electric utility company shall be under a separate contract with the Government. This work is NOT part of this RFP.

5. The privatized electric utility company shall demolish existing lighting structures and associated site conduit and wiring no longer required on the project site(s).

6. For additional guidance regarding the separation of responsibilities between the Design-Build Contractor and Canoochee EMC, see APPENDIX: Canoochee EMC Responsibilities and APPENDIX: Contractor/Canoochee Demarcation Line.

7. The Design-Build Contractor shall be responsible for the design and construction of exterior lighting mounted on the new buildings. Wall mounted site lighting fixtures shall be the fully shrouded, full cut-off type, compatible with the building architecture. Lighting of walkways within 5-feet of the building shall be the responsibility of the Design-Build Contractor. Lighting shall be controlled automatically.

8. The Design-Build Contractor shall calculate the site lighting power densities and shall demonstrate compliance with the requirements of ASHRAE 90.1 and LEED (where applicable). The Design-Build Contractor shall coordinate with the privatized electric utility company to obtain information required to calculate the site lighting power densities.

E. SITE COMMUNICATIONS

1. The telecommunications design shall be coordinated with and approved by the Signal Network Enterprise Center (Signal N. E. C.) Quality Assurance Officer prior to construction. The Signal N. E. C. point of contact is Pamela McCullough at (912) 912-767-7970, email address: pamela.mccullough@us.army.mil. An alternate Signal N. E. C. point of contact is Charles Smith at (912) 912-767-2571, email address: charles.smith7@us.army.mil.

2. The Design-Build Contractor shall design and install the complete outside plant (OSP) telecommunications infrastructure in accordance with the requirements and recommendations of the Technical Guide for Installation Information Infrastructure Architecture (I3A).

3. The Design-Build Contractor shall connect to the OSP, extending a new ductline, manhole and cable system to the building main communications room. Ductlines between manholes shall be 4-way 4-inch. Ductlines entering the building main communications room shall be 3-way 4-inch. Cables shall be terminated on protected entrance terminal blocks in the building main communications room. Coordinate design, construction and connection point location with the installation Signal N. E. C.

4. A minimum of 4 weeks advance notification shall be provided by the Design-Build Contractor prior to any demolition of communication lines or equipment. Notice shall be provided to Signal N. E. C. through the COR.

F. SITE CABLE TELEVISION (CATV)

1. Comcast Cable is the local cable television (CATV) company at Hunter AAF. Comcast Cable shall provide and install service cabling throughout the project site, terminating at the head-end equipment in each building. The Design-Build Contractor shall coordinate site work and site/facility interfaces with Comcast Cable. Coordination shall include interface requirements between the building CATV system and the site CATV system. The Comcast point of contact is Craig Markillie at (912) 353-6064. The Design-Build Contractor shall coordinate head-end equipment locations with Signal N. E. C.

G. CATHODIC PROTECTION SYSTEM

1. The Design-Build Contractor shall design and install a cathodic protection system for all ferrous metal pipes, tanks and equipment in contact with earth. The cathodic protection system shall comply with all applicable Federal, State and local regulations. The Design-Build Contractor shall obtain the services of a person qualified to engage in the practice of corrosion control of buried or submerged metallic surface. Such a person must be accredited or certified by the National Association of Corrosion Engineers (NACE) as a NACE Accredited Corrosion Specialist or a NACE certified Cathodic Protection Specialist, or must be a registered professional engineer with a minimum of five years experience in corrosion control and cathodic protection. The designer shall

obtain soil resistivity data on site to assist in determining the cathodic protection requirements.

Appendix C.4B – CEMC Project Responsibilities

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Canoochee Electric Membership Corporation (CEMC)
Project Responsibilities
At
Fort Stewart and Hunter Army Airfield:

Canoochee EMC is responsible for the operation, maintenance, and power line extension of the Fort Stewart (FS) and Hunter Army Airfield (HAAF) electrical distribution systems. Line extensions for new construction projects are designed and constructed in accordance with Rural Utility Specifications (RUS) and the National Electric Safety Code (NESC.)

Line extensions to serve new facilities at Fort Stewart and HAAF may be overhead or underground construction as required by project specifications or site conditions.

Overhead Construction
CEMC will furnish all labor and overhead distribution equipment such as wood poles, transformers, transformer assemblies, primary and secondary conductor, overhead conductor pole hardware, guying, secondary, services, and grounding as required for overhead construction.

Underground Construction
CEMC will furnish all labor and under ground distribution equipment such as pad mounted transformers, transformer assemblies, concrete pad, riser assemblies, primary and secondary conductor (600 amp and smaller), meter bases, meters, lighting fixtures, lighting poles, lighting contactor, and lighting conductor as required for under ground construction.

Note: Due to Force Protection requirements, transformers will be located at least 33 feet from any building with an occupancy of 11 people or greater. When the occupancy exceeds 50 people the distance increases to 82 feet.

Conductor Terminations
CEMC will make all electrical connections of conductors terminating in over head and pad mounted transformers, street lighting, and primary conductor riser assemblies.

Conduit
In accordance to a meeting between DPW and Savannah COE on March 19th 2009, Canoochee EMC will provide and install for underground construction all primary conduit of 4" to 6" diameter buried a minimum of 48 inches deep. Conduit will be of appropriate schedule type PVC, XLP or PE. This directive will require coordination between the GC through the appropriate DPW project manager and Canoochee EMC. Canoochee EMC requires a minimum of 14 and a maximum of 21 calendar day's written notice of the date when the installation of underground facilities may commence. To be considered ready for the installation of CEMC underground facilities a site must be at final grade, but not at final compaction.

Ricky Simons	Charlie Brewer	Michael Wasson	3/20/09	3
Drawn	*Edited*	*Approved*	*Date*	*Rev.*

1

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CEMC will in no way be responsible for additional work required due to additional compaction or the relocation of facilities when proper coordination is not received.

GC shall furnish and install for underground construction all service entrance conductors (larger than 600amp) and conduit buried a minimum of **30 inches deep**. Conduit will be of appropriate schedule PVC, XLP or PE.

Metering
The GC will install self contained meter bases for 600 Amp and less load centers. Meter bases will be mounted on the building exterior between 3'-6" and 5'-0" above finished grade. For load centers greater than 600 Amp, Current Rated Transformer (CT) metering will be furnished by and installed by CEMC at the transformer location.

Metering (Continued)
Self-Contained meter bases will be issued to the GC (or electrical sub-contractor) at the CEMC Operating Headquarter locations shown in Table 1

Canoochee EMC Operating Headquarter				
Base	Address	Building	Contact Name	Phone Number
Fort Stewart	83 Italy St.	1099	Shawn Crosby	912-459-1112
Hunter Army Airfield	443 S. Douglas St.	1035	Joe Holton	912-459-1113

Table 1

Coordination / Scheduling
An overall project schedule will be provided by the GC to CEMC at the start of the project for CEMC to design the electrical requirements, order equipment and manage lead time and delivery schedules, clear right of way, and install the electrical facilities.

Changes of the project schedule by the GC affecting CEMC's schedule and/or scope of work will require the approval by CEMC and the Department of Public Works (DPW) or Corp of Engineering (CO) Project Manager (as appropriate.)

Adequate time will be provided by the GC in the project schedule for CEMC construction or demolition activities.

The GC will ensure the site is on grade elevation prior to the start of work by CEMC. The CEMC work area will need to be clear of obstructions such as materials; equipment lay down areas, earthen backfill, and/or temporary services and portable structures.

The GC will provide site coordination between CEMC and its other project sub-contractors to ensure CEMC is allowed full un-restricted access to the site to install or demo of facilities in a start to competition timeframe.

CEMC will require a reasonable number of working days to complete the installation of the underground facilities. CEMC requires a minimum of 14 and a maximum of 21 calendar day's written notice of the date when the installation of underground facilities may commence. To be considered ready for the installation of CEMC underground facilities a site must be at final grade, but not at final compaction. CEMC will in no way

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be responsible for additional work required due to additional compaction or the relocation of facilities when proper coordination is not received.

Examples of Coordination/Scheduling conflicts:

1. CEMC is scheduled to trench where soil compaction for a parking lot is complete. CEMC trenching is not typical of compaction levels for parking lots. CEMC will not be liable for parking lot repairs if scheduled after soil compaction by GC.
2. CEMC is scheduled to install street light poles on foundations, but GC has a portion of the foundations installed. Revisit may increase project cost.
3. CEMC is scheduled to set transformers, but secondary conductors have not been installed by electrical sub-contractor and stubbed up at the transformer for termination by EMC. Revisit may increase project cost.

Canoochee EMC Scheduling Contacts

Base	Primary	Phone Number	Secondary	Phone Number
Fort Stewart	Sam Alexander	912-459-1112 extension 3002	Ricky Simons	912-459-1112 extension 3004
Hunter Army Airfield	Joe Holton	912-459-1113 extension 6000	Charlie Brewer	912-459-1113 extension 6004

Table 2

Equipment Lead Time

The project schedule should include an appropriate amount of time for CEMC to order long lead time equipment as shown in Table 3.

Typical Equipment Lead Times	
Component	*Months*
Transformers, Switchgear, Circuit Protection (Reclosers)	5
Lighting Poles (Aluminum) and Luminaries	3
Overhead or Underground conductor, hardware, meters	1

Table 3

Equipment Lead Time (continued)

Fast track projects such as portable classrooms, temporary mobile offices, and other such similar structures present a challenge as contractors often erect a temporary facility faster than lead times for Aluminum street light poles and decorative fixtures.

For fast track lighting projects, wood pole construction with standard Utility (gray) Cobra head luminaries should be considered.

Right of Way Clearing

The Forestry Department at Fort Stewart and Hunter Army Airfield will coordinate the removal of all merchantable timber in the Right of Way path of Canoochee EMC's power distribution system. Upon removal of merchantable timber, Canoochee EMC will use their discretion in the determination of the right of way width and type of vegetation for removal or disposal.

Ricky Simons	Charlie Brewer	Michael Wasson	3/20/09	3
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3

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Lighting
Design Parameters
The following pages define the lighting and pole standards offered by Canoochee EMC for installation at Fort Stewart and Hunter Army Airfield.

CEMC will provide lighting equipment specifications for poles, fixtures, bases, break a way bases, foundations, and base mounted pole anchor bolt patterns.

Lighting should be designed to meet both IES guidelines and Dark Sky initiatives. Considerations should be given in the design for prevention of glare and light intrusion into adjacent areas.
Base Mounted poles should be selected for areas where the poles are to be installed within 4 feet of the curb. For high traffic impact, concrete foundation should be specified for installation 36 inches above final grade. For low traffic impact, concrete foundation should be specified for installation 3 inches above final grade. For areas near road level breakaway bases will be used. For areas with no traffic impact, Direct Bury poles should be specified.

High Pressure Sodium and Metal Halide lighting are both utilized on Fort Stewart and Hunter Army Airfield. High Pressure Sodium is preferred for Residential areas, Motor Pools, and along major Roadways. Metal Halide is preferred for Commercial areas, Offices, and the Garrison areas of the base.

Security Cameras
Canoochee EMC does not allow security cameras to be attached to or mounted on distribution power or street lighting poles. (NESC /NEC Code Compliance requirement.)

Bollard Lighting
CEMC does not offer new bollard lighting in the lighting standards.

General Contractor installation Requirements
GC will furnish and install all foundations and conduit for underground lighting. All lighting conduits shall be 11/2”to 2” diameter and buried a minimum of **30 inches deep.** Each conduit will contain a pull string.

General Contractor installation Requirements (Continued)
GC will install all concrete pole base foundations with three feet protruding above grade in areas where vehicles park or travel in close proximity to the street light location and/or foundations with breakaway bases. Direct buried street light poles will be installed by CEMC in areas where poles are protected or located out of vehicular parking or travel.

GC will furnish and install the anchor bolts and a pole ground in all street lighting foundations at the time the foundations are poured.

Utilities Protection at Fort Stewart
Canoochee EMC is a charter member of the Fort Stewart Hunter Army Airfield Utility Coordination Committee (FSHAAUCC). This committee is a peer group of contractors, locators, and utilities meeting the second Wednesday of each month to discuss underground dig law requirements and issues at Fort Stewart and Hunter Army Airfield.

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Drawn	*Edited*	*Approved*	*Date*	*Rev.*

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All underground construction on both military bases is permitted by the Georgia Utilities Protection Center. Excavation requirements in Georgia require a Dig Permit obtained through the one call center……. Call before You Dig Number 1-800-282-7111.

Contractors are invited to attend these meetings to meet with utility representatives and base locator contractors for a safer work environment and protection of the military's underground infrastructure.

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Drawn	*Edited*	*Approved*	*Date*	*Rev.*

5

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Shoebox Fixture **General Electric (GE) DECASHIELD Series**
Dark Bronze finish

Recommended for use along roadways or in parking lots where large amounts of light are desired and aesthetics are of a primary concern. The adapter allows designer to install one, two, three, or four lights per pole.

Shoebox

	Voltage	Wattage	Type	Design
M27-S17-BR	SYL Multi-Volt	175W	MH	Shoebox-Bronze
M27-S25-BR	SYL Multi-Volt	250W	MH	Shoebox-Bronze
M27-S40-BR	SYL Multi-Volt	400W	MH	Shoebox-Bronze
M27-S100-BR	SYL Multi-Volt	1000W	MH	Shoebox-Bronze

Shoebox Accessories

M25-S1-BR	Pole Top Tenon Adapter Square

Ricky Simons	Charlie Brewer	Michael Wasson	3/20/09	3
Drawn	*Edited*	*Approved*	*Date*	*Rev.*

6

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Post Top Fixture **General Electric (GE) Salem Post Top Series**
Dark Bronze or Black Finish

These fixtures are recommended for use in residential areas and Garrison areas subject to high likelihood of damage. Typical example: walkways, barracks and office buildings.

Standard Post Top

	Voltage	Wattage	Type	Design
M26-PS10-BL	SYL Multi-Volt	100W	HPS	Salem Post Top-Black
M26-PS10-BR	SYL Multi-Volt	100W	HPS	Salem Post Top-Bronze
M27-PS10-BL	SYL Multi-Volt	100W	MH	Salem Post Top-Black
M27-PS10-BR	SYL Multi-Volt	100W	MH	Salem Post Top-Bronze
M27-PS17-BL	SYL Multi-Volt	175W	MH	Salem Post Top-Black

Ricky Simons	Charlie Brewer	Michael Wasson	3/20/09	3	7
Drawn	*Edited*	*Approved*	*Date*	*Rev.*	

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P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

M27-PS17-BR	SYL Multi-Volt	175W	MH	Salem Post Top-Bronze

Premium Post Top Fixtures **General Electric (GE) Dynamics 547 Series Black finish**

Recommended for use in high visibility residential neighborhoods where the likelihood of damage is small. These fixtures may be used with fiberglass or aluminum poles.

Premium Post Top

	Voltage	Wattage	Type	Design
M26-PD15-BL	SYL Multi-Volt	150W	HPS	D547 Post Top-Black
M27-PD17-BL	SYL Multi-Volt	175W	MH	D547 Post Top-Black

Ricky Simons	Charlie Brewer	Michael Wasson	3/20/09	3
Drawn	*Edited*	*Approved*	*Date*	*Rev.*

8

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.

Standard Cobrahead **General Electric (GE) M250R Series**
Grey Finish Recommended for use along roadways where aesthetics are not of primary concern

Standard Cobrahead

Voltage	Wattage	Type	Design
SYL			

Standard Cobra head

Model	Voltage	Wattage	Type	Design
M26-15C	SYL Multi-Volt	150W	HPS	Cobrahead-Gray
M26-25C	SYL Multi-Volt	250W	HPS	Cobrahead-Gray
M26-40C	SYL Multi-Volt	400W	HPS	Cobrahead-Gray

Ricky Simons	Charlie Brewer	Michael Wasson	3/20/09	3
Drawn	*Edited*	*Approved*	*Date*	*Rev.*

9

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Premium Cobrahead Fixtures Cut-Off **General Electric (GE) M-250R Series**
Bronze or black finish

Recommended for use in non-residential areas where aesthetics are not of primary concern.

Premium Cobrahead

M26-C25-BL	SYL Multi-Volt	250W	HPS	Cobrahead-Black
M26-C25-BR	SYL Multi-Volt	250W	HPS	Cobrahead-Bronze
M26-C40-BL	SYL Multi-Volt	400W	HPS	Cobrahead-Black
M26-C40-BR	SYL Multi-Volt	400W	HPS	Cobrahead-Bronze
M27-C25-BL	SYL Multi-Volt	250W	MH	Cobrahead-Black
M27-C25-BR	SYL Multi-Volt	250W	MH	Cobrahead-Bronze
M27-C40-BL	SYL Multi-Volt	400W	MH	Cobrahead-Black
M27-C40-BR	SYL Multi-Volt	400W	MH	Cobrahead-Bronze

Premium Cobrahead Accessories

M25-C1-BL	8' Black Aluminum Arm Tenon Mount
M25-C1-BR	8' Bronze Aluminum Arm Tenon Mount
M25-C2-BL	8' Black Aluminum Double Arm Tenon Mount
M25-C2-BR	8' Bronze Aluminum Double Arm Tenon Mount

Ricky Simons	Charlie Brewer	Michael Wasson	11/4/08	2
Drawn	*Edited*	*Approved*	*Date*	*Revision*

10

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Power Floodlight **General Electric Power Directional Flood Light Dark Bronze**

Recommended for use in areas where large areas need to be lighted and aesthetics are of secondary importance.

