US Army Corps
of Engineers
Fort Worth District

Fort Stewart
Georgia

Design-Build
Request for
Proposal

Echelons Above Brigade (EAB) Barracks
PN 68863A, FY 2010

CORRECTED FINAL

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
819 TAYLOR STREET
FORT WORTH, TX 76102

SECTION 01 10 00.0004
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1.0 PROJECT OBJECTIVES

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
Unaccompanied Enlisted Personnel Housing (UEPH)	Apartment

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.

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 lowest 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. UNACCOMPANIED ENLISTED PERSONNEL HOUSING (UEPH)

Provide Unaccompanied Enlisted Personnel Housing (UEPH) facilities. This project type is to house single soldiers and is intended to be similar both functionally and technically to similar housing in the private sector community surrounding the Installation.

Number of single personnel to be housed is 168

Maximum gross area 61,488 square feet.

2.2. SITE:

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

Approximate area available 10.00 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. All Computers and related hardware, copiers, faxes, printers, video projectors, VCRs and TVs are GFGI.

The following are also GFGI items: There is no additional GFGI equipment beyond that specified herein in Section 01 10 00 of the RFP.

2.4. FURNITURE REQUIREMENTS

A Furniture, Fixtures & Equip design and package is NOT required for this project. However, Structural Interior Design (SID) is required for all facility types regardless of the requirements for the FF&E design and package. The 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 is still required as part of the SID submittal.

2.5. NOT USED

3.0 UNACCOMPANIED ENLISTED PERSONNEL HOUSING (UEPH)

3.1. GENERAL REQUIREMENTS

The Army requires an apartment complex of two-bedroom, one-bath dwelling units with kitchen (1+1E module) similar in features, standards and layout to apartment complexes in the surrounding community. Maximize the space inside the individual dwelling units versus providing additional spaces not listed in the functional requirements in this section. Building circulation is required to be through the use of interior corridors/breezeways or garden style apartments, where circulation is minimized. Exterior egress balconies are prohibited; this does not preclude apartments designed with exterior entry landings. Choice of breezeways and exterior entry landings shall be predicated upon the weather criteria of the specific geographic area. Breezeways and exterior entry landings shall be designed to preclude snow and ice infiltration/accumulation. Building spaces and areas are as indicated in the text below. Coordinate the site design with the building described in this Section. Specific site requirements that affect the design and construction of the site appear in 01 10 00-6.0.

3.2. FUNCTIONAL AND AREA REQUIREMENTS

The overall building gross area is based on allocating each occupant 366 gross square feet for buildings up to three stories or 388 gross square feet for buildings over three stories. For Installations in Alaska the overall building gross area is based on allocating each occupant 388 gross square feet for all barracks building, irrespective of building height. The gross square feet per occupant includes the total area of all functional areas required in the building, including all dwelling units, common areas, canopies, and support areas, e.g. stairways, elevators, foyers, corridors, public toilets, janitor's closets, utility room spaces.

(a) Elevators: Provide elevators for buildings that exceed three stories only. Provide elevator system that complies with ASME A17.1 and ASME A17.2.1 in their entirety, and additional requirements specified herein. The first elevator shall be centrally located and shall have a minimum rated load-capacity of 3500 lb (1588 kg), with center opening doors and interior dimensions sized to accommodate a fully extended Emergency Medical Services (EMS) gurney and four average size adults. Gurney size shall be based on the "STRYKER Power-PRO XT" gurney. An additional elevator as specified above shall be provided for every additional one hundred (100) persons or fraction thereof, over the first two hundred (200) persons the building is designed to accommodate, unless a traffic analysis determines otherwise. Such traffic analysis shall be included in the Design Analysis. Elevator interior walls, ceiling, doors and fixtures shall have a satin No. 4 stainless steel finish. Floor finish shall be vinyl composition tile as specified in Paragraph 3.4.5.2. (b). All elevators shall be furnished with removable hanging protective pads and fixed hooks to facilitate conversion to use for moving freight.

Elevator Inspector: The Elevator Inspector shall be certified in accordance with the requirements of ASME A17.1 and ASME QEI-1 and licensed in elevator inspection by the State where project is located. The Certified Elevator Inspector shall inspect the installation of the elevator(s) to assure that the installation conforms with all contract requirements. The Elevator Inspector shall be directly employed by the Prime Contractor and shall be independent of the Elevator System Manufacturer and the Elevator System Installer. The Elevator Inspector shall witness the acceptance inspections and tests, approve all results and sign and certify the successful results. The Elevator Inspector, after completion of the acceptance inspections and tests, shall certify in writing that the installation is in accordance with the contract requirements. The Elevator Inspector shall bring any discrepancy, including any safety related deficiencies, to the attention of the Contracting Officer in writing, no later than three working days after the discrepancy is discovered.

(b) Gross building area definition: Gross building area is measured to the outside face of exterior enclosure walls. Gross area includes floor areas, penthouses, mezzanines, and other spaces as follows:

(1) Areas calculated as half space. Gross building area shall be calculated in accordance with Appendix Q, with the following exceptions in accordance with TI 800-01 Design Criteria – Appendix B, UEPH:

i. All stairs and elevator shafts count as half space for each floor they serve.

ii. Interior public corridors/breezeways will be calculated as half space.

(2) Excluded space: The following spaces are excluded from gross area calculations: Attic areas where average clear height does not exceed 7 feet; crawl spaces; exterior uncovered loading platforms; open courtyards; normal roof overhangs and soffits for weather protection; uncovered ramps and steps; utility tunnels; raceways; mechanical equipment platforms and catwalks.

(3) Gross area limitations: Maximum authorized gross building areas for each facility is included in this paragraph. Proposals that exceed authorized gross area limitations may be considered non-conforming.

(c) Net area definition: Net area is measured to the inside face of the room or finish walls.

(d) Net Area Requirements: Net area requirements for programmed spaces are included in this chapter. If net area requirements are not specified, the space shall be sized to accommodate the required function and to comply with code requirements, overall gross area limitations, and any other requirement of this RFP (for example, area requirements for corridors, stairs, and mechanical rooms will typically be left to the discretion of the offeror).

3.2.1. ACCESSIBILITY REQUIREMENTS

Able-bodied soldiers occupy and manage UEPH facilities. The Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) requirements does not apply to UEPH facilities, except as follows:

3.2.1.1. Site Plan Design and Construction:

(a) Provide ADA/ABA compliant access from the parking lot to the building.

(b) Provide two (2) ADA/ABA compliant vehicle parking stalls for each barracks building for visitor parking.

(c) Provide handicapped vehicle parking signage and pavement markings.

3.2.1.2. Facility Design and Construction:

(a) The main building entrance on the ground level and at least one emergency egress, designed per applicable code, shall be handicapped accessible. Electronic exterior door openers with push button control are required for handicapped accessibility.

(b) Provide ADA/ABA clearances and door accesses in the building main entry/vestibule being used by visitors.

(c) If a lobby is required by the RFP, provide a handicapped accessible drinking fountain in the lobby.

(d) If a lobby is required by the RFP, provide handicapped accessible public toilet(s), which may be unisex, in the lobby area.

3.2.2. Dwelling Units:

3.2.2.1. Bedrooms: Each dwelling unit shall have two bedrooms, each with a minimum net area of 140 square feet and a maximum net area of 183 square feet. Bedrooms shall be equal in size and similar in configuration. Each bedroom shall have a walk-in closet directly adjacent. Each walk-in closet shall have a net area of 32 square feet, and shall be furnished with hanger rods and shelves. Closet shelf shall be capable of supporting a minimum of 30 pounds per linear foot. Closet shelf shall be 15 inches deep and top of shelf shall be set at 70 inches above closet finish floor. Closet rod and bracket system shall be capable of supporting a minimum of 30 pounds per linear foot. Provide a minimum of 78 linear inches of rod and shelf with no rod and shelf being less than 48 inches long. Each closet door shall have a Function (F75), Grade 1 closet latch, and be equipped with padlock eyes so the occupant can provide his/her own padlock. One padlock eye shall be mortised into and screw attached flush with door edge on the latch side of the door and the second padlock eye shall be mortised and welded flush into the inside face of the door frame jamb. Padlock eye shall be fabricated to accommodate padlock shackle up to 1/4" diameter. Padlock eye color shall match door frame color. Locate padlock eye at between 4’-6”’ and 5’-6” AFF. Location of padlock eyes shall be at the same height in all modules. Each closet door shall have a Type 304 satin finished, stainless steel, robe hook mounted on the closet side of the door. Each closet door shall have a 16 inches wide by 70 inches high by ¼ inch thick, select float glass, full length mirror, in a one piece ½ inch by ½ inch by ½ inch Type 304 satin finished, stainless steel frame, with mitered corners, mounted on the bedroom side of the door. Bottom of mirror shall be located at 6 inches above finish floor. Bedroom shall be able to accommodate the following furniture with adequate circulation for one occupant:

- One twin bed with headboard and footboard 40” wide x 85 long”.
- One entertainment center 36” wide x 25” deep x 76” high.
- One chest of drawers 36” wide x 20” deep.

- One nightstand 26” wide x 20” deep.
- One desk 60” wide x 26” deep with retractable keyboard tray and overhead study carrel.
- One desk chair 19 ½” wide by 18” deep.

3.2.2.2. Kitchen: Each dwelling unit shall have a full kitchen with adequate space and circulation to accommodate a GFGI full size refrigerator 28 inches wide, a GFGI electric oven/range 30 inches wide, with a CFCI built-in combination 30 inch wide vent hood and microwave oven, centered over the space provided for the electric range, with standard height base cabinet system, wall cabinet system and countertops for food storage and preparation. Provide a minimum of two 18 inches wide drawer units in the kitchen base cabinet system. Provide utility connections and casework to accommodate appliances listed above. Provide area for recyclables receptacle and kitchen waste receptacle. Furnish and install a single bowl stainless steel kitchen sink. Provide utility connections and casework to accommodate future installation of a dishwasher. Future dishwasher space shall be furnished with a removable built-in full width shelf dividing it into two equal spaces, and a pair of removable swing doors matching the rest of the kitchen cabinetry. Provided a minimum of twelve (12) linear feet of base cabinet systems with twelve (12) linear feet of standard height counter and twelve (12) linear feet of wall cabinet systems. Twelve (12) linear feet of standard height counter includes required sink. In addition to the twelve (12) linear feet of standard height counter, kitchen layout shall accommodate a minimum of 36 linear inches of counter style seating and dining for Furnish and install a garbage disposer at the kitchen sink.

3.2.2.3. Bathroom: Each dwelling unit shall have one full bath, with an elongated floor mounted flush tank type vitreous china water closet, porcelain enameled cast-iron or enameled steel tub/shower, fixed shower head, lavatory/vanity with storage cabinets below, two minimum 16-inches wide by 24 inches high recessed mirrored medicine cabinet, with adjustable shelves, mounted on the backwall of the vanity. Medicine cabinet construction shall be heavy gauge steel, all welded, with a powder-coated finish. Mirror shall be ¼ inch thick select float glass in a one piece ½ inch by ½ inch by ½ inch Type 304 satin finished, stainless steel frame, with mitered corners. Provide a minimum of two towel bars. Spray end of shower head shall be set at 78 inches above finish height of tub drain. Fiberglass or acrylic tub-surround units are required. Lavatory/vanity shall be separated from the tub/shower-water closet enclosure.

3.2.2.4. Laundry area shall be in the kitchen area and shall be sized to accommodate GFGI full size Heavy Duty residential washer and dryer placed side by side, or GFGI stackable washer/dryer units in each dwelling unit. Provide required power, water, drain, and ventilation connections.

3.2.3. Common Areas:

3.2.3.1. Not Used

3.2.3.2. Not Used

3.2.3.3. Not Used

3.2.3.4. Not Used

3.2.3.5. Not Used

3.2.3.6. Recyclables Storage: Provide one Recyclables Storage per building. Locate the Recyclables Storage on the first floor with access to the complex trash/recyclables dumpster area. Recyclables Storage shall be fully enclosed and ventilated. Recyclables Storage shall be sized to accommodate a minimum of six (6) fifty-gallon barrel sized recyclable containers, with adequate circulation space to allow access to move each container in and out of the Recyclable Storage with a dolly, without having to move the other containers.

3.2.3.7. Janitor’s Closet: Provide a minimum of one Janitor’s Closet per floor. Each Janitor’s Closet shall have a minimum area of 30 square feet. Each Janitor closet shall have a mop sink, mop rack, and space for buckets, vacuum and storage for janitorial supplies. Provide a minimum of six linear feet of 18 inch deep, heavy duty, stainless steel shelving for storage of janitorial supplies.

3.2.3.8. Mechanical, Electrical, and Telecommunications Rooms: Mechanical rooms shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Mechanical, electrical and telecommunications rooms shall be keyed separately for access by Installation maintenance personnel. Filter changes and preventative maintenance shall be performed without requiring access to the dwelling units. First floor exterior access is required for centralized mechanical and electrical rooms. Telecommunications rooms shall comply with the requirements of ANSI/TIA/EIA-569-B. Refer to Mechanical and Electrical Sections for additional information.

3.2.3.9. Mail Access Area: A mail access area shall be designed and constructed as a part of this project. Mail access area shall include one USPS-approved combination lock type mailbox per resident, and a minimum of one USPS-approved two-key parcel locker per 40 residents. The numbering sequence shall be coordinated with the user. Mail access area shall be a mail kiosk separated from the main building with box access on outside, and rear (or front) loading. Location of mail kiosk shall conform to the requirements of ATFP UFC 4-010-01. Mail kiosk shall be protected from the elements and shall be architecturally compatible with the associated barracks building.

3.2.3.10. Mudroom:

Provide an enclosed centralized location close to main building entry, with direct exterior access for soldiers to rinse mud off field gear, boots and clothing before laundering. Provide one rinsing station per 30 persons. Each rinsing station shall be furnished with a utility sink and a hosed hot and cold water faucet.

3.2.3.11. Not Used

3.2.3.12. Vestibule: Provide an enclosed transition space between the exterior and the lobby or building interior. Provide a minimum of 7 feet clearance between interior and exterior doors.

3.3. SITE REQUIREMENTS

3.3.1. Walks: Construct pedestrian walks within the designated construction area and connect to existing sidewalks, where applicable.

(a) Sidewalks shall be a minimum of 6 feet wide. Sidewalks designed to support emergency vehicle traffic shall be a minimum of 20 feet wide per NFPA requirements. Sidewalks designed to support service vehicle traffic shall be a minimum of 10 feet wide. Construct walks paralleling buildings beyond the eave drip line and at least 5 feet from the foundation. Restrict vehicular access to the sidewalks, as required by UFC 4-010-01.

(b) Construct non-vehicular pedestrian sidewalks of Portland Cement Concrete having a minimum nominal thickness of 4 inches. Design joint patterns uniformly, symmetrical, and in accordance with the American Association of State Highway and Transportation Officials (AASHTO) standards. For joints, do not exceed the length to width ratio of 1.25 for non-reinforced pavements.

(c) Sidewalks designed to support emergency and service vehicle traffic will be considered roadway pavements and shall be designed to meet the AASHTO standards. Construct vehicular supported walks of Portland Cement Concrete having a minimum nominal thickness of 7 inches. Design joints uniformly, symmetrical, and in accordance with AASHTO standards. Do not exceed the length to width ratio of 1.25 for non-reinforced pavements.

3.3.2. Site Structures and Amenities

Dumpster Area: The Contractor shall locate, design, and construct the dumpster enclosure area(s) and screening. Dumpster screening shall be aesthetically and architecturally compatible with the building it serves and shall be designed in accordance with the Installation’s guidelines. Locate the dumpster areas in accordance with UFC 4-010-01 “DoD Minimum Antiterrorism Standards for Buildings”. Position the GFGI dumpsters outside of restricted areas to allow for servicing activities.

3.3.3. Site Functional Requirements

(a) Privately Owned Vehicle (POV) Parking: The Contractor shall design and construct the POV parking, within the designated construction area. Base the location and design of the POV parking area(s) on the Installation's site constraints. The Contractor shall ensure that the location of parking complies with UFC 4-010-01.

See paragraph 5.2.3, “VEHICLE PAVEMENTS”, for additional information. Provide POV parking spaces for 70 percent of the personnel.

(b) Service Drives: The Contractor shall provide service drives to each building. Locate the drives in accordance with UFC 4-010-01. Restrict access to the drives, where applicable, as required by UFC 4-010-01. Design the pavements as required by paragraph 5.2.3, “VEHICLE PAVEMENTS”. The minimum service drive width shall be 10 feet. The Contractor shall design and construct drives with curb and gutter when necessary for drainage purposes.

(c) Fire Access Lanes: The Contractor shall provide fire access lanes. Access must be provided to three sides, minimum. Access must be within 33 feet of a building’s entrance. Design the fire access lanes in accordance with NFPA 1, UFC-3-600-01, and the installation’s requirements.

3.4. ARCHITECTURAL REQUIREMENTS

3.4.1. Hardware

3.4.1.1. Non-Destructive Emergency Access System: Provide recessed key vault Knox 4400 for Fire Department use at exterior wall at each new facility. Locate key vault at entrance closest to fire alarm control panel. Purchase of key vault must be coordinated with Installation Fire Department.

3.4.1.2. Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided, the Installation keying system is Best lock. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed on all building egress doors.

3.4.1.3. Auxiliary Hardware: Provide wall or floor stops for all exterior doors that do not have overhead holder/stops. Provide other hardware as necessary for a complete installation.

3.4.1.4. Hardware For Fire Doors: Hardware for fire doors shall be installed in accordance with the requirements of applicable codes. Exit devices installed on fire doors shall have a visible label bearing the marking "Fire Exit Hardware". Other hardware installed on fire doors, such as locksets, closers, and hinges shall have a visible label or stamp indicating that the hardware items have been approved by an approved testing agency for installation on fire-rated doors. Hardware for smoke-control door assemblies shall be installed in accordance with applicable codes.

3.4.1.5. Key Card Access System: A Programmable Electronic Key Card Access System shall be provided on all exterior entry/egress doors, dwelling unit doors, bedroom doors and centralized laundry doors (if centralized laundries are required by RFP). Extension of the existing Installation key card access system shall be provided, the existing Installation key card access system is Saflok. The minimum operability requirement is a key card access system that provides a single key card for the individual soldier, programmable to open all exterior entry/egress doors, the laundry room (if a centralized laundry is provided), the soldier’s dwelling unit door, and the soldier’s bedroom door. A Programmable Electronic Key Card Access System Manufacturer’s Representative shall install all hardware and software necessary for the operation of the Electronic Key Card Access System and program all locksets. Provide six (6) blank key cards for each personnel each building is designed to accommodate. The Design-Build Contractor shall furnish in three-ring binders, one full set of the system manufacturer’s system training manual, system maintenance manual, and one training video (in format provided by the system manufacturer), with each system installed. The Programmable Electronic Key Card Access System Manufacturer’s Representative shall provide two (2) separate 4-hour classes of training for the user on software use, programming locks, encoding cards and printing reports. Each building shall be furnished with a complete stand-alone key card system package. System shall be capable of being compartmentalized so that each building has only the capability to produce key cards for that building. Provide a two (2) year warranty on the system and all components and locksets. All special tools, software, connecting cables and proprietary equipment necessary for the maintenance, testing, and reprogramming of the system shall be furnished to the Contracting Officer Representative.

3.4.1.6. Key Card Access System Accessories: Use of SafLok components are required.

3.4.2. Special Acoustical Requirements

3.4.2.1. Exterior walls and roof/floor/ceiling assemblies, doors, windows and interior partitions shall be designed to provide for attenuation of external noise sources such as airfields in accordance with applicable criteria, but no less than the following:

(a) Interior partitions – STC 49

(b) Exterior walls – STC 49

(c) Floors separating sleeping spaces – STC 50 / IIC 55

(d) Module entry, bedroom and bathroom doors – STC 25

3.4.2.2. Sound conditions (and levels) for interior spaces, due to the operation of mechanical and electrical systems and devices, shall not exceed levels as recommended by ASHRAE handbook criteria. Provide acoustical treatment for drain lines and other utilities to prevent noise transmission into the interior of dwelling units

3.4.3. Exterior Design Objectives

Provide durable and easily maintainable materials. Do not use exterior materials that require periodic repainting or similar refinishing processes. Material exposed to weather shall be factory pre-finished, integrally colored or provided with intrinsic weathering finish.

3.4.3.1. Exterior Walls: Where Exterior Insulation and Finish Systems (EIFS), or any other material except CMU or other Masonry material is used as exterior finish material, it shall be in conjunction with a Masonry wainscot. EIFS shall be “high-impact” type and shall be “drainable” type. Masonry units shall be tested for efflorescence. Efflorescence testing shall conform to the provisions of ASTM C 67. CMU construction shall comply with the provisions of ASTM C 1400.

3.4.3.2. Roof System: Minimum roof slope for membrane roof systems shall be 1/4 inch per foot. Minimum roof slope for pitched roof systems shall be 3 inches per foot. Membrane roof systems shall be fully adhered. Structural standing seam metal roofs shall comply with the requirements of ASTM E 1592. Roof system shall be Underwriters Laboratory (UL 580 Class 90) rated or Factory Mutual Global (FM) I-90 rated. Roof system shall comply with applicable criteria for fire rating.

(a) Roof Mounted Equipment: For roof mounted equipment, provide permanent access walkways and platforms to protect roof. Roof mounted equipment on pitched roof systems is unacceptable. Roof mounted equipment on membrane roof systems shall be completely screened by the roof parapet.

(b) Roof access from building exterior is prohibited.

3.4.3.3. Trim and Flashing: Gutters, downspouts, and fascias shall be factory pre-finished metal and shall comply with SMACNA Architectural Sheet Metal Manual.

3.4.3.4. Bird Habitat Mitigation: The Contractor shall provide details in the design necessary to eliminate the congregating and nesting of birds at, on, and in the facility.

3.4.3.5. Exterior Doors and Frames:

(a) Main Entrance Doors: Provide aluminum storefront doors and frames with Architectural Class 1 anodized finish, fully glazed, with medium or wide stile for entry into lobbies or corridors. Provide doors complete with frames, framing members, subframes, transoms, sidelights, trim, applied muntins, and accessories. Framing systems shall have thermal-break design. Storefront systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria

(b) Other Exterior Doors: Provide galvanized insulated hollow metal exterior doors for entry to all spaces other than corridors, lobbies, or reception/waiting rooms. Doors and frames shall comply with applicable codes and criteria. Doors shall be minimum Level 3, physical performance Level A, Model 2 flush; A60 galvannealed. Frames shall be 12-gauge, with continuously welded mitered corners and seamless face joints. Doors and frames shall be

constructed of hot dipped zinc coated steel sheet, complying with ASTM A653, Commercial Steel, Type B, minimum A40 coating weight; factory primed. Fire-rated openings shall comply with applicable codes, and the requirements of the labeling authority. Door and frame installation shall comply with applicable codes and criteria.

3.4.3.6. Exterior Windows: Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Each bedroom shall have at least one exterior window. Window shall meet egress requirements of NFPA 101 and International Building Code. All bedroom windows shall be sealed windows. Windows shall not open to corridor, balcony or landing. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.

3.4.3.7. Exterior Glass and Glazing: Material and installation shall comply with applicable codes and criteria.

3.4.3.8. Thermal Insulation: Provide exterior wall, floor, and roof/ceiling assemblies with thermal transmittance (U-values) required to comply with the proposed energy calculations for the facilities. Insulation shall not be installed directly on top of suspended acoustical panel ceiling systems.

3.4.3.9. Exterior Louvers: Exterior louvers shall have bird screens and shall be designed to exclude wind-driven rain. Exterior louvers shall be made to withstand wind loads in accordance with the applicable codes. Wall louvers shall bear the Air Movement & Control Association (AMCA) International certified ratings program seal for air performance and water penetration in accordance with AMCA 500-D and AMCA 511. Louver finish shall be factory applied.

3.4.4. Interior Design Objectives

General: Provide sustainable materials and furnishings that are easily maintained and replaced. Maximize use of daylighting. Provide interior surfaces that are easy to clean and light in color. Design barracks interior with a residential ambience.

3.4.4.1. Signage: Room signage shall conform to the Housing Automated Management System, (HOMES4). At each dwelling unit, provide two (one on each side of entry door) dwelling unit/room number and changeable two-line message strip signage. Dwelling units shall be sequentially numbered. For example, the first unit on the first floor shall be “101”, first unit on the second floor shall be “201”. Rooms shall be designated using the letters “A and B”. The room designation is determined by standing in the corridor facing the entry door of the dwelling unit, the bedroom on the left is “A” and the one on the right is “B”. The complete dwelling unit/room numbering shall be as in this example, first unit on the second floor “201A and 201B”. Changeable message strip signs shall be of same construction as standard room signs to include a clear sleeve that will accept a paper or plastic insert with identifying changeable text. The insert shall be prepared typeset message photographically enlarged to size and mounted on paper card stock.

3.4.4.2. Bulletin Boards: Provide one bulletin board centrally located on all floors. Bulletin board shall be 4’-0” high and 6’-0” wide. Bulletin boards shall have a header panel and shall have lockable, glazed doors

3.4.4.3. Corner Guards: Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall/column outside corners in high traffic areas. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

3.4.4.4. Chair Rail: Chair rails shall be installed in areas prone to hi-impact use, such as corridors and lobby.

3.4.4.5. Casework: Provide cabinets complying with AWI Quality Standards. Countertops shall have waterfall front edge. Bathroom, kitchen and public toilet countertops shall have integral coved backsplash. Bathroom and public toilet (if required by RFP) vanity countertop shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material with waterfall front edge and integral coved backsplash.

3.4.4.6. Fire Extinguisher Cabinets and Fire Extinguisher Mounting Brackets: Furnish and install fire extinguisher cabinets and fire extinguisher mounting brackets as required by applicable codes and criteria. Furnish a list of installed fire extinguisher cabinets and mounting brackets (including location, size and type) to the Contracting Office Representative.

3.4.4.7. Interior Doors and Frames:

(a) Wood Doors: Provide flush solid core wood doors with Grade A hardwood face veneer for transparent finish. Stile edges shall be non-finger jointed hardwood compatible with face veneer. Provide flush solid core wood doors at doors within dwelling unit. Provide flush solid core wood doors at all dwelling unit entry.

(b) Insulated Metal Doors: Comply with applicable codes and criteria. Doors shall be minimum Level 3, physical performance Level, Model 2; factory primed. Provide insulated metal doors at utility rooms, janitor closets, module entry (if solid core insulated hollow metal door is required), and stairwell doors.

(c) Hollow Metal Frames: Comply with ANSI A250.8/SDI 100. Frames shall be minimum Level 3, 16 gauge, and shall be continuously welded, with mitered corners and seamless face joints; factory primed.

- Contractor's Option – Contractors have the option to furnish knockdown frames for closet and bathroom doors in the dwelling units. Continuously welded frames with mitered corners and seamless face joints at closets and bathroom doors in the dwelling units shall be considered betterments.

(d) Fire-rated and Smoke Control Doors and Frames: Comply with applicable codes, criteria and requirements of labeling authority.

(e) STC ratings shall be of the sound classification required and shall include the entire door and frame assembly.

(f) Each dwelling unit entry door shall be furnished with a brass peep hole door viewer with a viewing angle of 200 degrees minimum.

3.4.4.8. Window Treatment: Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Blinds in barracks bedrooms shall be room darkening mini blinds. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material.

3.4.4.9. Mold and Mildew Mitigation: The Designer of Record shall provide details in the design analysis and design showing steps taken to mitigate the potential growth of mold and mildew in the facility.

3.4.4.10. Toilet Accessories: Furnish and install the items listed below and all other toilet accessories necessary for a complete and usable facility. All toilet accessories shall be Type 304 stainless steel with satin finish.

(a) Public Toilets (IF REQUIRED BY THE RFP): Toilet accessories shall conform to the requirements of the ADA and shall include, but are not limited to the following:

(1) Glass mirrors on stainless steel frame and shelf – at each lavatory

(2) Liquid soap dispenser – at each lavatory

(3) Combination recessed mounted paper-towel dispenser/waste receptacle

(4) Sanitary napkin disposal at each female\unisex toilet

(5) Recessed mounted lockable double toilet paper holder – at each water closet.

(6) Sanitary toilet seat cover dispenser – a minimum of one per toilet room

(7) Grab bars – as required by ADA

(b) Dwelling unit bathroom accessories shall at a minimum include:

(1) Two heavy duty towel bars – minimum 24 inches wide each

(2) Two recessed mounted mirrored medicine cabinets – at each lavatory. (See Section 01 10 00 Paragraph 3.2.2.3.)

(3) Two soap dish - at tub/shower

(4) One wall mounted retractable clothesline – across tub/shower

(5) Two combination soap dish/toothbrush holder – one at each medicine cabinet

(6) Double robe hook - on inside face of bathroom door

(7) Toilet paper holder – at each water closet.