Floodlights

	Voltage	Wattage	Type	Design
M26-F25-BR	SYL Multi-Volt	250W	HPS	PowerFlood-Bronze
M26-F40-BR	SYL Multi-Volt	400W	HPS	PowerFlood -Bronze
M26-F100-BR	SYL Multi-Volt	1000W	HPS	PowerFlood -Bronze
M27-F25-BR	SYL Multi-Volt	250W	MH	PowerFlood -Bronze
M27-F40-BR	SYL Multi-Volt	400W	MH	PowerFlood -Bronze
M27-F100-BR	SYL Multi-Volt	1000W	MH	PowerFlood -Bronze

Floodlight Accessories

M25-F2-BR	Double Floodlight Arm Tenon Mount Bronze
M25-F3-BR	Three Floodlight Arm Tenon Mount Bronze
M25-F3X-BR	Three Floodlight Arm Tenon Mount 120 Degree Bronze
M25-F4-BR	Four Floodlight Arm Tenon Mount Bronze
M25-F4X-BR	Four Floodlight Arm Tenon Mount 90 Degree Bronze

Ricky Simons	Charlie Brewer	Michael Wasson	11/4/08	2
Drawn	*Edited*	*Approved*	*Date*	*Revision*

11

Canoochee
Electric Membership Corporation
P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

Direct Burial Poles

PA-15-BL	15' Aluminum Pole Black (12' mounting height)
PA-15-BR	15' Aluminum Pole Bronze (12' mounting height)
PA-25-BL	25' Aluminum Pole Black (22' mounting height)
PA-25-BR	25' Aluminum Pole Bronze (22' mounting height)
PA-35-BL	35' Aluminum Pole Black (30' mounting height)
PA-35-BR	35' Aluminum Pole Bronze (30' mounting height)
PF-20-BL	20' Fiberglass Pole Black
PF-20-BR	20' Fiberglass Pole Bronze

Base Mount Poles

PA-B12-BL	12' Aluminum Pole Black (12, Mounting height, requires level foundation with grade or 13.5' w/ breakaway base)
PA-B12-BR	12' Aluminum Pole Bronze (12, Mounting height, requires level foundation with grade or 13.5' w/ breakaway base)
PA-B28-BL	28' Aluminum Pole Black (28' Mounting height, requires level foundation with grade or 29.5' w/ breakaway base)
PA-B28-BR	28' Aluminum Pole Bronze (28' Mounting height, requires level foundation with grade or 29.5' w/ breakaway base)
PA-B33-BL	33' Aluminum Pole Black (33' mounting height, requires base 36" above grade)
PA-B33-BR	33'-Aluminum Pole Bronze (33' Mounting Height, requires base 36" above grade)

Pole Foundations

PFOUNDXS	Pole Foundation Extra Small Used for flood lights at grade
PFOUNDS	Pole Foundation Small Used for base mounting 3" above grade
PFOUNDL	Pole Foundation Large Used for base mounting 36" above grade
PFOUNDXL	Pole Foundation Extra Large Used for base mounting 36" above grade

Miscellaneous Accessories

M25-SPLICE	Polymer Underground Splice Box 12"x12"x12"
M25-PHOTO	Photo Cell Controlled Contactor
M25-TIME	Timer Controlled Contactor
P-BREAK-BL	Breakaway Base-Black adds 1.5 feet to height
P-BREAK-BR	Breakaway Base-Bronze adds 1.5 feet to height

Ricky Simons	Charlie Brewer	Michael Wasson	11/4/08	2
Drawn	*Edited*	*Approved*	*Date*	*Revision*

12

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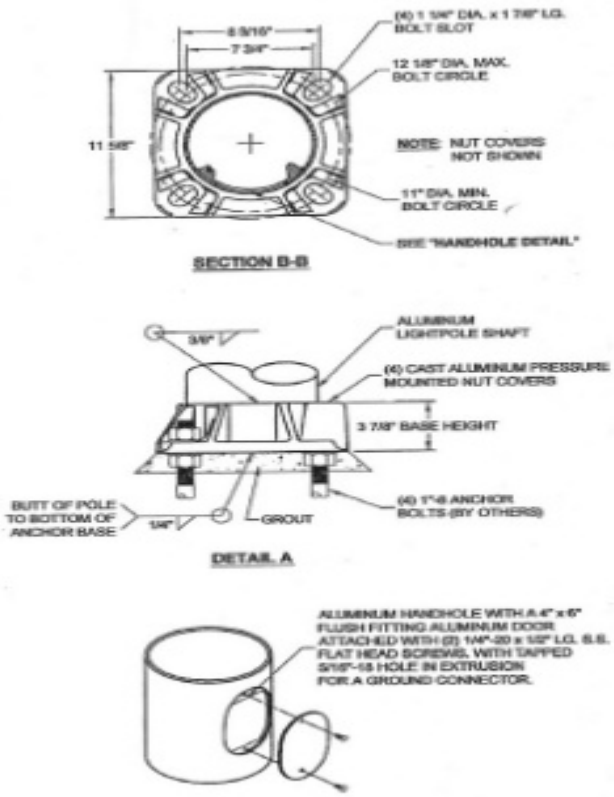


Ricky Simons	Charlie Brewer	Michael Wasson	11/4/08	2
Drawn	*Edited*	*Approved*	*Date*	*Revision*

13

Canoochee
Electric Membership Corporation
P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

Line of Demarcation for Canoochee EMC facilities at Fort Stewart and Hunter Airfield

Canoochee EMC operates and maintains the base electrical distribution systems at Fort Stewart and Hunter Army Airfield. The interface between Canoochee EMC's facilities and those operated and maintained by others (such as Department of Public Works (DPW)) is known as the ***line of demarcation.***

Transmission lines and structures entering both military bases are owned by Georgia Power and operated and maintained by the Georgia Transmission Authority.

Electrical substations on Fort Stewart and Hunter Army Airfield are owned, operated, and maintained by Georgia Power Company and Canoochee EMC.

Electrical overhead and underground distribution circuits serving both bases originating in the electrical sub-stations are privatized and operated and maintained by Canoochee EMC.

Canoochee EMC and Georgia Power Company also provides primary metered electrical distribution from off base electrical sources to Camp Oliver, CACTAF, Shoot House, and other ranges and complexes north of Highway 144. Canoochee EMC operates and maintains the distribution power line and transformation up to the secondary meter point.

1-Ricky Simons	8/1/08	Michael Wasson	8/1/08	0
Drawn	*Date*	*Approved*	*Date*	*Revision*

Canoochee
Electric Membership Corporation
P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

Lighting circuits originating from CEMC transformers are operated and maintained by Canoochee EMC.

Specifically, for underground construction,
.

- From the source (transformer) to the point of metering is the responsibility of Canoochee EMC.

- From the point of metering to the first downstream device such as a breaker or the main electrical panel, load is the responsibility of the Military, Department of Public Works, Winn Army Hospital, National Guard, or any other agencies or facilities responsible for operation and maintenance of their facility.

- **Example**: Services less than 600 amp capacity are metered on a meter pole or the side of building. Services greater than 600 amp capacity is usually metered on the transformer.

Additional examples of the line of demarcation for over head, underground, and lighting applications are shown on pages 3 and 4.

For additional information, contact the following Canoochee EMC offices for assistance on questions regarding the line of demarcation:

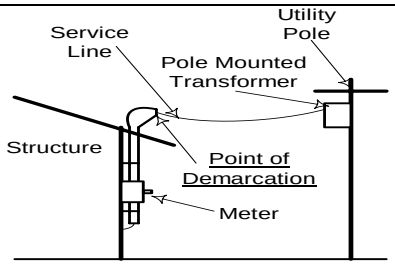
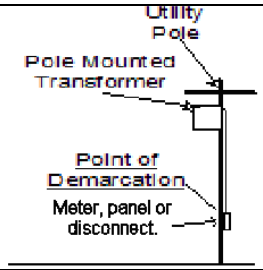
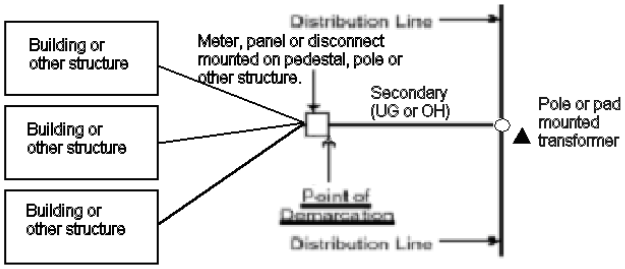
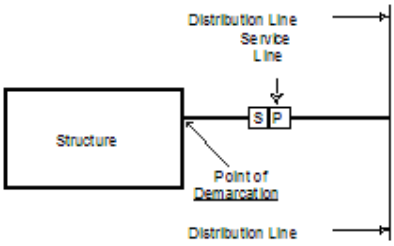
Base	During Business Hours	After Business Hours
Fort Stewart	**912-459-1112**	**800-459-0134**
Hunter Army Airfield	**912-459-1113**	**800-459-0134**

Table 1

Note: Business Hours are 7 a.m. to 4 p.m. Monday through Friday.

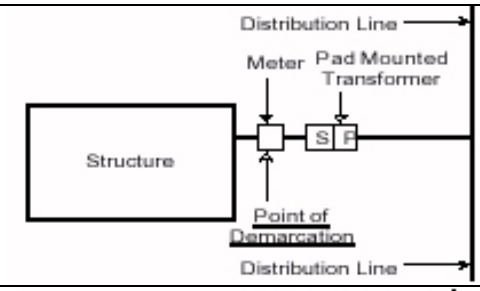
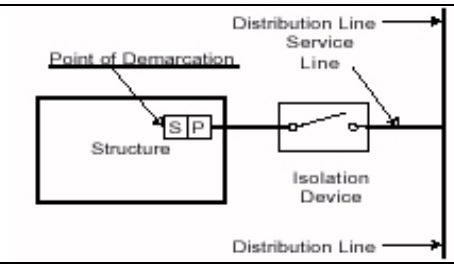
2-Ricky Simons	8/1/08	Michael Wasson	8/1/08	0
Drawn	*Date*	*Approved*	*Date*	*Revision*

Canoochee
Electric Membership Corporation
P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

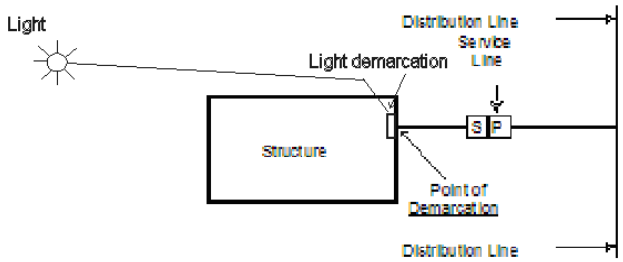
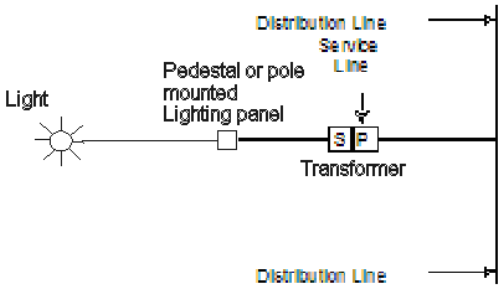
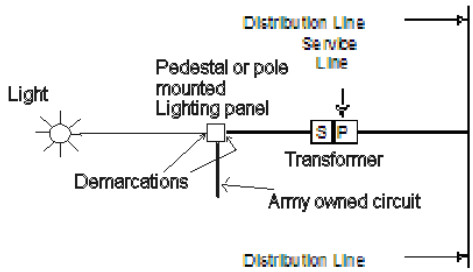
Overhead Service Applies to metered and non-metered locations. Demarcation is at the mast head.	
Underground Secondary on Pole. Demarcation is at the meter, panel or disconnect device.	
Service to Panel, Disconnect device or meter mounted on pedestal, pole or other structure. Not applicable to lighting or residential circuits. Demarcation is at the entry point into the meter, panel or disconnect device.	
Underground Service to non-residential location. Demarcation is at the entry to the panel or disconnect device. Typically for 600 amp or less.	

3-Ricky Simons	8/1/08	Michael Wasson	8/1/08	0
Drawn	*Date*	*Approved*	*Date*	*Revision*

Canoochee
Electric Membership Corporation
P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

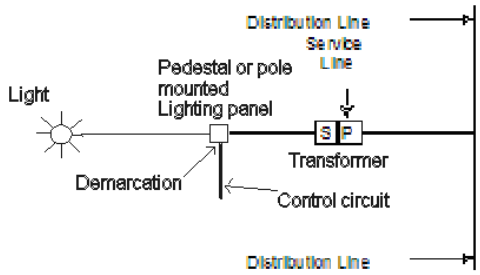
Underground Service to residential location. Applies to units with secondary panels between the transformer and the residence. Demarcation is at the meter or meter base. Typically for 600 amp or greater.	
Indoor Transformers. Demarcation is at the secondary lugs of the transformer.	

Lighting Systems

Lighting circuit originating from a building. Does not include interior panel, contactors or controls. Lighting demarcation at lighting circuit termination into panel.	
Lighting circuits originate from a panel mounted on a pedestal, pole or other structure. The panel is served directly from a transformer. No government-owned circuits exit the panel. No demarcation exists… everything to the light is CEMC-owned.	
Lighting circuits originate from a panel serving Army-owned circuits. Demarcations exist on the incoming and outgoing entry points. The panel and circuits for non-lighting loads are owned by the Army.	

4-Ricky Simons	8/1/08	Michael Wasson	8/1/08	0
Drawn	*Date*	*Approved*	*Date*	*Revision*

Canoochee
Electric Membership Corporation
P. O. Box 487 / Reidsville, Georgia 30453 / Phone (912) 557-4391

Lighting circuits from panel used exclusively for lighting but with external controls. Typical for ball fields. Any external controls and the control circuits are Army-owned.	

5-Ricky Simons	8/1/08	Michael Wasson	8/1/08	0
Drawn	*Date*	*Approved*	*Date*	*Revision*

Appendix C.5 - Communications

There are no outside plant connections to the telecommunications system required for this expansion. There is adequate capacity in the telecommunications system to the existing TEMF to accommodate additional voice/data outlets.

See Appendix C.4(A) Utility Connections for general communications information and point of contact.

Appendix C.6 – Cable TV

There are no cable TV requirements for this expansion.

See Appendix C.4(A) Utility Connections for general Cable TV information and point of contact.

Shipman, Calvin V Mr CIV USA IMCOM

From: Dressler, Bradley S CTR USA FORSCOM
Sent: Thursday, October 29, 2009 3:52 PM
To: 'John Sloate'
Cc: Stolba, Andrea M Mrs CIV USA FORSCOM
Subject: Hydrant test results (UNCLASSIFIED)
Signed By: bradley.s.dressler@us.army.mil

Classification: UNCLASSIFIED

Caveats: NONE

Hi John,

Hydrant test results near Bldg. 708 HAAF:

Hydrant #	Static	Residual	Pitot	GPM	Building Side
600-4B	60	36	16	670	South
600-4	60	53	36	1010	Northeast
600-5	59	50	30	920	East
600-5C	60	29	15	650	West

Any more questions, just call! I cc'd Andrea in case this didn't come through.

Brad

Brad Dressler

Mechanical Engineer

Directorate of Public Works

Engineering Services Division

Classification: UNCLASSIFIED

Caveats: NONE

Appendix E – Not Used

Exterior Colors

Brick:	Belden Dutch Gray Smooth
Mortar:	Standard Gray
Paint:	Exterior Metal – Match Centria #5012 Marble
Prefinished Metal Wall Panels:	Match Centria #5012 Marble
Louvers and Exhaust Fans:	Match Centria #5012 Marble
Prefinished Metal Trim:	Match Uniclad Stone White
Prefinished Metal Gutters/DS:	Match Uniclad Stone White
Hollow Metal Doors/Frames:	Match Dark Bronze
Sealant at Doors:	Match Doors
Expansion Joints:	Match Adjacent Colors
Prefinished Metal Roof:	Match Uniclad Stone White
Overhead Doors:	Match Centria #5012 Marble
Pipe Bollards:	Paint Safety Yellow

Appendix G – Not Used.

Building Number Sign

Sign Stock: 36”x18”x1/8” aluminum

Sign Material: FED SPEC LS-300C, Type 1, Table III, (high intensity encapsulated lens) reflective sheet.

Color: Brown (FED SPEC Color Number 20140) with 12” white letters.

Text: The contracting officer shall provide text.

Appendix I – Not used.

Appendix J - Drawings

US Army Corps of Engineers

Savannah District

HUNTER AAF TACTICAL EQUIPMENT MAINTENANCE FACILITY (TEMF) EXPANSION

HUNTER ARMY AIRFIELD, GA

PN 69759

INDEX OF DRAWINGS

PLATE NO.	SHEET NO.	DGN FILE	TITLE
G-001	01	h8mG-001	COVER SHEET- INDEX OF DRAWINGS AND ABBREVIATIONS
G-002	02	h8mG-002	LOCATION PLAN
VF001	03	H8NVF001	SITE SURVEY NOTES AND LEGEND
VF101	04	H8NVF101	OVERALL SITE SURVEY
VF102	05	H8NVF102	SITE SURVEY
VF103	06	H8NVF103	SITE SURVEY
CS101	07	H8NCS101	SITE PLAN
A-101	08	h8mA-101	OVERALL FLOOR PLAN
A-102	09	h8mA-102	FLOOR PLAN AND ELEVATION
A-201	10	h8mA-201	BUILDING ELEVATION

STANDARD ABBREVIATIONS

A

A.C.	AIR CONDITIONED
A.D.	AREA DRAIN
A.H.U.	AIR HANDLING UNIT
ALT.	ALTERNATE
ALUM.	ALUMINUM
AMP., A.	AMPERES
A.O.	ACCESS OPENING
APPROX.	APPROXIMATELY
ARCH.	ARCHITECTURAL
A.T.	ASPHALT TILE
A.T.C.	ACOUSTIC TILE CEILING

B

BAL.	BALANCE
BD.	BOARD
BLDG.	BUILDING
BLK.	BLANK
BM.	BEAM
BOT.	BOTTOM
BRG.	BEARING
B.T.U.H.	BRITISH THERMO UNIT/HOUR

C

CAB.	CABINET
CAP.	CAPACITY
C/B	CIRCUIT BREAKER
C.D.	CEILING DIFFUSER
CEM.	CEMENT
CER.	CERAMIC
C.F.M.	CUBIC FEET/MINUTE
CKT.	CIRCUIT
℄	CENTER LINE
CEIL.	CEILING
CL.	CLOSET
C.M.U.	CONCRETE MASONRY UNIT
C.O.	CLEAN OUT
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDENSATE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR. JT.	CONTRACTION JOINT
C.S.C.	COLOR SYMBOL CODE
C.T.	CERAMIC TILE
C.T.B.	CERAMIC TILE BASE
C. TO C.	CENTER TO CENTER

D

DET.	DETAIL
DIA.	DIAMETER
DIFF.	DIFFUSER
DIM.	DIMENSION
DISC.	DISCONNECT
D.J.	DUMMY JOINT
DN.	DOWN
DR.	DRAIN
D.S.	DOWN SPOUT
DWG.(S)	DRAWING(S)

E

EA.	EACH
ELEC.	ELECTRIC
EQUIP.	EQUIPMENT
E.W.C.	ELECTRIC WATER COOLER
EXH.	EXHAUST
EXP. JT.	EXPANSION JOINT
EXT.	EXTERIOR
EXIST.	EXISTING

F

F.A.	FIRE ALARM
F.C.	FLEXIBLE CONNECTION
F.D.	FLOOR DRAIN
F.E.C.	FIRE EXTINGUISHER CABINET
FIN.	FINISH
FL.	FLOOR
FT.	FOOT, FEET
FTG.	FOOTING

G

GA.	GAGE
GAL.	GALLON
GALV.	GALVANIZED
G.F.E.	GOVERNMENT FURNISHED EQUIPMENT
GL.	GLASS
GND.	GROUND
GOV'T	GOVERNMENT
G.P.H.	GALLONS/HOUR
G.P.M.	GALLONS/MINUTE
GR.	GRILLE
G.W.B.	GYPSUM WALL BOARD

H

H.	HIGH
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
HT.	HEIGHT
H.M.	HOLLOW METAL
H.P.	HORSE POWER
HR.	HOUR
HTG.	HEATING
HTR.	HEATER
H.&V.	HEATING AND VENTILATING
HW.	HARDWARE
HYD.	HYDRANT

I

I.D.	INSIDE DIAMETER
I.E.	INVERT ELEVATION
IN.	INCHES
INCAND.	INCANDESCENT
INSUL.	INSULATION
INT.	INTERIOR

J

J.B.	JUNCTION BOX
JCT.	JUNCTION
JT.	JOINT

K

KVA	KILOVOLT AMPERE

L

LB.,#	POUND
LG.	LONG
L.P.	LIGHTING PANEL
LTG.	LIGHTING

M

M.	MOTOR
MAINT.	MAINTENANCE
MAX.	MAXIMUM
M.D.P.	MAIN DISTRIBUTION PANEL
MECH.	MECHANICAL
MTL.	METAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
M.T.	METAL THRESHOLD
MTD.	MOUNTED
MTG.	MOUNTING
M.V.	MECHANICAL VENTILATION
M.G.T.	MATT GLAZE TILE

N

N.A.	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER

O

O.A.	OUTDOOR AIR
OL.	OVERLOAD
OPNG.	OPENING
OPP.	OPPOSITE
O.S.D.	OPEN SIGHT DRAIN

P

P.	PAPER
PART.	PARTITION
PER.	PERIMETER
ℙ, PL.	PLATE
PLBG.	PLUMBING
PLYW'D	PLYWOOD
PNL.	PANEL
PRESS.	PRESSURE
PSF	POUNDS/SQUARE FOOT
PSI	POUNDS/SQUARE INCH
PSIG	POUNDS/SQUARE INCH GAGE
PT.	POINT
PTD.	PAINTED

Q

QTR.	QUARTER
QUAN.	QUANTITY

R

R.	RISER
R.A.	RETURN AIR
RAD.	RADIUS
RD.	ROUND
REG.	REGISTER
REINF.	REINFORCING
REQ.	REQUIRED
RET.	RETURN
R.G.	RETURN GRILLE
RM.	ROOM
R.P.M.	REVOLUTION/MINUTE

S

S.	SUPPLY
S.A.	SUPPLY AIR
SCH.	SCHEDULE
SECT.	SECTION
SERV.	SERVICE
SHT.	SHEET
S.J.	SLIP JOINT
SPEC.	SPECIFICATIONS
SQ. FT.	SQUARE FEET
ST.	STEEL
STOR.	STORAGE
STRUC.	STRUCTURAL
SUSP.	SUSPENDED
SW.	SWITCH

T

T.	TOILET
TEL.	TELEPHONE
TEMP.	TEMPERATURE
THK.	THICKNESS
THD.	THRESHOLD
TOIL.	TOILET
TYP.	TYPICAL

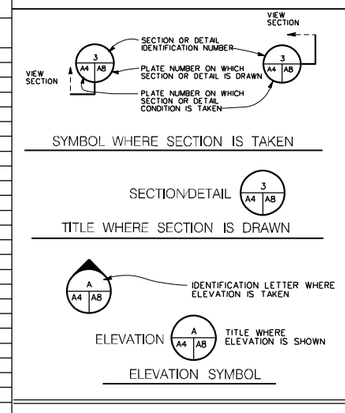
V

V.	VOLT
V.A.T.	VINYL ASBESTOS TILE
VENT.	VENTILATION
VERT.	VERTICAL
VTR	VENT THRU ROOF

W

W.	WATT
W/	WITH
WC	WAINSCOATING
WD.	WOOD
W.D.	WINDOW DIMENSION
WF	WIDE FLANGE
W.G.	WATER GAGE
WP.	WEATHERPROOF
WTR.	WATER
W.W.F.	WELDED WIRE FABRIC

SECTION SYMBOLS



MATERIAL INDICATIONS

- EARTH (ORIGINAL GRADE)
- EARTH (COMPACTED FILL)
- GRAVEL
- CONCRETE
- MORTAR - CEMENT - PLASTER - STUCCO
- CONCRETE MASONRY UNITS (C.M.U., SMALL\ SCALE - PLAN)
- CONCRETE MASONRY UNITS (C.M.U., LARGE SCALE - SECTION)
- CONCRETE MASONRY UNITS OR HOLLOW TILE (SMALL SCALE - SECTION)
- METAL (ELEVATION)
- STEEL (CROSS SECTION)
- INSULATION (RIGID)
- INSULATION (LOOSE OR BATT)
- BRICK
- WOOD (BLOCKING)
- WOOD (FINISH)

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE:
PLOT SCALE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

COVER SHEET - INDEX OF DRAWINGS AND ABBREVIATIONS

PLATE REFERENCE NUMBER
G-001
SHEET 01

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

NOTES:

1. A DISPOSAL AREA ON THE BASE IS NOT AVAILABLE FOR THIS PROJECT. ALL MATERIALS NOT SUITABLE FOR RECYCLING SHALL BE DISPOSED OF IN AN APPROVED LANDFILL , OFF THE INSTALLATION, AT THE CONTRACTOR'S EXPENSE. RECYCLED MATERIALS SHALL BE DISPOSED OF AT APPROVED RECYCLING FACILITIES. AN INVENTORY OF RECYCLED MATERIALS SHALL BE PROVIDED TO THE CONTRACTING OFFICER.

2. A SANITARY LANDFILL ON THE INSTALLATION IS NOT AVAILABLE FOR THIS PROJECT. ALL SANITARY LANDFILL MATERIAL SHALL BE DISPOSED OF IN AN APPROVED SANITARY LANDFILL, OFF THE INSTALLATION, AT THE CONTRACTOR'S EXPENSE.

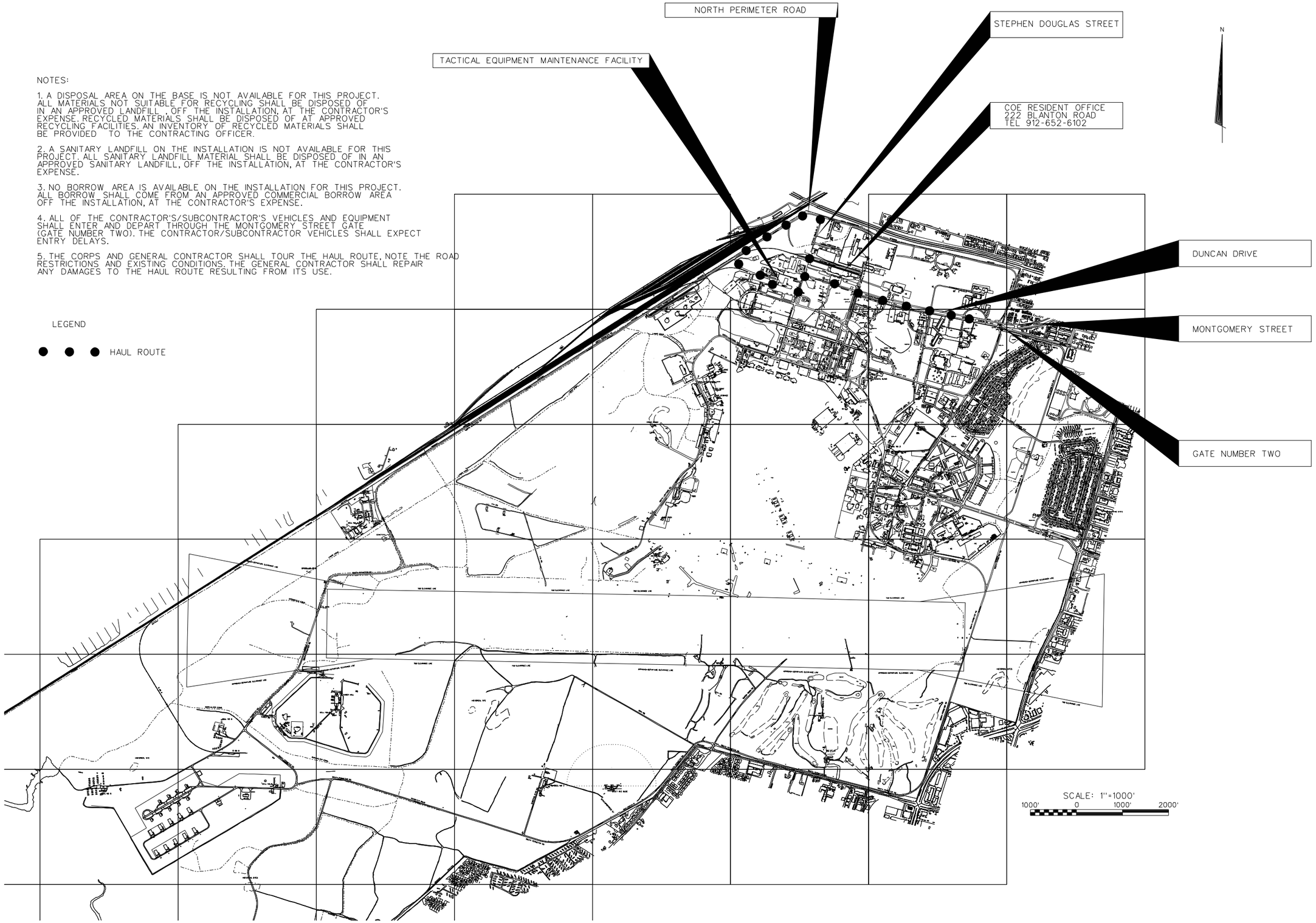
3. NO BORROW AREA IS AVAILABLE ON THE INSTALLATION FOR THIS PROJECT. ALL BORROW SHALL COME FROM AN APPROVED COMMERCIAL BORROW AREA OFF THE INSTALLATION, AT THE CONTRACTOR'S EXPENSE.

4. ALL OF THE CONTRACTOR'S/SUBCONTRACTOR'S VEHICLES AND EQUIPMENT SHALL ENTER AND DEPART THROUGH THE MONTGOMERY STREET GATE (GATE NUMBER TWO). THE CONTRACTOR/SUBCONTRACTOR VEHICLES SHALL EXPECT ENTRY DELAYS.

5. THE CORPS AND GENERAL CONTRACTOR SHALL TOUR THE HAUL ROUTE, NOTE THE ROAD RESTRICTIONS AND EXISTING CONDITIONS. THE GENERAL CONTRACTOR SHALL REPAIR ANY DAMAGES TO THE HAUL ROUTE RESULTING FROM ITS USE.

LEGEND

● ● ● HAUL ROUTE



US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE:
PLOT SCALE:
DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

LOCATION PLAN

PLATE REFERENCE NUMBER
G-002
SHEET 02

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

LEGEND

LIGHT	
FIRE HYDRANT	
MANHOLE	
GAS	G
WATER	W
SANITARY SEWER	S
STORM SEWER	SD SD SD
GRATE INLET	
SHRUB/FLOWER WOODS LINE	
OVERHEAD POWER	OHP
UNDERGROUND POWER	UGP
OVERHEAD COMMUNICATION	OHC
UNDERGROUND COMMUNICATION	UGC
VALVE	
EXISTING CONTOUR	
SPOT GRADE	+50.4
SIGN	
POWER POLE & GUY	
OVERHEAD TELEPHONE	OHT
UNDERGROUND TELEPHONE	UGT
GAS METER	GM
WATER METER	WM
TELEPHONE/COMMUNICATIONS PEDESTAL/STUB OUT	

NOTES:

1. VERTICAL DATUM WAS PROVIDED BY CROMWELL ENGINEERING.(SEE NOTE #11)
2. CONTOUR INTERVAL IS 1'
3. CONTRACTOR TO VERIFY BENCHMARKS, FINISH FLOORS, AND INVERTS PRIOR TO SETTING FINISH GRADES.
4. THE CONTRACTOR SHALL ASCERTAIN THE TRUE LOCATION OF ANY UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGES CAUSED BY THE DESTRUCTION OF ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON. FIELD VERIFICATION IS REQUIRED FOR ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
5. THE ARCHITECT AND CONTRACTOR SHALL REVIEW ALL AVAILABLE PREVIOUS CONSTRUCTION DOCUMENTS FOR LOCATION OF ANY ADDITIONAL INFORMATION ON EXISTING UTILITIES SHOWN OR NOT SHOWN.
6. UNDERGROUND UTILITIES AS PER GEORGIA UTILITIES PROTECTION CENTER TICKET #06230-236-021.
7. UNDERGROUND COMMUNICATIONS (VOICE & DATA) AS PER BOBBY JOINER WITH NEC (MILITARY COMMUNICATIONS) (912) 767-8670.
8. UNDERGROUND POWER AS PER CANOOCHEE ELECTRIC MEMBERSHIP CO-OP.
9. SANITARY SEWER, STORM SEWER, WATER AND GAS AS PER JIM MADDOX, FT. STEWART/HUNTER (912) 767-5505.
10. UNDERGROUND CABLE TV AS PER JOE WITH COMCAST CABLE (912) 631-6331.
11. HORIZONTAL AND VERTICAL DATUM AS PER PLATE # C-101, SHEET 021 OF "SITE LAYOUT PLAN-TEMF" CROMWELL ARCHITECTS ENGINEERS, REVISED AUGUST 7, 2006.
12. WATER LINE SIZES AND MATERIALS TAKEN FROM "HAAF MASTER PLAN" PROVIDED TO US FROM HAAF DEPT. OF PUBLIC WORKS.

BENCHMARK CHART

BENCHMARK #1	BOLT ON FLANGE OF A FIRE HYDRANT BETWEEN "ALBERT" & "VILLE" (PAINTED) ELEV. = 20.76'
BENCHMARK #2	BOLT ON FLANGE OF A FIRE HYDRANT BETWEEN "ALBERT" & "VILLE" (PAINTED) ELEV. = 21.99'
BENCHMARK #3	BOLT ON FLANGE OF A FIRE HYDRANT BETWEEN "ALBERT" & "VILLE" (PAINTED) ELEV. = 20.76'
BENCHMARK #4	RAILROAD SPIKE IN NORTH SIDE OF LIGHT POLE 1' ABOVE GRADE ELEV. = 19.30'
BENCHMARK #5	RAILROAD SPIKE IN SOUTHWEST SIDE OF POWER POLE 1' ABOVE GRADE ELEV. = 18.95'
BENCHMARK #6	BOLT ON FLANGE OF A FIRE HYDRANT BETWEEN "ALBERT" & "VILLE" (PAINTED) ELEV. = 20.00'

CONTROL POINT CHART

SEE NOTE #11

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	740112.660	974904.797	19.09	REBAR
2	739822.380	974906.977	20.33	SPIKE NAIL
3	739859.472	974614.993	21.69	REBAR
4	740294.437	974249.415	18.09	REBAR
5	740134.939	974504.314	18.80	REBAR
6	740291.270	974816.483	18.29	REBAR
7	740189.703	975074.059	18.76	SPIKE NAIL

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY JAMES M. ANDERSON, GA. R.L.S. #2113, ON JULY 02, 2010 THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT. AUTHORITY O.C.G.A. 43-15-22.

IN MY OPINION THIS PLAT IS A TRUE AND CORRECT REPRESENTATION OF THE LAND SHOWN BY THIS PLAT.

_____

JAMES M. ANDERSON & ASSOCIATES, INC.
REGISTERED LAND SURVEYORS
P.O. BOX 894 104 OAK STREET
STATESBORO, GA. 30459
PHONE: (912) 764-2002

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: | DATE: 17 SEPTEMBER 2010
DWN BY: | CKD BY: | SOLICITATION NO.: W912HN-11-R-0009
SUBMITTED BY: | CONTRACT NO.:
FILE NAME: | CATEGORY CODE: 214-10-07
SIZE: | PLOT SCALE: | PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

SITE SURVEY NOTES AND LEGEND

PLATE REFERENCE NUMBER
VF001
SHEET 03

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

LEGEND

LIGHT	
FIRE HYDRANT	
MANHOLE	
GAS	G
WATER	W
SANITARY SEWER	S
STORM SEWER	SD
GRATE INLET	
SHRUB/FLOWER WOODS LINE	
OVERHEAD POWER	OHP
UNDERGROUND POWER	UGP
OVERHEAD COMMUNICATION	OHC
UNDERGROUND COMMUNICATION	UGC
VALVE	
EXISTING CONTOUR	
SPOT GRADE	+50.4
SIGN	
POWER POLE & GUY	
OVERHEAD TELEPHONE	OHT
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WATER METER	
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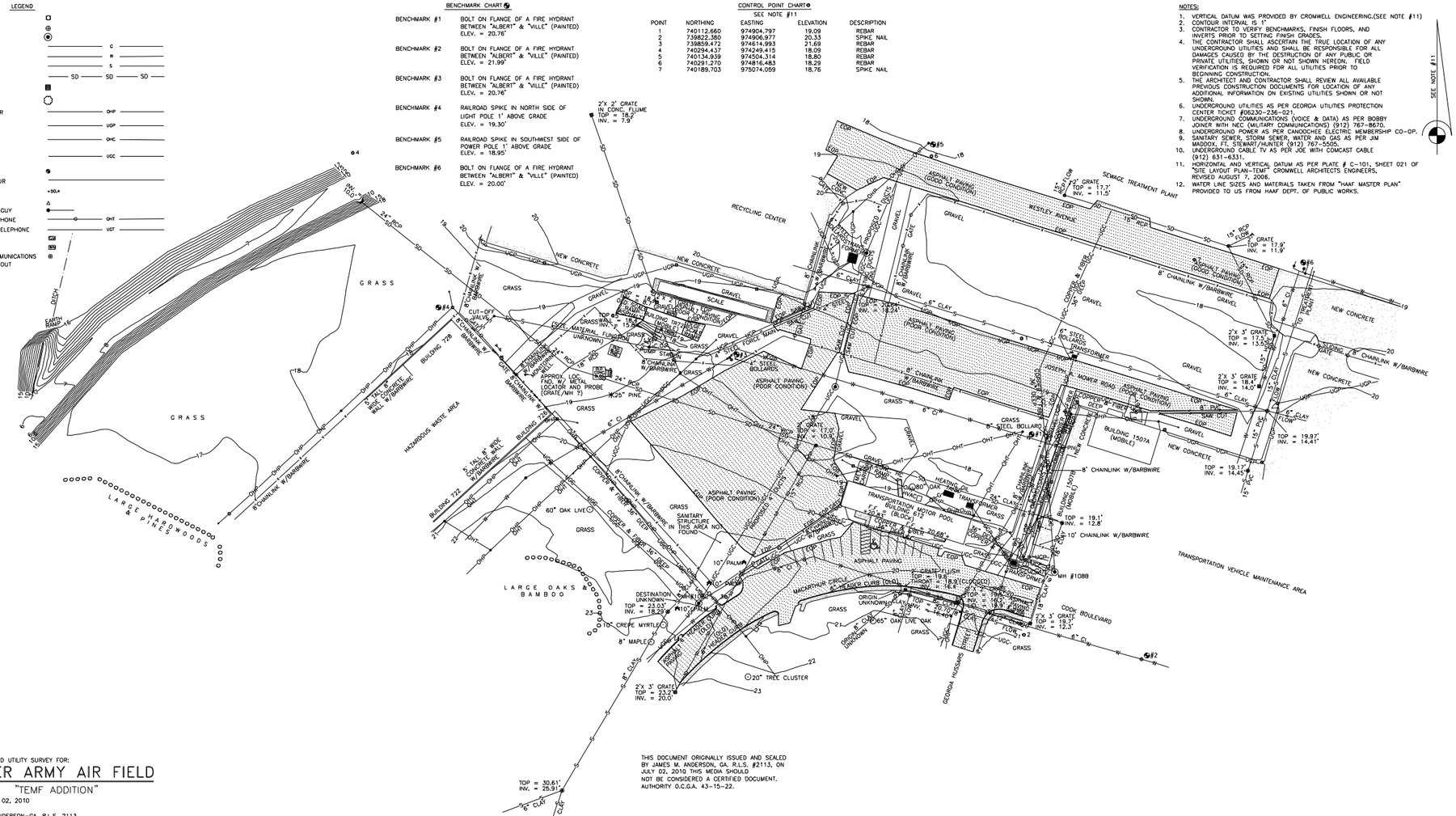
12. WATER LINE SIZES AND MATERIALS TAKEN FROM "HAAF MASTER PLAN" PROVIDED TO US FROM HAAF DEPT. OF PUBLIC WORKS.