(8) Curved shower curtain rod - extra heavy duty.

(9) Shower curtain – white anti-bacterial nylon/vinyl fabric shower curtain.

3.4.5. Finishes

Designers are not limited to the minimum finishes listed in this paragraph and are encouraged to offer higher quality finishes.

3.4.5.1. Minimum Paint Finish Requirements

(a) All paints used shall be listed on the "Approved product list" of the Master Painters Institute, (MPI). Application criteria shall be as recommended by Master Painters Institute (MPI) guide specifications for the substrate to be painted and the environmental conditions existing at the project site.

(b) Exterior surfaces, except factory pre-finished material or exterior surfaces receiving other finishes shall be painted a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. Exterior paints and coating products shall be classified as containing low volatile organic compounds (VOCs) in accordance with MPI criteria. Application criteria shall be as recommended by MPI guide specifications. Provide an MPI Gloss Level 5 Finish (Semi-gloss), unless otherwise specified.

(c) Interior surfaces, except factory pre-finished material or interior surfaces receiving other finishes shall be painted a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. Interior paints and coating products shall contain a maximum level of 150 g/l (grams per liter) of volatile organic compounds (VOCs) for non-flat coatings and 50 g/l of VOCs for flat coatings. Provide an MPI Gloss Level 5 Finish (Semi-gloss) in wet areas and a flat finish in all other areas.

3.4.5.2. Minimum Interior Finish Requirements

(a) Wall, ceiling and floor finishes shall conform to the requirements of the IBC, NFPA and UFC 3-600-01. Where code requirements conflict, the most stringent code requirement shall apply.

(b) Carpet shall not be used as a floor finish on this project. Vinyl composition tile (VCT) shall be a minimum 1/8 inch thick, conforming to ASTM F 1066, Class 2, through-pattern tile, Composition 1, asbestos free, with color and pattern uniformly distributed throughout the thickness of the tile.

(c) Walls: All wall finish shall be minimum 5/8” painted gypsum board, except where stated otherwise. All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION – Guidelines For Prevention Of Mold Growth On Gypsum Board (GA-238-03). Use impact resistant gypsum board in corridors, storage rooms, stairwells and activity rooms and centralized laundries (if centralized laundries are required by RFP).

(d) All ceiling finishes shall be minimum 5/8” painted gypsum board, except where stated otherwise. All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION – Guidelines For Prevention Of Mold Growth On Gypsum Board (GA-238-03).

MINIMUM INTERIOR FINISHES					
	FLOORS	BASE	WALLS	CEILING	REMARKS

	RESILIENT FLOORING	PORCELAIN OR QUARRY TILE	CERAMIC TILE	RECESSED ENTRY MAT	SEALED CONCRETE	RESILIENT BASE	SANITARY COVE CERAMIC BASE	PORCELAIN OR QUARRY TILE	GYPSUM BOARD PAINT	CERAMIC	GYPSUM BOARD PAINT	ACOUSTICAL CEILING TILE	MINIMUM HEIGHT	
COMMON AREAS														
LOBBY (IF REQUIRED BY RFP)		●						●	●		●	●	9'-0"	SEE NOTE 6
PUBLIC TOILET			●				●		●	●	●		8'-0"	SEE NOTES 2, 3 AND 5
VESTIBULES		●		●				●	●		●		9'-0"	
MUDROOM (IF REQUIRED BY RFP)			●				●		●	●	●		8'-0"	SEE NOTES 2 AND 5
BOOT WASH (IF REQUIRED BY RFP)					●								-	
ACTIVITY ROOM (IF REQUIRED BY RFP)		●						●	●		●	●	9'-0"	SEE NOTE 6
MAIL ACCESS AREA		●						●	●		●		8'-0"	IF LOCATED WITHIN BUILDING
STAIRS	●				●	●			●		●		8'-0"	SEE NOTE 4
CORRIDORS	●					●			●		●	●	9'-0"	SEE NOTE 6
VENDING											●		8'-0"	SEE NOTE 1
RECYCLABLES STORAGE	●					●			●		●		8'-0"	SEE NOTE 1
JANITOR CLOSETS			●				●		●	●	●		8'-0"	SEE NOTE 2
MECHANICAL					●	●			●		●		-	SEE NOTES 5 AND 7
ELECTRICAL					●	●			●		●		-"	
TELECOMMUNICATIONS					●	●			●		●			SEE NOTE 8
CENTRALIZED LAUNDRY (IF REQUIRED BY RFP)		●						●	●		●		8'-0"	SEE NOTE 5
DWELLING UNITS														
KITCHEN	●					●			●		●		8'-0"	SEE NOTE 3
BATHROOM			●				●		●	●	●		8'-0"	SEE NOTES 2 AND 3
BEDROOM	●					●			●		●		9'-0"	
CLOSET	●					●			●		●		8'-0"	

1. FINISHES IN VENDING OR RECYCLABLES STORAGE AREA SHALL MATCH FINISHES IN ADJACENT SPACE.

2. ALL WET WALLS SHALL HAVE A 4'-0" HIGH CERAMIC TILE WAINSCOT. BATHTUB SURROUND SHALL BE AS SPECIFIED IN PARAGRAPH 3.2.2.3.

3. ALL KITCHEN AND BATHROOM COUNTERS SHALL HAVE A MINIMUM OF 4" HIGH BACKSPLASH.

4. STAIR LANDING SHALL BE RESILIENT FLOORING OR SEALED CONCRETE. TREADS SHALL BE RESILIENT FLOORING OR SEALED CONCRETE, PROVIDE SLIP RESISTANT NOSING. RISERS SHALL BE PAINTED STEEL OR RESILIENT FINISH AS REQUIRED FOR STAIR CONSTRUCTION TYPE.

5. PROVIDE FLOOR DRAIN IN CENTER OF ROOM. SLOPE FLOOR TO DRAIN IN ALL ROOMS WITH FLOOR DRAIN
6. UP TO 50% OF CEILING AREA MAY BE ACOUSTICAL CEILING TILE. ALL ACOUSTICAL CEILING TILE SHALL BE INSTALLED WITH HOLD DOWN CLIPS TO PREVENT UPWARD MOVEMENT.
7. PROVIDE FLOOR DRAIN IN CENTER OF ROOM. DOES NOT APPLY TO DWELLING UNIT MECHANICAL CLOSETS.
8. COMPLY WITH THE REQUIREMENTS OF ANSI/TIA/EIA-569-B

3.5. STRUCTURAL REQUIREMENTS

Design and construct as a complete system in accordance with APPLICABLE CRITERIA.

3.5.1. Design live loads shall be per the IBC but not lower than the following minimums.

(a) Elevated floors — 60 pounds per square foot (psf) minimum

(b) Slab on grade — 150 psf minimum

(c) Centralized laundry area (if required by RFP) — 150 psf, (but not less than actual equipment loads)

3.6. COMPLIANCE WITH THE ENERGY POLICY ACT OF 2005 (EPACT 2005)

3.6.1. EPACT 2005 Requirement

The building, including the building envelope, HVAC systems, service water heating, power, and lighting systems shall be designed to achieve an energy consumption that is at least 30% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1 (see paragraph 5.9 Energy Conservation)

3.6.2. Target Energy Consumption Budget

The target energy consumption budget (excluding plug loads) for this facility located in Climate Zone 2A is 57 kBTU per ft^2 per year or less.

3.6.3. Prescriptive Path (Use of Technology Solution Set)

The technology solution set shown in the table below contributes to achievement of the above energy performance and life cycle cost effectiveness requirements for a UEPH facility in the indicated DOE climatic zone.

Climate Zone 2A, Prescriptive Technology Solution Table

Item	Component	30% Solution
Roof	Attic	R-40
	Surface reflectance	0.27
Walls	Light Weight Construction	R-20
Exposed Floors	Mass	R-10 c.i.
Slabs	Unheated	NR (2)
Doors	Swinging	U-0.70
	Non-Swinging	U-1.45
Infiltration		0.25 cfm/ft^2 @ 75 Pa (3)
Vertical Glazing	Window to Wall Ratio (WWR)	10% - 20%
	Thermal transmittance	U-0.45

	Solar heat gain coefficient (SHGC)	0.31
Interior Lighting	Lighting Power Density (LPD)	0.9 W/ft^2
	Ballast	Electronic ballast
HVAC	Air Conditioner	4-Pipe Fan Coil with central chiller and boiler plus DOAS (4) with 14.0 SEER DX coil (3.52 COP) and HHW coil on central boiler SAT control 55ºF – 62ºF with OAT 75º – 54ºF
	Gas Furnace	none
	ERV	70% - 75% sensible effectiveness
Economizer		no
Ventilation	Outdoor Air Damper	Motorized control
	Demand Control	NR
	Laundry Room	Decoupled (5)
Ducts	Friction Rate	0.08 in. w.c./100 feet
	Sealing	Seal class B
	Location	Interior only
	Insulation level	R-6 (6)
Service Water Heating	Gas storage	90% E_t

Notes for Perscriptive Technology Solution Table:

(1) NOT USED

(2) NR means there is no requirement or recommendation for a component in this climate.

(3) Increased Building Air tightness. Building air leakage (measured in cfm/ft2) is the average volume of air(measured in cubic feet per minute) that passes through a unit area of the building envelope (measured in square feet) when the building is maintained at a specified internal pressure (measured in Pascals). Testing requirements are specified in Chapter 5..

(4) Dedicated Outdoor Air System. A central dedicated outdoor air system (DOAS) providing the following:

(a) Outside air for building indoor air quality and humidity control

(b) Make-up air for bathroom and kitchen exhausts

(c) Building pressurization to prevent infiltration which allows for reduction of heating/cooling and moisture loads on the system.

NOTE: The Central DOAS does not provide sensible heating or cooling. Sensible loads are provided by a complementing heating and cooling system

(5) **Decoupling exhaust and supply systems for laundry rooms**. To reduce unneeded energy use for heating and cooling of the make-up air and for air transportation of supply and exhausted air from the dryers, laundry exhaust and supply systems are separated in the efficient building model from the rest of the building exhaust and supply systems. Laundry exhaust system and corresponding make-up systems operate only when dryers are operating.

(6) The duct and pipe insulation values are from the ASHRAE Advanced Energy Design Guide for Small Offices.

All design features of this EPACT 2005 compliant UEPH not described above will be in accordance with the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007. including conformance with paragraph 5.9.2, which requires purchase of Energy Star and FEMP designated products.

3.6.4. Compliance Path

When the “Compliance Path” is selected, the facility design shall include a uniquely developed technology solution set which can be shown by the design analysis (using facility energy simulation software) not to exceed the target energy consumption budget stated in 3.6.2 above and meet all the criteria in the DOE interim final rule: “Energy Conservation Standards for New Federal Commercial and Multi-Family High-Rise Residential Buildings and New Federal Low-Rise Residential Buildings”.

3.6.4.1. Schedules

If a unique technology solution set method of compliance is chosen then the following facility schedules must be used in all facility energy simulations for purposes of showing compliance with 3.6.4. Additionally, for simulation of a baseline building model, the “baseline values” for each component shall be as per ASHRAE Standard 90.1-2004 Building Envelope Requirements table for applicable climate zone and residential construction.

UEPH Common Area Internal Load Schedules

Hr	Occupancy			Lighting			Washer/Dryer Use			Washer SHW		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1-6	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
7-10	0.20	0.20	0.20	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
11-18	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.80	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00
20-21	0.20	0.20	0.20	0.80	0.80	0.80	0.50	0.50	0.50	0.50	0.50	0.50
22-23	0.40	0.40	0.40	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
24	0.20	0.20	0.20	0.80	0.80	0.80	0.50	0.50	0.50	0.50	0.50	0.50
Peak	5 occ/floor			1.0 W/ft^2 (10.8 W/m^2)			8.4 kW/floor			53.3 gal/hr/flr (202 L/hr/flr)		

UEPH Apartment Unit Internal Load Schedules

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1-5	0.80	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.00	0.00
6	0.70	0.65	0.75	0.40	0.30	0.20	0.20	0.20	0.20	0.10	0.10	0.10
7	0.60	0.60	0.70	0.70	0.50	0.30	0.40	0.35	0.20	0.40	0.40	0.40
8	0.50	0.50	1.00	0.50	0.50	0.50	0.40	0.40	0.40	0.20	0.20	0.20
9	0.25	0.25	0.00	0.20	0.20	0.20	0.30	0.40	0.40	0.00	0.00	0.00
10-17	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.30	0.30	0.00	0.00	0.00
18	0.30	0.30	0.30	0.50	0.50	0.50	0.50	0.50	0.50	0.10	0.10	0.10
19	0.50	0.30	0.30	0.70	0.70	0.70	0.50	0.50	0.50	0.10	0.10	0.10
20	0.50	0.50	0.50	0.70	0.70	0.70	0.60	0.50	0.50	0.10	0.10	0.10
21	0.70	0.50	0.50	0.70	0.70	0.70	0.60	0.50	0.50	0.00	0.00	0.00
22	0.70	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00
23	0.80	0.75	0.75	0.40	0.40	0.40	0.40	0.50	0.50	0.00	0.00	0.00
24	0.80	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.00	0.00
Peak	2 occ/unit			1.1 W/ft^2 (10.8 W/m^2)			1.7 W/ft^2 (18 W/m^2)			40 gal/hr (114 L/hr)		

UEPH Apartment Unit Internal Load Schedules

Hr	Refrigerator			Range and Oven		
	Wk	Sat	Sun	Wk	Sat	Sun
1-6	1.00	1.00	1.00	0.01	0. 01	0. 01
7-16	1.00	1.00	1.00	0.04	0.04	0.04
17-18	1.00	1.00	1.00	0.05	0.05	0.05
19-20	1.00	1.00	1.00	0.11	0.11	0.11
21-23	1.00	1.00	1.00	0.10	0.10	0.10
24	1.00	1.00	1.00	0.03	0.03	0.03
Peak	76.36 W/unit			68.95 W/unit		

UEPH Apartment Unit Thermostat Set-Point Schedules

Hr	Heating (°F)			Heating (°C)			Cooling (°F)			Cooling (°C)		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1-24	68	68	68	20	20	20	75	75	75	24	24	24

UEPH Unoccupied Zones (ie stairwells, mechanical rooms) Thermostat Set-Point Schedules

Hr	Heating (°F)			Heating (°C)		
	Wk	Sat	Sun	Wk	Sat	Sun
1-24	55	55	55	12.8	12.8	12.8

3.7. MECHANICAL REQUIREMENTS

3.7.1. Plumbing

3.7.1.1. Water Heating: Domestic water heating system shall be sized based on 20 gallons of 110 deg. F hot water consumption per occupant during morning peak period. Peak period duration shall be 30 minutes (10 minute duration for shower and lavatory use per occupant per dwelling unit plus a 10 minute transition period). Hot water storage capacity shall be based on 75% usable storage and a storage temperature of 140 deg F. For domestic hot water pipe sizing, peak hot water flow rate shall be based on all showers flowing simultaneously at a rate of 2.0 gpm per shower. Waste stacks, building waste drains, and lift stations (if required) shall be sized with consideration of increased flow rates as well. Shower heads and lavatory faucets shall be water conservation type with maximum flow rate not to exceed 2.0 gpm.

3.7.1.2. Mudroom: Provide sand interceptors in drains from Mudroom areas.

3.7.1.3. Not Used

3.7.2. Heating, Ventilating and Air-Conditioning

3.7.2.1. All room/dwelling unit HVAC units shall be located in equipment closets accessible only through a corridor access door with keyed deadbolt. Corridor HVAC access doors shall be sized for ease of service and maintenance of HVAC units. Access for maintenance shall not require entry into the dwelling unit. Air filters shall be located in the equipment closet.

3.7.2.2. Each dwelling unit shall be positively ventilated using dedicated outdoor air units. Dedicated outdoor air units (DOAUs) shall continuously supply dehumidified, tempered air ducted directly to each bedroom from DOAU. DOAU supply air ductwork shall not connect to dwelling unit heating/cooling unit. Supply air conditions from DOAU shall be between 68 and 75 degree F dry bulb and no greater than 48 degree F dew point. Supply quantity shall be 30 cfm per bedroom for a total of 60 cfm per dwelling unit. Dwelling unit exhaust shall be 45 cfm continuous through a bathroom exhaust. (Note: This exceeds ASHRAE 62.1 but provides compliance with IMC chapter 4 and maintains slight building positive pressurization with respect to dwelling unit exhaust rate of 45 cfm). DOAU unit

shall be direct expansion (DX) type and cooling/dehumidification shall be available 24/7/365. Refer to chapter 6 for site specific constraints. The number of exhaust fans and DOAUs shall be the same, and exhaust fans and DOAUs shall be arranged for and shall include exhaust air energy recovery. Exhaust and DOAU systems shall be provided with variable frequency drives (VFDs) and shall be provided with a control logic that provides reduced ventilation rates during periods of low interior humidity and still meet minimum ASHRAE 62.1 requirements.

3.7.2.3. Corridors shall be ventilated per ASHRAE 62.1 by supply from the dedicated outdoor air unit.

3.7.2.4. Dwelling unit room temperature control shall be through the direct digital control (DDC) system. Each dwelling unit shall have a heating/cooling unit with thermostat/temperature control sensor located in common area. Occupant control will include fan selection (on/off) and an occupant temperature setpoint adjustment mechanism that allows +/- 2 deg F of adjustment from the DDC programmed set points (70 deg F heating, 75 deg F cooling). Additionally, the DDC controls shall monitor each dwelling unit for sub-cooling. The DDC system shall record an alarm event if the space temperature drops below 71 degree F (adjustable) when the outside air is greater than 85 degree F (adjustable). Occupant control shall also include ability to select heating or cooling mode. HVAC system shall be able to provide for year round heating or cooling in individual dwelling units as selected by the occupants.

3.7.2.5. Kitchen range hoods shall be the U.L. listed ductless type.

3.8. ELECTRICAL REQUIREMENTS

Select electrical characteristics of the power system to provide a safe, efficient, and economical distribution of power based upon the size and types of loads to be served. Use distribution and utilization voltages of the highest level that is practical for the load to be served. The effect of nonlinear loads such as computers, other electronic equipment and electronic ballasts shall be considered and accommodated as necessary. Voltage drop shall not exceed the maximum allowed per ASHRAE 90.1. Transient voltage surge protection shall be provided on service equipment. Bedrooms shall be considered to be living and sleeping rooms, therefore they are to be considered to be part of a dwelling unit per NFPA 70 definition with the exception that tamper resistant receptacles are not required.

3.8.1. Interior Lighting

Interior lighting controls shall be provided in accordance with ASHRAE 90.1. Compact fluorescent lamps of 12 watts or less shall not be used. Electronic ballasts for linear florescent lamps shall be the high efficiency programmed start type. Provided lighting levels shall be within +/- 10% of required lighting levels.

3.8.1.1. Lighting level in bedrooms shall be 15 foot-candles. Lighting shall utilize compact fluorescent fixtures with manual on/off switching.

3.8.1.2. Lighting level in laundry room(s) shall be 30 foot-candles. Lighting shall have automatic occupancy sensor detection switching.

3.8.1.3. Lighting level in lobbies (if required by the RFP) shall be 10 foot-candles. Lighting in common areas such as corridors and lobbies shall have automatic occupancy sensor detection switching. Sensors in corridors shall be wired such that only the lighting fixtures within the activation range of a particular sensor shall turn on

3.8.1.4. Lighting level in kitchen areas shall be 30 foot-candles with automatic occupancy sensor detection switching. Switching shall be manual-ON/Automatic OFF. Counter top task lighting shall be installed under cabinets utilizing fixtures with 2 foot linear T8 fluorescent lamps with manual on/off switching. Task lighting switching shall be separate from general lighting switching.

3.8.1.5. Lighting level in mechanical and electrical rooms shall be 30 foot-candles. Lighting shall utilize fixtures with T8 fluorescent lamps with manual on/off switching.

3.8.1.6. Provide an illuminance level of 20-footcandles and automatic occupancy sensor detection switching to control fixture(s) in the mudroom (if mudroom is provided).

3.8.1.7. Provide a minimum illuminance level of 5-footcandles for the mail kiosk (if mail kiosk is provided).

3.8.1.8. Provide compact fluorescent light fixture with manual switching in each walk-in closet.

3.8.2. Interior Power

Power shall be provided for all installed equipment requiring power to include convenience receptacles and government furnished government installed equipment. Panelboards located in accessible areas, shall be lockable and keyed to one master key.

3.8.2.1. In addition to the requirements of NFPA 70 for dwelling units, a duplex receptacle shall be mounted adjacent to the CATV outlet.

3.8.2.2. Provide a minimum of one 125 volt duplex receptacle on each wall within the lobby (if lobby is provided) for housekeeping purposes.

3.8.2.3. Provide a minimum of one 125 volt duplex receptacle per corridor for housekeeping. No point along a corridor wall at 18” above finished floor shall be more than 25 feet from a receptacle.

3.8.2.4. Provide a minimum of two 125 volt duplex receptacles in mechanical rooms in addition to those required by NFPA 70. This requirement does not apply to the small mechanical rooms used for individual dwelling units. In addition, provide a minimum of one 125 volt duplex receptacle in each electrical room.

3.9. TELECOMMUNICATIONS REQUIREMENTS

Telecommunications outlets shall be provided per the applicable criteria based on functional purpose of the space within the building and in accordance with other provisions of this RFP. If conflict occurs between requirements of the applicable criteria and specific requirements within the RFP, the specific requirements shall govern.

3.9.1. Equipment racks shall be 84” in height.

3.9.2. A cable tray shall be installed around the entire perimeter of all telecommunications rooms.

3.9.3. Provide a single 8-pin modular jack outlet and a single CATV jack outlet in each bedroom.

3.10. CABLE TV (CATV) REQUIREMENTS

All CATV outlet boxes, connectors, cabling, and cabinets shall conform to applicable criteria unless noted otherwise. All horizontal cabling shall be homerun from the CATV outlet to the nearest telecommunications room unless indicated otherwise. See paragraph 6 for possible additional requirements.

3.11. FIRE ALARM REQUIREMENTS

3.11.1.1. There shall be one complete addressable Fire Alarm System for each building. This system shall consist of a Fire Alarm Panel, a communications device, initiating devices and notification devices.

3.11.1.2. All software, software locks, special tools and any other proprietary equipment required to maintain, add devices to or delete devices from the system, or test the Fire Alarm system shall become property of the Government and be furnished to the Contracting Officer’s Representative prior to final inspection of the system.

3.11.1.3. The fire alarm system installation shall be supervised by a National Institute for Certification of Engineering Technologies (NICET) Level 3 (minimum) technician.

3.11.1.4. Smoke detectors shall be provided in all bedrooms. Smoke detectors in bedrooms shall be monitored. Tampering with a smoke detector shall send a trouble signal. Trouble signals shall be transmitted to the fire department.

4.0 APPLICABLE CRITERIA

Unless a specific document version or date is indicated, use criteria from the most current references as of the date of issue of the contract or task order, including any applicable addenda, unless otherwise stated in the task order. 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 315	Details and Detailing of Concrete Reinforcement
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/COS NASPEC 2001	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
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)	
Version 1.2	AWI Quality Standards 7th Edition
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	American National Standards for Builders Hardware
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. UFC 3-580-01 Telecommunications Bldg Cabling Systems Planning/Design

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.

5.0 GENERAL TECHNICAL REQUIREMENTS

This paragraph contains general technical requirements. See also Paragraph 3 for facility-specific 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. Dumpsters 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.

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 50 percent using LEED credit WE1.1 baseline, 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: Each building shall have exterior signage permanently attached on two faces of the 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. Coordination of the building colors and finishes is necessary for a cohesive design. Color selections shall be appropriate for the building type. The use of color, texture and pattern shall be used 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. Finishes should be selected with regards to aesthetics, maintenance, durability, life safety and image. Limit the number of similar colors for each material. Color of Ceramic and porcelain tile grout shall be medium range color to help hide soiling. Plastic laminate and solid surface materials shall have patterns that are mottled, flecked or speckled. Finish colors of fire extinguisher cabinets, receptacle bodies and plates, fire alarms / warning lights, emergency lighting, and other miscellaneous items shall be coordinated with the building interior. Color of equipment items on ceilings (speakers, smoke detectors, grills, etc.) shall match 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: Interior window treatments with adjustable control shall be provided in all exterior window locations for control of day light coming in windows or privacy at night. Uniformity of treatment color and material shall be maintained to the maximum extent possible within a building.

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.

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.

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 needs to be compatible with the intended functions and components that allows for future flexibility and reconfigurations of the interior space. 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. 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".

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.

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) 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.

(b) 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.

(c) 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, the design for underslab piping systems and underground piping serving chillers, cooling towers, etc, shall include features 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, piping should be suspended 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 20 percent using IPC 2006 fixture performance requirements baseline except where precluded by other project requirements.

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.

5.7. 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: The project's facilities must connect 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: Lighting shall comply with the recommendations of the Illumination Engineering Society of North America (IESNA).

5.7.5.1. Interior Lighting: Interior lighting shall utilize electronic ballast and energy efficient fluorescent lamps with a Correlated Color Temperature of 4100K. Compact fluorescent fixtures shall have a Color Rendering Index of (CRI) of 82 or higher. Linear fluorescent fixtures shall have a CRI of 85 or higher. Fluorescent lamps shall be the low mercury type qualifying as non-hazardous waste upon disposal. Surface mounted fixtures shall not be used on acoustical tile ceilings. An un-switched fixture with emergency ballast shall be provided at each entrance to the building.

5.7.6. TELECOMMUNICATION SYSTEM: All building telecommunications cabling systems (BCS) and OSP telecommunications cabling system shall conform to APPLICABLE CRITERIA to include I3A Technical Criteria and the UFC 3-580-01 Telecommunications Bldg Cabling Systems Planning/Design. 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. 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.

5.8.2.2. Design systems in geographical areas that meet the definition for high humidity in UFC 3-410-01FA in accordance with the special criteria for humid areas therein.

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.

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. Provide a Building Automation System consisting of a building control network , and integrate the building control network into the UMCS as specified.

The building control network shall be a single complete non-proprietary Direct Digital Control (DDC) system for control of the heating, ventilating and air conditioning (HVAC) systems as specified herein. The building control network shall be an Open implementation of LONWORKS® technology using ANSI/EIA 709.1B as the only communications protocol and use only LonMark Standard Network Variable Types (SNVTs), as defined in the LonMark® Resource Files, for communication between DDC Hardware devices to allow multi-vendor interoperability.

5.8.3.1. The building automation 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 Contractor. This includes, but is not limited to the following:

(a) Install hardware such that individual control equipment can be replaced by similar control equipment from other equipment manufacturers with no loss of system functionality.

(b) Necessary documentation (including rights to documentation and data), configuration information, configuration tools, programs, drivers, and other software shall be licensed to and otherwise 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:

(a) Be connected to a TP/FT-10 ANSI/EIA 709.3 control network.

(b) Communicate over the control network via ANSI/EIA 709.1B exclusively.

(c) Communicate with other DDC hardware using only SNVTs

(d) Conform to the LonMark® Interoperability Guidelines.

(e) Be locally powered; link power (over the control network) is not acceptable.

(f) Be fully configurable via standard or user-defined configuration parameter types (SCPT or UCPT), standard network variable type (SNVT) network configuration inputs (*nci*), or hardware settings on the controller itself to support the application. All settings and parameters used by the application shall be configurable via standard or user-defined configuration parameter types (SCPT or UCPT), standard network variable type (SNVT) network configuration inputs (*nci*), or hardware settings on the controller itself

(g) Provide input and output SNVTs required to support monitoring and control (including but not limited to scheduling, alarming, trending and overrides) of the application. Required SNVTs include but are not limited to: SNVT outputs for all hardware I/O, SNVT outputs for all setpoints and SNVT inputs for override of setpoints.

(h) To the greatest extent practical, not rely on the control network to perform the application..

5.8.3.3. Controllers shall be Application Specific Controllers whenever an ASC suitable for the application exists. When an ASC suitable for the application does not exist use programmable controllers or multiple application specific controllers.

5.8.3.4. Application Specific Controllers shall be LonMark Certified whenever a LonMark Certified ASC suitable for the application exists. For example, VAV controllers must be LonMark certified.

5.8.3.5. Application Specific Controllers (ASCs) shall be configurable via an LNS plug-in whenever t an ASC with an LNS plug-in suitable for the application exists.

5.8.3.6. Each scheduled system shall accept a network variable of type SNVT_occupancy and shall use this network variable to determine the occupancy mode. If the system has not received a value to this network variable for more than 60 minutes it shall default to a configured occupancy schedule.