TOPOGRAPHIC AND UTILITY SURVEY FOR:

HUNTER ARMY AIR FIELD

"TEMF ADDITION"

SURVEYED: JULY 02, 2010

BY: JAMES M. ANDERSON-GA. R.L.S. 2113

10042.CRD/10042.PL/B.DWG

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P.O. BOX 894 104 OAK STREET
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PHONE: (912) 764-2002

NOTE: TEXT ON SURVEY IS SET TO BE 1/8" TALL WHEN PRINTED ON FULL SIZE ANSI D SHEET AT 1" = 60'. THIS IS AN OVERALL PLAN. SEE VF102 AND VF103 FOR PLANS WITH APPROPRIATE TEXT SIZE.

OVERALL SITE SURVEY

1"=60'

0' 30' 60' 120' 180'

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE:
PLOT SCALE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

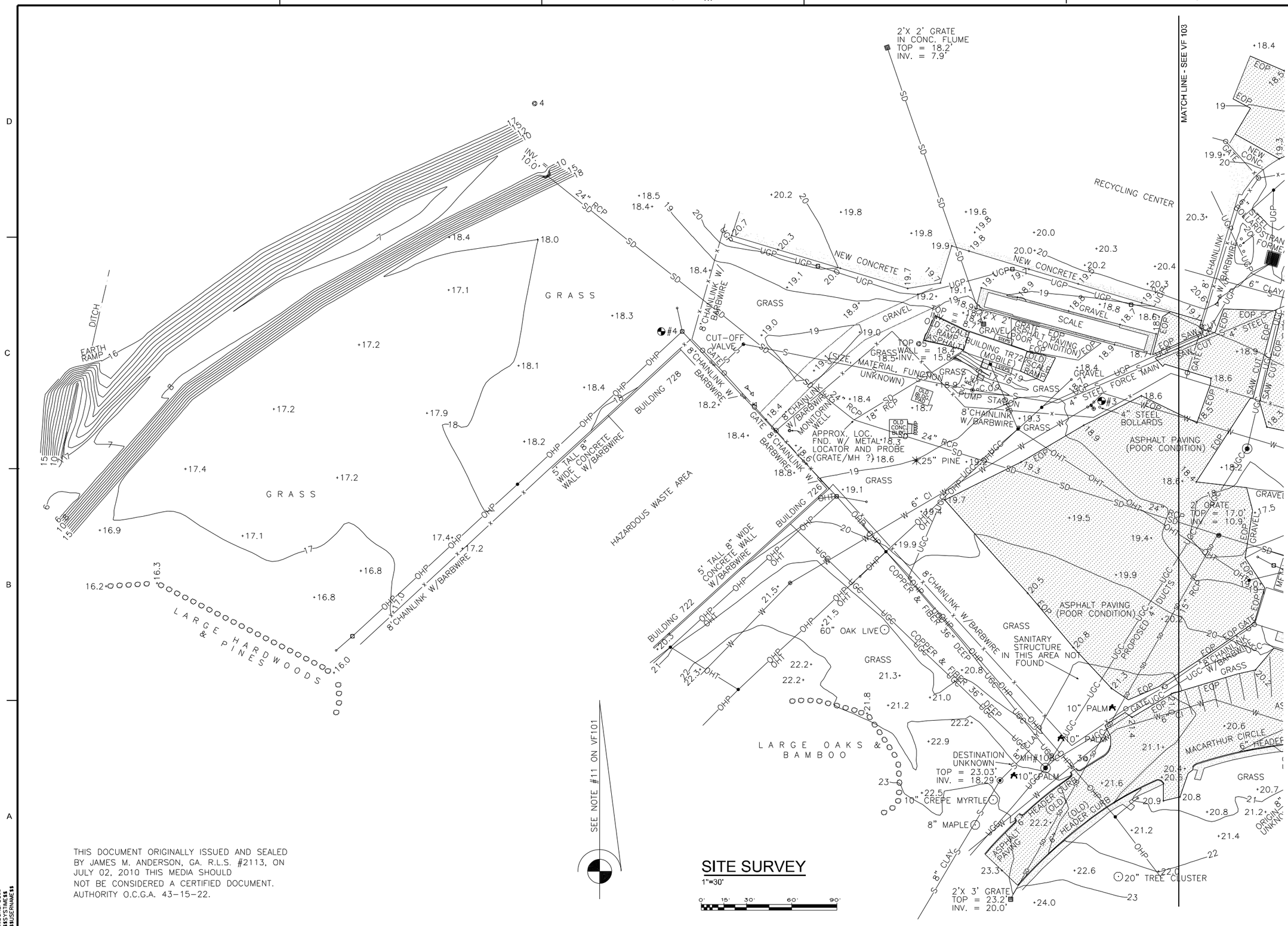
CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

OVERALL SITE SURVEY

PLATE REFERENCE NUMBER
VF101
SHEET 04

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



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SITE SURVEY

1"=30'

0' 15' 30' 60' 90'

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DATE: SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:
PLOT SCALE:
PLOT SIZE:
FILE NAME:
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

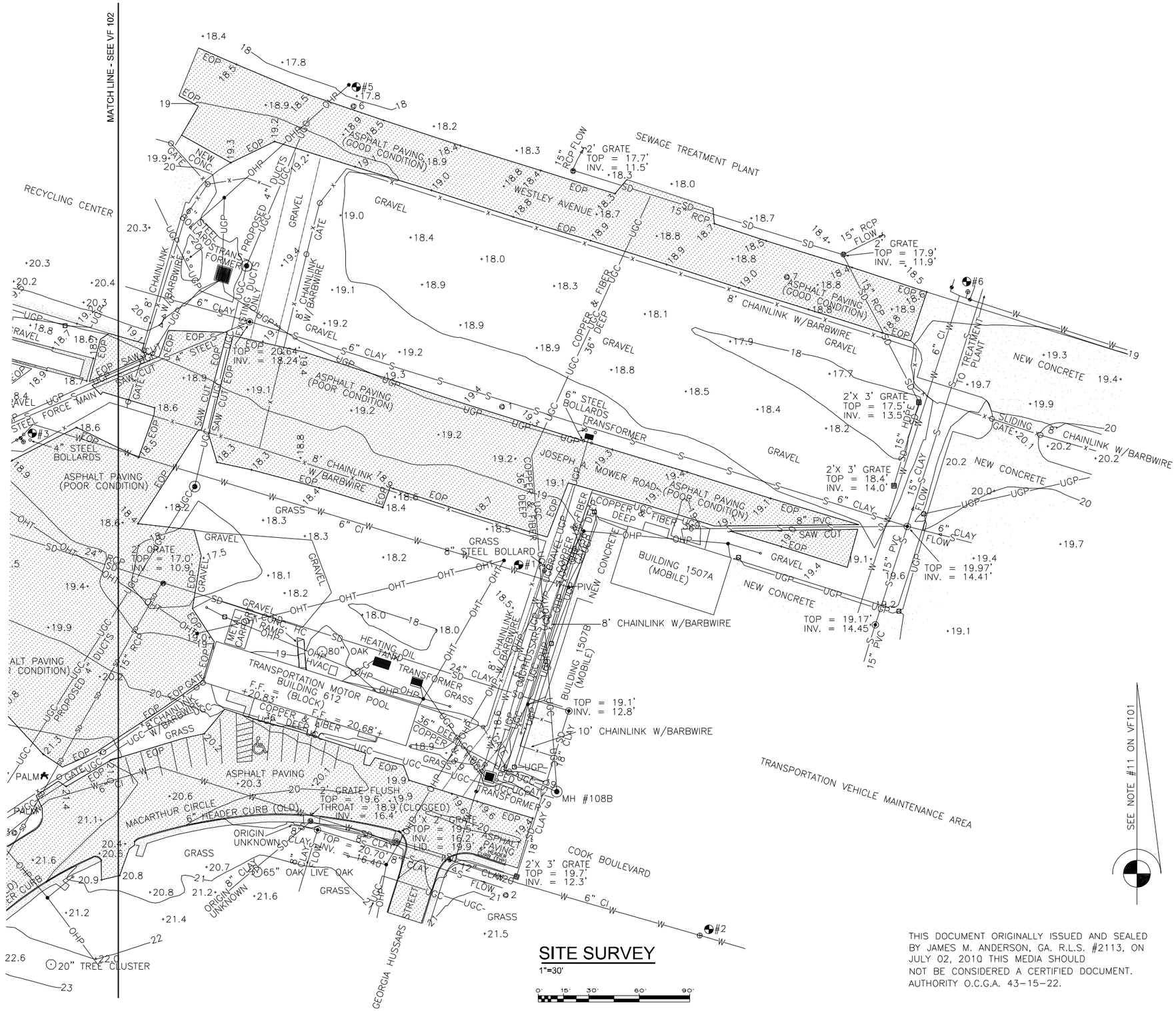
CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

SITE SURVEY

PLATE REFERENCE NUMBER
VF102
SHEET 05

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



SITE SURVEY

1"=30'

0' 15' 30' 60' 90'

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US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE:
PLOT SCALE:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

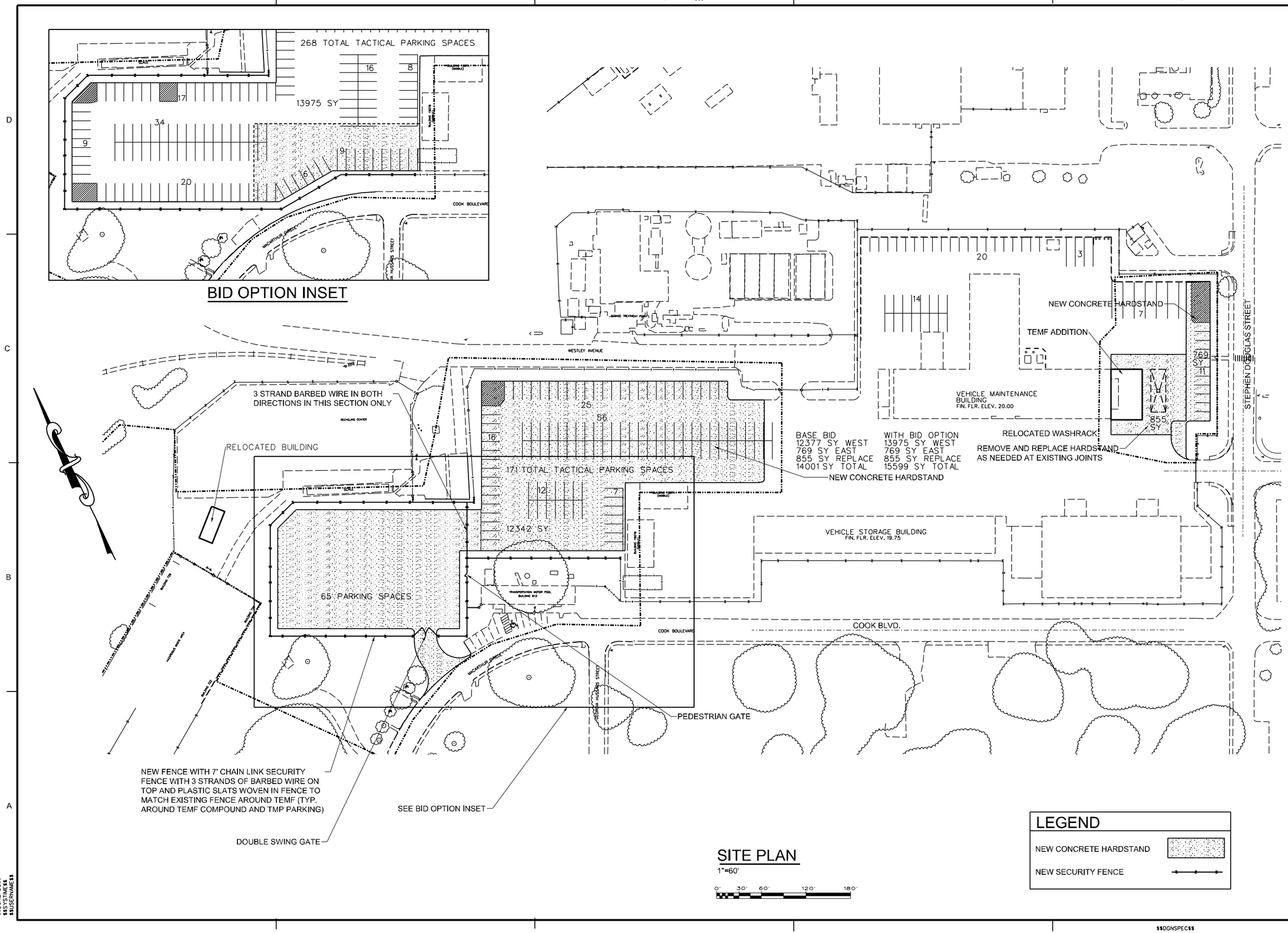
CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

SITE SURVEY

PLATE REFERENCE NUMBER
VF103
SHEET 06

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE:
PLOT SCALE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

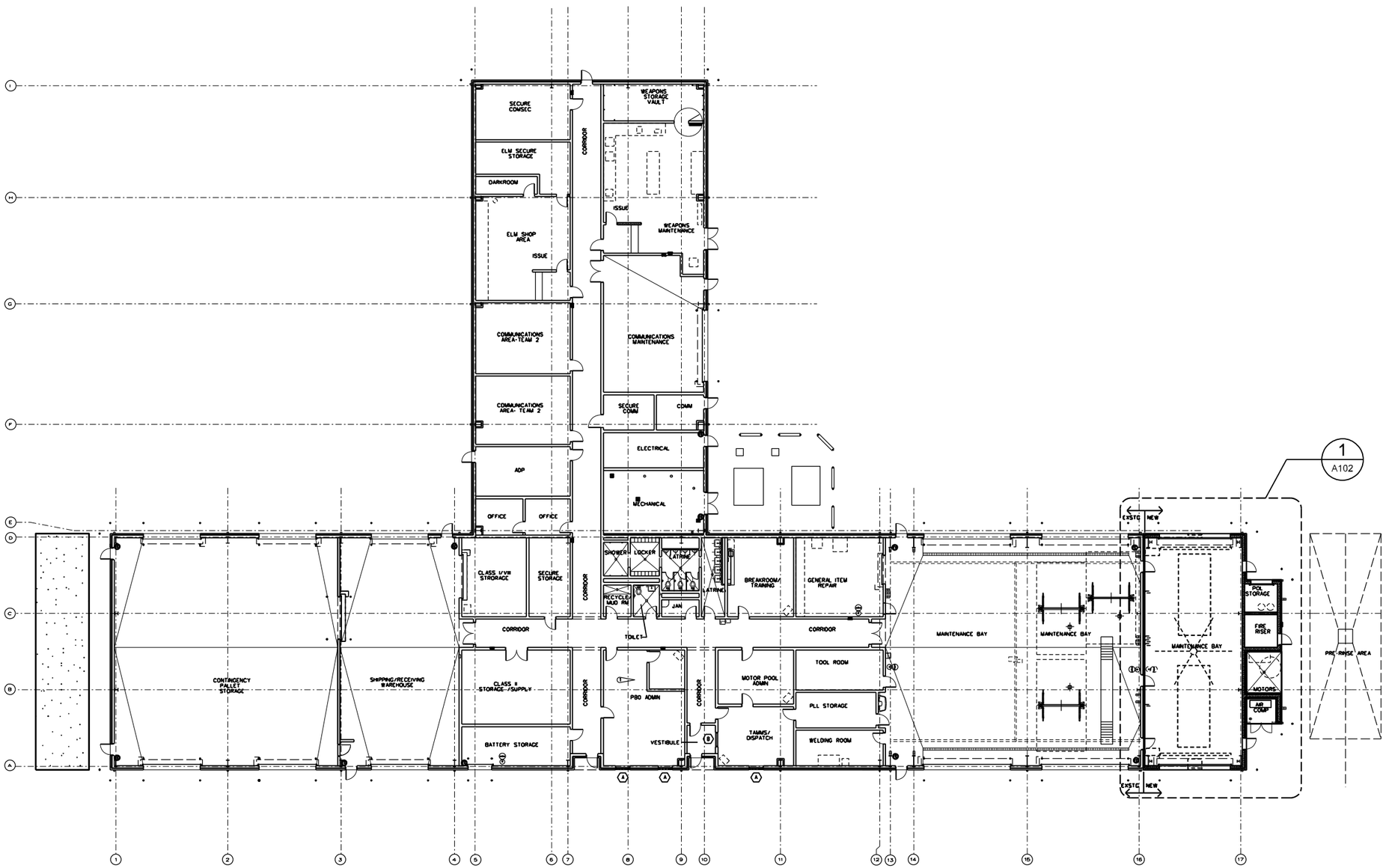
CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

SITE PLAN

PLATE REFERENCE NUMBER
CS101
SHEET 07

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



1 A101 OVERALL FLOOR PLAN

1/16"=1'-0"

1/16" = 1'-0"

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
FILE NAME:
CATEGORY CODE: 214-10-07
SIZE:
PLOT SCALE:
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

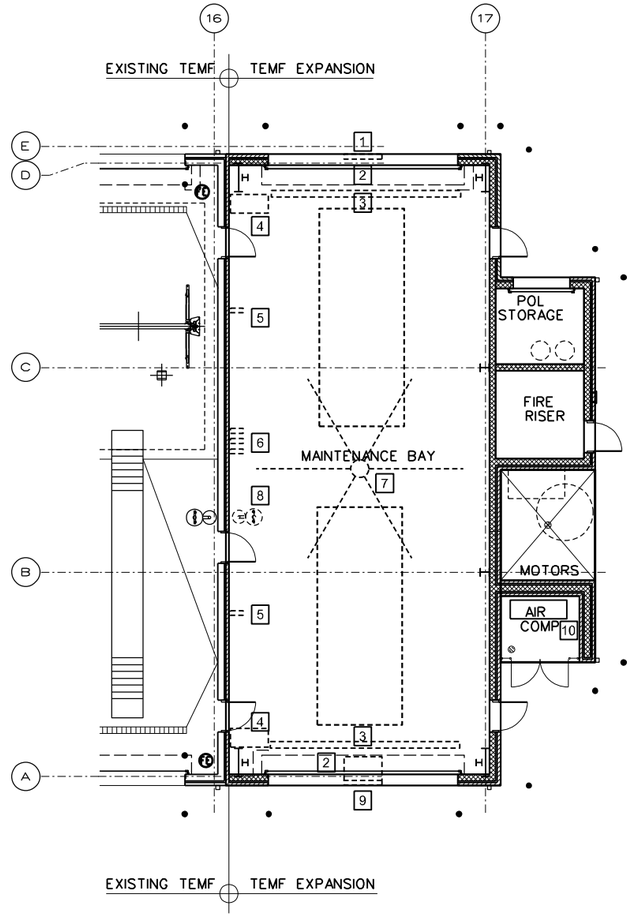
CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

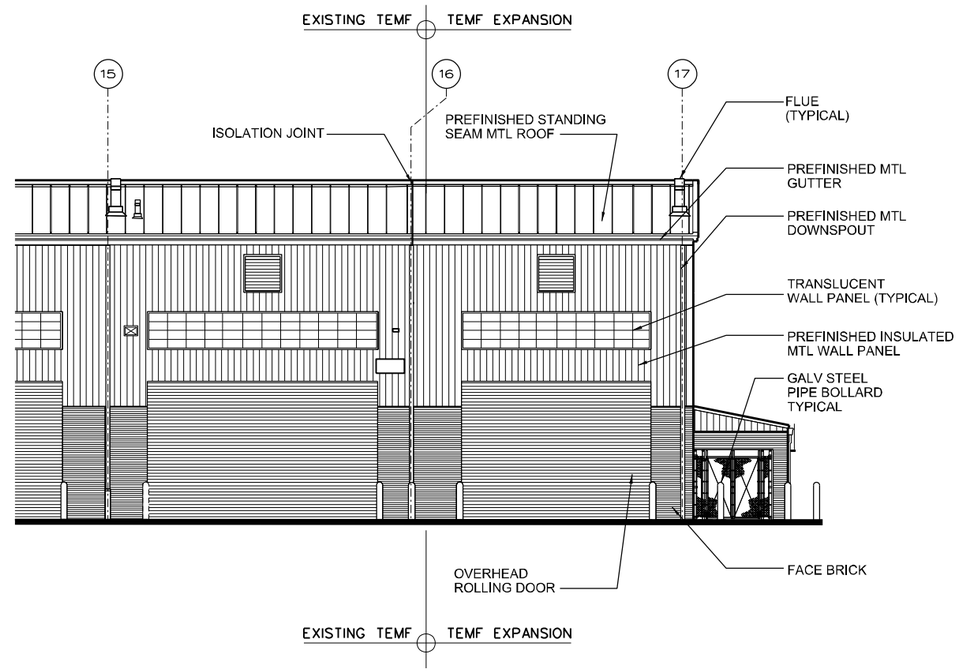
OVERALL FLOOR PLAN

PLATE REFERENCE NUMBER
A–101
SHEET 08

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



1 A-102 FLOOR PLAN -TEMF EXPANSION
1/8"=1'-0"



2 A-102 ELEVATION - TEMF EXPANSION
1/8"=1'-0"

FLOOR PLAN KEYNOTES

1. PROPOSED MOTORIZED VENTILATION LOUVER
2. PROPOSED OVERHEAD DOOR
3. PROPOSED INFRARED HEATER
4. PROPOSED VEHICLE EXHAUST SYSTEM
5. PROPOSED COMPRESSED AIR HOSE REEL
6. PROPOSED POL HOSE REELS
7. PROPOSED SIR CIRCULATION FAN
8. PROPOSED EYE WASH
9. PROPOSED EXHAUST FAN
10. RELOCATED AIR COMPRESSOR

NOTE: PARTIAL DEMOLITION OF EXISTING EXTERIOR WALL TO ACCOMMODATE TIE IN TO NEW WALLS WILL REQUIRE REPAIR, REPLACEMENT AND/OR ADDITION OF FINISH MATERIAL TO MATCH EXISTING.

1/8" = 1'-0" 0' 4' 8' 16' 24'

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE:
PLOT SCALE:
DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
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PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

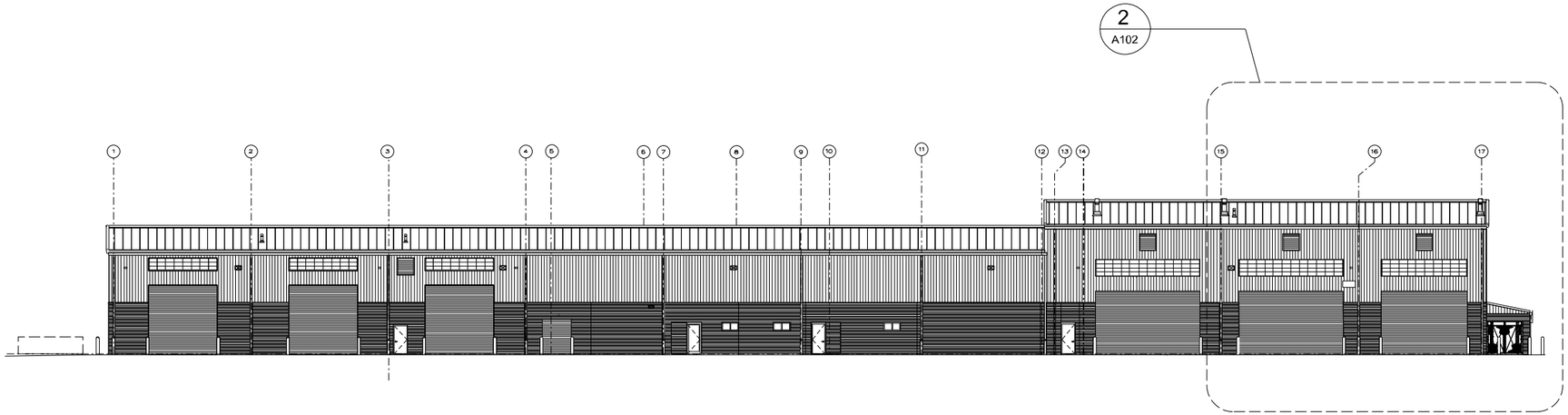
CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE FACILITY EXPANSION

FLOOR PLAN AND ELEVATION

PLATE REFERENCE NUMBER
A-102
SHEET 09

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



1
A201

OVERALL ELEVATION

1/16" = 1'-0"

0' 8' 16' 32' 64'

US ARMY CORPS
OF ENGINEERS
SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY: CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE: PLOT SCALE:
DATE: 17 SEPTEMBER 2010
SOLICITATION NO.: W912HN-11-R-0009
CONTRACT NO.:
CATEGORY CODE: 214-10-07
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

CROMWELL ARCHITECTS ENGINEERS

TACTICAL EQUIPMENT MAINTENANCE
FACILITY EXPANSION

BUILDING ELEVATION

PLATE
REFERENCE
NUMBER
A-201
SHEET 10

APPENDIX K
Fuel Cost Information

The following utility rates for this installation are provided for design

Electrical:
Demand Charge - $ x.xx per kilowatt

Energy Charge - $ 00.0724 per kilowatt-hour Blended Rate - $ x.xx per kilowatt-hour (blended annual energy and demand cost)

Natural Gas:
Commodity Charge Rate - $ 00.725 per thousand cubic feet

Water:
Commodity Charge Rate - $ 00.6326 per thousand gallons

Sewer:
Commodity Charge Rate - $ 01.022 per thousand gallons of water consumption

Purchased/Central Steam:
Commodity Charge Rate - $x.xx per [unit of measure]

Purchased High Temperature Water:
Commodity Charge Rate - $x.xx per [unit of measure]

Purchased Chilled Water:
Commodity Charge Rate - $x.xx per [unit of measure]

APPENDIX L

LEED Project Credit Guidance (MAY 10)

This spreadsheet indicates Army required credits, Army preferred credits, project-specific ranking of individual point preferences, assumptions guidance for individual credits, and references to related language in the RFP for individual credits.

LEED Credit Paragraph	LEED Project Credit Guidance	**Army Guidance:** Required - Preferred - Avoid	**Project Preference Ranking**: (1=most preferred, blank=no preference, X=preference not applicable to this credit, Rqd=required)	
PAR	**FEATURE**			**REMARKS**
SUSTAINABLE SITES				
SSPR1	Construction Activity Pollution Prevention (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
SS1	Site Selection		X	See paragraph LEED CREDITS COORDINATION.

SS2	Development Density & Community Connectivity - OPTION 1 DENSITY		X	See paragraph LEED CREDITS COORDINATION.
	Development Density & Community Connectivity - OPTION 2 CONNECTIVITY		X	See paragraph LEED CREDITS COORDINATION.
SS3	Brownfield Redevelopment		X	See paragraph LEED CREDITS COORDINATION.
SS4.1	Alternative Transportation: Public Transportation Access		X	See paragraph LEED CREDITS COORDINATION.
SS4.2	Alternative Transportation: Bicycle Storage & Changing Rooms	Pref		Assume that non-transient building occupants are NOT housed on Post unless indicated otherwise.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 1			Requires provision of vehicles, which cannot be purchased with construction funds. Assume Government will not provide vehicles unless indicated otherwise. Assume that 50% of GOV fleet is NOT alternative fuel vehicles unless indicated otherwise.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 2	Pref		
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 3			Requires provision of vehicle refueling stations. Installation must support type of fuel and commit to maintaining/supporting refueling stations.
SS4.4	Alternative Transportation: Parking Capacity	Pref		

SS5.1	Site Development: Protect or Restore Habitat			
SS5.2	Site Development: Maximize Open Space	Pref		Assume AGMBC option for aggregated open space at another location on the installation is not available to the project unless indicated otherwise.
SS6.1	Stormwater Design: Quantity Control	Pref		See paragraph STORMWATER MANAGEMENT.
SS6.2	Stormwater Design: Quality Control	Pref		See paragraph STORMWATER MANAGEMENT.
SS7.1	Heat Island Effect: Non-Roof			
SS7.2	Heat Island Effect: Roof	Pref		Coordinate with nearby airfield requirements, which may preclude this credit.
SS8	Light Pollution Reduction	Pref		
WATER EFFICIENCY				
WEPR1	Water Use Reduction (Version 3 only)	Rqd	Rqd	All LEED prerequisites are required to be met.
WE1.1	Water Efficient Landscaping: Reduce by 50%	Pref		See paragraph IRRIGATION. Project must include landscaping to be eligible for this credit.
WE1.2	Water Efficient Landscaping: No Potable Water Use or No Irrigation	Pref		Project must include landscaping to be eligible for this credit.
WE2	Innovative Wastewater Technologies - OPTION 1			
WE2	Innovative Wastewater Technologies - OPTION 2			
WE3	Water Use Reduction	Pref		See paragraph BUILDING WATER USE REDUCTION.

ENERGY AND ATMOSPHERE				
EAPR1	Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EAPR2	Minimum Energy Performance (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EAPR3	Fundamental Refrigerant Management (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EA1	Optimize Energy Performance	Rqd	1	Earning of LEED EA1 points as indicated in paragraph ENERGY CONSERVATION, as a minimum, is required.
EA2.1	On-Site Renewable Energy	Pref		See paragraph ENERGY CONSERVATION.
EA3	Enhanced Commissioning	Rqd		See paragraph COMMISSIONING. The Commissioning Authority may be provided through the Design-Build Contractor only if in accordance with USGBC Credit Interpretation Ruling (CIR) dated 9/15/06. Commissioning Authority activities begin during design phase and continue well beyond beneficial occupancy. Assume Government will not provide CxA post-occupancy activities unless indicated otherwise.
EA4	Enhanced Refrigerant Management			
EA5	Measurement & Verification			Assume Government will not provide post-occupancy activities unless indicated otherwise.
EA6	Green Power		X	See paragraph LEED CREDITS COORDINATION.

MATERIALS AND RESOURCES				
MRPR1	Storage & Collection of Recyclables (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met. Coordinate with Installation during design development on collection service and receptacles.
MR1	Building Reuse			
MR2.1	Construction Waste Management: Divert 50% From Disposal	Pref		See paragraph CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.
MR2.2	Construction Waste Management: Divert 75% From Disposal	Pref		
MR3	Materials Reuse			
MR4.1	Recycled Content: 10% (post-consumer + 1/2 pre-consumer)	Pref		See paragraph RECYCLED CONTENT.
MR4.2	Recycled Content: 20% (post-consumer + 1/2 pre-consumer)	Pref		
MR5.1	Regional Materials:10% Extracted, Processed & Manufactured Regionally			
MR5.2	Regional Materials:20% Extracted, Processed & Manufactured Regionally			

MR6	Rapidly Renewable Materials	Pref		See paragraph BIOBASED AND ENVIRONMENTALLY PREFERABLE MATERIALS and paragraph FEDERAL BIOBASED PRODUCTS PREFERRED PROCUREMENT PROGRAM.
MR7	Certified Wood	Pref		See paragraph BIOBASED AND ENVIRONMENTALLY PREFERABLE MATERIALS.
INDOOR ENVIRONMENTAL QUALITY				
EQPR1	Minimum IAQ Performance (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EQPR2	Environmental Tobacco Smoke (ETS) Control (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met. Assume all buildings are smoke free unless indicated otherwise (family housing, barracks and other lodging are facility types where smoking may be permitted in some cases).
EQ1	Outdoor Air Delivery Monitoring			
EQ2	Increased Ventilation			
EQ3.1	Construction IAQ Management Plan: During Construction	Pref		See paragraph CONSTRUCTION IAQ MANAGEMENT.
EQ3.2	Construction IAQ Management Plan: Before Occupancy	Pref		See paragraph CONSTRUCTION IAQ MANAGEMENT.
EQ4.1	Low Emitting Materials: Adhesives & Sealants	Pref		See paragraph LOW-EMITTING MATERIALS.
EQ4.2	Low Emitting Materials: Paints & Coatings	Pref		See paragraph LOW-EMITTING MATERIALS.
EQ4.3	Low Emitting Materials: Carpet/Flooring Systems	Pref		See paragraph LOW-EMITTING MATERIALS.

EQ4.4	Low Emitting Materials: Composite Wood & Agrifiber Products	Pref		See paragraph LOW-EMITTING MATERIALS.
EQ5	Indoor Chemical & Pollutant Source Control	Pref		System requiring weekly cleaning to earn this credit is not a permitted option unless indicated otherwise.
EQ6.1	Controllability of Systems: Lighting			
EQ6.2	Controllability of Systems: Thermal Comfort			
EQ7.1	Thermal Comfort: Design	Rqd		See paragraph HEATING, VENTILATING AND AIR CONDITIONING.
EQ7.2	Thermal Comfort: Verification			Project must earn credit EQ7.1 to be eligible for this credit. Assume Government will not provide post-occupancy activities unless indicated otherwise.
EQ8.1	Daylight & Views: Daylight 75% of Spaces	Pref		See paragraph DAYLIGHTING.
EQ8.2	Daylight & Views: Views for 90% of Spaces	Pref		
INNOVATION & DESIGN PROCESS				
IDc1.1	Innovation in Design			See paragraph INNOVATION AND DESIGN CREDITS. Assume Government will not provide any activities associated with ID credits.
IDc1.2	Innovation in Design			
IDc1.3	Innovation in Design			
IDc1.4	Innovation in Design			
IDc2	LEED Accredited Professional	Rqd	Rqd	LEED AP during design and construction is required.
REGIONAL PRIORITY CREDITS (Version 3 only)				See paragraph LEED CREDITS COORDINATION.

APPENDIX M
LEED Owner's Project Requirements

Not Used

APPENDIX N

LEED Requirements for Multiple Contractor Combined Projects (29 Sep 09)

When site work and building(s) for a project are accomplished by separate contractors, it is referred to as a Combined Project for purposes of LEED scoring and documentation and the following is required:

- LEED points relating to site work must be combined with the LEED points for each building to arrive at a single LEED Combined Project score.
- LEED points having both building requirements and site requirements (combined bldg/site points) must be coordinated between the contractors.
- LEED aggregate materials points must be coordinated between the contractors and a division of responsibilities for each contractor's required contribution to the point must be developed.
- LEED Project documentation from separate contractors must be combined.

Multiple Contractor Combined Project Definition. See paragraph MULTIPLE CONTRACTOR COMBINED PROJECT in paragraph PROJECT SPECIFIC REQUIREMENTS of the Statement of Work to see if this project is part of a Multiple Contractor Combined Project. A summary of the separate projects that constitute the Combined Project may be provided at paragraph SUSTAINABLE DESIGN – ADDITIONAL INFORMATION or may be obtained from the Contracting Officer's Representative. Typical Multiple Contractor Combined Projects are comprised of the site work contract and all the building-only contracts for buildings that the site work is provided for in the separate site work contract.

LEED Points Coordination. See Appendix LEED Multiple Contractor Responsibilities Table(s) for the total number of points each contractor is responsible for obtaining, for special requirements relating to combined building/site points and for each contractor's requirement relating to aggregate materials points each portion of this Multiple Contractor Combined Project. Each contractor providing a building is referred to as Building CTR and Site CTR refers to the contractor providing the site development. For each building included in the site work contract, the site work contractor is both Building CTR and Site CTR for that building. Aggregate materials percentages indicated in the table(s) are percentage of that contractor's materials total.

Point Substitutions. During preparation of the Proposal, each contractor is free to substitute other LEED points for those indicated in the LEED Multiple Contractor Responsibilities Table(s), except points marked "NO" in the "Building CTR Substitutions Permitted" column may not be deleted or added by substitution by building contractor and points marked "NO" in the "Site CTR Substitutions Permitted" column may not be deleted or added by substitution by site contractor. Credit substitutions after award are not permitted except with the advance approval of the Contracting Officer.

LEED Documentation. Each contractor is responsible for developing all project LEED documentation demonstrating compliance for their portion of the work and must utilize the LEED Letter Templates. Each contractor is responsible for updating construction phase LEED documentation at least monthly until construction closeout. No CTR will duplicate the data of another CTR within their own documentation. Each contractor will include the contractor name, project name and number and individual building description as applicable on each Letter Template. The LEED Letter Templates are copyright protected and shall be used only for this specific contract and this registered project.