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

5.8.3.8. Not Used

5.8.3.9. Perform all necessary actions needed to fully integrate the building control system. These actions include but are not limited to:

- 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.
- Install IP routers or ANSI/CEA-852 routers as needed to connect the building control network to the UMCS IP network. Routers shall be capable of configuration via DHCP and use of an ANSI/CEA-852 configuration server but shall not rely on these services for configuration. All communication between the UMCS and building networks shall be via the ANSI/CEA-709.1B protocol over the IP network in accordance with ANSI/CEA-852.

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

- The latest version of all software 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:
    - Device address and NodeID.
    - Input and Output SNVTs including SNVT Name, Type and Description.
    - Hardware I/O, including Type (AI, AO, BI, BO) and Description.
    - Alarm information including alarm limits and SNVT information.
    - Supervisory control information including SNVTs for trending and overrides.
    - Configuration parameters (for devices without LNS plug-ins) 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 ANSI.CEA-709.1 addresses, IP addresses, and network names.
- Control System Schematic diagram and Sequence of Operation for each HVAC 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.
- LONWORKS® Network Services (LNS®) database for the completed system.
- Quality Control (QC) checklist (below) completed by the Contractor's Chief Quality Control (QC) Representative

Table 5-1: QC Checklist

Instructions: Initial each item, sign and date verifying that the requirements have been met.		
#	Description	Initials
1	All DDC Hardware is installed on a TP/FT-10 local control bus.	
2	Communication between DDC Hardware is only via EIA 709.1B using SNVTs. Other protocols and network variables other than SNVTs have not been used.	
3	All sequences are performed using DDC Hardware.	
4	LNS Database is up-to-date and accurately represents the final installed system	
5	All software has been licensed to the Government	
6	M&C software monitoring displays have been created for all building systems, including all override and display points indicated on Points Schedule drawings.	
7	Final As-built Drawings accurately represent the final installed system.	
8	O&M Instructions have been completed and submitted.	
9	Connections between the UMCS IP network and ANSI/CEA-709.1B building networks are through ANSI/CEA-852 Routers.	
By signing below I verify that all requirements of the contract, including but not limited to the above, been met.		
Signature:_____ Date:_____		

5.8.3.11. 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.

5.8.3.12. 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.

5.8.3.13. 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.

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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 Fundamental 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. The Contractor shall 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 contractor and not an employee or subcontractor of the Contractor or any other subcontractor on this project, including the design professionals (i.e., the DOR or their firm(s)). 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.

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 30% 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 or FEMP designated products. 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 three 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.

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. 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

(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 FORT STEWART, GA

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.

NONE

6.3. SITE PLANNING AND DESIGN

6.3.1. General:

All the appendices, drawings, and specifications included in the RFP package are additional requirements that apply to this project.

6.3.1.1. Site Plan

A preliminary site layout plan is provided for design and development purposes. The site plan has been approved by the installation and should not be revised except to accommodate final building design. Develop the site plan based on actual building footprints, within the LIMITS OF CONSTRUCTION shown on the drawings.

6.3.1.2. NOT USED

6.3.1.3. NOT USED

6.3.1.4. On-Post Recycling Center

There is an operating recycling center on-Post. Fort Stewart/Hunter Army Air Field has a mandatory recycling program. The Installation Mandatory Recycling Guidance is included as Appendix. Recyclable materials listed in the mandatory recycling policy generated during the entire term of any construction, demolition, or renovation contract may be turned over to the Ft. Stewart or HAAF Recycling Program. Contractors must contact the COR who will coordinate with the DPW, Environmental Waste Management Section to arrange for turn-in of recyclable materials. In areas where large amounts of scrap metal or cardboard will be generated, it is possible that a collection bin/container could be provided at no cost to deposit these materials.

If any of the materials are recycled by the contractor or taken to a recycling center off post, the contractor will provide copies of all salvage weight/scale tickets showing the in, out, and tare weights of each load to the COR/COTR at the end of each month. The COR/COTR will provide copies of these tickets to the Fort Stewart Waste Management Section.

6.3.1.5. Waters of the U.S. and State Waters

Delineation of Waters of the U.S. (wetlands and streams) is shown on the drawings. As the Designer of Record, contact the Georgia Environmental Protection Division to determine presence of State Waters, and to prepare and submit any Stream Buffer Variance (including request fees) required as a result of specific design layout. Allow time in the schedule for State action of the request and avoid disturbances within the Stream Buffer until the request is approved.

6.3.2. Site Structures and Amenities

6.3.2.1. Storm Drainage System

Construction and material specified for storm drainage installation shall be in accordance with the State's DOT requirements. All storm drainage lines constructed under organizational vehicle hardstand, entrance drives, or surfaces subject to vehicular traffic shall be reinforced concrete pipe with watertight joints.

6.3.2.2 Finished Floor

The finished floor elevation of the barracks shall be a minimum of 6 inches above the finished grade and above the 100-year base flood elevation. Finished earth grades shall be sloped away from the building at a rate of 2 percent for the first 10 feet.

6.3.2.3 Dumpsters

The Contractor shall ensure that dumpster screening is compatible with the building it serves. Dumpster enclosure area shall be located as shown on the drawings. Dumpster enclosures' openings must be a minimum of 11 feet wide per dumpster.

6.3.2.4 POV Parking

Provide as many POV parking spots as possible. At a minimum, provide 34 spaces to serve the 48-man barracks and 68 spaces (total) to serve the two 48-man barracks. The attached site plan depicts a layout in which more parking is acheivable. Provide POV spaces that are a minimum of 9 feet wide by 18 feet deep.

6.3.3. Site Functional Requirements:

6.3.3.1. Stormwater Management (SWM) Systems.

(a) Design and construct an SWM system capable of controlling the runoff. Locate the SWM system within the Limits of Construction shown on the drawings.

(b) Additional information:

Design and construction of two POV parking lots, access drives and sidewalks are part of this project. See the attached site plan for layouts. One POV parking lot will be sized to accommodate 2 of the barracks and the second POV parking lot will be sized to accommodate the remaining one barracks.

Please note that there is an existing stormwater detention basin on the site. Coordination with Ft. Stewart must occur to determine what area currently drains to this pond, how the runoff is routed to the pond, (pipes vs. sheetflow), and how the pond can be expanded to handle the runoff from the EAB barracks site. Consider the use of swales around the site to accommodate the increased runoff. If the D/B Contractor chooses to expand the existing pond, it may be wet detention. If the D/B Contractor chooses to construct a new detention pond, it must be dry detention. Note that there is a high water table in this area.

(c) Provide a Storm Water Pollution Prevention Plan for approval. Keep the approved plan onsite at all times for inspection by EPA, Georgia Department Natural Resources (Georgia DNR), and Fort Stewart/Hunter AAF environmental personnel. To the extent possible within the contract cost limit, post development runoff shall equal predevelopment runoff. Storm water design shall also consider future development upstream and that flows through the project site. Wet detention ponds are not allowed. Grade all sites to drain without ponding of water. See Appendix Dry Detention Pond Specifications.

6.3.3.2. Erosion and Sediment Control

In accordance with Section 01 57 20.00 10, provide an Erosion and Sediment Control Plan, approved by the Georgia Soil and Water Conservation Commission and complying with the requirements set forth in the Fort Stewart/Hunter AAF specification Section 01354 entitled Erosion and Sedimentation Control prior to construction. See Appendix. Any violation to such permits will result in the immediate shutdown of work until corrective measures have been taken at the Contractor's expense. Implement any additional erosion and sediment control measures necessary to retain sediment within the boundaries of the project sites during all phases of construction. Ensure at least one GSWCC certified individual is available on-site during land disturbing activities (LDA). In the event that the GSWCC certified individual leaves the site and is the only individual on-site that is certified, then stop all LDA until the certified individual returns.

6.3.3.2.1. Notice of Intent (NOI) Document

Submit the NOI, and approved Erosion and Sediment Control Plan, and land disturbance fees in the amount of $80/disturbed acre to DPW Environmental Branch.

The DPW will review the NOI package and provide comments to the Contractor. The Contractor shall revise and resubmit the NOI package for DPW signature. The DPW will submit the completed NOI package via certified mail to the State of Georgia. The NOI package must be received by the Georgia Environmental Protection Division at least 14 days prior to any land disturbing activities.

Early project coordination with the representative from the National Resources Conservation Service (NRCS) at Fort Stewart, Mr. Jim Freeman at 912-767-7829 is highly recommended.

6.3.3.2.2. Notice of Termination (NOT) Document

When 70 percent of the permanent vegetation utilized to stabilize 100 percent of the disturbed acreage is established, coordinate a site visit with the Environmental Division [POC, Russell Moncrief, at (912)767-0271] and submit the NOT to:

DPW-Environmental Division
Attn: Russell Moncrief
550 Frank Cochran Dr., Bldg. 1137
Fort Stewart, GA 31314

The DPW will sign and submit the NOT package via certified mail to the State of Georgia, Environmental Protection Division, provided the DPW Environmental Branch concurs with the Contractor's 70 percent established vegetation calculation.

6.3.3.3. Vehicular Circulation. Vehicular Circulation. Eliminate conflicting movements within parking areas and address any traffic impacts within ½ mile of the project limits.

6.4. SITE ENGINEERING

6.4.1. Existing Topographical Conditions

6.4.1.1. See Attachment J for Topographic, conceptual or final Site Layout Drawing and utility survey. Coordinate the design with tie in points provided. Verify the Government-furnished survey and obtain all additional survey information that may be required for design and construction of the project. Bring any discrepancies which are found in the Government furnished survey to the immediate attention of the Government for clarification. Perform any additional surveys required to complete this project at no additional cost to the Government.

6.4.1.2. Bring any discrepancies which are found in the furnished plans to the attention of the Contracting Officer. Complete the Site Layout Plan based on actual building footprints.

6.4.2. Existing Geotechnical conditions:

See Appendix A for a preliminary geotechnical report.

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.

6.4.4. Pavement Engineering and Traffic Estimates:

6.4.4.1. A professional engineer, licensed in the State of Georgia, shall design all rigid and flexible pavements in accordance with the Contractor's final geotechnical report.

6.4.4.2. Additional information

Flexible and rigid concrete pavement shall be designed in accordance with Pavement-Transportation Computer Assisted Structural Engineering (PCASE) software available at https://transportation.wes.army.mil/triservice/pcase/. The pavement shall have a design life of 25 years. The pavement design for the basic site design will consider the vehicles assigned to this facility. The minimum rigid concrete pavement design thickness based on an assumed Modulus of Soil Reaction k (pci) of 200 is 7 inches rigid concrete pavement over 4 inches of compacted aggregate base. The Contractor shall base his actual design thickness on the soils boring data taken for this project. Rigid concrete pavement designs over cohesive soil subgrades or areas with high water tables require an under drain systems. A concrete joint layout plan shall be required for all rigid concrete pavements. Joint spacing and joint types shall be shown.

6.4.4.3. Vehicular Parking Areas

(a) Do not use permeable pavements (e.g., segmented pavers, pervious concrete, or pervious asphalt) in vehicular parking and other pavements.

(b) Design parking area surface slopes between 0.5% and 2.0% with a maximum of 3% in the parking stalls.

(c) Design parking areas to avoid ponding.

6.4.4.4. Flexible Pavement Design

(a) Design heavy duty flexible pavements to support H-20 loading.

(b) Design light duty flexible pavements to support 5,000 lb axial loading.

(c) Pavement designs over cohesive soil subgrades require under-drain systems.

(d) The flexible pavement design shall be larger of the calculated flexible design thickness and the minimum flexible design thickness.

6.4.4.5. Rigid Pavement Design

(a) Design rigid pavements to support H-20 loading.

(b) The minimum pavement section shall be 6 inches rigid concrete pavement over 6 inches of compacted aggregate base course.

(c) Pavement designs over cohesive soil subgrades require under drain systems.

(d) Provide a concrete joint layout plan for all concrete pavements. Show joint spacing, joint types, and joint grading.

6.4.4.6. Sidewalks

(a) Locate sidewalks a minimum of 5 feet from main roads and streets. Slope sidewalks to meet all requirements for ADAAG. Construct sidewalks of Portland Cement Concrete.

(b) Emergency vehicle access and service drives shall be a concrete sidewalk (minimum 20 feet wide) designed to support multi-story ladder trucks weighing 75,500 pounds on three axles; two axles are double tired. Install AT/FP access control measures for the service drive meeting the requirements of UFC 4-010-01. Any vehicle control measure must be operable or removable by one person (not to exceed 90 lbs).

6.4.5. Traffic Signage and Pavement Markings. Provide traffic signs and markings per State Department of Transportation requirements and MUTCD.

Traffic Signage and Pavement Markings. Provide traffic signs and markings per State Department of

TraTraffic Signage and Pavement Markings. Provide traffic signs and markings per State Department of

Transportation requirements and MUTCD.

6.4.6. Base Utility Information

Utilities at Fort Stewart/Hunter AAF are a combination of Government-owned/privately-maintained and completely privatized. The Contractor shall coordinate with the installation and private utilities.

Prior to the start of construction, perform utility coordination meetings with the Contracting Officer, Fort Stewart/Hunter AAF utility personnel, and the privatized utility companies. Do not interrupt utility service for buildings adjacent to this project site, except with installation approval. Coordinate approved outages thru the COR. Use the coordination meetings to identify all utility lines impacted by project construction and verify working status of the existing lines. Coordinate the proposed work on impacted utility lines with the appropriate utility company. Utility impacts to be coordinated shall include, but not be limited to, removals, temporary service and removal, and permanent relocations.

Accomplish any utility relocation to construct the facilities in such a manner as to minimize the impact to other users. The Contractor shall bear the cost of installation and relocation of all utilities except as noted otherwise.

6.4.6.1. Electrical Service

Electrical Service on this installation is privatized. Canoochee EMC, the privatized utility company, will design and install primary power distribution equipment and cabling to and within the project site under separate contract. See paragraph 6.9 for additional information.

6.4.6.2. Site Lighting

Design site lighting as required for safety and convenience. Within 5 feet of the building, provide and install fixtures that are architecturally compatible with the building and blend in well with the surrounding buildings. The privatized utility company will provide and install lighting beyond the building 5-foot line. Design site lighting beyond the building 5-foot line using standard fixtures approved by the privatized utility company. See paragraph 6.9 for additional information.

6.4.6.3. Communications Service

The Government owns communication service on this installation. Design and install outside plant (OSP) communication infrastructure including cabling. See paragraph 6.9 for additional information.

6.4.6.4. Sanitary Sewer Service

The Government owns the sanitary sewer service on this installation. Government point of contact is Fred Cavedo, 912-767-5499.

Refer to Appendix E for sanitary sewer system permit requirements. Contact Stanley Thomas, Water, Wastewater, and Landfill Compliance Program Manager, Environmental Compliance Branch, Directorate of Public Works 1550 Frank Cochran Drive, Bldg. 1137 Fort Stewart, Georgia 31314-4940; Phone: 912-767-4139.

6.4.6.5. Storm Drainage Service

The Government owns the storm drainage system on this installation. Government point of contact is Fred Cavedo, 912-767-5499.

6.4.6.6. 6 Water Service

6.4.6.7. Natural Gas Service

Natural gas IS available in the project area. The design, routing, tie-in, and installation of the exterior gas distribution system (up to and including the gas meter/regulator assembly) shall be accomplished by the Design/Build Contractor. Natural gas meters to be provided shall be compatible with the building's DDC system. Fort Stewart purchases natural gas through a Defense Energy Supply Company (DESC). The utility is distributed locally by Atlanta Gas Light. The installation receives natural gas on a firm basis. Point of contact at Fort Stewart for gas service line capacity, size, routing, and points of connection to the gas distribution system is Fred Cavedo, 912-767-5499. The nearest gas line available for use by this project is located as indicated in the Attachments.

6.4.6.8. Hydronic Piping

No existing chilled water or heating water distribution lines are available in or near this project area.

6.4.6.9. Local Telephone Service

The local telephone company will design and install outside plant (OSP) local telephone service (e.g., subscription service to permanent party barracks). Coordinate with the local telephone company to assure ductline entry into the building.

6.4.6.10. Cable TV Service

Cable TV service on this installation is privatized. The local cable company will design and install CATV distribution to and within the project site. Coordinate with the local cable company to assure ductline entry into the building. See paragraph 6.9 for additional information.

6.4.7. Cut and Fill

Earth cut and fill slopes shall not exceed 3 horizontal to 1 vertical. Retaining walls are an option to limit the amount of cut and fill. Locate retaining wall in the following areas:

Earth cut and fill slopes shall not exceed 3 horizontal to 1 vertical.

6.4.8. Borrow Material

Borrow areas are available on the installation. The contractor shall coordinate with the COR for location of the borrow pits. Borrow pits are available on a first come, first serve basis. Due to high groundwater levels, dewatering/pumping of borrow pits must be expected. Proper sedimentation and erosion control BMP's must be implemented. Waste area is not available on the installation.

6.4.9. Haul Routes and Staging Areas

6.4.9.1. Haul routes are shown on the site drawings. The Installation must approve any requested changes to the haul routes shown. Coordinate with the installation through the COR.

6.4.9.2. Additional Site Requirements

(a) Employee parking. Employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Employee parking shall not interfere with existing and established parking requirements of the Installation.

(b) Temporary Utilities. All temporary utilities (e.g., water, sewer, electrical, and telecommunications) will be at the Contractor's expense and subject to Fort Stewart/Hunter Army Air Field regulations. The utility cost information is located at Appendix K. Negotiate and contract with the privatization utility directly without benefit of the Government.

(c) Storage Area. Trailers, equipment, or materials shall not be open to public view with the exceptions of those items which are in support of ongoing work on any given day. Locate the staging area within the Limits of Construction unless previously approved by the Contracting Officer and the Installation. Comply at all times with the Fort Stewart Command Policy Memorandum, Subject: Design and Maintenance of Contractor Storage Areas. A copy of the memorandum is included in an Appendix.

6.4.10. Clearing and Grubbing:

6.4.10.1. Tree Removal and Timber Harvesting Requirements

Submit a tree removal plan as soon as possible after receiving Notice-to-Proceed. Show the new tree line on a site layout plan. The new tree line should take into account all buffer requirements, roads, wetlands, streams, etc. Trees on the project site are Government property and therefore the Government through the established Fort Stewart/Hunter AAF timber disposal process will sell all merchantable trees identified and approved for removal. Delineate the clearing limits by surveying and flagging the perimeter trees with red flagging tape. Notify the Government when this has been accomplished. Designate a representative knowledgeable about the clearing limit surveying and flagging to answer any questions that may arise regarding clearing limits. The Government and Contractor will determine the site start point of the clearing operation. Once the Contractor delineates clearing limits , the Government will determine the volume of merchantable timber to be harvested and then advertise, sell, and remove all merchantable timber within 120 days of notification of the clearing limits delineation. Clearing will begin no later than 60 days after the Government and Contractor have agreed on the clearing limits. Merchantable / saleable timber classification is driven by local market conditions and the discretion of the Government timber harvester. Pine and hardwood trees greater than 6 inches in diameter at 4.5 feet above the ground (DBH) and at least 25 feet to a 3-inch diameter top shall be considered as merchantable timber. Trees may be classified as non-merchantable due to size (too small or too large), deformities, accessibility to harvest the trees, metal contamination, and/or any other factor that may affect the Timber Harvest Contractor's ability to efficiently harvest, transport, and sell the trees. Timber harvesting, to include removal of non-merchantable trees as fuel wood, can be implemented before the issuance of a NPDES permit, provided that the guidelines established by the Georgia's Best Management Practices (BMP's) for Forestry Manual are followed, and no ground disturbing activities in areas to be constructed or developed (to include grading and grubbing) occur until the NPDES permit and soil erosion control plan is in order. Ground disturbance activities and guidelines for the stabilization of sites such as, but not limited to, roads, stream crossings, log decks, skid trails, firebreaks and others must follow the Georgia Forestry BMP's manual recommendations. After the Government's Timber Harvest Contractor has cleared a minimum of 5 acres, the Contractor may begin any clearing and grubbing required under the contract once all required environmental permits are in place. Remove all trees or portions of trees remaining after the Timber Harvest Contractor has completed his operations.

6.4.10.2. Timber Harvesting in Wetlands and Streamside Management Zones

If clearing of trees is required within 25 feet of the wrested vegetation of either side of a stream and/or state water, acquire a stream buffer variance from the Georgia Environmental Protection Division (EPD) before the trees can be removed. If at the time of timber harvest, stream buffer variance permits have not been acquired , then the stream buffer areas must remain untouched until the required stream buffer variance permits have been issued. Cut and stockpile all merchantable trees in stream buffer areas. Stockpile all merchantable trees that meet the following criteria on the foot print of the construction site for pick-up by the Government timber harvest contractor.

(a) Pine Sawtimber is a minimum of 10 inches diameter at breast height (DBH) and 25-foot length to an 8-inch top.

(b) Pine Pulpwood is a minimum of 6 inches in DBH and 25-foot length to a 3-inch top.

(c) Hardwood Pulpwood is a minimum of 6 inches DBH and 25-foot length to a 3-inch top.

(d) Hardwood Sawtimber is a minimum of 12 inches DBH and 16.5-foot length to a 12-inch top.

6.4.10.3. Harvesting Streamside Management Zones and Wetlands

(a) Use site-specific equipment and methods to minimize water quality impacts, including high-flotation, low-pressure harvesting equipment, shovel logging, or cable yarding.

(b) Concentrate skid trails and use logging slash, mats or other techniques to minimize soil compaction and rutting.

(c) Use techniques that minimize soil disturbance, such as backing trees out with machine, using low ground pressure equipment, using equipment with a boom or cable winch.

(d) Maintain the integrity of stream banks.

(e) Minimize the exposure of mineral soil by spreading logging slash and using it to drive over.

(f) Follow Federal mandated stream and wetland crossing procedures.

(g) Ruts can not be deeper than 12 inches in wetland areas and stream variance areas

(h) Must Avoid 1) using de-limbing gates or trees as de-limbing gates in the wetlands or stream variance areas or 2) Leaving tops in stream channels.

6.4.10.4. Slash and Residual Tree Removal

Submit a written plan for disposal of all remaining timber at least 15 days prior to any removal. Indicate the method of disposal and the location. The disposal shall occur in one of the following ways unless the Government otherwise approves:

(a) Chip the debris and haul off Fort Stewart/Hunter AAF.

(b) Chip the debris and use as mulch for landscaping. Chips used for this purpose cannot exceed a depth of 3 inches.

(c) Haul debris to a non-Government landfill off of Fort Stewart/Hunter AAF.

6.4.11. Landscaping:

The landscape contractor shall comply with the following references:

(a) Include Specification SECTION 32 93 00, EXTERIOR PLANTS in design submittals for projects that require landscaping.

(b) Plant trees, shrubs and grasses in accordance with Fort Stewart's approved plant list palette (See Appendix I).

(c) Submittals in accordance with Section 01 33 00 SUBMITTAL PROCEDURES shall be provided to the DPW Landscape Architect prior to the installation of any plants, trees, shrubs or grasses for the following:

- SD- 04 Samples
  - Topsoil - submit one pint
  - Mulch - submit one pint
- SD-06 Test Reports
  - Topsoil Composition Tests; Soil Test of proposed landscape planting areas
  - Percolation Test; Percolation Test of proposed landscape planting areas

6.4.12. Turf: All disturbed areas within the Garrison area are to be sodded. All other areas may be seeded.

(a) Use Centipede grass (Eremochloa ophiuroides) for low traffic grass turf areas.

(b) Use Zoysia grass (Zoysia spp) for high traffic grass turf aras.

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 Fort Stewarts'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 Fort Stewart'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:

Fort Stewart is currently implementing an architectural design theme called "Southern Living Station of Choice," implying that the installation has all the amenities that would cause a military service member to request being stationed at Fort Stewart. The architectural characteristics of this theme are reminiscent of the Southern Colonial Revival style. It incorporates specific architectural features such as porticos, verandas, columns, low-pitched hip or gable roofs and regular patterns of fenestration. Building materials such as brick, concrete masonry units and stucco are used and the range of colors is limited to emphasize earth tones and white. When properly combined, these elements create an architectural image which expresses continuity with Georgia architectural traditions. In the current period of construction, a number of buildings are completed or under construction, and more are planned. These include the Command and Control Facility (Bldg. 001), the Army Education Center, the Soldier Service Center (Bldg. 253), the Troop and Family Care Medical Clinic (Bldg. 412), the Military Police Headquarters (Bldg. 258), the Post Chapel (Bldg. 500), the entrance gates and the new Brigade Combat Team (BCT) area. (See appendix "F" for pictures of the buildings mentioned above.)

Design Techniques for Consistent Structural Character

Fort Stewart seeks to further achieve consistency in design throughout the visual zones by applying the design preferences of the Southern Living Station of Choice theme. Development of consistent character provides a coherent 'sense of order' and 'sense of place.' This relationship of design comes from using compatible scale, massing, form, color, texture, materials and fenestration. These design principles are explained in the following paragraphs:

(a) Scale, Scale refers to the size of a building façade in relation to humans. Buildings with predominant vertical façades, which dwarf the individual, are defined as monumental in scale. Buildings with more horizontal façades, designed to relate to the size of the human figure, are defined as human scale. Most buildings on Fort Stewart are and should be human rather than monumental scale. Monumental architectural design is typically utilized for more prominent or ceremonial buildings, such as headquarters complexes and worship facilities. These types of buildings make use of large, glazed areas at entrances and oversized fenestration to create a more dominant scale. The new Post Chapel (Bldg. 500) is an example of a monumental-scale building. All new construction on Fort Stewart should be compatible in scale with adjacent buildings. Relief should be provided through roof form, fenestration, building projections, and landscape plantings. Creation of human-scaled buildings on Fort Stewart will be achieved by limiting the height of buildings to no more than three stories, terminating buildings with low-pitched (between 3:12 and 5:12 pitch) hipped or gabled roofs with dormers or gablets, and designing buildings with regular fenestration patterns.

(b) Massing, Massing refers to the overall bulk or volume of a building. The size and proportion of individual buildings should be designed to be proportionally compatible with adjacent buildings (Fig. 8.20). The massing of the

majority of buildings and structures on Fort Stewart is broken up by complex roof configurations, gabled entrance porticos, projecting bays or piers or alternating window and wall bays.

(c) Form, The form of a building is determined by its size, mass, shape, and proportions. The use of similar building forms provides continuity to the installation architecture. The result is a more aesthetically pleasing environment. Low-scale, rectangular building forms are repeated throughout Fort Stewart.

(d) Color, The use of a color scheme that is consistent throughout the installation results in continuity of buildings and contributes to a sense of place. However, color schemes throughout the installation

often vary according to the visual zone and visual theme in which the structure is located. Fort Stewart has broadly-defined color schemes for each visual zone in the cantonment area (see Section

8.14). For instance, the preferred colors (and materials) of buildings in the Headquarters Visual Zone is red (brick) walls and patina green (sheet metal) roofs. New construction on Fort Stewart must adhere to the defined color schemes.

(e) Texture, The use of materials with similar texture in buildings helps to provide visual continuity for the installation.

(f) Materials, The use of the same materials in the exterior finish and trim of buildings helps provide visual continuity. Fort Stewart has identified the primary and secondary building materials for walls, wall openings, and roofs for each visual zone. For instance, the preferred materials (and color) of buildings in the Headquarters Visual Zone are brick walls (red) and sheet metal roofs (patina green). Designs for new buildings or structures on Fort Stewart should use the materials listed in Appendix “F”.

(g) Fenestration, Fenestration is the design and arrangement of windows in the walls of a building. Windows should be similar in design, size, and proportion for architectural compatibility and visual consistency. A regular fenestration pattern and avoidance of continuous bands of windows across entire facades are two of the design preferences for buildings on Fort Stewart.

(h) Building Entrances, Fort Stewart has emphasized prominent building entrances for new construction. This design emphasis creates a definitive sense of entry appropriate to the size or importance of the building. Evidence of this can be seen at both the Soldier Service Center and the Post Exchange (Figs. 8.23 and 8.24). This trend should continue.

Building entrances are designed to conform to the following guidelines:

• The entrance to a building should be in a prominent location and should be oriented toward the primary

adjacent public spaces, such as a courtyard, lawn, parking lot, or street.

• The preferred configuration of a primary entrance for a building of large size or importance is a double-

door entry under a full-height, front-gabled portico supported by classical-style columns. For other

types of buildings, the main entrance should consist of a small gabled portico or gabled hood over a double-door or recessed entry (Fig. 8.25). An entrance should not be barrel-vaulted.

• The details of an entrance should be designed to provide continuity with other entrances to the building and the entrances of adjacent buildings.

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 Fort Stewart. 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) Lockset cylinders shall be fully compatible with products of the Best Lock Corporation and shall have interchangeable cores which are removable by a special control key. Cores shall have seven pin tumblers and shall be factory set using the A4 system and E keyway. All locksets and exit devices shall accept the same interchangeable cores.

(c) If the project includes any elevators, provide an elevator inspector, licensed by the State of Georgia, who shall inspect the installation and provide testing of all new elevators and certify in writing that they meet all requirements.

6.5.3. Not Used

6.5.4. INTERIOR DESIGN

Interior building signage requirements:

No additional requirements.

6.6. STRUCTURAL DESIGN

6.6.1. Foundation

Treat subgrades under all facility foundation to resist subterranean and other wood destroying insects known to exist in the vicinity of the site. Such treatment shall be in accordance with the environmental criteria referenced in this document.

6.6.2. Slabs on Grade

Provide all interior slabs on grade, including storage and mechanical rooms, garages, and carports with a moisture vapor barrier consisting of lapped polyethylene sheeting having a minimum thickness of 6 mils and a minimum 4-inch thick capillary water barrier. Provide capillary water barrier of clean, washed, sand, poorly graded rock, crushed gravel, or natural gravel. Conform to ASTM C 33 for fine aggregate grading with a maximum of 3 percent by weight passing ASTM D 1140, No. 200 sieve (wash), or coarse aggregate size Nos. 57, 67, 7, 78, or 89.

6.6.3. Structural Loading

(a) For Seismic and Wind Load Analysis, the occupancy factor shall be II, as indicated in the most recent version of ASCE 7.

(b) The wind analysis shall be based on a minimum design wind speed of 110 mph for Ft Stewart and 120 mph for Hunter AAF.

(c) For seismic design (Site Class B), the maximum considered earthquake (MCE) spectral response acceleration at short periods and 1 second period shall be, Ss= 29 %g for Ft Stewart and 38 %g for Hunter AAF and S_1 = 10 %g for Ft Stewart and 12 %g for Hunter AAF..

(d) Snow load is Zero.

(e) Roof Live Loads (20 psf minimum)

(f) Frost Penetration is Zero.

6.7. THERMAL PERFORMANCE

No additional requirements

6.8. PLUMBING

No additional requirements

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.9.1. General. Provide site development work as shown on the drawings and as described in this RFP.

6.9.2. Exterior Electrical Distribution System

6.9.2.1. Primary Service. The local utility company will design and construct site electrical primary distribution infrastructure, cabling and equipment under separate contract.

6.9.2.2. Secondary Service and Exterior Circuits. Design and construct the site electrical secondary distribution (e.g., site electrical service entrance ducts, site electrical service entrance conductors between the building service equipment and the point of metering, and site feeder and circuit conduit and conductors for sump pumps, irrigation pumps and other electrical and mechanical equipment.)

6.9.2.3. Service Transformer. Coordinate the location of the service transformer with the local utility company. The local utility company will provide and install the service transformer.

6.9.2.4. See Appendix C: UTILITY CONNECTIONS, Appendix : CANOOCHEE EMC RESPONSIBILITIES, and Appendix : CONTRACTOR/CANOOCHEE DEMARCATION LINE for additional information. The Design-Build Contractor (identified as GC in the appendices) shall comply with all requirements within these appendices unless otherwise indicated.

6.9.3. Exterior Lighting

Design the site lighting for parking areas and walkways. Installation responsibility is indicated in Appendix C: UTILITY CONNECTIONS, Appendix: CANOOCHEE EMC RESPONSIBILITIES, and Appendix : CONTRACTOR/CANOOCHEE DEMARCATION LINE.

6.9.4. Exterior Communication Services

6.9.4.1. 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. Coordinate design, construction and connection point location with the installation DOIM.

6.9.4.2. Provide a 3-way 4-inch ductline to the building main communications room. Provide

communications conduit and cabling as shown on drawings in Appendix J.

The remaining duct(s) shall be spare. Terminate cables on protected entrance terminal blocks in each building's main communications room.

6.9.4.3. Provide 50 feet of service loop at the building communications room and in each manhole and hand hole. Tag all cables.

6.9.4.4. See Appendix C: UTILITY CONNECTION INFORMATION for additional information.

6.9.5. Cable Television (CATV) Service

6.9.5.1. Extend one 4-inch duct from the CATV backboard to the site perimeter.

6.9.5.2. See Appendix C: UTILITY CONNECTIONS for additional information.

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10.1. Telecommunications Systems

6.10.1.1. LAN hubs and other communication electronics shall be Government-furnished, Government-installed (GFGI); all other equipment shall be Contractor-furnished, Contractor-installed (CFCI). Connect the BCS with the outside plant (OSP) Notify the Contracting Officer and the DOIM Quality Assurance Officer 14 days prior to connection between the BCS and OSP. Representatives of the Contracting Officer and the DOIM Quality Assurance Officer will witness the connection.

6.10.1.2. Coordinate design with the Directorate of Information Management (DOIM) Quality Assurance Officer. The DOIM must approve the design prior to construction The DOIM point of contact is Pamela McCullough at (912) 912-767-7970, email address: pamela.mccullough@us.army.mil. An alternate DOIM point of contact is Charles Smith at (912) 912-767-2571, email address: charles.smith7@us.army.mil.

6.10.2. Intrusion Detection System

6.10.2.1. Where an Intrusion Detection System (IDS) is required by paragraph 3, the Design-Build Contractor shall provide power, communication, and signal circuits including all wiring, conduit, and boxes for the IDS system. The Government willprovide and install the actual sensors (door alarm sensor, passive infrared motion sensor, and the duress alarm sensor, etc) and the Control Unit.

6.10.2.2. Provide a dedicated 20A, 120VAC circuit with a ground wire 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.

6.10.2.3. 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. Terminate wiring and conduit for the door alarm sensor near the opening side of the door, adjacent to the ceiling with a 4-inch square metal box. Coordinate locations and connection points with the Installation Physical Security Officer during design. Coordinate the IDS requirements including final sensor box locations with the Fort Stewart 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.

6.10.3. Cable Television System

6.10.3.1. Where cable television (CATV) is required, design and install the complete building CATV system in accordance with the I3A. Provide cable television outlets in each reception area, private office, open office, lounge, conference room, training room, classroom, snack bar and elsewhere as appropriate.

6.10.3.2. Coordinate CATV requirements with the local CATV company, Comcast Cable. Coordination includes interface requirements between the building CATV system and the site CATV system. 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.

6.11. HEATING, VENTILATING, AND AIR CONDITIONING

6.11.1. Utility Monitoring and Control System (UMCS)

Integrate the control system to the installation's existing UMCS. The existing UMCS is a Johnson Controls (Metasys) UMCS, which is a web-based system. The UMCS is located in Building 1134 and is capable of handling both BacNet and LonWorks protocols. The point of contact for UMCS is Energy Engineer, Mr. Fred Lewis (912-767-5034). The building level controllers shall utilize LonWorks technology. A contractor authorized by Johnson Controls (Metasys) shall install and integrate the building control system. Submit authorization documentation for the proposed control system. Before starting the design, meet with the operating staff to discuss the installation's requirements for graphics and programming.

6.12. ENERGY CONSERVATION

6.12.1. 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:

[Not Supplied - PS_EnergyConservation : RENEWABLE_ENERGY_FEATURES]

6.13. FIRE PROTECTION

6.13.1. The building fire alarm and detection system (FADS) shall be an addressable Class A system fully compatible with the base-wide Monaco D700 central fire alarm system. Coordinate fire alarm zone descriptions with the fire department. The FADS 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. Key the FADS to the LS-300 keying standard in all cases. Coordinate the fire alarm requirements with the Fort Stewart Fire Chief [Donald Hollis at (912) 767-2636, email address: donald.hollis2@us.army.mil].

6.13.2. Provide a Knox 4400 Series recessed wall mounted key vault for Fire Department use at each building exterior. Locate adjacent to the main building entrance. Coordinate purchase of key vault through the Installation Fire Department for purchase order information and forms.

6.13.3. Provide an exterior post indicator valve with tamper switch reporting to the fire alarm control panel (FACP) on the sprinkler service main.

6.13.4. Protection of Piping Against Earthquake Damage: Protect sprinkler and fire pump piping systems against damage from earthquakes. Seismic protection shall include both flexible and rigid couplings, sway bracing, seismic separation assemblies where piping crosses building seismic separation joints, and other features as required by NFPA 13.

6.13.5. Fire Pump: Determine if a fire pump is required based on fire flow test data and fire protection system design requirements. If a fire pump is required, provide a complete fire pump system installation.

6.13.6. Fire Extinguisher Cabinets and Brackets: Provide semi-recessed cabinets in finished areas and provide brackets in non-finished areas (such as utility rooms, shops, and vehicle bays). Note the location of cabinets and brackets on the architectural drawings.

6.13.7. Mass Notification System (MNS): Provide a combined system that performs both as an individual building MNS and as the building Fire Alarm voice evacuation system.

6.13.7.1. The MNS 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.

6.13.7.2. 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. Coordinate work and site/facility interfaces with ATI Systems. Coordination shall include interface requirements between the building MNS system and the site MNS system. Key the MNS to the LS-300 keying standard in all cases. The ATI Systems point of contact is Antonio Cracchiolo at (617) 567-4969 x307.

6.14. SUSTAINABLE DESIGN

6.14.1. LEED Rating Tool Version. This project shall be executed using LEED-NC Version 2.2.

6.14.2. The minimum requirement for this project is to achieve LEED Silver level. Each non-exempt facility (building plus sitework) must achieve this level. In addition to any facilities indicated as exempt in paragraph 3, the following facilities are exempt from the minimum LEED achievement requirement: Not Applicable.

6.14.3. Credit Validation: LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the Government. Administration/team management of the online project will be by the Contractor. Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is required. The Contractor will obtain LEED certification prior to project closeout. Application, payment of certification of fees and all coordination with USGBC during the certification process will be by the Contractor. GBCI interim review of design phase data is not required by the Government but is recommended. Government validation during project execution does not relieve or modify in any way the Contractor's responsibility to satisfy all requirements for certification as defined by LEED and GBCI. Contractor is not responsible for design phase LEED documentation of any unaltered portion of the design that is accomplished by others. If the project includes unaltered complete design by others, during the certification process Contractor will coordinate all GBCI comments on LEED credits that fall outside Contractor's scope of responsibility with the Government for coordination with the Designer of Record, and Contractor will not be penalized if project fails to achieve certification at the minimum required level due to loss of credits that are the responsibility of others.

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.

SS Credit 1 Site Selection:

Project site IS NOT considered prime farmland.

Delineation of 100-year flood elevation is shown on site drawings provided in this CONTRACT.

Delineation of threatened or endangered species habitat is shown on site drawings provided in this CONTRACT.

Delineation of water, wetlands and areas of special concern is shown on site drawings provided in this CONTRACT.

Project site WAS NOT previously used as public parkland.

SS Credit 2 Development Density & Community Connectivity.

Project site DOES NOT meets the criteria for this credit.

SS Credit 3 Brownfield Redevelopment.

Project site DOES NOT meets the criteria for this credit.

SS Credit 4.1 Public Transportation Access.

Project site DOES NOT meets the criteria for this credit.

EA Credit 6 Green Power.

35% of the project's electricity WILL NOT will be provided through an Installation renewable energy contract. Do not purchase Renewable Energy Credits (REC's) to earn this credit.

MR Credit 2 Construction Waste Management.

The Installation has an on-post recycling facility.

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. Not Used

6.14.8. Additional Information

No additional requirements.

6.15. ENVIRONMENTAL

6.15.1. Comply with all Federal, State, and local environmental requirements to include all requirements of the Fort Stewart Directorate of Public Works Environmental Division as outlined in the Appendix E regarding disposal, borrow pit usage, storm water management, air quality, water quality, storage tanks, cultural resources, and forestry. Refer to Appendix E for the project's Environmental Assessment (EA).

6.15.2. Site Evaluation

No additional information.

6.15.3. Contractual Responsibilities of All Parties in the Event of Encounter with Contamination

If the Contractor encounters materials or conditions which indicate that there may be contamination on the site, stop all work on the job site and report the discovery of the contaminants to the Contracting Officer's Representative (COR). The Contracting Officer will issue a written order to resume work or to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government as provided in FAR 52.242-14 - SUSPENSION OF WORK. The Government will be responsible for making an assessment of the contaminated site if this course of action is determined to be appropriate. After the assessment has been completed, the Government reserves the right to the following courses of action:

(a) Direct the Contractor to resume work.

(b) Contain, clean up or institute avoidance action at the contaminated site prior to directing the Contractor to resume work. The COR will determine whether the containment or cleanup is to be accomplished by others or the Contractor.

(c) Relocate the project site.

(d) Terminate the contract for the convenience of the Government as provided in FAR 52.249-1 - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SHORT FORM) or FAR 52.249-2 - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) - ALTERNATE I as applicable.

6.16. PERMITS

6.16.1. General

6.16.1.1. The Government has not obtained any permits/licenses related to this project. Obtain all permits/licenses required for this project. Comply with all permit requirements. Submit copies of the permits and any amendments. Determine the fee basis and pay all filing fees. The known permit forms are provided in an Appendix.

6.16.1.2. Prepare permit/license applications; provide all required information and supporting documentation in a form ready for signature by the Owner and submittal to the applicable agency. Should the permitting agency require additional clarification or information during the review process, provide all necessary assistance to resolve the outstanding issue. The appropriate address for all permit/license applications will be provided at the Post Award Conference or otherwise, after contract award.

6.16.1.3. Comply with provisions of Installation permits, compliance agreements, and plans with regulating authorities/agencies.

6.16.2. Soil Borrow Permits. If Installation Borrow pits are available for this contract (see paragraph 6.4.8) a permit is required for their use. Soil borrow pit permits are processed with the DPW Environmental Division. Permits are issued for the life of the Contract. Borrow materials may be used only on the project for which the permits are issued. Keep a copy of the completed permit with the vehicle throughout the Contract borrow operation.

6.16.3. Site Excavation (Disturbance) and Utility Location Permits. Present DPW approved Site Excavation and Utility Location Permits prior to any excavation or drilling that penetrates the ground by 6 or more inches. Keep a signed copy of the digging permit shall be kept on site at all times. A sample of this form can be obtained from the Contracting Officer or DPW upon request. The DPW POC contact information will be provided at the Post award conference.

6.16.4. State of Georgia Required Applications and Permits. Prepare, sign, and submit the following list of commonly required State of Georgia applications and permits for Fort Stewart/Hunter AAF projects. Obtain any additional applications and permits not listed as required for the construction of this project.

Erosion and Sedimentation Control permit

General Permit to Discharge Stormwater under the National Pollutant Discharge Elimination System

Stormwater Management Permit Application Form

Notice of Intent (NOI) and Notice of Termination (NOT) Documents. The Contractor shall prepare, sign, and submit the NOI and NOT documents to the State Georgia.

6.16.5. Air Permits. Coordinate with Fort Stewart/Hunter AAF's Environmental Management Division (EMD) staff in obtaining all required and applicable permits as part of the design process. Secure all permits necessary for construction of this project. Fort Stewart/Hunter AAF operates under a Title V Air Permit for air quality requirements. Perform a regulatory review of all air sources in the project and submit for approval to the EMD. Each Congressional Appropriation is defined as one project. Additionally, new sources must be reviewed for NESHAP (National Emissions Standards for Hazardous Air Pollutants) applicability. Develop required air permit application(s) and/or coordinate with EMD on any on-going permit applications. Pay all air permitting fees and obtain all required permits prior to construction of any new sources. Comply with all State regulatory requirements for boilers fired by either natural gas or distillate oil. Ensure that the boiler(s) is included in the Installations Title V Air Permit. New boilers with an input greater than 10 million btu/hr shall meet 40 CFR Part 60, New Source Performance Standards. All new boilers shall include low NOx burners. An air permit is required for each type of material (i.e. concrete, rock crushing, asphalt batch plants) that will produce dust and other harmful particulates within the boundaries of the installation. The Contractor can not unilaterally change the Installation's Title V Air Permit. Coordinate any and all changes/modifications through the designated EMD staff.

6.16.5.1. Air Permit Submittal Requirements (Boilers and Domestic Water Heaters). Pursuant to satisfying requirements under the Clean Air Act, at or before the Interim design stage, submit the following to the installation's environmental office:

(1) a listing of boilers and domestic hot 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 particulate size

(4) the respective input firing rate. 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. Send two copies of the document to the Savannah District, one to the Project Manager for placement in Central Files, and another to the Mechanical Section.

(5) Do not send this document 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, submit an updated copy of said document per the guidance above.

(6) Incorporate 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 Interim 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, submit to EMD copies of all required Federal and/or State certifications associated with emission units, i.e. visible emissions certifications. Note the dates that the certifications are turned into EMD in the remarks section of form DD 1354.

6.16.5.2. Construction Permit. Be aware that, normally, for fast track design-build contracts, the construction permit will not have been obtained prior to award of the design-build contract. No construction associated with the building(s) housing the boiler(s) or other source(s) of contaminant can be done prior to obtaining the required permit. Generally, only the following things can be done prior to possession of the permit: clearing and grading, access roads, driveways, parking lots, underground utilities up to the 5-foot line of the buildings, and ancillary structures (structures not associated with housing the sources of contaminants).

6.16.6. Utility Marking Permit (Required for Excavation). Submit all requests for underground utility locations at Fort Stewart/Hunter AAF shall be submitted through the Georgia Utility Protection Center (UPC). The UPC will accept locate requests either by telephone or on-line. The phone number is (800) 282-7411. The UPC web address is www.gaupc.com. Once at the web site, click on IRTH login. To submit a request online, registration is required. The excavating Contractor must mark the boundaries of the proposed excavation site using either white paint, flags or stakes. DPW has responsibility for the accuracy of the locates pertaining to gas and fuel lines, water lines, electrical lines to include secondary electricity, airfield lighting, low voltage , fire systems, sewer lines, roof drain lines, storm drainage lines, industrial waste lines, chilled water lines, high temperature water lines, irrigation systems and DPW non-fiber optic computer lines. Forward requests to all utility companies with services in the vicinity of the excavation site. Permits will be issued within 48 hours of the next business day following the receipt of the request by the UPC. Permits will only be valid for 21 days. Submit renewal requests a minimum of 3 days prior to expiration. Requesting contractors are responsible for maintaining marks during the 21 day period. If after acquiring a permit, a utility is damaged during excavation, please notify the appropriate utility company. DPW‘s utilities are listed above. The DPW point of contact for utilities at Fort Stewart or at HAAF will be provided at the Post Award Conference. The excavating contractor should be prepared to submit proof of a valid permit when calling about damaged utilities.

6.17. DEMOLITION

6.17.1. Demolition of structures requires 50 percent by weight diversion of material from the landfill. Remove all construction debris in the way of construction from the site and dispose of off of the installation. Demolish all existing structures as required to develop the project site within the limits of construction. Remove and/or relocate utilities as required to develop the project site within the limits of construction. Coordinate utility removals and/or relocation with the privatized utilities. .

6.17.2. Remove all hazardous building materials (HBM) from buildings to be demolished. HBMs are defined as asbestos (friable and non friable), mercury containing or contaminated items, PCB containing or contaminated items (including hydraulic systems fluids, light ballasts, and caulk), electronic boards (fire/smoke alarm systems, HVAC control systems, fire suppression dump systems, MNS, IDS, etc.), radioactive sources (smoke detectors), poured lead items (stair rail anchors, roofing weights, window counterweights, sink/shower pastes, pipe joints), and other materials identified in the Asbestos and HBM Surveys in Appendix XX. Lead-based paint (LBP) is a hazardous material when:

- The Toxicity Characteristic Leaching Procedure (TCLP) of demolition waste is exceeded for wastes going into a construction and debris landfill. This applies to all non-housing structures. Housing and barracks are not required to adhere to this requirement when debris is scheduled to be landfilled.
- Used as riprap or fill material. No painted materials may be used for environmental stabilization regardless of lead content.
- When targeted to be used for recycling for uses other than batch feed for hot asphalt or concrete. (Grinding of LBP painted concrete for batch feed must include plans with requirements to control lead contaminated dust, rain run-off, and worker protection. The Contractor is responsible for all permits associated with this activity.

6.17.3. Project Specific Requirements:

No additional requirements.

6.18. ADDITIONAL FACILITIES

No additional facilities.

End of Section 01 10 00.0004

SECTION 01 33 00.0004
SUBMITTAL PROCEDURES
(DESIGN-BUILD TASK ORDERS)

1.0 GENERAL

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

1.0 GENERAL

1.1.1. This section contains requirements specifically applicable to this task order. The requirements of Base ID/IQ contract Section 01 33 30 apply to this task order, except as otherwise specified herein.

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 one (1) copy(ies) of the submittal.

End of Section 01 33 00.0004

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

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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 ten (10) 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. Clearly describe structures, systems or components in soil or water to be protected. Describe methods proposed for protection of each.

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

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. 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.

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 CADD 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 file format and the USACE Bentley BIM v8 Workspace.

(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. Drawing files with external references or special fonts are not acceptable. 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) **22x34** Full Sets/ *Partial Sets	Design Analyses & Specs Full Sets/ *Partial Sets	Drawing Size (Half Size) **11x17** Full Sets/ *Partial Sets	Non-BIM Data CD-ROM or DVD as Necessary (PDF& **.dgn**)	Furniture Submittal (FFE)	Structural Interior Design Submittal	BIM Data DVD (Per Attach F)
Commander, U.S.Army Engineer District **Savannah**	1/1	5/5	5/5	5	1	1	2
Commander, U.S.Army Engineer District, Center of Standardization **Fort Worth**	1/1	5/5	5/5	2	1	1	1
Installation	2/2	14/14	14/14	2	1	1	0
U.S.Army Corps of Engineers Construction Area Office	2/2	5/5	5/5	5	2	2	0
Information Systems Engineering Command (ISEC)	0/0	0/0	0/0	1	1 (Electronic only)	N/A	1
Other Offices	0/0	0/0	0/0	0	0	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 five (5) 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. NOT USED

1.2. NOT USED

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 provide desks, storage and tables with leveling devices to compensate for uneven floors.

1.4.2. 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, specify lockable desks and workstations and storage of steel construction. Use tempered glass glazing when glazing is required.

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 v2.2 Submittals (OCT09REV)		Provide for Credit Audit Only		Date Submitted (to be filled in by Contractor)	Government Reviewer's Use (OCT09REV)
PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
GENERAL							
	GENERAL - All calculations shall be in accordance with LEED 2.2 Reference Guide.						
	GENERAL: Obtain excel version of this spreadsheet at http://en.sas.usace.army.mil/enWeb, "Engineering Criteria". OCT09REV						
	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. OCT09REV						
	OCT09REV 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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**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
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
OCT09REV			**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

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	LEED-NC v2.2 Submittals (OCT09REV)		Provide for Credit Audit Only		Date Submitted (to be filled in by Contractor)	Government Reviewer's Use (OCT09REV)
PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
			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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**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
OCT09REV			**Final Design		Delineation and labeling of "LEED Project site boundary" on site plan.		CIV
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

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PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
			Final Design OCT09REV		Option 1: List of specified roof materials indicating, for each, product type, manufacturer, product name and identification if known, SRI value and roof slope. OCT09REV		ARC
			**Closeout OCT09REV		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 OCT09REV		Option 3: List of specified roof materials indicating, for each, product type, manufacturer, product name and identification if known, SRI value and roof slope. OCT09REV		
			**Closeout OCT09REV		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 that turn off non-essential lighting during non-business hours.		ELEC
OCT09REV			**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							
WE1.1		Water Efficient Landscaping: Reduce by 50%	Final Design		Statement indicating which option for compliance applies.		CIV
OCT09REV			**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

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			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
WE3.1		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
			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
WE3.2		Water Use Reduction: 30% Reduction	Same as WE3.1		Same as WE3.1		MEC
CATEGORY 3 – ENERGY AND ATMOSPHERE							
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

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			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
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 2.2 Reference Guide Example Calculations		MEC
			Final Design		Narrative describing any special circumstances or explanatory remarks OCT09REV		
			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		PE
			Closeout		**Scope of work for post-occupancy implementation of M&V 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 75% 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 95% of Existing Walls, Floors & Roof	Same as MR1.1		Same as MR1.1		ARC
MR1.3		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
					OCT09REV		
			**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. OCT09REV		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 OCT09REV		**Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV		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 OCT09REV		**Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV		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. OCT09REV		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
CATEGORY 5 – 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
			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

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			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: Carpet Systems	Closeout		Spreadsheet indicating, for each indoor carpet 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 CRI 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 OCT09REV		Spreadsheet indicating, for each permanent entryway system used, the manufacturer, product name/model number and description of system. Roll-up and carpet systems requiring weekly cleaning to earn this credit are not a permitted option for Army projects.		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
			Closeout OCT09REV		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

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	**LEED-NC v2.2 Submittals (OCT09REV)**		Provide for Credit Audit Only		Date Submitted (to be filled in by Contractor)	Government Reviewer's Use (OCT09REV)
PAR		**FEATURE**	**DUE AT**		**REQUIRED DOCUMENTATION**	**DATE**	**REV**
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
EQ8.1		Daylight & Views: Daylight 75% of Spaces	Final Design		Option 1: Table indicating all regularly occupied spaces with space area and space area with 2% daylighting factor. Sum of regularly occupied areas and regularly occupied areas with 2% daylighting factor. Percentage calculation of areas with 2% daylighting factor to total regularly occupied areas.		ARC
			Final Design		Option 1: Glazing factor calculation table		ARC
			Final Design		Option 2: Simulation model method, software and output data		ARC
			Final Design		Option 2: 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.		ARC
			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 and glazing performance properties.		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
CATEGORY 6 – FACILITY DELIVERY PROCESS							
IDc1.1		Innovation in Design	Final Design OCT09REV		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 OCT09REV				
IDc1.3		Innovation in Design	Final Design OCT09REV				
IDc1.4		Innovation in Design	Final Design OCT09REV				
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 22x34 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. For each Center of Standardization (CoS) facility type included in this project, all BIM Models and associated Facility Data shall be submitted in Bentley Systems BIM XM Workspace 0924 with associated USACE Bentley BIM Workspace (which includes specific standard BIM libraries and definitions). This Workspace can be downloaded from the CAD/BIM Technology Center. [Where available, the workspace will be specific to this CoS Facility Standard Design. The Contractor will be provided a baseline multi-discipline BIM Project Model for the CoS Facility Standard Design type, where such a model exists (for the purposes of site adaptation).] The USACE Bentley BIM Workspace is dependent on specific versions of the Bentley BIM suite of products and only the versions of the software that are listed in the Contractor instructions included with the USACE BIM Workspace are permitted to be used.

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 Fort Worth 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 be fully interoperable, compatible, and editable with the Bentley BIM tools. Use the specified version of the USACE Bentley BIM Workspace and 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. Checking 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, Workspace and CAD Data files in native Bentley BIM/CAD.

- 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.

3.2. Initial Design Conference Submittal.

3.2.1. Submit a digital copy of the Plan where, in addition to Paragraph 3.1.4, the USACE Geographic District BIM Manager will coordinate with the USACE CoS BIM Manager to 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. 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, 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. 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 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 Manager, 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 Corps of Engineers, Savannah District, Savannah, GA. 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 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:

  US Army Engineer District, Savannah

  Environmental and Materials Unit

  200 North Cobb Parkway Building 400, Suite

  Marietta, GA 30062
- For other deliveries:

  Not Applicable

Not Applicable

Not Applicable

Not Applicable

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 02.0004
TEMPORARY CONSTRUCTION FACILITIES

1.0 OVERVIEW

1.1. GENERAL REQUIREMENTS

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.0 OVERVIEW

1.1. GENERAL REQUIREMENTS

1.1.1. This section contains requirements specifically applicable to this task order. The requirements of Base ID/IQ contract Section 01 50 02 apply to this task order, except as otherwise specified herein.

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1. Bulletin Board (As Specified in Base contract)

1.3.2. Project and Safety Signs (Added to Stress standardization of signs, in the event that the Base ID/IQ Section 01 50 02 does not contain this information)

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.

End of Section 01 50 02.0004

SECTION 01 57 23

TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 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.

ASTM INTERNATIONAL (ASTM)

ASTM D 4439	(2004) Geosynthetics
ASTM D 4491	(1999a; R 2004e1) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4873	(2002) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 832-R-92-005	(1992) Storm Water Management for Construction Activities Developing Pollution Preventions and Plans and Best Management Practices

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 122.26	Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)

1.2 GENERAL REQUIREMENTS

The work consists of implementing the storm water pollution prevention measures to prevent sediment from entering streams or water bodies as specified in this Section in conformance with the requirements of Section 01 57 20.00 10 ENVIRONMENTAL PROTECTION, and the requirements of the National Pollution Discharge Elimination System (NPDES) permit attached to that Section.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When

used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Storm Water Pollution Prevention Plan; G
Storm Water Notice of Intent; G

Pollution prevention plan and Notice of intent for NPDES coverage under the general permit for construction activities

SD-06 Test Reports

Storm Water Inspection Reports for General Permit; G
Erosion and Sediment Controls

SD-07 Certificates

Mill Certificate or Affidavit

Certificate attesting that the Contractor has met all specified requirements.