Compiling LEED Documentation from Multiple Contractors. At completion and acceptance of final design submittals the completed design phase letter templates and their attachments from all CTRs in the Multiple Contractor Combined Project will be compiled at the registered site project. All CTRs will furnish electronic copies of their completed letter templates and their attachments for this purpose. Monthly during construction and at construction closeout all CTRs current construction phase letter templates and their attachments will be compiled at the registered site project. Summary letter templates for all aggregate credits (see AGMBC for which credits are aggregate credits) will be created and maintained monthly with summary data from all from

all CTRs in the Multiple Contractor Combined Project at the registered site project. All CTRs will furnish electronic copies of the current updated templates and their attachments for this purpose monthly and at closeout.

Site Work Portion of Multiple Contractor Combined Project, Administration by the Government. If paragraph 16.4.2 CREDIT VALIDATION indicates this is the site work portion of a Multiple Contractor Combined Project and that administration of the online project is by the Government, the Government will provide access to blank Letter Templates for site CTRs use and the Government will perform the compiling indicated in paragraph Compiling LEED Documentation from Multiple Contractors above.

Site Work Portion of Multiple Contractor Combined Project, Shared Administration. If paragraph 16.4.2 CREDIT VALIDATION indicates this is the site work portion of a Multiple Contractor Combined Project and that administration of the online project is shared between Contractor and Government, the Contractor will administer the registered site project until final design acceptance, at which point administration will be transferred to the Government. The Government will administer the project during construction and the Government will perform the compiling indicated in paragraph Compiling LEED Documentation from Multiple Contractors above.

Site Work Portion of Multiple Contractor Combined Project, Administration by the Contractor. If paragraph 16.4.2 CREDIT VALIDATION indicates this is the site work portion of a Multiple Contractor Combined Project and that administration of the online project is by the Contractor, the Contractor will administer the project and **the Contractor will perform the compiling indicated in paragraph Compiling LEED Documentation from Multiple Contractors above**.

Standard Design Building(s) portion of Multiple Contractor Combined Project, Administration by the Government. If paragraph 16.4.2 CREDIT VALIDATION indicates this is a standard design building(s) portion of a Multiple Contractor Combined Project and that administration of the online project is by the Government, the Government will provide access to blank Letter Templates for standard design building CTRs use as follows:

Instructions for Obtaining LEED Letter Templates for Registered Army Standard Designs

General. Contractors providing Army standard design buildings only (site work by another contractor) in a Multiple Contractor Combined project obtain their LEED Letter Templates for the project from the Center of Standardization (COS) for that standard design.

Information You Need to Provide. After award, contact the COS POC indicated below requesting LEED Letter Templates for your project. In your request, indicate the following:
Project name, location, Contractor name, PN number and contract number
Description of building(s) you are responsible for (example: S/M/L/L COF w/detached admin)
LEED Documentation Responsible Party name, phone number, email contact info
Responsible party certification of understanding that Letter Templates furnished by the Government for this project are copyright protected and will not be used for any purposes other than for this project documentation.
Attach the LEED Registered Project Checklist from conformed proposal which indicates the points the project will earn/contribute to.
****

SAMPLE EMAIL REQUEST:

To: (COS POC below)
CC: (Contracting Officer's Representative (COR) for your contract)
Subject: COS LEED Letter Templates Request

We have an awarded contract and request COS LEED Letter Templates for:

Project: 4th BCT Complex
Location: Fort Bragg, NC
Contractor: Great Design Builder Inc.

Project Number/Contract Number: PN 65555, W912HN-08-C-0001
Standard Design Building Type(s): Large Brigade HQ, Medium Battalion HQ

Our **Responsible Party** for LEED Documentation for this project is (name, phone number, email).

Certification: I, (sender name), certify that the LEED Letter Templates furnished by the Government for this project are copyright protected and I will ensure that they are not used for any purpose other than project documentation for this project only.

Attached Checklist: Please see attached LEED Project Checklist, which indicates the points this project will earn.

Salutation,
Name
****

COS Points of Contact for Obtaining Letter Templates. Email your request to the applicable POC indicated below. If there is no POC indicated for the standard design you are providing, contact your project COR for direction.

Army Standard Design	Point of Contact
Army Family Housing	Lisa.A.Bobotas@usace.army.mil
Battalion Headquarters	judith.f.milton@usace.army.mil
Brigade Headquarters	judith.f.milton@usace.army.mil
Company Operations Facilities (COF)	judith.f.milton@usace.army.mil
Criminal Investigation Facilities	Matthew.C.Scanlon@usace.army.mil
Enlisted Personnel Dining Facilities	David.A.Gary@usace.army.mil
General Instruction Buildings/Classroom XXI	Huong.M.Huynh@usace.army.mil
Military Entrance Processing Stations	Lisa.A.Bobotas@usace.army.mil
Tactical Equipment Maintenance Facilities (TEMF)	judith.f.milton@usace.army.mil
Transient Officer's Quarters (part of ORTC)	paul.m.kai@usace.army.mil

Furnishing Completed Documentation to COS Letter Template Library. Certain completed design phase letter templates with attachments may be requested by the COS for future use as part of the standard design. If requested, provide an electronic copy to the COS Point of Contact indicated above. The Center of Standardization (COS) for individual Army standard designs may maintain a library of completed LEED documentation for that standard design. The Government will make the completed templates available to subsequent standard design projects in order to reduce duplication of documentation effort to the extent possible. To inquire about reviewing or obtaining completed LEED documentation that may be applicable to a particular project, contact the Center of Standardization POC.

LEED 2009 for New Construction and Major Renovation Project Scorecard

Project Name: HAAF SOF TEMP Expansion
Project Address: HAAF, GA

Yes	?	No			
6	1	19	**SUSTAINABLE SITES**		**26 Points**
Y			Prereq 1	**Construction Activity Pollution Prevention**	**Required**
1			Credit 1	**Site Selection**	**1**
		5	Credit 2	**Development Density and Community Connectivity**	**5**
		1	Credit 3	**Brownfield Redevelopment**	**1**
		6	Credit 4.1	**Alternative Transportation -** Public Transportation Access	**6**
1			Credit 4.2	**Alternative Transportation -** Bicycle Storage and Changing Rooms	**1**
		3	Credit 4.3	**Alternative Transportation -** Low-Emitting and Fuel-Efficient Vehicles	**3**
		2	Credit 4.4	**Alternative Transportation -** Parking Capacity	**2**
		1	Credit 5.1	**Site Development -** Protect or Restore Habitat	**1**
		1	Credit 5.2	**Site Development -** Maximize Open Space	**1**
1			Credit 6.1	**Stormwater Design -** Quantity Control	**1**
	1		Credit 6.2	**Stormwater Design -** Quality Control	**1**
1			Credit 7.1	**Heat Island Effect -** Nonroof	**1**
1			Credit 7.2	**Heat Island Effect -** Roof	**1**
1			Credit 8	**Light Pollution Reduction**	**1**

Yes	?	No			
4		6	**WATER EFFICIENCY**		**10 Points**
					4
Y			Prereq 1	**Water Use Reduction**	**Required**
4		2	Credit 1	**Water Efficient Landscaping**	**2 to 4**
				Reduce by 50%	2
				4 No Potable Water Use or Irrigation	4
		2	Credit 2	**Innovative Wastewater Technologies**	2
		2	Credit 3	**Water Use Reduction**	**2 to 4**
				Reduce by 30%	2
				Reduce by 35%	3
				Reduce by 40%	4

1		34	**ENERGY & ATMOSPHERE**		**35 Points**
Y			Prereq 1	**Fundamental Commissioning of Building Energy Systems**	**Required**
Y			Prereq 2	**Minimum Energy Performance**	**Required**
Y			Prereq 3	**Fundamental Refrigerant Management**	**Required**
1		18	Credit 1	**Optimize Energy Performance**	**1 to 19**
				1 Improve by 12% for New Buildings or 8% for Existing Building Renovations	1
				Improve by 14% for New Buildings or 10% for Existing Building Renovations	2
				Improve by 16% for New Buildings or 12% for Existing Building Renovations	3
				Improve by 18% for New Buildings or 14% for Existing Building Renovations	4
				Improve by 20% for New Buildings or 16% for Existing Building Renovations	5
				Improve by 22% for New Buildings or 18% for Existing Building Renovations	6
				Improve by 24% for New Buildings or 20% for Existing Building Renovations	7
				Improve by 26% for New Buildings or 22% for Existing Building Renovations	8
				Improve by 28% for New Buildings or 24% for Existing Building Renovations	9
				Improve by 30% for New Buildings or 26% for Existing Building Renovations	10
				Improve by 32% for New Buildings or 28% for Existing Building Renovations	11
				Improve by 34% for New Buildings or 30% for Existing Building Renovations	12
				Improve by 36% for New Buildings or 32% for Existing Building Renovations	13
				Improve by 38% for New Buildings or 34% for Existing Building Renovations	14
				Improve by 40% for New Buildings or 36% for Existing Building Renovations	15
				Improve by 42% for New Buildings or 38% for Existing Building Renovations	16
				Improve by 44% for New Buildings or 40% for Existing Building Renovations	17
				Improve by 46% for New Buildings or 42% for Existing Building Renovations	18
				Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19
		7	Credit 2	**On-Site Renewable Energy**	**1 to 7**
				1% Renewable Energy	1
				3% Renewable Energy	2
				5% Renewable Energy	3
				7% Renewable Energy	4
				9% Renewable Energy	5
				11% Renewable Energy	6
				13% Renewable Energy	7
		2	Credit 3	**Enhanced Commissioning**	**2**

LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name: HAAF SOF TEMP Expansion
Project Address: HAAF, GA

Yes	?	No			
		2	Credit 4	**Enhanced Refrigerant Management**	2
		3	Credit 5	**Measurement and Verification**	3
		2	Credit 6	**Green Power**	2

Yes	?	No		
4		10	MATERIALS & RESOURCES	14 Points

Y	Prereq 1	**Storage and Collection of Recyclables**	Required
	Credit 1.1	**Building Reuse** - Maintain Existing Walls, Floors and Roof	1 to 3
		Reuse 55%	1
		Reuse 75%	2
		Reuse 95%	3
	Credit 1.2	**Building Reuse -** Maintain Interior Nonstructural Elements	1
1	Credit 2	**Construction Waste Management**	1 to 2
		50% Recycled or Salvaged	1
		75% Recycled or Salvaged	2
	Credit 3	**Materials Reuse**	1 to 2
		Reuse 5%	1
		Reuse 10%	2
1	Credit 4	**Recycled Content**	1 to 2
		10% of Content	1
		20% of Content	2
1	Credit 5	**Regional Materials**	1 to 2
		10% of Materials	1
		20% of Materials	2
	Credit 6	**Rapidly Renewable Materials**	1
1	Credit 7	**Certified Wood**	1

Yes	?	No		
3	2	10	INDOOR ENVIRONMENTAL QUALITY	15 Points

Y	Prereq 1	**Minimum Indoor Air Quality Performance**	Required
Y	Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
	Credit 1	**Outdoor Air Delivery Monitoring**	1
	Credit 2	**Increased Ventilation**	1
1	Credit 3.1	**Construction Indoor Air Quality Management Plan -** During Construction	1
1	Credit 3.2	**Construction Indoor Air Quality Management Plan -** Before Occupancy	1
1	Credit 4.1	**Low-Emitting Materials -** Adhesives and Sealants	1
1	Credit 4.2	**Low-Emitting Materials -** Paints and Coatings	1
1	Credit 4.3	**Low-Emitting Materials -** Flooring Systems	1
	Credit 4.4	**Low-Emitting Materials -** Composite Wood and Agrifiber Products	1
	Credit 5	**Indoor Chemical and Pollutant Source Control**	1
	Credit 6.1	**Controllability of Systems -** Lighting	1
	Credit 6.2	**Controllability of Systems -** Thermal Comfort	1
	Credit 7.1	**Thermal Comfort -** Design	1
	Credit 7.2	**Thermal Comfort -** Verification	1
	Credit 8.1	**Daylight and Views -** Daylight	1
	Credit 8.2	**Daylight and Views -** Views	1

Yes	?	No		
1		5	INNOVATION IN DESIGN	6 Points

	Credit 1	**Innovation in Design**	1 to 5
		Innovation or Exemplary Performance	1
		Innovation or Exemplary Performance	1
		Innovation or Exemplary Performance	1
		Innovation	1
		Innovation	1
1	Credit 2	**LEED® Accredited Professional**	1

Yes	?	No		
		4	REGIONAL PRIORITY	4 Points

	Credit 1	**Regional Priority**	1 to 4
		Regionally Defined Credit Achieved	1
		Regionally Defined Credit Achieved	1
		Regionally Defined Credit Achieved	1
		Regionally Defined Credit Achieved	1

Yes	?	No		
19	3	88	PROJECT TOTALS (Certification Estimates)	110 Points

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

APPENDIX P

LEED Registration of Army Projects

15 April 2010

Number of Registrations
Each building must be registered separately, except multiple instances of a standard building on a shared site may be registered as a single project. If a single registration for multiple buildings is chosen, all buildings under the single registration must earn exactly the same points. Do not register buildings that are exempt from a specific LEED achievement requirement.

Typical Registration Procedure
1. Login, complete the online registration form (see guidance below) at the GBCI LEED Online website http://www.gbci.org/DisplayPage.aspx?CMSPageID=174 and submit it online.
2. Pay the registration fee via credit card (USACE staff: credit card PR&C is funded by project design or S&A funds).
3. GBCI will follow up with a final invoice, the LEED-online passwords and template information.
4. The individual who registers the project online is, by default, the Project Administrator.

Completing the Registration Form

BEFORE YOU BEGIN:
Create a personal account with USGBC if you do not have one.
You will need the following information:
Project name as it appears in P2 (obtain from USACE Project Manager)
Building number/physical address of project
Zip code for Installation/project location
Anticipated construction start and end dates
Total gross area all non-exempt buildings in registration
Total construction cost all non-exempt buildings only (see Project Details Section instructions below)

ACCOUNT/LOGIN INFORMATION
1. The person registering the project **must have an account with USGBC** (login and password) to complete the form. Go to http://www.gbci.org/ , click on “register a project” at the drop-down menu for project certification (at the top of the page) and select “register now for LEED 2009” to start the project registration process. If you have an account, login with your email address and password and select “register new project” to proceed. If you do not have an account, you may select “register a new account” and follow the instructions. It is recommended that you create an account separately on the USGBC website before you start the form. IMPORTANT: USACE team members are members of USGBC and are eligible for Member prices. USACE team members registering projects should be sure to include the USACE Corporate Access ID in their personal account profile (if you do not have it contact richard.l.schneider@usace.army.mil or judith.f.milton@usace.army.mil for the number).
2. The Account/Login Information section is filled out by the person registering the project. It may be a Contractor or a USACE staff member.

ELIGIBILITY SECTION
Follow directions (accepting the terms and conditions)
Review your profile information and make corrections if needed

RATING SYSTEM SELECTION SECTION
Select single project registration and I know which rating system.
Select the rating system - currently only LEED-NC and LEED for Homes are approved for Army use without special approval.
LEED Minimum Program Requirements: select YES

RATING SYSTEM RESULTS SECTION

Confirm selected rating system.

PROJECT INFORMATION SECTION

Project Title: Begin the project title with a one-word identifier for the Installation. Do not include the word “Fort”. After this match the project name used in P2 (contact the USACE Project Manager for this information) and identify the building being registered. Example: “Stewart 4th IBCT - DFAC”.
Project Address 1 and 2: This is the physical location of the project. Provide building number, street address, block number or whatever is known to best describe the location of the project on the Installation.
Project City: Installation Name
State, Country, Zip Code: Self-explanatory
Anticipated Construction Start and End Dates: Self-explanatory – give your best guess if unknown. Note that required data entry format is: 1 or 2 digit month/1 or 2 digit date/4 digit year (example 3/23/2010)
Gross Square Footage: Provide total area all buildings in LEED project. Exclude the area of any buildings that are exempt from the LEED achievement requirement (for example, exclude an unconditioned storage shed to be constructed with a barracks complex).
Is Project Confidential: Indicate NO except, if project has security sensitivity (elements that are FOUO or higher security), indicate YES.
Notification of Local Chapter: Indicate NO unless Government/USACE Project Manager requests you to indicate YES.
Anticipated Project Type: Select the most appropriate option from the drop-down menu.
Anticipated Certification Level: Select the applicable option from the drop-down menu (Silver is the usual level).

PROJECT OWNER INFORMATION SECTION

Project Owner First Name, Last Name, email, phone, address: The Project Owner is the USACE Project Manager. Obtain this info from the USACE Project Manager.
Organization: U.S. Army Corps of Engineers. This field MUST be completed this way because it will be used as a search field by higher HQ to find all USACE registered projects. You may supplement it with district name at the end but DO NOT revise or use an acronym.
May we publish Owner information: Indicate NO
Owner Type: Pick Federal Government from drop-down menu.
Project Owner Assertion: Check the box

PAYMENT INFORMATION

Self-explanatory

APPENDIX Q
REV 2.1 – 30 SEP 2010
AREA COMPUTATIONS

Computation of Areas: Compute the "gross area" and "net area" of facilities (excluding family housing) in accordance with the following subparagraphs:

(1) Enclosed Spaces: The "gross area" is the sum of all floor spaces with an average clear height ≥6'-11" (as measured to the underside of the structural system) and having perimeter walls which are ≥4'-11". The area is calculated by measuring to the exterior dimensions of surfaces and walls.

(2) Half-Scope Spaces: Areas of the following spaces shall count as one-half scope when calculating "gross area":

- Balconies
- Porches
- Covered exterior loading platforms or facilities
- Covered but not enclosed spaces, canopies, training, and assembly areas
- Covered but not enclosed passageways and walks
- Open stairways (both covered and uncovered)
- Covered ramps
- Interior corridors (Unaccompanied Enlisted Personnel Housing Only)

(3) Excluded Spaces: The following spaces shall be excluded from the "gross area" calculation:

- Crawl spaces
- Uncovered exterior loading platforms or facilities
- Exterior insulation applied to existing buildings
- Open courtyards
- Open paved terraces
- Uncovered ramps
- Uncovered stoops
- Utility tunnels and raceways
- Roof overhangs and soffits measuring less than 3'-0" from the exterior face of the building to the fascia

(4) Net Floor Area: Where required, "net area" is calculated by measuring the inside clear dimensions from the finish surfaces of walls. If required, overall "assignable net area" is determined by subtracting the following spaces from the "gross area":

- Basements not suited as office, special mechanical, or storage space
- Elevator shafts and machinery space
- Exterior walls
- Interior partitions
- Mechanical equipment and water supply equipment space
- Permanent corridors and hallways
- Stairs and stair towers
- Janitor closets
- Electrical equipment space
- Electronic/communications equipment space

APPENDIX R

Preliminary Submittal Register

NOTE TO SPECIFIER:

1. Appendix R" will be a Adobe Acrobat pdf version of the Specifier completed "Sample Preliminary Submittal Register." The Sample Register is Excel Spreadsheet format of the RMS Input Form 4288A, which serves two purposes.