1.4 EROSION AND SEDIMENT CONTROLS

The controls and measures required by the Contractor are described below.

1.4.1 Stabilization Practices

The stabilization practices to be implemented include temporary seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, erosion control matts, protection of trees, preservation of mature vegetation, . On the daily CQC Report, record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, embankment, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, stabilization practices must be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have temporarily or permanently ceased.

1.4.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases or is precluded by unsuitable conditions caused by the weather, initiate stabilization practices as soon as practicable after conditions become suitable.

1.4.1.2 No Activity for Less Than 21 Days

When the total time period in which construction activity is temporarily ceased on a portion of the site is 21 days minimum, stabilization practices do not have to be initiated on that portion of the site until 14 days have elapsed after construction activity temporarily ceased.

1.4.1.3 Burnoff

Burnoff of the ground cover is not permitted.

1.4.1.4 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

1.4.2 Erosion, Sediment and Stormwater Control

1.4.2.1 Storm Water Notice of Intent for Construction Activities

Submit a Storm Water Notice of Intent for NPDES coverage under the general permit for construction activities and a Storm Water Pollution Prevention Plan (SWPPP), when applicable, for the project to the Contracting Officer prior to the commencement of work. A Storm Water Pollution Prevention Plan shall be required For project sites greater than 1 acre in size (including all temporary access roads, trailer sites, storage areas, and any other disturbed area associated with the project). The SWPPP must meet the requirements of the EPA or the State of Georgia, whichever is applicable, general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intents, Notice of Termination, and appropriate permit fees, via the Contracting Officer, to the appropriate Federal or State agency for approval, a minimum of 14 calendar days prior to the start of any land disturbing activities. Maintain an approved copy of the SWPPP at the construction on-site office, and continually update as regulations require, to reflect current site conditions. Include within the SWPPP:

(1) Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.

(2) Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge from the site.

(3) Ensure compliance with terms of the EPA or State of Georgia, whichever is applicable, general permit for storm water discharge.

(4) Select applicable best management practices from EPA 832-R-92-005.

(5) Include a completed copy of the Registration Statement, BMP Inspection Report Template, and Notice of Termination except for the effective date.

(6) Storm Water Pollution Prevention Measures and Notice of Intent 40 CFR 122.26, EPA 832-R-92-005. Provide a "Storm Water Pollution Prevention Plan" (SWPPP) for the project, when applicable. The SWPPP will meet the requirements of the EPA or State of Georgia, whichever is applicable, general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intents, Notice of Termination, and appropriate permit fees, via the Contracting Officer, to the appropriate Federal or State agency for approval, a minimum of 14 calendar days prior to the start of construction. A copy of the approved SWPPP will be kept at the construction on-site office, and continually updated as regulations require to reflect current site conditions.

(11) Install, inspect, and maintain best management practices (BMPs) as required by the general permit. Prepare and submit to DCR, BMP Inspection Reports as required by the general permit.

(12) Once construction is complete and the site has been stabilized with a final, sustainable cover, submit the Notice of Termination to DCR within 30 days after all land disturbing activities end.]

1.4.3 Structural Practices

Implement structural practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices must be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Include the following devices; Show location and details of installation and construction on the drawings.

1.4.3.1 Silt Fences

If used, provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Properly installed silt fences to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Install silt fences in the locations indicated on the drawings. Obtain approval from the Contracting Officer prior to final removal of silt fence barriers .

1.4.3.2 Straw Bales

If used, provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. If bales are used, properly place the bales to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, place the bales as work progresses, remove/replace/relocate the bales as needed for work to progress in the drainage area). Show on the drawings areas where straw bales are to be used. The Contracting Officer will approve the final removal of straw bale barriers. Provide rows of bales of straw as follows:

a. Along the downhill perimeter edge of all areas disturbed.

b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.

c. Along the toe of all cut slopes and fill slopes of the construction areas.

d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas. SSpace rows a maximum of 60 meters (200 feet) apart in drains with slopes equal to or less than 5 percent and 30 meters (100 feet) apart in drains with slopes steeper than 5 percent. If drainage ditches have slopes above and below the 5 percent limit the spacing show on the drawings..

e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Space rows a maximum of 60 meters (200 feet) apart in drains with slopes equal to or less than 5 percent and 30 meters (100 feet) apart in drains with slopes steeper than 5 percent. If drainage ditches have slopes above and below the 5 percent limit the spacing show on the drawings..

f. At the entrance to culverts that receive runoff from disturbed areas.

1.4.3.3 Diversion Dikes

If used, build diversion dikes with a maximum channel slope of 2 percent and adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel must be 18 inches. The minimum base width must be 6 feet and the minimum top width must be 2 feet. Ensure that the diversion dikes are not damaged by construction operations or traffic. Locate diversion dikes on the drawings.

1.4.4 Sediment Basins

If used, trap sediment in temporary (unlesspermanent are required) sediment basins. Select a basin size to accommodate the runoff of the specified local storm year. Pump dry and remove the accumulated sediment, after each storm. Use a paved weir or vertical overflow pipe for overflow. Remove collected sediment from the site. Institute effluent quality monitoring programs. Prepare BMP Inspection Reports as required by the general permit. If required by the permit, include those inspection reports.

1.4.5 Vegetation and Mulch

a. If used, provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

b. Seeding: If used, provide new seeding where ground is disturbed. Include topsoil or nutriment during the seeding operation necessary to establish, or reestablish, a suitable stand of grass. The seeding operation will be as specified in UFGS Guide Specification 32 92 19 SEEDING.

1.5 DELIVERY, STORAGE, AND HANDLING

Identify, store and handle filter fabric in accordance with ASTM D 4873.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

The geotextile must comply with the requirements of ASTM D 4439, and consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament must consist

of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric must contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric must meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (percent)		30 percent max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

Use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, must have a minimum cross section of 2 by 2 inches when oak is used and 4 by 4 inches when pine is used, and have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, must have a minimum weight of 1.33 pounds/linear foot and a minimum length of 5 feet.

2.1.3 Mill Certificate or Affidavit

Provide a mill certificate or affidavit attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit must specify the actual Minimum Average Roll Values and identify the fabric supplied by roll identification numbers. Submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.1.4 Identification Storage and Handling

Filter fabric must be identified, stored and handled in accordance with ASTM D 4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales must be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. The bales must have a standard cross section of 14 by 18 inches. Wire-bound or string-tie all bales. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, must have a minimum dimensions of 2 by 2 inches in cross section and have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, must have a minimum weight of 1.33 pounds/linear foot and a minimum length of 3 feet.

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Extend silt fences a minimum of 16 inches above the ground surface and not exceed 34 inches above the ground surface. Filter fabric must be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, splice together filter fabric at a support post, with a minimum 6 inch overlap, and securely sealed. Excavate trench approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4 by 4 inch trench must be backfilled and the soil compacted over the filter fabric. Remove silt fences upon approval by the Contracting Officer.

3.2 INSTALLATION OF STRAW BALES

Place the straw bales in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Install straw bales so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. Entrench and backfill the barrier. Excavate a trench the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), backfill the excavated soil against the barrier. Conform the backfill soil with the ground level on the downhill side and build up to 4 inches against the uphill side of the barrier. Scatter loose straw over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Securely anchored each bale by at least two stakes driven through the bale. Drive the first stake or steel post in each bale toward the previously laid bale to force the bales together. Stakes or steel pickets must be driven a minimum 18 inches deep into the ground to securely anchor the bales.

3.3 FIELD QUALITY CONTROL

Maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. Use the following procedures to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Inspect the silt fences in accordance with paragraph, entitled "Inspections," of this section. Any required repairs shall be made promptly. Pay close attention to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, replace the fabric promptly. Remove sediment deposits when deposits reach one-third of the height of the barrier. Remove a silt fence when it is no longer required. The immediate area occupied by the fence and any sediment deposits must be shaped to an acceptable grade. The areas disturbed by this shaping must be seeded in accordance with UFGS Guide Specification 32 05 33 LANDSCAPE ESTABLISHMENT, except that the coverage requirements in paragraph, entitled "Establishment" of this section do not apply.

3.3.2 Straw Bale Maintenance

Inspect straw bale barriers in accordance with paragraph, entitled "Inspections". Pay close attention to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales must be accomplished promptly. Remove sediment deposits when deposits reach one-half of the height of the barrier. At the each end of each row turn bales uphill when used to retain sediment. Remove a straw bale barrier when it is no longer required. The immediate area occupied by the bales and any sediment deposits must be shaped to an acceptable grade. The areas disturbed by this shaping must be seeded in accordance with UFGS Guide Specification 32 92 19 SEEDING.

3.3.3 Diversion Dike Maintenance

Inspect diversion dikes in accordance with paragraph, entitled "Inspections,"of this section. Pay close attention to the repair of damaged diversion dikes and accomplish necessary repairs promptly. When diversion dikes are no longer requiredshape to an acceptable grade. The areas disturbed by this shaping must be seeded in accordance with UFGS Guide Specification 32 92 19 SEEDING.

3.4 INSPECTIONS

3.4.1 General

Inspect disturbed areas of the construction site, areas that have not been finally stabilized used for storage of materials exposed to precipitation, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Conduct inspections at least once every month where sites have been finally stabilized.

3.4.2 Inspections Details

Inspect disturbed areas and areas used for material storage that are exposed to precipitation for evidence of, or the potential for, pollutants entering the drainage system. Observe erosion and sediment control measures to ensure that they are operating correctly. Inspect discharge locations or points to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Inspect locations where vehicles exit the site for evidence of offsite sediment tracking.

3.4.3 Inspection Reports

For each inspection conducted, prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, maintenance performed, and actions taken. Furnish the report to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report must be maintained on the job site.

-- End of Section --

SUBSURFACE EXPLORATION REPORT
(PRELIMINARY)

ECHELONS ABOVE BRIGADE BARRACKS
L.I. 68863A, FY-10
FORT STEWART, GEORGIA

By
Soils Section
Geotechnical & HTRW Branch
U.S. Army Engineer District, Savannah

March 2010

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ATTACHMENT A	Location Plan - Cone Penetration Test Soundings
ATTACHMENT B	Cone Penetration Test Soundings
ATTACHMENT C	Soil Test Data

SUBSURFACE EXPLORATION REPORT
(PRELIMINARY)

Echelons Above Brigade (EAB) Barracks
PN 68863A, FY-10
Fort Stewart, 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 provided on the individual soil boring logs.

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 or delineation of site wetlands, environmental concerns or contaminant conditions. The contractor's team shall include a licensed geotechnical engineer to interpret this 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 design submittal.

3. PROJECT DESCRIPTION. The project consists of the design and construction of three Echelons Above Brigade (EAB) Barracks buildings with supporting facilities including parking and utilities. The project is intended to round out the facilities for the FY08 Grow the Force (GTF) initiative. Specific details regarding the project and the buildings are presented in the Request for Proposal (RFP) Specifications. Since the project will be constructed under a design-build contract, detailed structural information for the proposed buildings is unavailable.

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 were explored by nine cone penetration test (CPT) soundings designated B-1 through B-9. Depths of the explorations ranged from 8 to 20 feet. CPT soundings were performed by the ECS Southeast for the Savannah District Geotechnical and HTRW Branch. CPT sounding locations were established by an engineer in the field using a hand-

held Global Positioning System (GPS) device having sub-meter accuracy. Since the measurements were not precise, the locations shown on the plan should be considered approximate. The locations of the explorations are shown in Attachment A of this report.

(2) The CPT soundings were performed in accordance with ASTM D-5778 using a 66DT Geoprobe rig mounted on a low ground pressure tracked vehicle. During a CPT sounding, an electronically instrumented cone is hydraulically pushed through the soil to measure tip stress, sleeve friction, and pore-water pressure at two-centimeter intervals (approximately 1 inch). The CPT sounding data is electronically recorded and used to determine soil stratigraphy and to estimate soil engineering parameters such as strength and compressibility. The ratio of tip resistance and sleeve friction, as described by Robertson and Campanella (1990), is used to estimate the material type of the soil penetrated by the cone. The soil stratigraphy profile on the CPT logs represents soil behavior types derived from the established relationships based on the cone tip resistance, sleeve resistance and penetration induced pore pressure. Groundwater levels were estimated from the penetration induced pore pressure.

(3) CPT soundings graphically depicting soil descriptions, cone tip resistances, sleeve resistance, and penetration induced pore pressures are included in Attachment B of this report.

(4) Soil samples were taken at the location of CPT soundings B-2 and B-4 at depths of 3 to 8 feet. The samples were transported to ECS Southwest laboratories in Savannah, Georgia for sieve analysis testing. Classification of the soil samples was performed in general accordance with ASTM D 2488 (Visual-Manual Procedure for Description of Soils). The soil classifications include the use of the Unified Soil Classification System described in ASTM D 2487 (Classification of Soils for Engineering Purposes). The laboratory tests were performed in substantial accordance with applicable ASTM standards. Laboratory test results are shown in Attachment C of this report.

5. SITE AND SUBSURFACE CONDITIONS.

a. Site Description.

The project site is located south of West 6th Street near the intersection of Fort Stewart Road 90. The site is located at the western end of the cantonment area of Ft. Stewart. The site is partially wooded with mainly medium growth pine trees. The site also has an existing storm water detention pond within the project site. Other than the detention pond, the site is relatively flat.

b. Regional and Site Geology.

Fort Stewart is located near the eastern edge of the Coastal Plain Physiographic Province. In South Carolina and Georgia, this broad, gently sloping region extends southeastward from the Fall Line (Columbia-Augusta-Macon-Columbus) to the Atlantic Ocean. The province is typified by nine southeastward dipping strata that increase in thickness from 0 feet at the fall line to approximately 4,200 feet at the coast. State geologic records describe crystalline basement rocks at a depth of 4,254 feet below land surface in a petroleum exploration well (the No. 1 Jelks-Rogers) located in the region. This well provides the most complete record for Cretaceous, Tertiary, and Quaternary sedimentary strata. The Cretaceous section is approximately 1,970 feet thick and is dominated by clastics. The Tertiary section is approximately 2,170 feet thick and is dominated by limestone with a 175-foot thick cap of dark green phosphatic clay. The clay is regionally extensive and is known as the Hawthorn Group. The interval from approximately 110 feet to the surface is Quaternary in age and composed primarily of sand with interbeds of clay or silt.

The near-surface soils encountered are predominantly sedimentary in origin and consist of layered marine deposits of sands, silts and clays. The deposits have since been subjected to successive erosion and re-deposition by fluctuations of sea levels, storm tides and winds. Many of the surface sands are the result of depositional forces along ancient beaches which formed during the changing shoreline and river conditions. Intermittent deposits of shells occur within the strata at irregular intervals.

c. Subsurface Conditions.

(1) Natural soils were encountered in the CPT soundings. However, there has been recent construction adjacent to the project. The area has also been timber harvested in the past. Therefore, it is likely the near surface soils have been manipulated. Based on the soil behavior type using Robertson 1990, the CPT soundings indicate that, in general, soils are within zones 5, 6, and 7 indicating predominantly fine to coarse grained sands (SP and/or SW), silty sands (SM), and possibly sandy silts (ML). The cone tip resistances (qc) and sleeve resistances (fs) in many of the soundings indicate loose sands from the ground surface to depths of 5 to 7 feet. Loose soil conditions at the founding depths for shallow footings should be anticipated. At least half of the soundings indicate a silty sand to sandy silt layer of varying thickness but typically between 4 and 7 feet below the ground surface (bgs). Based on past experience with other projects in the vicinity, these soils often have enough fines content that groundwater will perch on top of this layer.

(2) The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The sounding logs should be reviewed for specific information at individual sounding locations. The stratifications shown on the sounding logs represent the conditions only at the sounding locations. Variations may occur and should be expected between sounding locations. The stratification lines shown on the sounding logs represent the approximate boundaries between the subsurface materials; the actual transitions are typically more gradual.

d. Groundwater Conditions.

(1) Groundwater levels are estimated on most of the soundings based on the sounding data (u2). Groundwater was encountered in the range of 2 to 6 feet in depth. Shallow groundwater at depths of 2 to 3 feet bgs should be expected, particularly for extended periods following rain events. The fine silty sands and sandy silts shown on many of the soundings will perch groundwater and result in the sands above being very wet or saturated and/or loose. The storm water detention pond on site may influence (lower) the groundwater level in nearby soundings.

(2) "Perched water" conditions will be encountered, and the accumulation of run-off water or seepage at the base of excavations may occur during foundation construction and site work. Where seepage is encountered at shallow depths, pumping from filtered sumps and/or the use of perimeter trenches to collect and discharge the water away from the work area should be utilized. The design-build contractor should expect to encounter groundwater at shallow depths during foundation excavations.

(3) It should be noted that groundwater conditions, including perched water, vary during periods of prolonged drought and excessive rainfall as well as seasonally. Therefore, fluctuations in perched water conditions and in the elevation of the ground water should be anticipated with changing climatic and rainfall conditions.

(4) Water should not be allowed to collect near the foundation or on floor slab areas of the building either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rain water, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs.

(5) Even though groundwater data is not specifically shown on several of the CPT soundings, groundwater at the depths indicated on the other soundings and as discussed herein is felt to be representative of the site. Groundwater conditions in the future, and at other locations on the site, may differ from the conditions encountered at the boring locations on the dates the borings were performed.

6. DRAWINGS

The locations of the CPT soundings shown in this report and the locations of any additional investigations (SPT borings, test pits, and cone penetrometer tests, etc.) performed for the AE's consulting geotechnical engineer 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 pit logs, CPT soundings, and soil laboratory test data (including those provided herein) used for design on the final design drawings and on the as-built drawings.

7. SPECIFICATIONS

It is recommended that the AE shall use the Savannah District's EARTHWORK specification, 31 00 00s, when editing the specifications for this project. The specification (SpecsIntact format) can be found at the following website, http://en.sas.usace.army.mil/enweb, under menus "Engineering Criteria" and "Guide Specs".

8. FINAL GEOTECHNICAL EVALUATION REPORT.

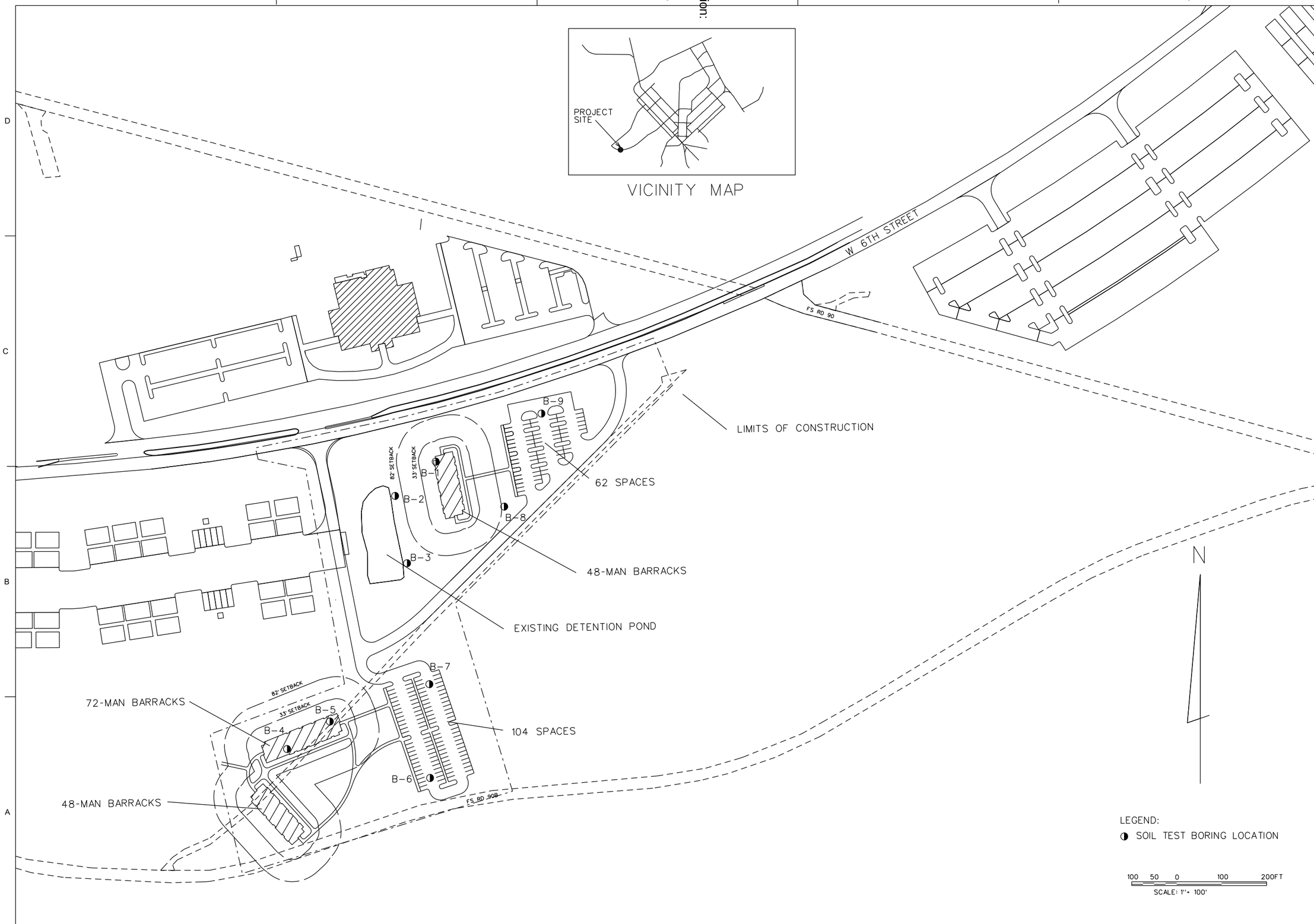
A final geotechnical evaluation report shall be prepared by the contractor's licensed geotechnical engineer and submitted along with the first foundation design submittal. This report shall summarize the subsurface conditions; provide recommendations for the design of appropriate foundations, floor slabs, 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. 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; 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 (This includes connections from new utilities to existing utilities) unless specified otherwise in RFP specifications.

ATTACHMENTS

ATTACHEMENT A

CPT Sounding Location Plan

Section:



US ARMY CORPS
OF ENGINEERS
SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE: D
22"X34"
PLOT SCALE:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
CATEGORY CODE:
721-1-05
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

ECHELONS ABOVE BRIGADE (EAB) BARRACKS
FORT STEWART, GEORGIA
CIVIL

SOIL TEST BORING LOCATION PLAN

PLATE
REFERENCE
NUMBER
B-101
SHEET

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

ATTACHEMENT B

Legend and Logs of CPT Soundings

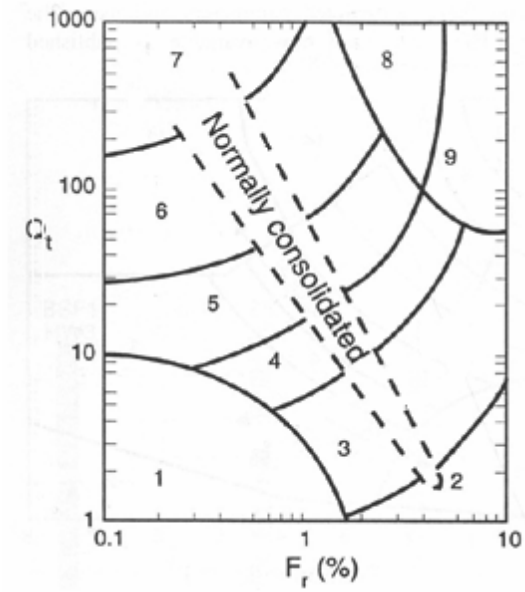
SOIL CLASSIFICATION CHART

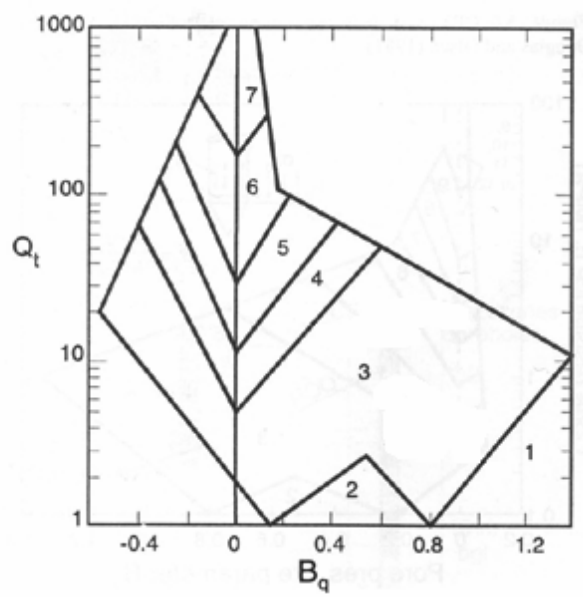
MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - 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

REFERENCE NOTES FOR CONE PENETRATION TEST (CPT) SOUNDINGS

In the CPT sounding procedure (ASTM-D-5778), an electronically instrumented cone penetrometer is hydraulically advanced through soil to measure point resistance (q_c), pore water pressure (U_2), and sleeve friction (f_s). These values are recorded continuously as the cone is pushed to the desired depth. CPT data is corrected for depth and used to estimate soil classifications and intrinsic soil parameters such as angle of internal friction, preconsolidation pressure, and undrained shear strength. The graphs below represent one of the accepted methods of CPT soil behavior classification (Robertson, 1990).

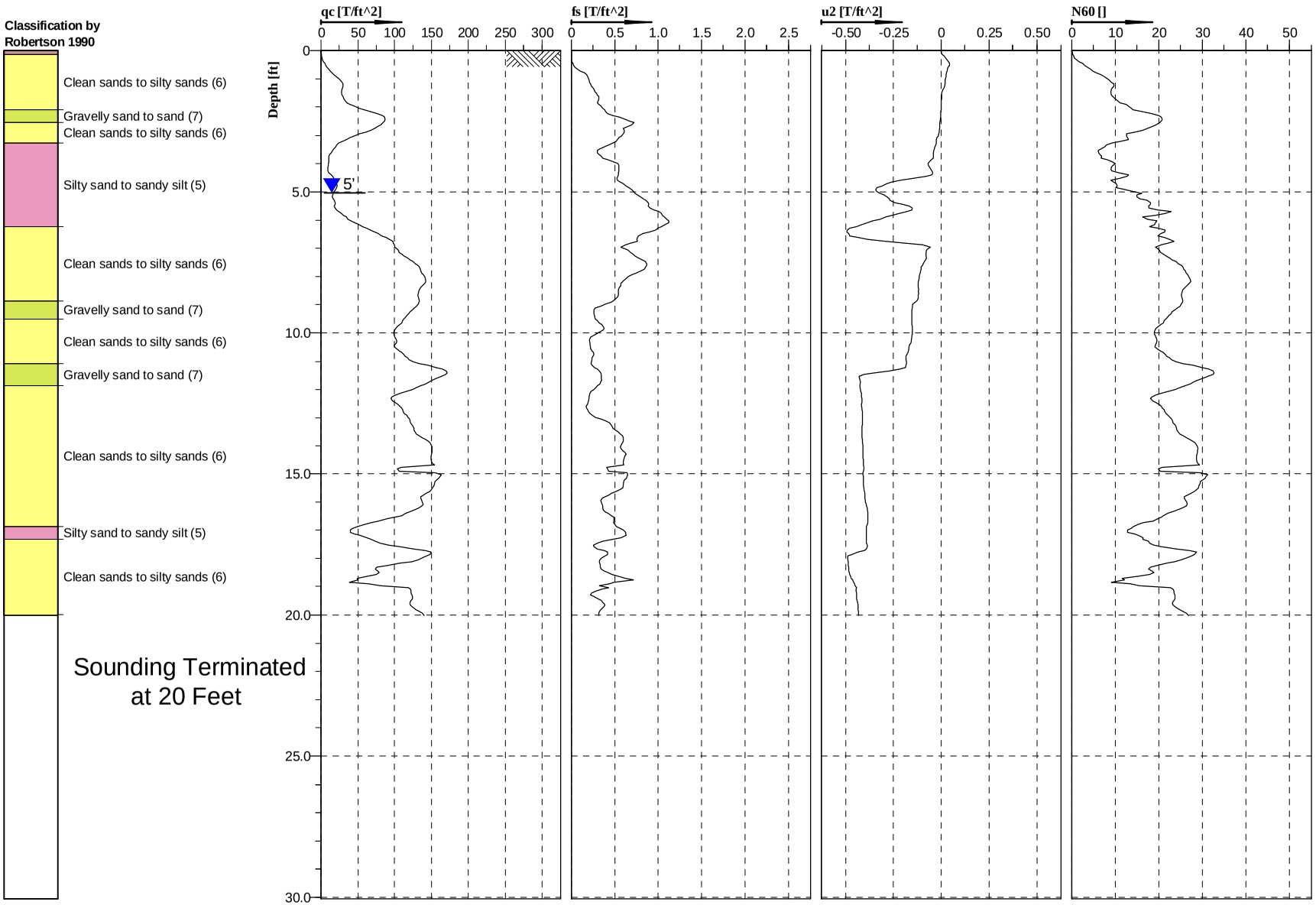




1. Sensitive, Fine Grained
2. Organic Soils-Peats
3. Clays; Clay to Silty Clay
4. Clayey Silt to Silty Clay
5. Silty Sand to Sandy Silt
6. Clean Sands to Silty Sands
7. Gravelly Sand to Sand
8. Very Stiff Sand to Clayey Sand
9. Very Stiff Fine Grained

The following table presents a correlation of corrected cone tip resistance (q_c) to soil consistency or relative density:

SAND		SILT/CLAY	
Corrected Cone Tip Resistance (q_c) (tsf)	**Relative Density**	**Corrected Cone Tip Resistance (q_c) (tsf)**	**Relative Density**
<20	Very Loose	<5	Very Soft
20-40	Loose	5-10	Soft
40-120	Medium Dense	10-15	Firm
		15-30	Stiff
120-200	Dense	30-60	Very Stiff
<200	Very Dense	30-60	Hard
		<60	Very Hard



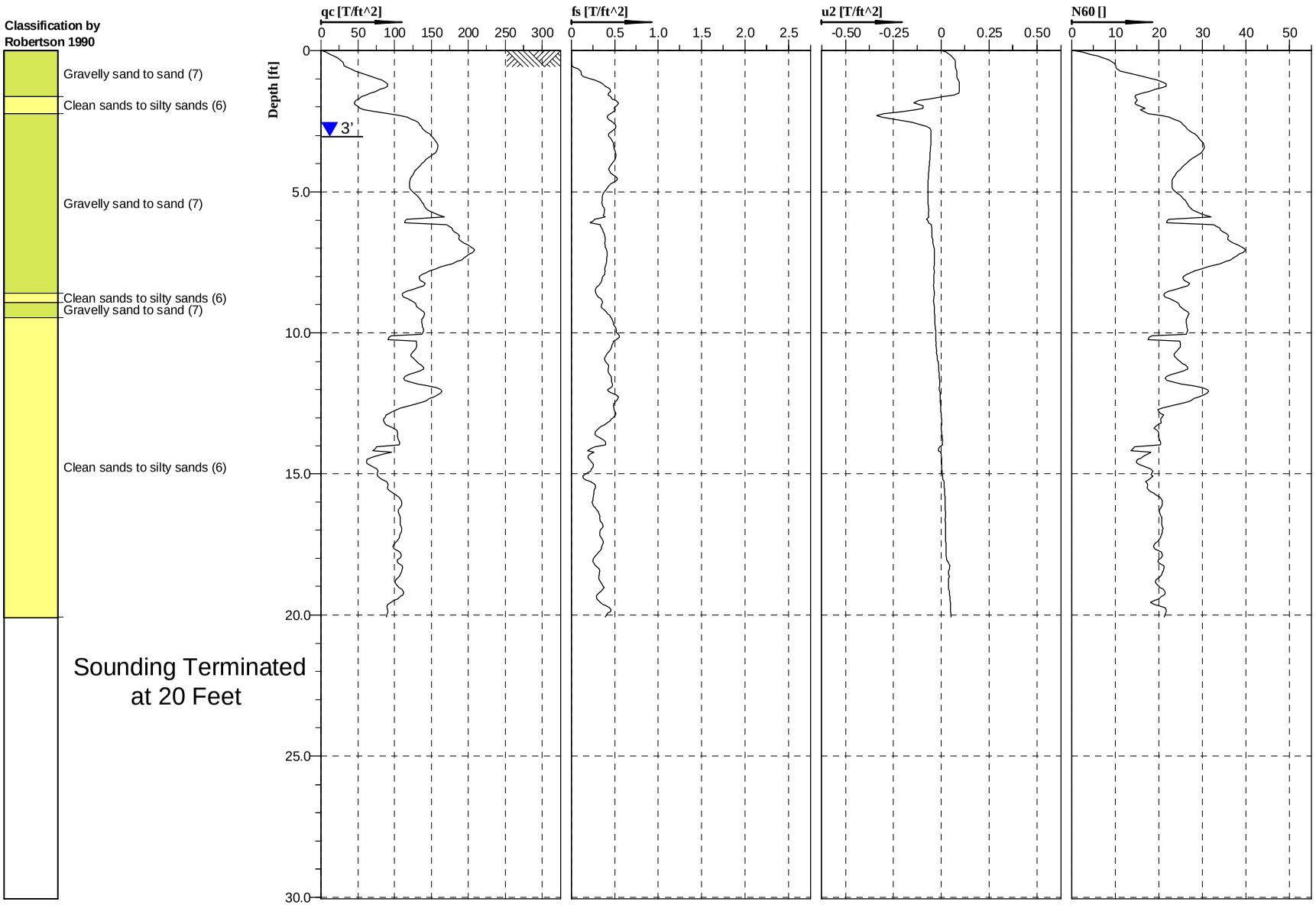
Section:

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	675357	65.7 ft.	B-1
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820502	2/10/10	1/1

ECS LLC SOUTHEAST

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150



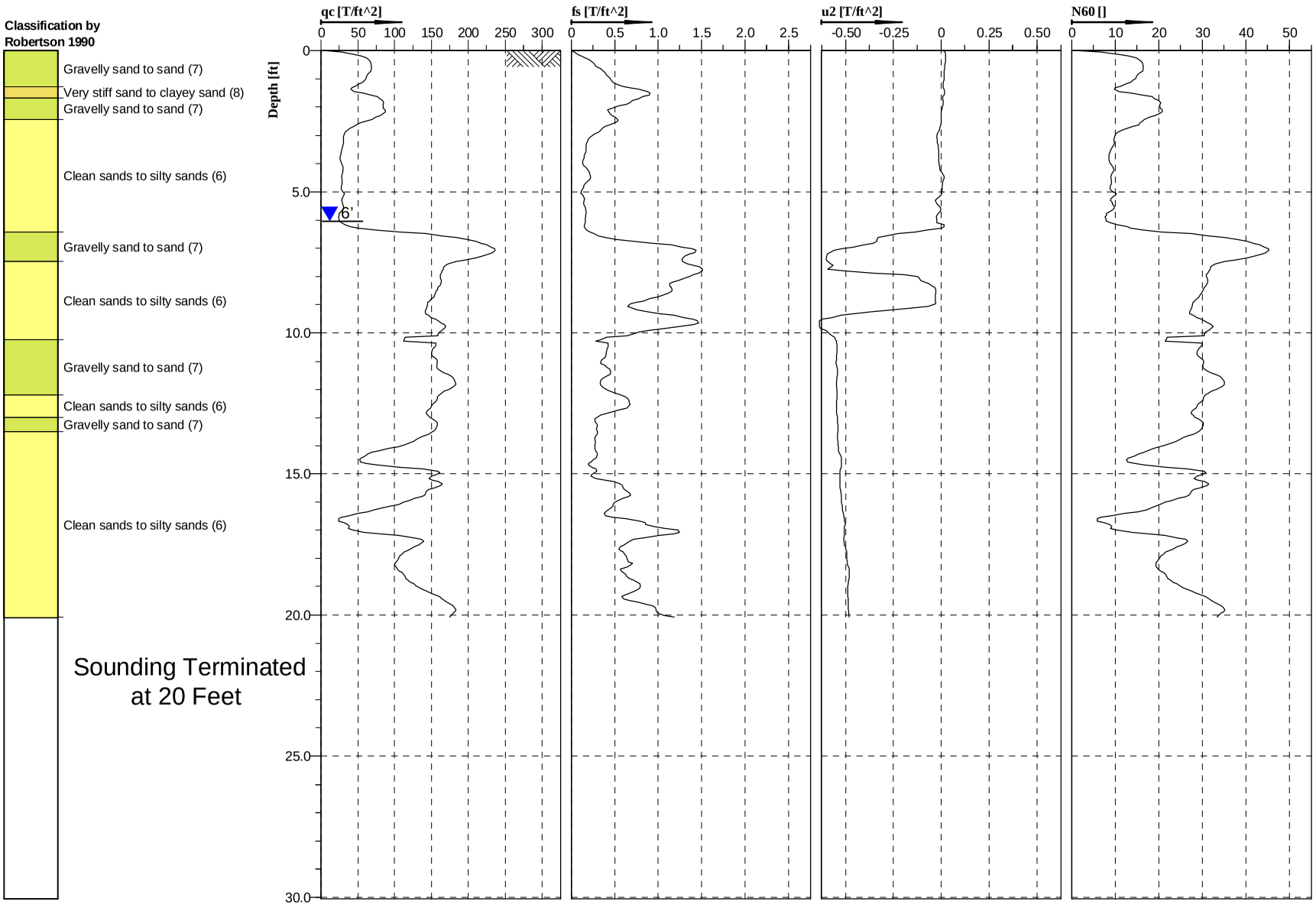
Section:

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	675280	70.3 ft.	B-2
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820400	2/10/10	1/1

ECS LLC SOUTHEAST

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

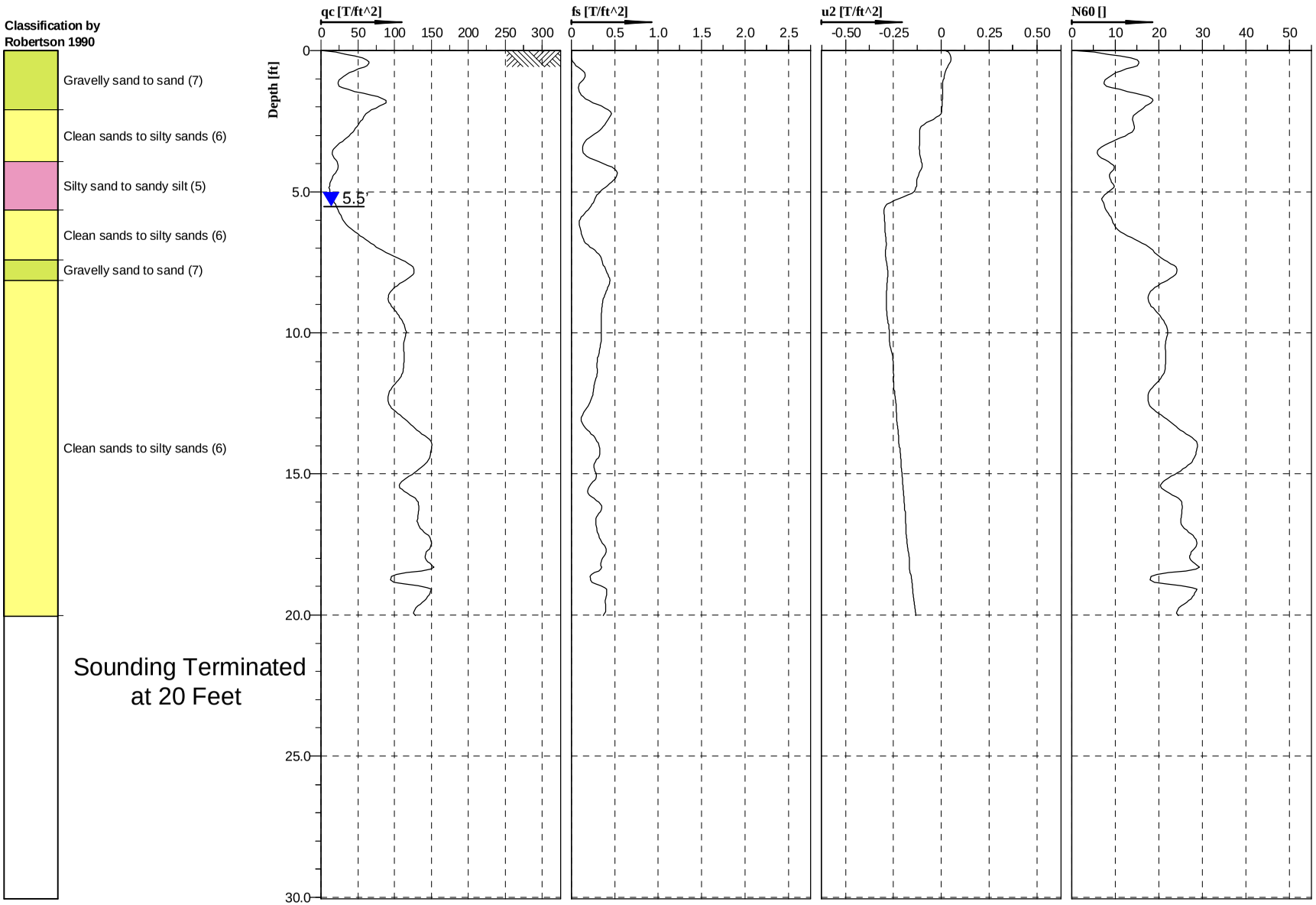


Section:

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	675131	73.8 ft.	B-3
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820403	2/10/10	1/1

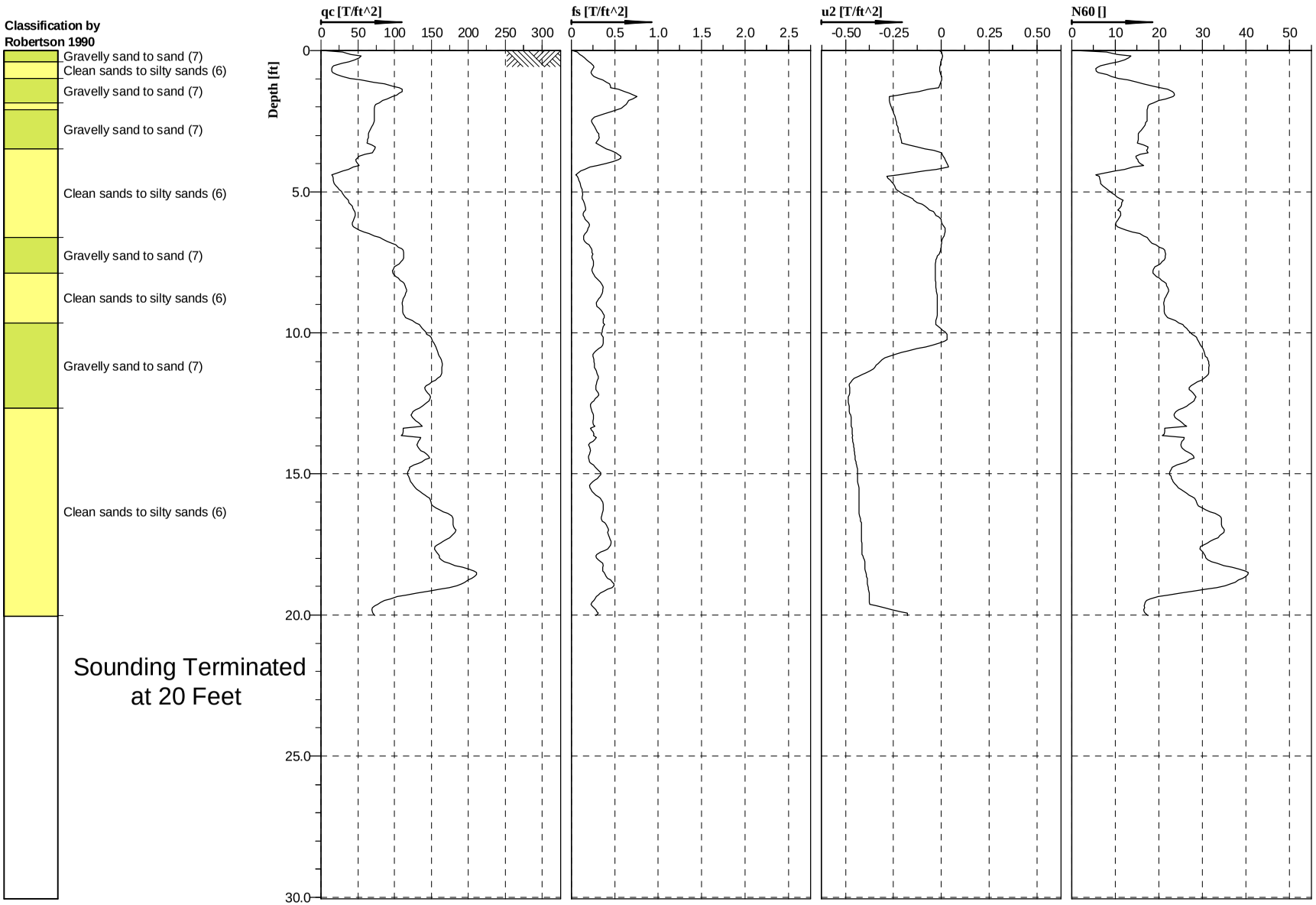


Section:

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	674718	73.9 ft.	B-4
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820171	2/10/10	1/1

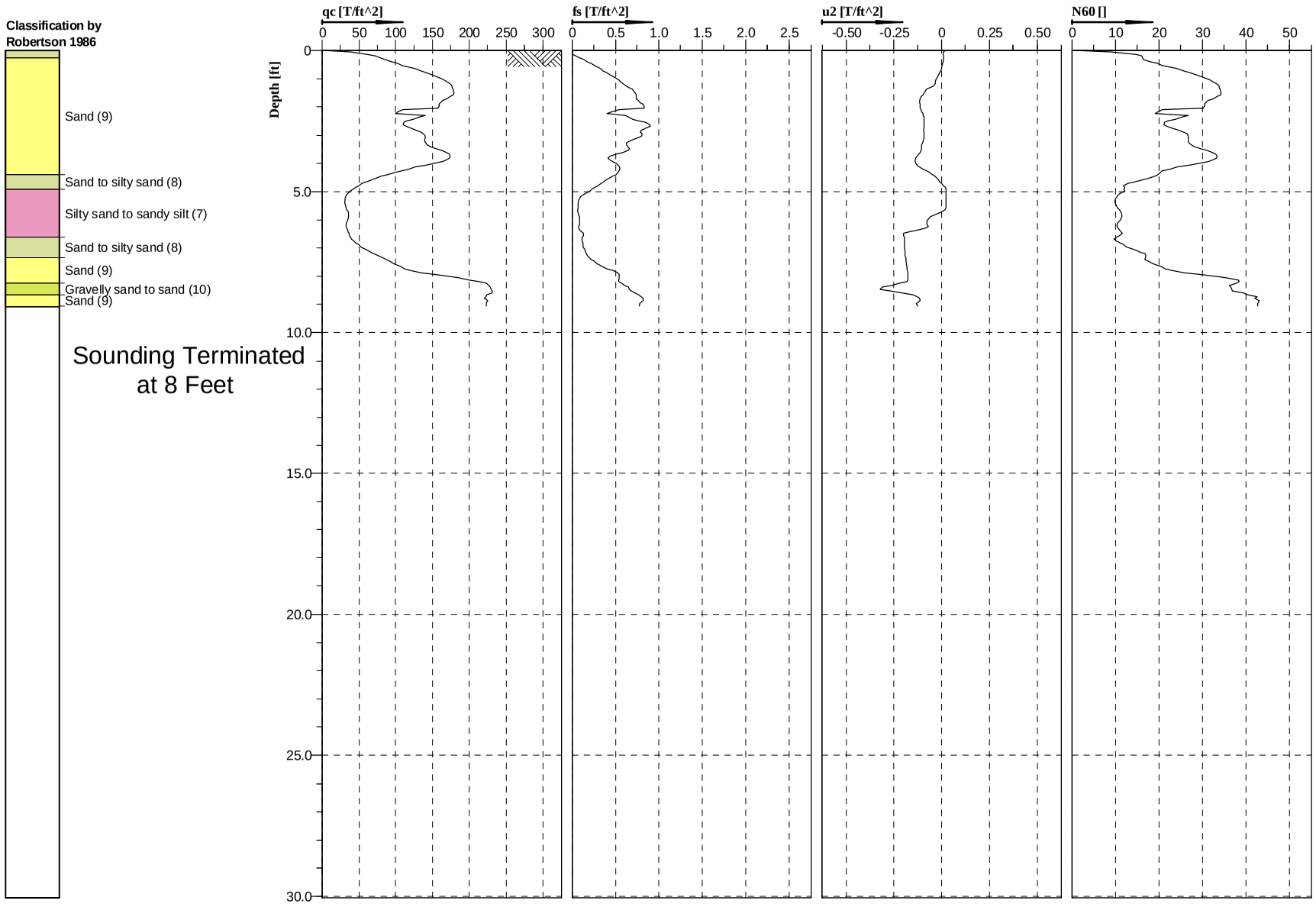


Section:

U2

Cone No: 0
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	674779	73.9 ft.	B-5
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820266	2/10/10	1/1

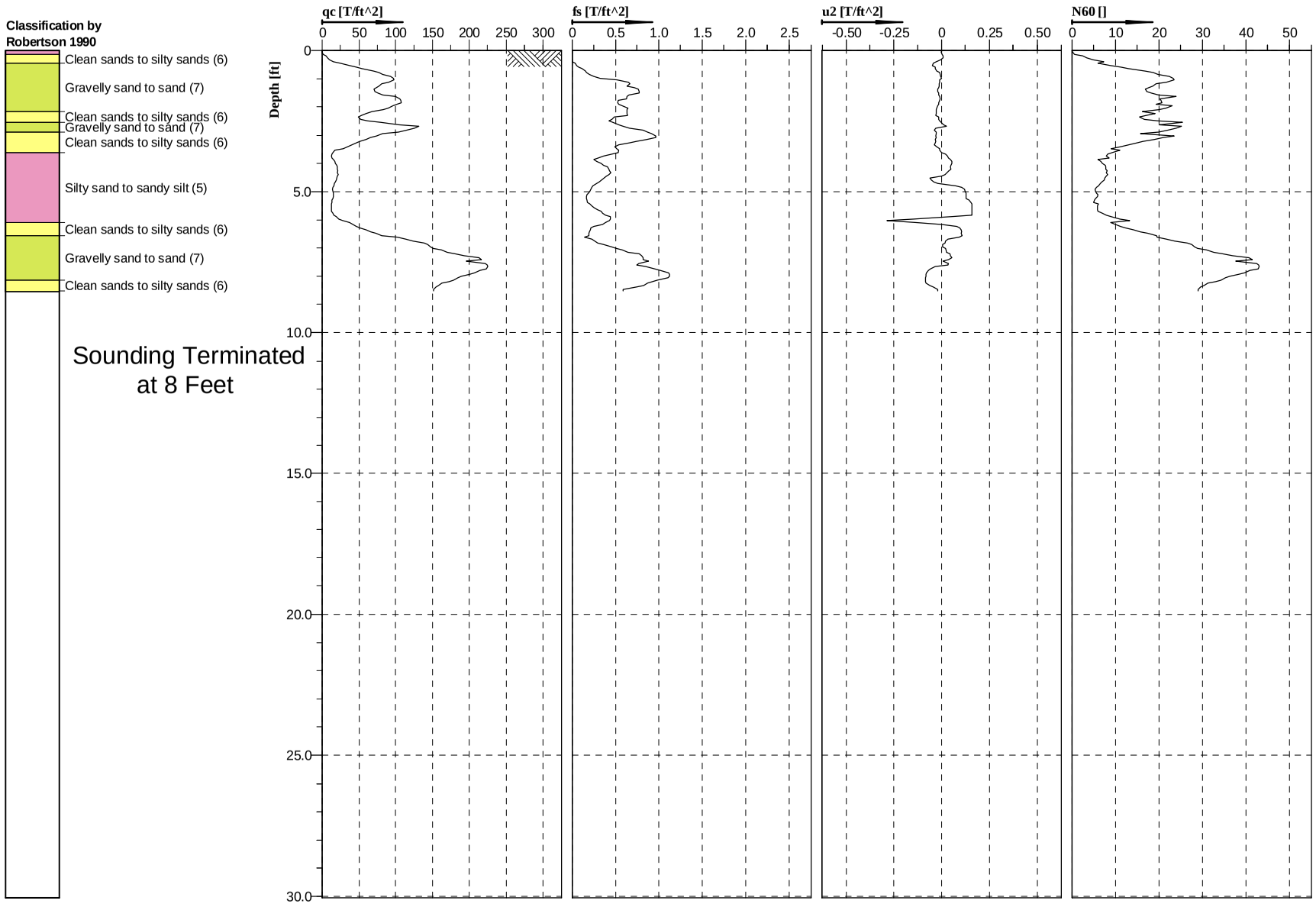


Section:

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	674653	72.2 ft.	B-6
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820489	2/10/10	1/1

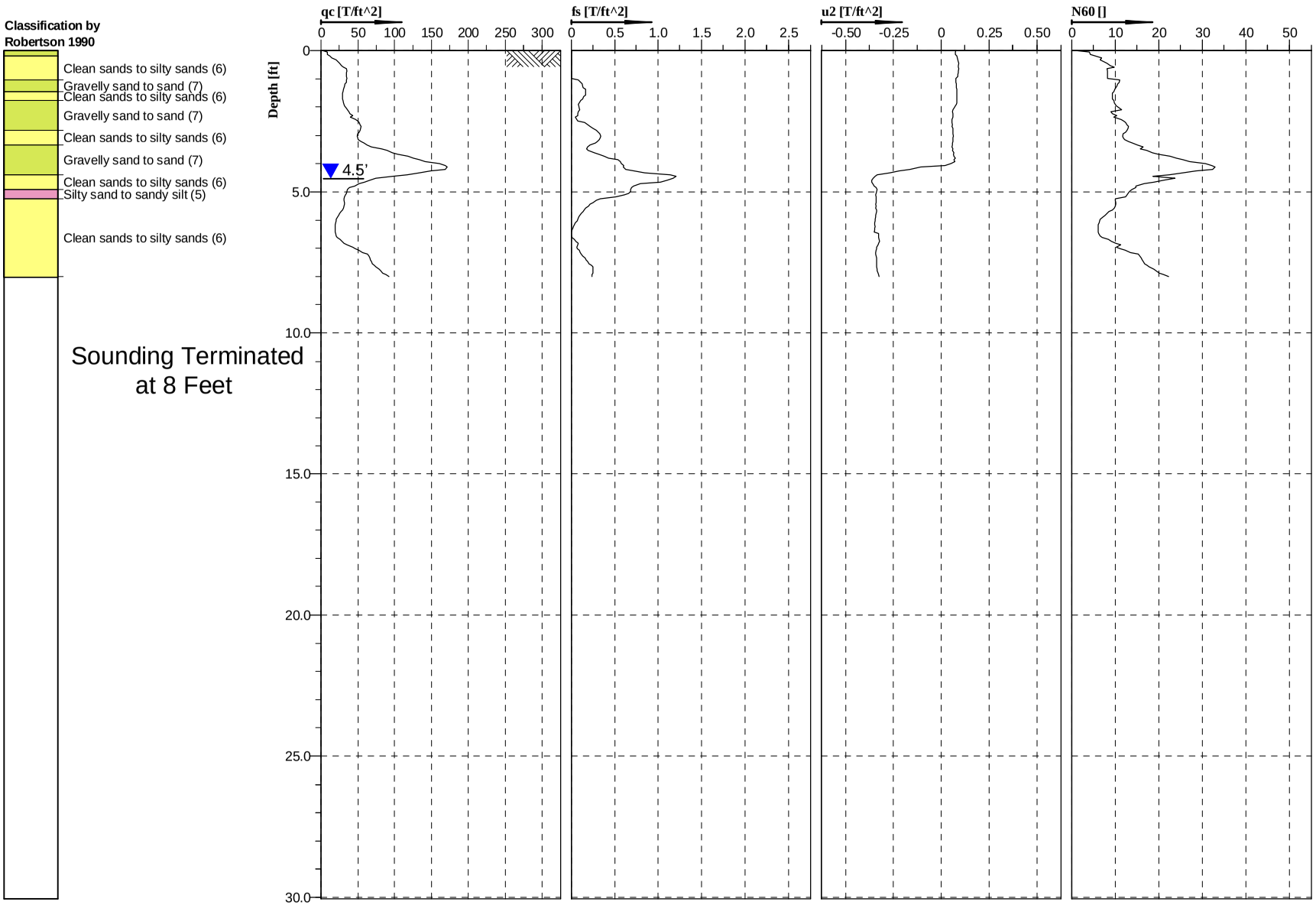


Section:

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	674862	73.4 ft.	B-7
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820488	2/10/10	1/1