2. First, The Register allows the both Government and the Proposers to see and estimate the cost of the Division 00 and Division 01 submittals required by the contract in addition to the Contractor generated submittal register items developed during Design After Award.

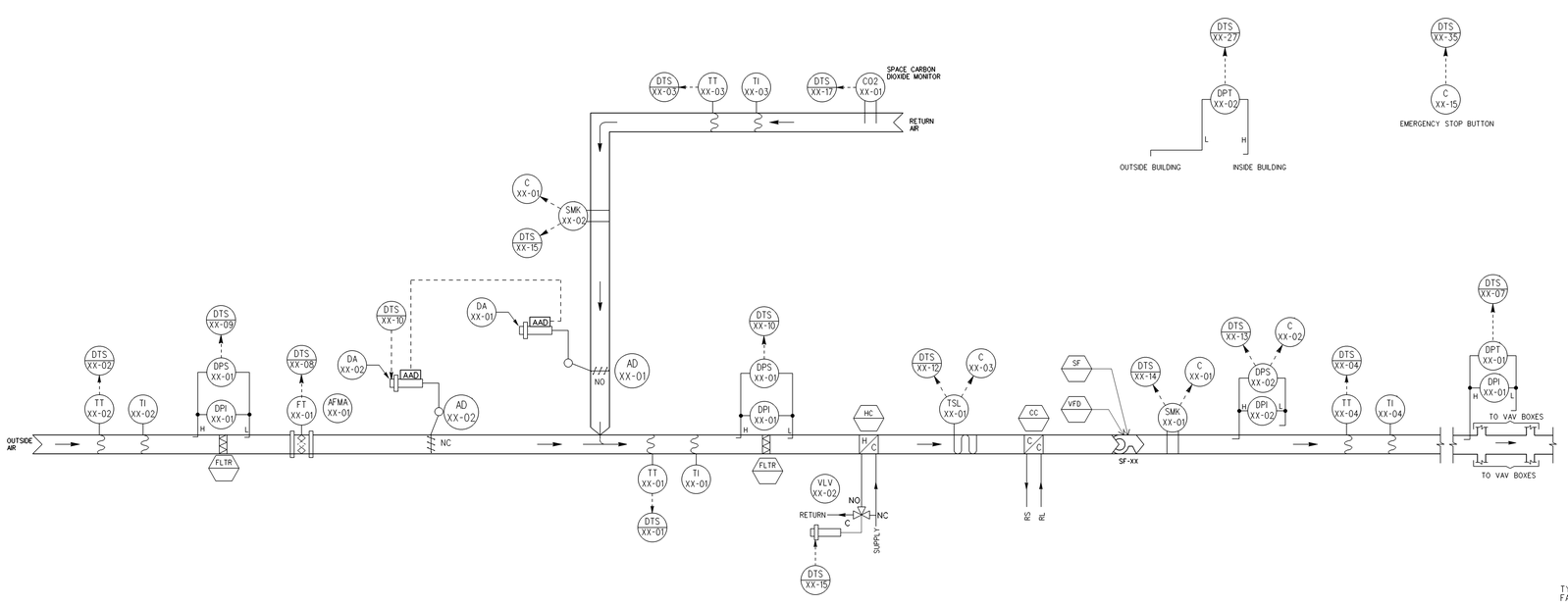
3. Secondly, after award, the Government will provide the Contractor the actual Excel Spreadsheet for the Contractor to input the data into RMS to create the Submittal Register used during contract performance. See Section 01 33 00 (Submittal Procedures), paragraph 1.8 (Submittal Register) for the contract requirements.

4. For the contract or task order Solicitation, the Specifier must complete APPENDIX R, found at the following link: http://rfpwizard.cecer.army.mil/HTML/Docs/Refs/Sample%20Preliminary%20Submittal%20Register.xls , save it as a PDF file and then upload it into the Wizard as Appendix R.

5. The RMS Input Form initially includes submittals required by the standardized Model RFP Division 00 and Division 01 Sections, except Section 01 10 00, paragraph 3. Examine the Special Contract Requirements, paragraphs 3 and 6 and any other locally developed portions of the RFP for required submittals and add them to the Input Form. Do not duplicate submittals already listed in the standardized RMS Input Form, because the Contractor needs to submit this information only once.

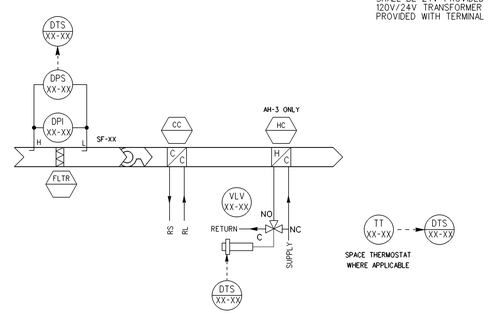
6. After award, the Government provides the Excel spreadsheet to the selected contractor to develop and input the RMS Input form for the submittal register required by paragraph 1.8 of Section 01 33 00, Submittals.

Appendix AA – Control System Points Schedule



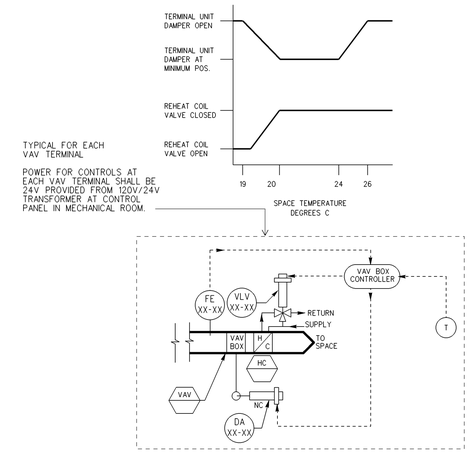
1 CONTROL SYSTEM SCHEMATIC: AH-1

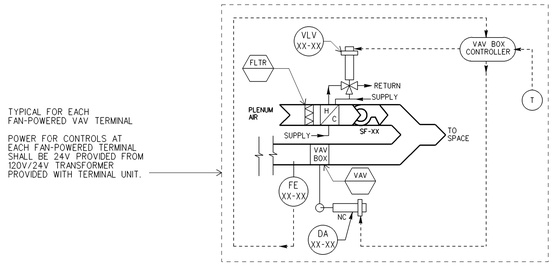
NO SCALE

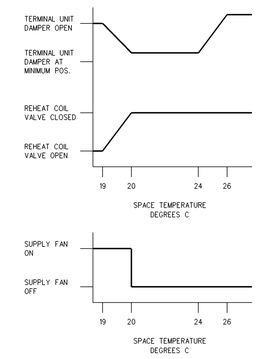


3 CONTROL SYSTEM SCHEMATIC: AH-2, AH-3

NO SCALE







2 VAV TERMINAL SCHEMATICS

NO SCALE

OCCUPIED, UNOCCUPIED MODES OF OPERATION

OUTSIDE-AIR AND RETURN-AIR DAMPERS

OCCUPIED MODE - THE OUTSIDE-AIR AND RETURN-AIR DAMPERS SHALL BE UNDER MIXED-AIR TEMPERATURE CONTROL.

UNOCCUPIED MODE - THE DAMPERS SHALL RETURN TO THEIR NORMAL POSITIONS AS SHOWN.

VENTILATION-DELAY MODE - THE DAMPERS SHALL REMAIN IN THEIR NORMAL POSITIONS AS SHOWN, EXCEPT WHEN UNDER ECONOMIZER CONTROL.

SUPPLY-FAN CONTROL

OCCUPIED AND VENTILATION-DELAY MODES - SUPPLY FAN SHALL START, AND SHALL OPERATE CONTINUOUSLY.
UNOCCUPIED MODE - THE SUPPLY FAN SHALL CYCLE ACCORDING TO THE NIGHT SETBACK SCHEDULE. THE FAN SHALL START AND STOP AT THE SETPOINTS AS SHOWN. THE FAN SHALL BE SHUT DOWN BY THE FIRE ALARM SYSTEM UPON ALARM.

SUPPLY-DUCT PRESSURIZATION CONTROL

WHEN THE SUPPLY FAN STARTS, THE DDC SYSTEM SHALL MODULATE THE VFD FROM THE SIGNAL OF A STATIC PRESSURE-SENSING ELEMENT AND TRANSMITTER TO MAINTAIN THE SETPOINT AS SHOWN. A HIGH-LIMIT STATIC-PRESSURE SWITCH IN THE FAN DISCHARGE SHALL STOP THE SUPPLY FAN AND INITIATE A HIGH-STATIC ALARM WHEN THE STATIC PRESSURE EXCEEDS THE SETPOINT. THE SUPPLY FAN SHALL BE DECENERGIZED WHEN THE MANUAL SHUT-DOWN BUTTON IS PUSHED.

FILTERS

A DIFFERENTIAL-PRESSURE SWITCH ACROSS THE FILTER SHALL INITIATE A FILTER ALARM WHEN THE PRESSURE DROP ACROSS THE FILTER REACHES THE SETPOINT AS SHOWN.

FREEZE PROTECTION

ALL MODES - A FREEZESTAT, LOCATED AS SHOWN, SHALL STOP THE SUPPLY FAN, CAUSE THE OUTSIDE-AIR AND RETURN-AIR DAMPERS TO RETURN TO THEIR NORMAL POSITION, AND SHALL INITIATE A LOW-TEMPERATURE ALARM IF THE TEMPERATURE DROPS BELOW THE FREEZESTAT'S SETPOINT AS SHOWN. RETURN TO THE NORMAL MODE OF OPERATION SHALL REQUIRE MANUAL RESET AT THE FREEZESTAT. THE DDC PANEL SHALL MONITOR THE FREEZESTAT THROUGH AUXILIARY CONTACTS AND SHALL INDICATE AN ALARM CONDITION WHEN THE FREEZESTAT TRIPS.

COOLING COIL

OCCUPIED AND VENTILATION-DELAY MODES - THE CONDENSING UNIT SHALL BE STAGED BY THE DDC SYSTEM FROM THE SIGNAL OF A TEMPERATURE-SENSING ELEMENT AND TRANSMITTER LOCATED IN THE COIL DISCHARGE AIR TO MAINTAIN THE SETPOINT AS SHOWN.

UNOCCUPIED MODE - THE DDC SYSTEM SHALL STOP THE CONDENSING UNITS.

HEATING COIL

OCCUPIED AND VENTILATION-DELAY MODES - THE CONTROL VALVE SHALL BE MODULATED BY THE DDC SYSTEM FROM THE SIGNAL OF A TEMPERATURE-SENSING ELEMENT AND TRANSMITTER LOCATED IN THE COIL DISCHARGE AIR TO MAINTAIN THE SETPOINT AS SHOWN.

UNOCCUPIED MODE - THE DDC SYSTEM SHALL OPEN THE HEATING COIL CONTROL VALVE WHEN AH IS NOT RUNNING

NIGHT SETBACK MODE

IN NIGHT SETBACK MODE, AH-1 SHALL CONTINUE TO RUN WITH THE OUTSIDE AIR DAMPERS CLOSED AND THE EXHAUST FANS DEENERGIZED. INDIVIDUAL VAV TERMINAL BOXES WILL MODULATE TO MAINTAIN THE NIGHT SETBACK SETPOINTS.

PRESSURE-INDEPENDENT TERMINAL FAN POWERED VAV BOX WITH VELOCITY CONTROLLER

ALL MODES - THE CONTROL DAMPER OF THE VAV BOX SHALL MODULATE IN RESPONSE TO THE SIGNAL FROM A FLOW-SENSING ELEMENT AT THE DISCHARGE OR INLET OF THE VAV BOX TO A MICROPROCESSOR-BASED VAV-BOX VELOCITY CONTROLLER. THE VELOCITY CONTROLLER SHALL CONTROL THE BOX DAMPER FROM THE MINIMUM-FLOW POSITION TO THE FULL-FLOW POSITION FROM THE SIGNAL OF A SPACE-TEMPERATURE SENSING ELEMENT LOCATED AS SHOWN. WHEN THE SPACE TEMPERATURE DECREASES, THE DAMPER SHALL GRADUALLY CLOSE TO THE MINIMUM-FLOW POSITION TO MAINTAIN THE COOLING SETPOINT AS SHOWN. WHEN THE SPACE TEMPERATURE CALLS FOR HEATING AFTER THE MINIMUM-FLOW POSITION IS REACHED, CONTROL SHALL THEN PASS THROUGH A TEMPERATURE DEAD BAND AS SHOWN. WHEN THE SPACE TEMPERATURE HAS DROPPED THROUGH THE DEAD BAND, THE HOT WATER TERMINAL COIL SHALL BE GRADUALLY CONTROLLED TO MAINTAIN THE HEATING SETPOINT AS SHOWN AND THE TERMINAL FAN SHALL BE ENABLED. FANS WILL STOP UPON ALARM BY THE FIRE ALARM SYSTEM.

PRESSURE-INDEPENDENT TERMINAL VAV BOX WITH VELOCITY CONTROLLER

ALL MODES - THE CONTROL DAMPER OF THE VAV BOX SHALL MODULATE IN RESPONSE TO THE SIGNAL FROM A FLOW-SENSING ELEMENT AT THE DISCHARGE OR INLET OF THE VAV BOX TO A MICROPROCESSOR-BASED VAV-BOX VELOCITY CONTROLLER. THE VELOCITY CONTROLLER SHALL CONTROL THE BOX DAMPER FROM THE MINIMUM-FLOW POSITION TO THE FULL-FLOW POSITION FROM THE SIGNAL OF A SPACE-TEMPERATURE SENSING ELEMENT LOCATED AS SHOWN. WHEN THE SPACE TEMPERATURE DECREASES, THE DAMPER SHALL GRADUALLY CLOSE TO THE MINIMUM-FLOW POSITION TO MAINTAIN THE COOLING SETPOINT AS SHOWN. WHEN THE SPACE TEMPERATURE CALLS FOR HEATING AFTER THE MINIMUM-FLOW POSITION IS REACHED, THE HOT WATER TERMINAL COIL SHALL BE GRADUALLY CONTROLLED TO MAINTAIN THE HEATING SETPOINT AS SHOWN. SUPPLY FANS WILL STOP UPON ALARM BY THE FIRE ALARM SYSTEM

SMOKE CONTROL

ALL MODES - SMOKE DETECTORS IN THE SUPPLY AND RETURN-AIR DUCTWORK SHALL STOP THE SUPPLY FAN AND THE RELIEF FAN AND INITIATE A SMOKE ALARM IF SMOKE IS DETECTED. RESTARTING THE SUPPLY FAN AND THE RELIEF FAN SHALL REQUIRE MANUAL RESET AT THE SMOKE DETECTOR. (SMOKE DETECTORS PROVIDED UNDER SECT. 16721)

SPACE CARBON DIOXIDE MONITOR

THE RETURN AIR CARBON DIOXIDE MONITOR SHALL TAKE SPACE AIR SAMPLES TO ENSURE SPACE CARBON DIOXIDE LEVELS BELOW 1000 PPM. UPON A RISE ABOVE 1000 PPM, AN ALARM WILL BE SENT TO THE BUILDING AUTOMATION SYSTEM AND THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN TO LOWER SPACE CARBON DIOXIDE LEVELS.

EMERGENCY STOP

UPON INITIATION OF THE EMERGENCY SHUT-DOWN BUTTON, THE SUPPLY FAN SHALL BE STOPPED AND AN ALRM SENT TO THE EMCS.

EXHAUST FANS

EF-1,2,6,7: EXHAUST FANS SHALL BE LOCALLY CONTROLLED BY MANUAL STARTER. EXHAUST FANS SHALL BE INTERLOCKED WITH THEIR RESPECTIVE INTAKE LOUVERS AND SHALL NOT START UNTIL THE LOUVER HAS BEEN PROVEN OPEN (EF-2,6,7).

EF-10,11,12,13: SAME AS EF-2,6,7 EXCEPT CONTROLS SHALL BE STAND ALONE.

EF-3,8,9: EXHAUST FANS SHALL RUN CONTINUOUSLY.

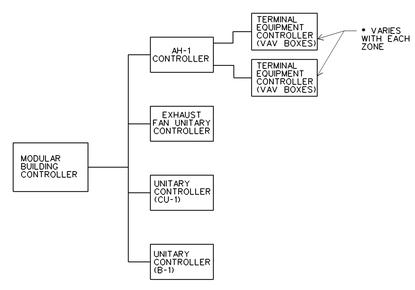
EF-4: EXHAUST FAN SHALL RUN CONTINUOUSLY ON AN OPERATOR DEFINED SCHEDULE.

EF-14: EXHAUST FAN SHALL BE CONTROLLED BY SPACE THERMOSTAT WITH HAND-OFF-AUTO SWITCH.

EF-5,15,16,17,18: EXHAUST FAN SHALL BE LOCALLY CONTROLLED BY MANUAL STARTER.

4 SEQUENCEs OF OPERATION

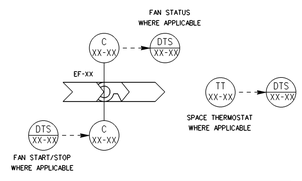
NO SCALE



NOTE: DDC NETWORK SCHEMATIC IS DIAGRAMMATIC ONLY

5 DDC NETWORK SCEMATIC

NO SCALE



NOTE: REFER TO SEQUENCE OF OPERATIONS FOR REQUIRED CONTROL OPTIONS.