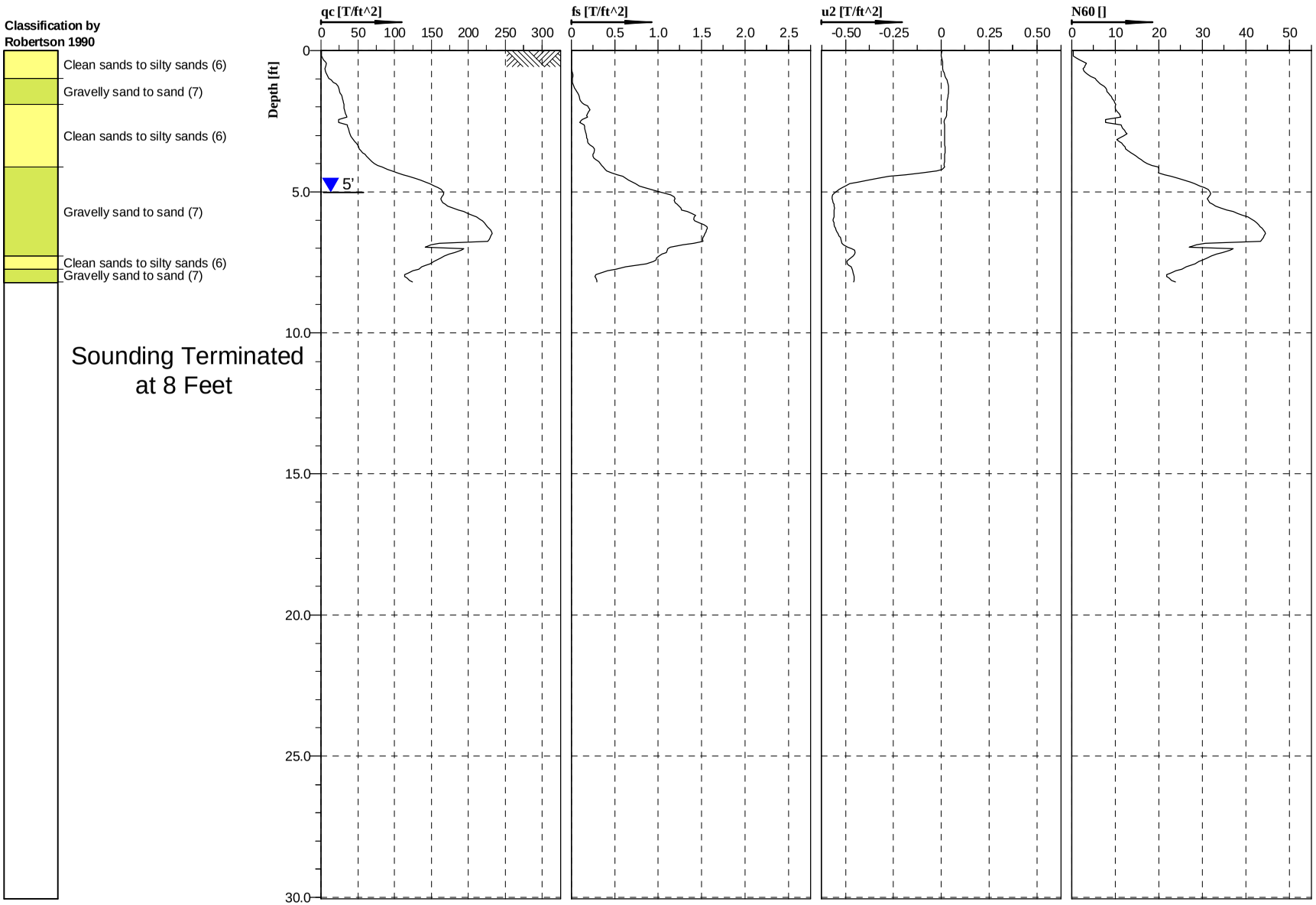


Section:

U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	675257	70.8 ft.	B-8
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820654	2/10/10	1/1



Section:

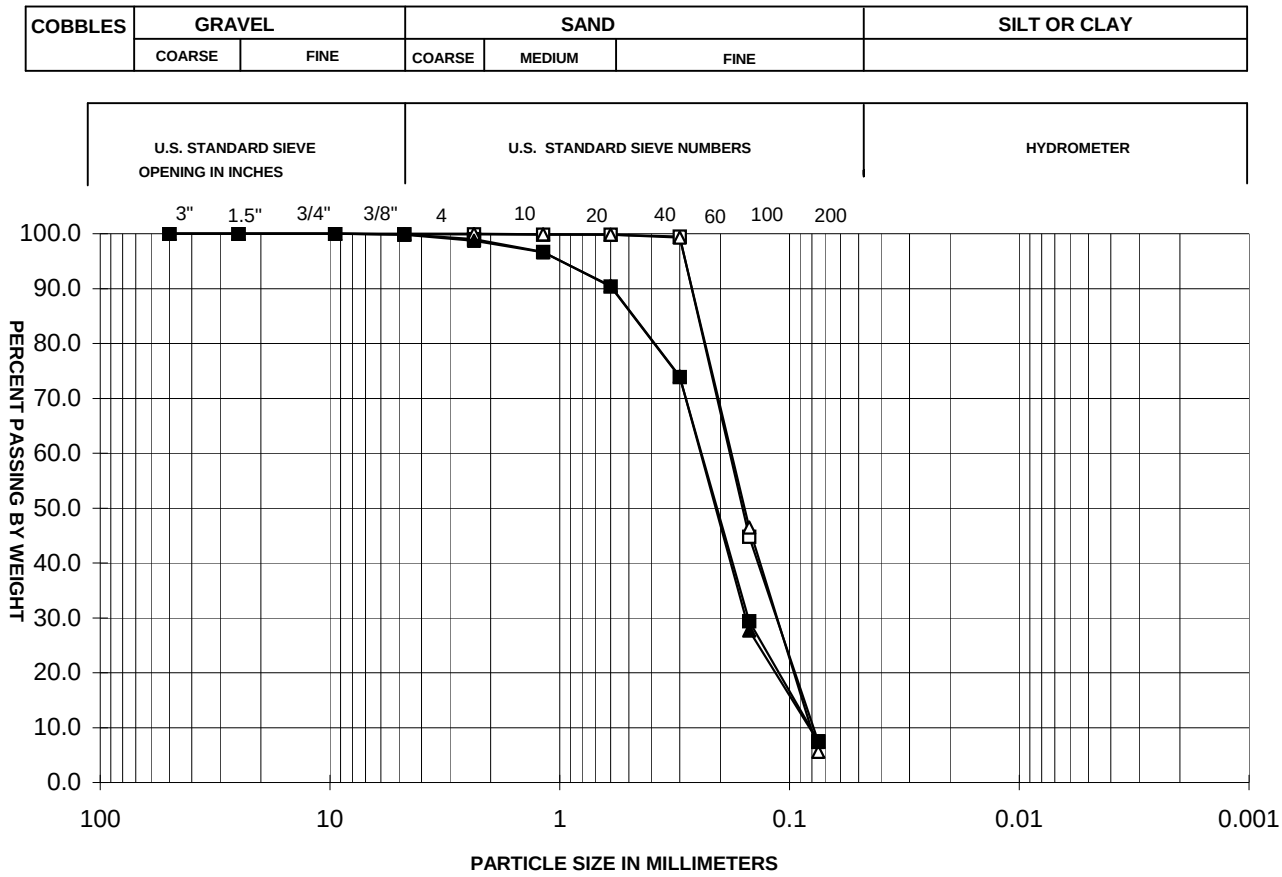
U2

Cone No: 3814 NO ME
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	Project ID:	Northing:	Ground Elev.:	Test No.:
Fort Stewart, Georgia	23:2191-A	675464	65.2 ft.	B-9
Project:	**Client:**	**Easting:**	**Date:**	**Page.:**
EAB Barracks LI 68863A FY 11	USACE	820737	2/10/10	1/1

ATTACHEMENT C

Soil Test Data



Boring/ Sample No.	Depth (feet)	Symbol	LL	PI	MC%	pH	% -200	Description
B-2 1	3-5	□	-	-	7.6	-	7.4	Brown Poorly Graded Sand with Silty Clay (SP-SC)
B-2 2	5-8	■	-	-	14.4	-	7.5	Light Brown Poorly Graded Sand with Silty Clay (SP-SC)
B-4 1	3-5	△	-	-	6.8	-	5.6	Brown Poorly Graded Sand with Silty Clay (SP-SC)
B-4 2	5-8	▲	-	-	14.5	-	7.4	Brown Poorly Graded Sand with Silty Clay (SP-SC)

Sieve Stack No. (mm opening) - 2 (50.00), 1 (25.00), 3/8(9.50), 4 (4.75), 8 (2.36), 16 (1.18), 30 (0.60), 50 (0.30), 100 (0.15), 200 (0.08)

* Visually noted as non-plastic by the USACE.

ASTMs: D-2216, D-4318, D-422, D-1140, D-4972

Project: Fort Stewart - EAB

USACE Project No.: LI: 68863A FY 11

Date: 03/08/10

ECS SOUTHEAST, LLC

Savannah, Georgia

ECS Project No: 23:2191-A

Setup By: JWS **Performed By: JWS** **Reviewed By: SB**

APPENDIX B
List of Drawings

Not Used

Appendix C

Utility Connections

FORT STEWART, GEORGIA
UTILITY CONNECTIONS

18 April 2010

A. SITE ELECTRICAL GENERAL REQUIREMENTS

1. The privatized electric utility company at Fort Stewart is Canoochee EMC. The point of contact is Ricky Simons at (912) 459-1112 x3004. 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.

B. SITE LIGHTING

1. The privatized electric utility company at Fort Stewart is Canoochee EMC. The point of contact is Ricky Simons at (912) 459-1112 x3004. 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.

2. For additional guidance regarding the separation of responsibilities between the Design-Build Contractor and Canoochee EMC, see APPENDIX AA: Canoochee EMC Project Responsibilities and APPENDIX: BB Contractor/Canoochee Demarcation Line.

C. SITE COMMUNICATIONS

1. The telecommunications design shall be coordinated with and approved by the NEC Quality Assurance Officer prior to construction. The NEC point of contact is Charles Smith at (912) 912-767-2571, email address: charles.smith7@us.army.mil. An alternate Pamela McCullough at (912) 912-767-7970, email address: pamela.mccullough@us.army.mil.

2. Communications drawings are provided for information only. Communications outside plant connection points shown on drawings shall be verified with the installations NEC. Communications ductbank sizes and quantities shown on drawings shall be verified with the installations NEC.

E. SITE CABLE TELEVISION (CATV)

1. Comcast Cable is the local cable television (CATV) company at Fort Stewart. The Comcast point of contact is Craig Markillie at (912) 353-6064. The Design-Build Contractor shall coordinate head-end equipment locations with Comcast Cable and NEC.

F. CATHODIC PROTECTION

1. Cathodic Protection shall be in accordance with UFC 3-570-06.

Appendix D

Results of Fire Flow Tests

IJO #

BLDG. 3004

HYDRANT MAINTENANCE WORKSHEET

DATE 1/15/2008

West 6th Street Site

CREW SOUTHEASTERN FIRE OF GEORGIA

	HYDRANT #	# OF TURNS	STATIC (PSI)	RESIDUAL (PSI)	FLOW (GPM)	TIME START/STOP (MINUTES)	REMARKS/MAINTENANCE PERFORMED
START	A-1	Full	71	64	1280	15 minutes	- hydrant to be re-numbered
15	A-2	Full	69	63	1250	15 minutes	- hydrant to be re-numbered.
30							
45							
60							
75							
90							

DRAFT

Section:

APPENDIX E

Environmental Information

Erosion and Sediment Control

SECTION 01354

EROSION AND SEDIMENTATION CONTROL

PART 1

1.1 SUMMARY

The purpose of this section is to outline the requirements, enforcement and violations, for all Erosion and Sediment Control Plans (E&S), Stormwater Management, Notice of Intent (NOI), and Notice of Termination (NOT) to be submitted with all construction projects on the Fort Stewart/Hunter Army Airfield.

1.1.1 Erosion and Sediment Control Plans

Submitted to DPW upon awarding of contract, reviewed by USDA-NRCS. Must be approved before land-disturbance of any kind can proceed.

1.1.2 Notice of Intent

Contractor to send this form, with the land-disturbance permit, from USDA-NRCS, to Georgia EPD,

Coastal District, Brunswick Office
Georgia Environmental Protection Division
One Conservation Way
Brunswick, GA 31520-8687
(912) 264-7284

14 days in advance of any land disturbing activities. Land-disturbance permit requires three (3) signatures, A) USDA-NRCS, B) DPW representative, C) Contractor responsible for work. Notice of Intent is required for Stormwater management. (See Exhibit 2 at Appendix L.)

1.1.3 Notice of Termination

To be submitted to, Georgia EPD,

Coastal District- Brunswick Office
Georgia Environmental Protection Division
One Conservation Way
Brunswick, GA 31520-8687
(912) 264-7284

by Contractor upon site being 70% stabilized. Concurrence is needed from the COR or PM and USDA-NRCS, and Environmental. (See Exhibit 3 at Appendix L.)

1.1.4 Time Line for Documentation

a. E&S plan submitted to ER&S, DPW.

b. E&S plan reviewed NRCS.

c. Upon E&S plan approval Contractor will be notified by DPW. Contractor to send NOI to the State of Georgia, Environmental Protection Division, 14 days prior to start date. Copies of notification to be sent to:

DPW – Jana Tanner, Chief EP&SD
CHIEF ENGINEER PLAN and SERVICES DIVISION (BLDG 1114)
DIRECTORATE of PUBLIC WORKS (USDA-NRCS)
HQS 3D IN DIV (MECH) AND FORT STEWART, SUITE 101
1117 FRANK COCHRAN DRIVE
FORT STEWART, GA. 31314-4940

Environmental - Tressa M. Rutland
Environmental Branch
Directorate of Public Works, Bldg. 1137
1550 Frank Cochran Drive
Fort Stewart, Georgia 31314-4927

NRCS – James Freeman
CHIEF ENGINEER PLAN and SERVICES DIVISION (BLDG 1114)
DIRECTORATE of PUBLIC WORKS (USDA-NRCS)
HQS 3D IN DIV (MECH) AND FORT STEWART, SUITE 101
1117 FRANK COCHRAN DRIVE
FORT STEWART, GA. 31314-4940

NOTE: Project cannot begin until these items have been completed.

1.2 REFERENCES

The publication listed below form a part of this specification to the extent referenced. The publication is referred to in the text by basic designation only.

Manual for Erosion and Sediment Control of Georgia, 5th Edition - http://www.gaswcc.org/

Environmental Protection Agency - http://www.state.ga.us/dnr/environ/

PART 2

2.1 MINIMUM REQUIREMENTS FOR EROSION AND SEDIMENTATION CONTROL USING BEST MANAGEMENT PRACTICES

2.1.1 General Provisions

Excessive soil erosion and resulting sedimentation can take place during land-disturbing activities. Therefore, plans for those land-disturbing activities, which are not excluded by this ordinance, shall contain provisions for application of soil erosion and sedimentation control measures and practices. The provisions shall be incorporated into the erosion and sedimentation control plans. Soil erosion and sedimentation control measures and practices shall conform to the minimum requirements of paragraph 2.2 of this section. The application of measures and practices shall apply to all features of the site, including street and utility installations, drainage facilities and other temporary and permanent improvements. Measures shall be installed to prevent or control erosion and sedimentation pollution during all stages of any land-disturbing activity.

2.2 MINIMUM REQUIREMENTS/BEST MANAGEMENT PRACTICES (BMP'S)

2.2.1 Best management practices, as set forth in paragraph 2.2 of this section shall be required for all land-disturbing activities. Proper design, installation, and maintenance of best management practices shall constitute a complete defense to any action by the Director or to any other allegation of noncompliance with paragraph (2) of this subsection or any substantially similar terms contained in a permit for the discharge of storm water issued

pursuant to subsection (f) of Code Section 12-5-30, the "Georgia Water Quality Control Act." As used in this subsection the terms "proper design" and “properly designed” mean designed to control soil erosion and sedimentation for all rainfall events up to and including a 25-year, 24-hour rainfall event.

2.2.2 Failure to properly design, install, or maintain best management practices shall constitute a violation of any land-disturbing permit issued by Fort Stewart/Hunter Army Airfield DPW.

2.2.3 Fort Stewart/Hunter Army Airfield DPW may require, in accordance with regulations adopted by the Board, reasonable and prudent monitoring of the turbidity level of receiving waters into which discharges from land disturbing activities occur.

2.2.4 The rules and regulations, ordinances, or resolutions adopted pursuant to this section for the purpose of governing land-disturbing activities shall require, as a minimum, best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in the Manual for Erosion and Sediment Control in Georgia published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, as well as the following:

a. Stripping of vegetation, re-grading and other development activities shall be conducted in a manner so as to minimize erosion.

b. Cut-fill operations must be kept to a minimum, as defined by contract.

c. Development plans must conform to topography and soil type, so as to create the lowest practical erosion potential.

d. Whenever feasible, natural vegetation shall be retained, protected and supplemented, as called by design.

e. The disturbed area and the duration of exposure to erosive elements shall be kept to a practicable minimum.

f. Disturbed soil shall be stabilized as quickly as practicable.

g. Temporary vegetation or mulching shall be employed to protect exposed critical areas during development.

h. Permanent vegetation and structural erosion control practices shall be installed as soon as practicable.

i. To the extent necessary, sediment in run-off water must be trapped by the use of debris basins, sediment basins, silt traps, or similar measures until the disturbed area is stabilized. As used in this paragraph, a disturbed area is stabilized when it is brought to a condition of continuous compliance with the requirements of O.C.G.A. 12-7-1 et. seq.

j. Adequate provisions must be provided to minimize damage from surface water to the cut face of excavations or the sloping of fills.

k. Cuts and fills may not endanger adjoining property.

l. Fills may not encroach upon natural watercourses or constructed channels in a manner so as to adversely affect other property owners.

m. Grading equipment must cross, flowing streams by means of bridges or

culverts except when such methods are not feasible, provided, in any case, that such crossings are kept to a minimum;

n. Land-disturbing activity plans for erosion and sedimentation control shall include provisions for treatment or control of any source of sediments and adequate sedimentation control facilities to retain sediments on-site or preclude sedimentation of adjacent waters beyond the levels specified in Section IV B. 2. of this ordinance.

o. A 25-foot buffer along the banks of all state waters, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, except where the Director determines to allow a variance that is at least as protective of natural resources and the environment, where otherwise allowed by the Director pursuant to O.C.G.A. 12-2-8, or where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specifications, and are implemented; provided, however, the buffers of at least 25 feet established pursuant to part 6 of Article 5, Chapter 5 of Title 12, the "Georgia Water Quality Control Act", shall remain in force unless a variance is granted by the Director as provided in this paragraph. The following requirements shall apply to any such buffer:
No land-disturbing activities shall be conducted within a buffer and a buffer shall remain in its natural, undisturbed state of vegetation until all land-disturbing activities on the construction site are completed. Once the final stabilization of the site is achieved, a buffer may be thinned or trimmed of vegetation as long as a protective vegetative cover remains to protect water quality and aquatic habitat and a natural canopy is left in sufficient quantity to keep shade on the stream bed.

PART 3

3.1 APPLICATION/PERMIT PROCESS

Fort Stewart/Hunter Army Airfield DPW shall review plans and detailed plans of Fort Stewart/Hunter Army Airfield that affect the tract to be developed and the area surrounding it.

3.2 APPLICATION REQUIREMENTS

3.2.1 No person shall conduct any land-disturbing activity within the jurisdictional boundaries of Fort Stewart/Hunter Army Airfield without first obtaining a permit from Fort Stewart/Hunter Army Airfield DPW to perform such activity.

3.2.2 The application for a permit shall be submitted to Fort Stewart/ Hunter Army Airfield DPW and must include the applicant’s erosion and sedimentation control plan with supporting data, as necessary. Said plans shall include, as a minimum, the data specified in paragraph 3.3 of this section. Soil erosion and sedimentation control plans shall conform to the provisions of paragraph 2.2 of this section. Applications for a permit will not be accepted unless accompanied by four copies of the applicant’s soil erosion and sedimentation control plans.

3.2.3 Immediately upon receipt of an application and plan for a permit, Fort Stewart/Hunter Army Airfield DPW shall refer the application and plan to the USDA-NRCS for its review and approval or disapproval concerning the adequacy of the erosion and sedimentation control plan. The results of the USDA-NRCS review shall be forwarded to the Fort Stewart/Hunter Army Airfield DPW. No permit will be issued unless the plan has been approved by the USDA-NRCS, and any variances required by Section IV C. 15. and 16.

3.3 PLAN REQUIREMENTS

3.3.1 Plans must be prepared to meet the minimum requirements as contained in paragraph 3.3 of this section. Conformance with the minimum requirements may be attained through the use of design criteria in the current issue of the Manual for Erosion and Sediment Control in Georgia, published by the State Soil and Water Conservation Commission as a guide; or through the use of more stringent, alternate design criteria which conform to sound conservation and engineering practices. The Manual for Erosion and Sediment Control in Georgia is hereby incorporated by reference into this ordinance. The plan for the land-disturbing activity shall consider the interrelationship of the soil types, geological and hydrological characteristics, topography, watershed, vegetation, proposed permanent structures including roadways, constructed waterways, sediment control and storm water management facilities, local ordinances and State laws.

3.3.2 Data Required for Site Plan

3.3.3 Narrative or Notes, and Other Information: Notes or narrative to be located on the site plan in general notes or in erosion and sediment control notes.

3.3.4 Description of existing land use at project site and description of proposed project.

3.3.5 Name, address, and phone number of the property owner.

3.3.6 Name and phone number of 24-hour local contact who is responsible for erosion and sedimentation controls.

3.3.7 Size of project, or phase under construction, in acres.

3.3.8 Activity schedule showing anticipated starting and completion dates for the project. Include the statement, in bold letters, that “The installation of erosion and sedimentation control measures and practices shall occur prior to or concurrent with land-disturbing activities.”

3.3.9 Stormwater and sedimentation management systems-storage capacity, hydrologic study, and calculations, including off-site drainage areas.

3.3.10 Vegetative plan for all temporary and permanent vegetative measures, including species, planting dates, and seeding, fertilizer, lime, and mulching rates. The vegetative plan should show options for year-round seeding.

3.3.11 Detail drawings for all structural practices. Specifications may follow guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.

3.3.12 Maintenance statement - “Erosion and sedimentation control measures will be maintained at all times. Additional erosion and sedimentation control measures and practices will be installed if deemed necessary by onsite inspection.”

3.3.13 Maps, drawings, and supportive computations shall bear the signature/seal of a registered or certified professional in engineering, architecture, landscape architecture, land surveying, or erosion and sedimentation control. The certified plans shall contain:

3.3.14 Graphic scale and north point or arrow indicating magnetic north.

3.3.15 Vicinity maps showing location of project and existing streets.

3.3.16 Boundary line survey.

3.3.17 Delineation of disturbed areas within project boundary.

3.3.18 Existing and planned contours, with an interval in accordance with the following:

Map Scale	Ground Slope	Contour Interval, ft.
1 inch = 100 ft	Flat 0-2%.	0.5 or 1
larger scale	Rolling 2-8%	1 or 2
	Steep 8% +	2, 5 or 10

3.3.19 Adjacent areas and features areas such as streams, lakes, residential areas, etc. which might be affected should be indicated on the plan.

3.3.20 Proposed structures or additions to existing structures and paved areas.

3.3.21 Delineate the 25-foot horizontal buffer adjacent to state waters and the specified width in Metropolitan River Protection Act (MRPA) areas.

3.3.22 Location of erosion and sedimentation control measures and practices using coding symbols from the Manual for Erosion and Sediment Control in Georgia, Chapter 6.

3.3.23 Maintenance of all soil erosion and sedimentation control practices, whether temporary or permanent, shall be at all times the responsibility of the Contractor.

3.4 PERMITS

3.4.1 Permits shall be issued or denied as soon as practicable, but in any event not later than fifteen (15) days after receipt by Fort Stewart / Hunter Army Airfield / DPW of a completed application.

3.4.2 No permit shall be issued by Fort Stewart / Hunter Army Airfield/ DPW unless the erosion and sedimentation control plan has been approved by USDA-NRCS and Fort Stewart / Hunter Army Airfield/ DPW has affirmatively determined that the plan is in compliance with this ordinance and all ordinances and rules and regulations in effect within the jurisdictional boundaries of the Fort Stewart / Hunter Army Airfield / DPW are met. If the permit is denied, the reason for denial shall be furnished to the applicant.

3.4.3 If the tract is to be developed in phases, then a separate permit shall be required for each phase.

3.4.4 The permit may be suspended, revoked, or modified by Fort Stewart / Hunter Army Airfield/ DPW, as to all or any portion of the land affected by the plan, upon finding that the holder or his successor in the title is not in compliance with the approved erosion and sedimentation control plan or that the holder or his successor in title is in violation of this ordinance. A holder of a permit shall notify any successor in title to him as to all or any portion of the land affected by the approved plan of the conditions contained in the permit.

3.5 INSPECTIONS AND ENFORCEMENT

3.5.1 Fort Stewart / Hunter Army Airfield / DPW or USDA-NRCS representative, will periodically inspect the sites of land-disturbing activities for which permits have been issued to determine if the activities are being conducted in

accordance with the plan and if the measures required in the plan are effective in controlling erosion and sedimentation. If, through inspection, it is deemed that a person engaged in land-disturbing activities as defined herein has failed to comply with the approved plan, with permit conditions, or with the provisions of this ordinance, a written Notice to comply shall be served upon that person. The notice shall set forth the measures necessary to achieve compliance and shall state the time within which such measures must be completed (15 days). If the person engaged in the land-disturbing activity fails to comply within the time specified, he shall be deemed in violation of this ordinance.

3.5.2 Fort Stewart / Hunter Army Airfield/ DPW or USDA-NRCS representative shall have the power to conduct such investigations as it may reasonably deem necessary to carry out duties as prescribed in this ordinance, and for this purpose to enter at reasonable times upon any site, for the purpose of investigation and inspecting the sites of land-disturbing activities.

3.5.3 No person shall refuse entry or access to any authorized representative or agent of Fort Stewart/Hunter Army Airfield / DPW or USDA-NRCS representative, who requests entry for the purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper or interfere with any such representative while in the process of carrying out their official duties.

3.6 PENALTIES AND INCENTIVES

3.6.1 Failure To Obtain a Permit For Land-Disturbing Activity

If any person commences any land-disturbing activity requiring a land-disturbing permit as prescribed in this ordinance without first obtaining said permit, the person shall be subject to a stop work order within the boundaries of Fort Stewart / Hunter Army Airfield.

3.7 STOP-WORK ORDERS

3.7.1 For the first violation of the provisions of this ordinance, Fort Stewart / Hunter Army Airfield / DPW shall issue a written warning to the violator. The violator shall have a designated amount of time to correct the violation. If the violation is not corrected within allotted time, Fort Stewart / Hunter Army Airfield/ DPW shall issue a stop-work order requiring that land-disturbing activities be stopped until necessary corrective action or mitigation has occurred; provided, however, that, if the violation presents an imminent threat to public health or waters of the state or if the land-disturbing activities are conducted without obtaining the necessary permit, Fort Stewart / Hunter Army Airfield/ DPW shall issue an immediate stop-work order in lieu of a warning;

3.7.2 For a third and each subsequent violation, Fort Stewart / Hunter Army Airfield / DPW shall issue an immediate stop-work order; and;

3.7.3 All stop-work orders shall be effective immediately upon issuance and shall be in effect until the necessary corrective action or mitigation has occurred.

4.1 DEFINITIONS

The following definitions shall apply in the interpretation and enforcement of this ordinance, unless otherwise specifically stated:

DEFINITIONS

1. Best Management Practices (BMP's): A collection of structural practices and vegetative measures which, when properly designed, installed and maintained, will provide effective erosion and sedimentation control for all rainfall events up to and including a 25-year, 24-hour rainfall event.

2. Board: The Board of Natural Resources.

3. Buffer: The area of land immediately adjacent to the banks of state waters in its natural state of vegetation, which facilitates the protection of water quality and aquatic habitat.

4. Commission: The State Soil & Water Conservation Commission.

5. Cut: A portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to excavated surface. Also known as excavation.

6. Department: The Department of Natural Resources.

7. Director: The Director of the Environmental Protection Division of the Department of Natural Resources.

8. Division: The Environmental Protection Division of the Department of Natural Resources.

9. Drainage Structure: A device composed of a virtually non-erodible material such as concrete, steel, plastic or other such material that conveys water from one place to another by intercepting the flow and carrying it to a release point for storm-water management, drainage control, or flood control purposes.

10. Erosion: The process by which land surface is worn away by the action of wind, water, ice or gravity.

11. Erosion and Sedimentation Control Plan: A plan for the control of soil erosion and sedimentation, resulting from a land-disturbing activity.

12. Fill: A portion of land surface to which soil or other solid material has been added; the depth above the original ground.

13. Finished Grade: The final elevation and contour of the ground after cutting or filling and conforming to the proposed design.