6 TYPICAL EXHAUST FAN

NO SCALE

US ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9395 CHRISTOPHER R. REDMIRE

DESIGNED BY	CHECKED BY	SIZE F
CATEGORY CODE 214-10-06		
SOLICITATION NO: W912HN-05-R-0072		
DATE: 28 SEPT 2005		
PLOT SCALE:		

CROMWELL ARCHITECTS, ENGINEERS
1011 S. SPRING STREET
LITTLE ROCK, ARKANSAS 72201
TEL 501/372 2900

SYMBOL	DESCRIPTION	DATE	BY
AS-BUILT		05/05/2009	

EQUIPMENT MAINTENANCE AND STORAGE BUILDING
HUNTER ARMY AIRFIELD, GA

HVAC CONTROLS

PLATE REFERENCE NUMBER: M-802

SHEET 136

11:13
08-MAY-2009
$USERNAME$
$DGNSPEC$

$DGNSPEC$
$DATE$
$TIME$
$USERNAME$

	DEVICE NO.	DESCRIPTION	TYPE
1	TT-XX-01	MIXED AIR TEMPERATURE	AI
2	TT-XX-02	OUTSIDE AIR TEMPERATURE	AI
3	TT-XX-03	RETURN AIR TEMPERATURE	AI
4	TT-XX-04	SUPPLY AIR TEMPERATURE	AI
5			
6			
7	DPT-XX-01	SUPPLY AIR STATIC PRESSURE	AI
8	FT-XX-01	OUTSIDE AIR FLOW	AI
9	DPS-XX-01	FILTER ALARM	DI
10	DA-XX-01,2	MIXED AIR DAMPERS	AO
11			
12	TSL-XX-01	FREEZESTAT	DI
13	DPS-XX-02	SUPPLY AIR HIGH STATIC	DI
14	SMK-XX-01	SUPPLY AIR SMOKE DETECTOR	DI
15	SMK-XX-02	RETURN AIR SMOKE DETECTOR	DI
16			
17	CO2-XX-01	CARBON DIOXIDE MONITOR	AO
18			
19	C-XX-04	SUPPLY FAN SPEED	AO
20	C-XX-05	SUPPLY FAN SPEED	AI
21	C-XX-06	SUPPLY FAN START/STOP	DO
22	C-XX-07	SUPPLY VFD FAULT STATUS	DI
23			
24			
25			
26			
27	DPT-XX-02	BUILDING PRESSURE	AI
28			
29	C-XX-10	CU-1 STAGE 1 START/STOP	DO
30	C-XX-11	CU-1 STAGE 2 START/STOP	DO
31	C-XX-12	CU-1 STAGE 3 START/STOP	DO
32	C-XX-13	CU-1 STAGE 4 START/STOP	DO
33	C-XX-14	CU-1 SAFETY AND ALARM	DI
34			
35	C-XX-15	EMERGENCY SHUT-DOWN	DI
36			

1 DDC DATA TERMINAL STRIP (DTS) LAYOUT

M-803 | M-803

NO SCALE

SENSOR SCHEDULE

IDENTIFIER	FUNCTION	RANGE
TT-XX-01	MIXED AIR TEMPERATURE TRANSMITTER	40° TO 60° F
TT-XX-02	OUTSIDE AIR TEMPERATURE TRANSMITTER	-30° TO 130° F
TT-XX-03	RETURN AIR TEMPERATURE TRANSMITTER	40° TO 60° F
TT-XX-04	SUPPLY AIR TEMPERATURE TRANSMITTER	40° TO 60° F
FT-XX-01	OUTSIDE AIR FLOW TRANSMITTER (CFM)	0 - 20000 CFM
DPT-XX-01	SUPPLY AIR STATIC PRESSURE TRANSMITTER	0 - 4" W.C.
DPT-XX-02	SPACE PRESSURE TRANSMITTER	-1" TO 1" W.C.
CO2-XX-01	SPACE CARBON DIOXIDE MONITOR	0 TO 2000 PPM

CONTROL VALVE SCHEDULE

IDENTIFIER	FUNCTION	TYPE	RANGE	CV	CLOSE-OFF RATING	REMARKS
VLV-XX-XX	TERMINAL UNIT HEATING COIL	3-WAY, MODULATING	4-20 MA	---	125 PSI	ALL VAV BOXES SELECT FOR 3 PSI PRESSURE DROP
VLV-XX-XX	AH-1 PREHEAT	3-WAY, MODULATING	4-20 MA	---	60 PSI	SELECT FOR 3 PSI PRESSURE DROP
VLV-XX-XX	AH-3 HEAT	3-WAY, MODULATING	4-20 MA	---	125 PSI	SELECT FOR 3 PSI PRESSURE DROP

CONTROL DAMPER SCHEDULE

IDENTIFIER	FUNCTION	TYPE	SIZE (1)	RANGE	REMARKS
AD-XX-01	OUTSIDE AIR	MODULATING	WW X HH	4-20 MA	PARALLEL BLADE
AD-XX-02	RETURN AIR	MODULATING	WW X HH	↓	PARALLEL BLADE

(1) CONTROL DAMPER SIZE SHALL BE DUCT SIZE

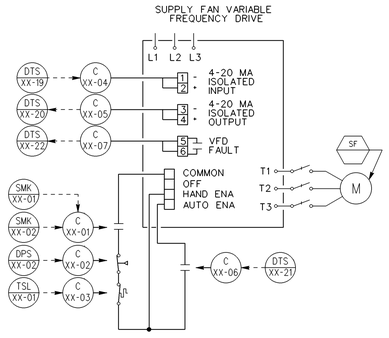
OPERATING PARAMETERS

FUNCTION	SETPOINT	REMARKS
MINIMUM OUTSIDE AIR		SEE OSA UNDER AHU SCHEDULE
MIXED AIR TEMPERATURE MIN.	55° F	
SUMMER SUPPLY AIR TEMPERATURE	53° F	
WINTER SUPPLY AIR TEMPERATURE	55° F	WINTER SETPOINT ACTIVATED AT 45°F OSA AND LOWER (ADJUSTABLE)
SUPPLY AIR STATIC PRESSURE	372	IN. WATER
BUILDING PRESSURE	1.5"	DIFFERENTIAL BUILDING PRESSURE
OCCUPIED MODE		MONDAY - FRIDAY (EXCEPT HOLIDAYS) : 0700 HRS - 1700 HRS
VENT DELAY MODE		MONDAY - FRIDAY (EXCEPT HOLIDAYS) : 0600 HRS - 0700 HRS
FREEZESTAT	40° F	
FILTER ALARM	0.5" / 1.5"	PREFILTER / FINAL FILTER
HIGH STATIC ALARM	4.0"	
SPACE TEMP		SET POINT ADJUSTABLE
NIGHT SETBACK SPACE TEMP	80° F 60° F	COOLING SETPOINT HEATING SETPOINT

INPUT/OUTPUT SCHEDULE

	HARDWARE																			
	OUTPUT								INPUT											
	DIGITAL					ANALOG			DIGITAL					ANALOG						
	CONTROL RELAY					POSITION ADJUSTMENT	RPM-VFD (% OF DESIGN)	POSITION	STATUS	POSITION				TEMPERATURE	RPM-VFD (% OF DESIGN)	PSIG, PSIA, PSID	FLOW	IN. W.G.	CARBON DIOXIDE LEVEL	
SUPPLY FAN SPEED (AH-1)							1								1					
SUPPLY FAN START/STOP (AH-1)	1																			
SUPPLY FAN VFD FAULT (AH-1)									1											
EMERGENCY STOP (AH-1)	1																			
EXHAUST FAN (TYP. ALL UNITS)	*								*											
EXHAUST FAN (WHERE APPLICABLE)														*						
SUPPLY AIR TEMPERATURE (AH-1)														1			1	1		
RETURN AIR TEMPERATURE (AH-1)														1			1		1	
MIXED AIR TEMPERATURE (AH-1)														1						
OUTSIDE AIR TEMPERATURE (AH-1)														1			1			
OUTSIDE AIR DAMPER (AH-1)						1														
RETURN AIR DAMPER (AH-1)						1														
FILTER (OUTSIDE AIR AH-1)									1											
FILTER (AH-1)									1											
SUPPLY AIR HIGH STATIC (AH-1)									1											
FREEZESTAT (AH-1)									1											
SMOKE DETECTOR (AH-1)									2											
VAV VALVE POSITION (TYP. ALL UNITS)							1			1										
VAV DAMPER POSITION (TYP. ALL UNITS)							1			1										
VAV AIR FLOW (TYP. ALL UNITS)																	1			
SPACE TEMPERATURE (TYP. ALL UNITS)														1						
STAGE 1 COOLING (CU-1)	1																			
STAGE 2 COOLING (CU-2)	1																			
STAGE 3 COOLING (CU-3)	1																			
STAGE 4 COOLING (CU-4)	1																			
SAFETY AND ALARM (CU-1)									1											
WATER METER																	1			
ELECTRIC METER																	1			
GAS METER																	1			
FILTER (AH-2,3)									2											
START/STOP (AH-2,3)	2																			
STATUS (AH-2,3)									2											
SPACE TEMPERATURE (AH-2,3)														2						
SAFETY AND ALARM (CU-2,3)									2											
STAGE 1 COOLING (CU-2,3)	2																			

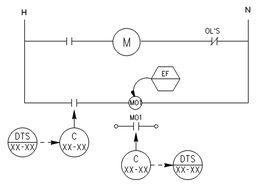
* - AS REQUIRED BY THE SEQUENCE OF OPERATION.



2 AH-1 SUPPLY FAN VARIABLE FREQUENCY DRIVE

M-803 | M-803

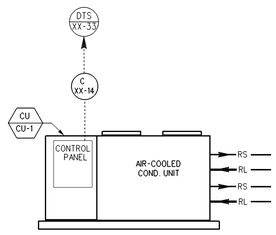
NO SCALE

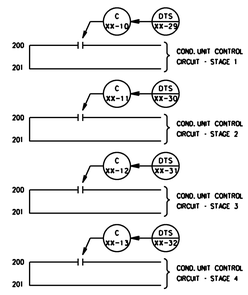


3 TYPICAL EXHAUST FAN STARTER LADDER DIAGRAM

M-803 | M-803

NO SCALE



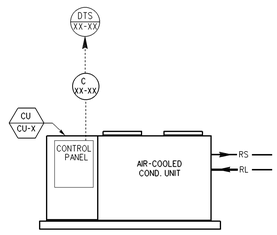


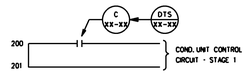
CU-1 INTERLOCK

4 CONTROL SYTEM SCHEMATIC: CU-1

M-803 | M-803

NO SCALE





CONDENSING UNIT INTERLOCK

5 CONTROL SYTEM SCHEMATIC: CU-2, CU-3

M-803 | M-803

NO SCALE

US ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9395 CHRISTOPHER R. RORIE

DESIGNED BY | CHECKED BY | SIZE F

CATEGORY CODE 214-10-06

SOLICITATION NO: W912HN-05-R-0072

DATE: 28 SEPT 2005

PLOT SCALE: :

CROMWELL ARCHITECTS, ENGINEERS
1011 S. SPRING STREET
LITTLE ROCK, ARKANSAS 72201
TEL 501/372 2900

SYMBOL	DESCRIPTION	DATE	BY
AS-BUILT		05/05/2009	

EQUIPMENT MAINTENANCE AND STORAGE BUILDING
HUNTER ARMY AIRFIELD, GA

HVAC CONTROLS

PLATE REFERENCE NUMBER: M-803

SHEET 137

11:13
08-MAY-2009
$USERNAME$
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$$DGNSPEC$$
$$$$DGNNAME$$
$$USERNAME$$

GENERAL INTERIOR ELECTRICAL REQUIREMENTS
HUNTER AAF, GEORGIA

20 March 2009

A. ELECTRICAL GENERAL REQUIREMENTS

1. All electrical systems shall comply with the Hunter AAF Installation Design Guide (accessible at http://en.sas.usace.army.mil/) unless otherwise noted. Requirements mandated by this RFP or mandated by criteria referenced by this RFP shall supersede the requirements of the Hunter AAF Installation Design Guide. Criteria such as Army Technical Manuals (TMs) referenced by the Hunter AAF Installation Design Guide but not referenced by this RFP shall not be regarded as mandatory.

B. TELECOMMUNICATIONS SYSTEMS

1. The Design-Build Contractor shall design and install the complete building telecommunications cabling systems (BCS) in accordance with the requirements and recommendations of the Technical Guide for Installation Information Infrastructure Architecture (I3A). LAN hubs and other communication electronics shall be Government-furnished, Government-installed (GFGI); all other equipment shall be Contractor-furnished, Contractor-installed (CFCI). Connection between the BCS and the outside plant (OSP) shall be the responsibility of the Design-Build Contractor. The Contracting Officer and the Signal N. E. C. Quality Assurance Officer shall be notified 14 days prior to connection between the BCS and OSP. The connection shall be witnessed by representatives of the Contracting Officer and the Signal N. E. C. Quality Assurance Officer.

2. The telecommunications design shall be coordinated with and approved by the Signal Network Enterprise Center (Signal N. E. C.) Quality Assurance Officer prior to construction. The Signal N. E. C. point of contact is Pamela McCullough at (912) 912-767-7970, email address: pamela.mccullough@us.army.mil. An alternate Signal N. E. C. point of contact is Charles Smith at (912) 912-767-2571, email address: charles.smith7@us.army.mil.

3. Where SIPRnet is required, a separate room dedicated to SIPRnet equipment shall be provided.

C. CABLE TELEVISION (CATV)

1. Where cable television (CATV) is required, the Design-Build Contractor shall design and install the complete building CATV system in accordance with the Technical Guide for Installation Information Infrastructure Architecture (I3A). Provide cable television outlets in each reception area, private office, open office, lounge, conference room, training room, classroom, snack bar, child activity area and elsewhere as appropriate.

2. The Design-Build Contractor shall coordinate CATV requirements with the local CATV company, Comcast Cable. Coordination shall include interface requirements between the building CATV system and the site CATV system. The Design-Build Contractor shall extend one 4-inch conduit from the CATV backboard to the building site perimeter, coordinating the termination point with Comcast Cable. The Comcast point of contact is Craig Markillie at (912) 353-6064.

D. MASS NOTIFICATION AND FIRE ALARM SYSTEMS

1. Mass notification systems shall be provided as required by UFC 4-010-01 (DoD Minimum Antiterrorism Standards for Buildings) and Draft UFC 4-021-01(Design And O&M: Mass Notification System dated 04 October 2007). The Mass Notification System shall be fully compatible with and integrated into the basewide Mass Notification System manufactured by Acoustic Technology Inc. (ATI) and shall be capable of accepting all pre-recorded messages as well as live messages from a remote site by way of dry contacts and 600 ohm audio inputs.

2. ATI Systems provides and installs the interface to the basewide mass notification system at each building connection point. ATI Systems uses a wireless Motorola radio system. The Design-Build Contractor shall coordinate work and site/facility interfaces with ATI Systems. Coordination shall include interface requirements between the building MNS system and the site MNS system. The ATI Systems point of contact is Antonio Cracchiolo at (617) 567-4969 x307.

3. The building fire alarm system shall be an addressable Class A system fully compatible with the base-wide Monaco D-21 central fire alarm system. Fire alarm zone descriptions shall be coordinated with the fire department. The fire alarm system shall include an integrated radio transceiver, Monaco BT-X or approved equal. Manual pull stations shall be metal, double action type, and shall not use break rods. Both the Mass Notification System and the Fire Department Shall be keyed to the LS-300 keying standard in all cases. A Knox box shall be provided at the building exterior. Coordinate the fire alarm requirements with the Fort Stewart/Hunter AAF Fire Chief Donald Hollis at (912) 767-2636, email address: donald.hollis2@us.army.mil.

D. INTRUSION DETECTION SYSTEM (IDS)

1. Where an Intrusion Detection System (IDS) is required, a The Design-Build Contractor shall provide power, communication, and signal circuits including all wiring, conduit, and boxes for the IDS system. The Government will be responsible for the installation of the actual sensors (door alarm sensor, passive infrared motion sensor, and the duress alarm sensor, etc) and the Control Unit.

2. A dedicated 20A, 120VAC circuit, with a ground wire shall be provided to the IDS Control Unit enclosure. The conduit for the IDS telephone line shall originate at the communications backboard and terminate in the IDS Control Unit enclosure. The enclosure shall be GFCI. Coordinate with the Physical Security Division (912) 767-8490.

3. Each alarm sensor shall report to the IDS Control Unit. Wiring for the balanced magnetic switch (door alarm sensor) and the duress alarm sensor(s) shall each be a 22 AWG, 2-conductor, stranded wire. Wiring for the PIR motion sensor(s) shall be a 22 AWG, 4-conductor stranded wire. Wiring and conduit for the door alarm sensor shall terminate near the opening side of the door, adjacent to the ceiling with a 4-inch square metal box. Locations and connection points shall be coordinated with the Installation Physical Security Officer during design. Coordinate the IDS requirements including final sensor box locations with the Fort Stewart/Hunter AAF Physical Security Division (912) 767-8490. The Government's ICIDS contractor will complete the installation of the sensors and program the control unit to put the system on-line at the monitor station.

FICKES ENGINEERING INC

FIRE PROTECTION DESIGN & CODE CONSULTING
4501 N. HIGHWAY 7 SUITE #8 PMB #382
HOT SPRINGS VILLAGE, ARKANSAS 71909
VOICE: 501.922.1556

AUGUST 17, 2010

CROMWELL ARCHITECTS ENGINEERS
101 SOUTH SPRING STREET
LITTLE ROCK, ARKANSAS 72201

RE: HUNTER ARMY AIRFIELD; SAVANNAH, GEORGIA
FIRE PROTECTION SPRINKLERS AND FIRE ALARM / MASS NOTIFICATION
EXISTING CONDITIONS – EXISTING MAINTENANCE FACILITY APPROX. 28,000 SF; BLDG #708
RFP DEVELOPMENT – TACTICAL EQUIPMENT MAINTENANCE BAY FACILITY EXPANSION APPROX. 2,100 SF

During a data collection visit on July 28, 2010 to the existing tactical equipment maintenance facility in preparation for the RFP development on the maintenance bay expansion, the following information was obtained:

A. Impact on existing building fire protection features due to addition of a service bay on east end of building.

1. Relocate all fire alarm and mass notification control panels, strobe booster panels, transmitter, and communications antenna.
2. Relocate all east end exterior fire alarm notification appliances.
3. Relocate fire sprinkler system supervisory devices.
4. Relocate 8-inch fire sprinkler underground, riser above the floor, valves, double check backflow preventer, backflow preventer test header, fire department connection and supervisory devices.

B. Additional fire protection issues found within existing building.

1. Replace broken existing auxiliary drain valve handle in NW corner of service bay.
2. Provide new or adjust existing fire alarm notification devices in west end of building in Contingency Pallet Storage room and Shipping/Receiving room due to rack storage or caged storage along walls blocking view of devices. These racks also block some of the emergency lighting units requiring adjustments.
3. Provide fire alarm devices in 12 ft X 30 ft office elevated (approx 8 ft AFF) and under the office at metal storage shelves in Contingency Pallet Storage room.
4. Provide sprinklers in and under 12 ft X 30 ft office elevated (approx 8 ft AFF) in Contingency Pallet Storage room.
5. Evaluate existing sprinkler system considering high rack storage in Contingency Pallet Storage room. Racks are 15 ft to top rack with storage to approximately 20 feet and it appears current sprinkler design does not accommodate high rack storage.
6. Provide sprinklers at exterior 30 ft X 55 ft metal canopy with rack storage located on north side of Contingency Pallet Storage room.

C. Additional life safety issues found within existing building.

1. User added office space (approx 12 ft X 30 ft) elevated (approx 8 ft AFF) with stairs and shelving below office space in Contingency Pallet Storage room. Evaluate means of egress and other life safety issues for this added space.

Sincerely,
FICKES ENGINEERING INC

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STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 12510 EDWARD AUGUST FICKES