14. Grading: Altering the shape of ground surfaces to a predetermined condition; this includes stripping, cutting, filling, stockpiling and shaping or any combination thereof and shall include the land in its cut or filled condition.

15. Ground Elevation: The original elevation of the ground surface prior to cutting or filling.

16. Issuing Authority: DPW.

17. Land-Disturbing Activity: Any activity which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands within the state, including, but not limited to, clearing, dredging, grading, excavating, transporting, and filling of land but not including agricultural practices as described in Section III, Paragraph 5.

18. Metropolitan River Protection Act (MRPA): A state law referenced as O.C.G.A. 12-5-440 et.seq., which addresses environmental and developmental

matters in certain metropolitan river corridors and their drainage basins.

19. Natural Ground Surface: The ground surface in its original state before any grading, excavation or filling.

20. Nephelometric Turbidity Units (NTU): Numerical units of measure based upon photometric analytical techniques for measuring the light scattered by finely divided particles of a substance in suspension. This technique is used to estimate the extent of turbidity in water in which colloidally dispersed particles are present.

21. Permit: The authorization necessary to conduct a land-disturbing activity under the provisions of this ordinance.

22. Person: Any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, state agency, municipality or other political subdivision of this State, any interstate body or any other legal entity.

23. Project: The entire proposed development project regardless of the size of the area of land to be disturbed.

24. Roadway Drainage Structure: A device such as a bridge, culvert, or ditch, composed of a virtually non-erodible material such as concrete, steel, plastic, or other such material that conveys water under a roadway by intercepting the flow on one side of a traveled way consisting of one or more defined lanes, with or without shoulder areas, and carrying water to a release point on the other side.

25. Sediment: Solid material, both organic and inorganic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, ice, or gravity as a product of erosion.

26. Sedimentation: The process by which eroded material is transported and deposited by the action of water, wind, ice or gravity.

27. Stabilization: The process of establishing an enduring soil cover of vegetation by the installation of temporary or permanent structures for the purpose of reducing to a minimum the erosion process and the resultant transport of sediment by wind, water, ice or gravity.

28. State Waters: Any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation.

29. Structural Erosion and Sedimentation Control Practices: Practices for the stabilization of erodible or sediment-producing areas by utilizing the mechanical properties of matter for the purpose of either changing the surface of the land or storing, regulating or disposing of runoff to prevent excessive sediment loss. Examples of structural erosion and sediment control practices are riprap, sediment basins, dikes, level spreaders, waterways or outlets, diversions, grade stabilization structures, sediment traps and land grading, etc. Such practices can be found in the publication Manual for Erosion and Sediment Control in Georgia.

30. Vegetative Erosion and Sedimentation Control Measures: Measures for the stabilization of erodible or sediment-producing areas by covering the soil

with:

A. Permanent seeding, sprigging or planting, producing long-term vegetative cover; or

B. Temporary seeding, producing short-term vegetative cover; or

C. Sodding, covering areas with a turf of perennial sod-forming grass. Such measures can be found in the publication Manual for Erosion and Sediment Control in Georgia.

31. Watercourse: Any natural or artificial watercourse, stream, river, creek, channel, ditch, canal, conduit, culvert, drain, waterway, gully, ravine, or wash in which water flows either continuously or intermittently and which has a definite channel, bed and banks, and including any area adjacent thereto subject to inundation by reason of overflow or floodwater.

32. Wetlands: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

---End of Section ---

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST GUIDANCE DOCUMENT

SWCD: (May be completed by ES&PC plan reviewer)

Project Name: (Noted clearly on cover sheet) Address: (Include street name/address on cover sheet)

City/County: (Noted on cover sheet-note LIA) Date on Plans: (Initial submittal date on cover sheet)

TO BE SHOWN ON ES&PC PLAN

1 Graphic scale and north arrow.
The graphic scale and north arrow must be clearly shown on all ES&PC plan sheets.

2 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft.
1 inch =	Flat 0 - 2%	0.5 or 1
	Rolling 2 - 8%	1 or 2
	Steep 8% +	2,5 or 10

Plan should include an existing site plan sheet or sheets with the above contour line intervals shown on plan. The initial, intermediate and final phase sheets of the plan must show the proposed grade in bold contour lines with the above intervals overlaying the original contour lines. Elevations of both the existing and proposed contour lines must be shown. Contours for infrastructure projects may be shown using criteria from infrastructure checklist or by using the criteria listed above.

3 Delineation and acreage of contributing drainage basins on the project site.
The existing site plan or the initial phase plan must show delineation of each drainage basin on the project site with the acreage of each basin noted. As the basins are altered during grading for the intermediate phase of the plan the new basins and acreage must be delineated. If the basins are changed on the final phase of the plan delineate new basins with acreage noted.

4 Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE MUST BE DELINEATED ON ALL PHASES OF THE PLAN. If the plan reviewer visits the site prior to the plan review and discovers possible state waters on and within 200 feet of the site that are not delineated on the plan, the review could be delayed until a state waters determination is made by the Local Issuing Authority. ALL WETLANDS LOCATED WITHIN THE PROJECT SITE ONLY MUST BE DELINEATED.

5 Delineation of 25-foot undisturbed buffers of state waters and 50-foot undisturbed buffers along designated trout streams. Clearly note and delineate all areas of impact.
The State Law of Georgia mandates these minimum undisturbed buffers, but the Local Issuing Authorities are allowed to require more stringent buffers of state waters. The minimum undisturbed buffers required by the state and all other buffers of state waters required by the issuing authority must be delineated. Any undisturbed buffer area that is impacted by the project site must be noted on the plan.

6 Soil series and their delineation.
Soil series delineations are required for the plan review and can be found on the NRCS web site. The highest level of soil survey required for the project site, such as a level three or level four survey for projects that will be using septic systems, must be delineated on the plan. The soil series delineation should be shown on the existing site plan or the initial phase plan. A chart listing the soils located on the project site should be shown on the sheet with their delineation.

7 Revision and/or initial date.
The initial plan date should be shown on all pages. With each resubmittal the revision date and entity requesting revisions (Planning Dept., GSWCC, NRCS, etc.) should be shown on cover sheet and each sheet that has been revised.

8 Limits of disturbance for each phase of construction.
The limits of disturbance for the initial phase should delineate only the area required to be disturbed for the installation of perimeter control and initial sediment storage. The intermediate phase should delineate the entire area to be disturbed for that phase, such as grading, drainage, utilities installed, etc. The final phase should delineate any additional areas to be disturbed such as individual lots, etc.

9 Signature, seal and GSWCC Level II certification number of the qualified design professional.
The plan must include the signature, seal and GSWCC Level II certification number of the qualified design professional on each sheet of and pertaining to the ES&PC plan. ANY PLANS RECEIVED THAT DO NOT PROVIDE ANY OF THESE WILL NOT BE REVIEWED.

10 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion.
The storm-drain pipe and weir velocities must show the flow characteristics of the pipe at full flow including pipe diameter, flow rate (cfs), velocity (fps), and tailwater conditions. This information should be shown in a chart shown on storm-drain profile sheet, ES&PC intermediate phase sheet or on the ES&PC detail sheet that shows outlet protection.
The dimensions of the apron must include length (La), width at the headwall (W1), down-stream width (W2), average stone diameter (d50), and stone depth (D) designed in accordance with Figures 6-24.1 and 6-24.2 in the Manual. These should be shown in a chart on ES&PC intermediate and/or final phase sheet or ES&PC detail sheet with outlet protection.

11 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written rationale explaining the decision not to use a sediment basin must be included in the plan for each common drainage location in which a sediment basin is not provided.
For each common drainage location, a temporary (or Permanent) sediment basin (Sd3, Rt, or excavated Sd2) providing at least 67 cubic yards of storage per acre drained, or equivalent control measures, shall be provided until final stabilization of the site. The 67 cubic yards of storage per acre does not apply to flows from off-site areas and flows from on-site areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. Sediment basins may not be appropriate for some common drainage locations and a written rationale explaining the decision not to use sediment basins must be included in the plan.

12 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Phase plan into initial sediment storage and perimeter control BMP's, intermediate grading and drainage BMP's and final BMP's. Use uniform coding symbols from the Manual, Chapter 6, with legend.
BMP's for all phases of the plan must be consistent with and no less stringent than the Manual and shown using uniform coding symbols from the Manual. The uniform coding symbols legend from the Manual must be included and may be shown on detail sheet or any of the ES&PC plan sheets.
The plan must be shown in a minimum of three phases with each phase shown on a separate sheet. Initial phase of the plan must include the required 67 cy per acre sediment storage, construction exit, tree-save fence if applicable and any other BMP's necessary to prevent sediment from leaving the site such as silt fence, inlet protection on existing storm drain structures, diversions, check dams, temporary ground cover, etc. Limits of disturbance for the initial phase are to be only the areas needed to install initial BMP's. The intermediate phase should show rough grading and utility construction. BMP's should include initial inlet protection, additional silt fence as needed, any revised sediment storage needed as drainage basins are altered, outlet protection, retrofit if applicable, matting with temporary or permanent vegetation as needed, temporary down drains, filter rings, etc. Final phase of plan should show finished grade, curbing and paving if applicable, building construction if applicable, etc. BMP's should include permanent vegetation, appropriate inlet protection, etc.

13 Name and phone number of 24-hour local contact responsible for erosion, sedimentation and pollution controls.
May be shown on ES&PC plan sheets and/or ES&PC notes.

14 Best Management Practices to minimize off-site vehicle tracking of sediments and the generation of dust.
The Plan must establish BMPs designed to minimize or eliminate the off-site vehicle tracking of dust, dirt, sand, soils and sediment and the generation of dust to the maximum extent practicable. The plan should indicate structural BMPs such as construction exits as well as a narrative description of the actions to be taken and/or equipment to be available and used as necessary to control dust and off-site vehicle tracking. Some requirements of the Plan may need a more detailed description of BMP's than a typical drawing can provide. These items should be clarified with a narrative description shown on the plan or in the ES&PC notes.

15 Delineate sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged.
The Plan must include a site map that shows the location of all waters of the State (including wetlands) present on the site whether or not those state waters have an associated buffer. The map must also show the location(s) of all storm water discharge points (outfalls) and indicate the location(s) of all points where storm water samples will be collected for the purposes of the permit. Storm water sampling must be conducted at all storm water outfalls (unless a representative outfall is designated) or at upstream and downstream locations in the receiving water(s). In some cases, the plan may call for sampling of a combination of storm water outfalls and receiving waters.

16 Identify/Delineate all storm water discharge points.
Any point where stormwater is discharged from the site should be clearly identified in each phase of the plan.

Narrative Notes and Other Information: (Notes or narrative should be located on the ES&PC plan or under Erosion, Sedimentation and Pollution Control notes.)

17 Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions.
Hydrology study and drainage maps should be separate from plans. Maps should include each individual basin draining to, through and from the project site, with each one delineated, labeled and showing its total acreage.

18 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
Site location must be delineated showing surrounding area roads and highways. If the project is being done in phases, each individual phase must be delineated and labeled. This information is important for plan reviewers if a site visit is needed, or if the site needs to be located on another map such as USGS quad.

19 Identify the project receiving waters and describe all adjacent areas including streams, lakes, residential areas, wetlands, etc. which may be affected.
The name of the initial receiving water(s) or if unnamed the first named blue line stream indicated on the appropriate USGS Topographic map and describe any neighboring area which could be affected by the post-developed runoff from the site.

20 Plan addresses BMP's for all phases of common development including individual building lots and out-parcels, etc. regardless of who owns or operates the individual sites. Include a typical and any situational lots applicable.
The Erosion, Sedimentation & Pollution Control plans for a common development is designed for the life of the project and must include practices to be implemented by all secondary permittees involved, whether the primary permittee relinquishes ownership of the land rights or not. This includes providing an ES&PC plan for typical and situational lots for each secondary permittee (builder) who purchases a lot from the primary permittee (developer). Situational lots may include, but are not limited to, lots adjacent to state waters buffers (in which a double row of Type C silt fence must be shown adjacent to buffer), lots adjacent to wetlands, lots with an extreme grade, etc. Not applicable for stand alone and infrastructure projects.

21 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMP's and sampling to meet permit requirements as stated on page 15 of permit.
Statement must be shown as worded on page 15 of GAR 100003 and include design professionals signature. The statement and signature are to be shown under ES&PC notes. This statement is found on pages 12-13 in GAR 100001 and on page 13 of GAR 100002.

22 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan.
Statement and signature are to be shown under ES&PC notes.

23 Indication that non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation without first acquiring the necessary variances and permits.
See Part IV. EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN (I) and (II) of the permit and show under ES&PC notes.

24 Plan describes practices used to reduce the pollutants in storm water discharges.
In addition to erosion and sedimentation controls, the plan must identify all potential sources of storm water pollution expected to be present at the site. These will include BMPs designed to control pollutants from waste disposal practices, soil additives, remediation of spills and leaks of petroleum products, concrete truck washout, etc. The plan must also show that the site will be in compliance with all applicable State and local waste disposal, sanitary sewer or septic system regulations.

25 Indication that the applicable portion of ES&PC Plan is to be provided to each secondary permittee prior to the secondary conducting any construction activity and that each secondary shall sign the Plan or portion of the Plan applicable to their site. List the names and addresses of all secondary permittees.
The Plan must contain a list of and contact information for all secondary permittees and a statement that the primary permittee shall provide a copy of the Plan (and any subsequent revisions to the Plan) to each secondary permittee. The plan must include a section for each secondary to sign indicating that they have made a written acknowledgement of receipt of the plan and a copy of the acknowledgement must be kept in the primary's records. Not applicable for stand alone and infrastructure projects.

26 Indication that the design professional who prepared the ES&PC Plan is to inspect the installation of BMP's within 7 days after initial construction activity begins.
The Plan must include a statement indicating that the design professional must be retained by the primary permittee to conduct a site inspection within seven (7) days after initial construction begins in order to determine if the BMPs have been installed as designed and are being maintained as required by the Plan and the Green Book. The design professional must report the results of the inspection to the primary permittee within seven (7) days and the primary must correct all deficiencies identified in the report within two (2) business days after receiving the report (unless additional time is needed due to adverse weather). The primary permittee may use an alternate design professional to conduct the BMP inspection, provided that they make a written request to EPD to change from the design professional who developed the plan and EPD has agreed.

27 Include certification and signature in accordance with section V.G.d. of the permit.
See part V. G. d. of the permit. Statement must be worded as shown in permit and shown under ES&PC notes with signature.

28 Indication that amendments/revisions to the ES&PC Plan which have a significant effect on BMP's with a hydraulic component must be certified by the design professional.
See part IV. C. of the permit. This can be clarified in a narrative and shown under ES&PC notes. Revisions or amendments should be submitted to the Local Issuing Authority for review.

29 Description of the nature of construction activity.
Provide a description of the existing site and a description of the proposed project. These must be shown on ES&PC plans or under ES&PC notes.

30 Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMP's, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
Activity schedule must be site specific. The narrative description and timeline for each phase of construction may be shown on ES&PC plan sheet or under ES&PC notes.

31 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
The Plan must provide both pre- and post-construction estimates of the runoff coefficient or peak discharge flow for the site. This can be in the form of a hydrologic study so long as that study is made a part of the Plan and accompanies the Plan. A complete hydrologic study is not a required element of the Plan, only the pre and post-construction estimates of the run-off coefficient or peak discharge flow for the site.

32 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.
The Plan must contain a description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed. These may include storm water detention and retention structures, use of vegetated swales and natural depressions for flow attenuation or a combination of these practices (sequential systems). The Plan must also include a technical explanation of the basis used to select these practices where flows will exceed pre-development levels. The Plan must indicate that velocity dissipation devices will be placed at discharge locations and along the length of any outflow channel in order to provide a non-erosive flow so that the natural physical and biological characteristics and functions of the water course are maintained and protected. The installation of these devices may be subject to Section 404 of the Federal Clean Water Act. Note: The permitttee is only responsible for the installation and maintenance of storm water management devices prior to final stabilization of the site and not the operation and maintenance of such structures after construction activities have been completed.

33 Indication that waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit.
The Plan must include a description of how waste materials, including waste building materials, construction and demolition debris, concrete washout, excavated sediment, etc., will be properly disposed of. Any disposal of solid waste to waters of the State is prohibited unless authorized by a Section 404 permit.

34 Documentation that the ES&PC Plan is in compliance with waste disposal, sanitary sewer, or septic tank regulations.
The Plan must provide for the proper disposal of sewage and other wastes generated during construction operations. The plan must ensure that the site complies with any applicable State or local regulations regarding waste disposal, sanitary sewer, or septic tanks.

35 BMP's for the remediation of all petroleum spills and leaks.
The Plan must provide BMPs and guidance for the prevention of spills and leaks of petroleum products from any areas where such products are stored or used as well as guidance for the proper remediation of any spills and leaks that do occur. This information can be in the form of a separate Spill Prevention / Spill Response document so long as that information accompanies the Plan.

36 Details on required inspections and record keeping by the primary permittee, secondary permittees and tertiary permittees
The Plan must address the specific requirements for daily, weekly and monthly inspections of the site by Qualified Personnel and the record keeping requirements for the proper documentation of the inspections. Inspection reports must include the name of the inspector(s), the date(s) of each inspection, major observations relating to the implementation of the ES&PC plan and actions taken in response to the inspection(s). The reports must identify any incidents of non-compliance or, if a report does not identify any incidents of non-compliance, the report must contain a certification that the site is in compliance with the plan. Inspection reports must be signed in accordance with Part V.G of the permit.

37 Description of analytical methods to be used to collect and analyze the samples from each location.
The plan must address the monitoring of nephelometric turbidity in receiving waters and/or storm water outfalls by the primary permittee in accordance with the permit. The plan must include the following:

1. A topographic map (scale must be equal to or greater than 1:240000) showing the location of all waters of the State (both perennial and intermittent) into which storm water is discharged
2. A detailed narrative describing the analytical method(s) that will be used to collect and analyze the samples (including quality control and assurance procedures) for each sampling location
3. If all or some storm water outfalls will be sampled, a rationale for the selection of the appropriate NTU values from Appendix B
4. Any additional information required in writing to the permittee by EPD

38 Appendix B rationale for outfall sampling points where applicable.
See item 37 above.

39 Information on sampling frequency and reporting requirements.
The Plan must clearly indicate sampling locations (all receiving waters, storm water outfalls or a combination of both), when sampling events will be conducted, and the requirements for reporting results of sample analysis to EPD.

40 Provide land lot and district numbers for site location. Describe critical areas and any additional measures that will be utilized for these areas.
Land Lot and District numbers must be shown on cover sheet and may also be shown on ES&PC plan sheets and ES&PC notes.

41 Provide name, address and phone number of primary permittee.
May be shown on cover sheet, ES&PC plan or under ES&PC notes.

42 Note total and disturbed acreage (the disturbed area shall be the total estimated disturbed area of the primary and secondary permittees) of the project or phase under construction.
Must be shown on ES&PC plan or under ES&PC notes.

43 Cleary note statement in bold letters- "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land disturbing activities."
Must be shown on ES&PC plan or under ES&PC notes.

44 Cleary note maintenance statement in bold letters - "Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
Must be shown on ES&PC plan or under ES&PC notes.

45 Clearly note the statement in bold letters - "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
Must be shown on ES&PC plan or under ES&PC notes.

46 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
The erosion and sediment control detail sheet must show a detailed drawing for each structural BMP shown on the plan. All BMPs and details shown must, at a minimum, meet the guidelines given in the Manual. Note that a worksheet is provided in the Manual for most structural BMP's that must be included on the ES&PC plan or detail sheet.

47 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.
Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

For Official Use Only

NOTICE OF INTENT

State of Georgia
Environmental Protection Division
For Coverage Under NPDES General Permit
To Discharge Storm Water Associated With Construction Activity

PRIMARY PERMITTEE

Coverage Desired (Check Only One)

☐ GAR 100001-Stand Alone ☐ GAR 100002-Infrastructure ☐ GAR 100003-Common Development

I. SITE/OWNER/OPERATOR INFORMATION

Site Project Name: _____

GPS Location of Construction Exit: _____

Street Address: _____

City(if applicable): _____ County: _____

Subdivision Name: _____

Owner's Name: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Operator's Name: _____ Phone: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Facility Contact: _____ Phone: _____

II. SITE ACTIVITY INFORMATION

Start Date: _____ Completion Date: _____ Estimated Disturbed Acreage: _____

Type Construction Activity: ☐ Commercial ☐ Industrial ☐ Municipal ☐ Linear
☐ Utility ☐ Residential/Subdivision Development

Number of Secondary Permittees: _____

III. RECEIVING WATER INFORMATION

A. Name of Initial Receiving Water(s): _____

☐ Trout Stream ☐ Warm Water Fisheries Stream

B. Name of Municipal Storm Sewer System Owner/Operator: _____

Name of Receiving Water(s): _____

☐ Trout Stream ☐ Warm Water Fisheries Stream

C. ☐ Sampling of Outfall(s) ☐ Sampling of Receiving Stream(s) ☐ Trout Stream

Number of Outfalls: _____ Appendix B NTU Value: _____ Surface Water Drainage Area: _____

IV. ATTACHMENTS. (Check those that apply.)

Indicate below the items attached to this Notice of Intent:

_____ Location map showing the receiving stream(s), outfall(s) or combination thereof to be monitored.

_____ Erosion, Sedimentation and Pollution Control Plan (if project is greater than 50 acres or if project in areas without local Issuing Authorities regardless of acreage).

_____ List of known secondary permittees.

_____ Schedule for the timing of the major construction activities.

V. CERTIFICATIONS. (Owner or Operator or both to initial as applicable.)

_____I certify that the receiving water(s) or the outfall(s) or a combination of receiving water(s) and outfall(s) will be monitored in accordance with the Erosion, Sedimentation and Pollution Control Plan.

_____I certify that the Erosion, Sedimentation, and Pollution Control Plan (Plan) has been prepared in accordance with Part IV of the General NPDES Permit GAR100001, GAR 100002 or GAR 100003, the Plan will be implemented, and that such Plan will provide for compliance with this permit.

_____I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner's Printed Name: _____ Title: _____

Signature: _____ Date: _____

Operator's Printed Name: _____ Title: _____

Signature: _____ Date: _____

Instructions
Notice of Intent - Primary Permittee
For Storm Water Discharges
Associated With Construction Activity
To Be Covered Under The NPDES General Permit
Who must file a Notice of Intent (NOI) Form

This Notice of Intent must be typed. Any NOI that contains illegible information will not be accepted, will be returned, and the site will not be granted Permit coverage. All information on this NOI must be submitted to be a valid Notice. Any information requested on the NOI that is not applicable to the owner and operator or to the site must be marked "N/A".

The Owner and Operator of an activity that has a discharge of storm water from a site where construction activities occur must apply for a National Pollutant Discharge Elimination System (NPDES) Permit. The Georgia Environmental Protection Division has issued this General NPDES Permit for storm water discharges from construction activities with an effective date of August 12, 2003. The Permit is available for review at EPD's offices and on EPD's web page at www.dnr.state.ga.us/dnr/environ/. It is highly recommended that the permittee read and understand the terms and conditions of the Permit prior to submitting a NOI for coverage under this Permit. Contact EPD at the Regional Office or District Office shown on the next page for assistance in completing this NOI.

Where to file NOI Forms -- The NOI and attachments must be sent to the Regional Office or District Office shown on the next page. Please submit only the first two pages of this document plus your attachments, if necessary.

Section I. Site / Primary Permittee Information
Enter the information required. The site/project name is the physical location of the construction activity. Should the site lack a street address, sufficiently describe the facility location so that it can be found by district personnel. If additional space is needed, attach the description to the notice.

The facility contact is the person who the primary permittee has assigned the responsibility for the daily on-site operational control. Please do not leave any blanks in this section.

Section II. Site Activity Information
The start date and completion date are expected for the construction activity for which this NOI is applicable.

Estimated disturbed acreage is the total number of acres, **to the nearest 1/10 acre,** that will be disturbed under this NOI (this includes disturbances by the primary and all secondary permittees.)

Section III. Receiving Water Information
If the facility discharges storm water directly or indirectly (but not through a MS4) to the receiving water(s), enter the name(s) of the receiving water(s) and indicate whether the water(s) is a trout stream or a warm water fisheries stream. Attach to this notice a written description and a map of the location of the receiving water(s).

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., city name or county name) and the name of the receiving water at the point of discharge from the MS4. A MS4 is defined as a conveyance or system of conveyances (including: roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a city or county which is designed or used for collecting or conveying storm water. It may be necessary to contact the city or county that operates the MS4 to determine the name of the receiving waters. Indicate whether the receiving water(s) is a trout stream or a warm water fisheries stream.

Section IV. Certifications
All applicants must sign this certification. Permittees shall initial next to the applicable certification statements on the line provided. Federal and State statutes provide specific requirements as to whom is authorized to sign Notice of Intents. Signing of a Notice of Intent by others is not a valid submittal. Please be aware Federal and State statues provide severe penalties for submitting false information on this application form. Federal and State regulations require this application to be signed as follows:

- For a corporation: by a responsible corporate officer;
- For a partnership or sole proprietorship: by a general partner or the proprietor; or
- For a municipality, state, Federal or other public facility: by either a principal executive officer or ranking elected official.

GEORGIA EPD DISTRICT OFFICES

All Notice of Intents, Notice of Terminations, Erosion, Sedimentation and Pollution Control Plans, Comprehensive Monitoring Programs, certifications, reports, and any other information shall be sent to the following District offices of EPD:

A. For facilities/sites located in the following counties: Bibb, Bleckley, Chattahoochee, Crawford, Dooly, Harris, Houston, Jones, Lamar, Macon, Marion, Meriwether, Monroe, Muscogee, Peach, Pike, Pulaski, Schley, Talbot, Taylor, Troup, Twiggs, Upson

Information shall be submitted to:
West Central District Office
Georgia Environmental Protection Division
2640 Shurling Drive
Macon, GA 31211-3576
(478) 751-6612

B. For facilities/sites located in the following counties: Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Johnson, Laurens, McDuffie, Montgomery, Richmond, Screven, Treutlen, Warren, Washington, Wheeler, Wilkinson

Information shall be submitted to:
East Central District Office
Georgia Environmental Protection Division
1885-A Tobacco Road
Augusta, GA 30906-8825
(706) 792-7744

C. For facilities/sites located in the following counties: Baldwin, Banks, Barrow, Butts, Clarke, Elbert, Franklin, Greene, Hall, Hancock, Hart, Jackson, Jasper, Lincoln, Madison, Morgan, Newton, Oconee, Oglethorpe, Putnam, Stephens, Taliaferro, Walton, Wilkes

Information shall be submitted to:
Northeast District Office
Georgia Environmental Protection Division
745 Gaines School Road
Athens, GA 30605-3129
(706) 369-6376

D. For facilities/sites located in the following counties: Clayton, Coweta, DeKalb, Fayette, Gwinnett, Heard, Henry, Rockdale, Spalding

Information shall be submitted to:
Mountain District - Atlanta Satellite
Georgia Environmental Protection Division
4244 International Parkway, Suite 114
Atlanta, GA 30354-3906
(404) 362-2671

E. For facilities/sites located in the following counties: Bartow, Carroll, Catoosa, Chattooga, Cherokee, Cobb, Dade, Dawson, Douglas, Fannin, Floyd, Forsyth, Fulton, Gilmer, Gordon, Habersham, Haralson, Lumpkin, Murray, Paulding, Pickens, Polk, Rabun, Towns, Union, Walker, White, Whitfield

Information shall be submitted to:
Mountain District - Cartersville Office
Georgia Environmental Protection Division
P.O. Box 3250
Cartersville, GA 30120-1705
(770) 387-4900

F. For facilities/sites located in the following counties: Appling, Atkinson, Bacon, Brantley, Bryan, Bulloch, Camden, Candler, Charlton, Chatham, Clinch, Coffee, Effingham, Evans, Glynn, Jeff Davis, Liberty, Long, McIntosh, Pierce, Tattnall, Toombs, Ware, Wayne

Information shall be submitted to:
Coastal District- Brunswick Office
Georgia Environmental Protection Division
One Conservation Way
Brunswick, GA 31520-8687
(912) 264-7284

G. For facilities/sites located in the following counties: Baker, Ben Hill, Berrien, Brooks, Calhoun, Clay, Colquitt, Cook, Crisp, Decatur, Dodge, Dougherty, Early, Echols, Grady, Irwin, Lanier, Lee, Lowndes, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Telfair, Terrell, Thomas, Tift, Turner, Webster, Wilcox, Worth

Information shall be submitted to:

Southwest District Office
Georgia Environmental Protection Division
2024 Newton Road
Albany, GA 31701-3576
912) 430-4144

For Official Use Only

NOTICE OF TERMINATION

State of Georgia
Environmental Protection Division
To Cease Coverage Under General Permit
To Discharge Storm Water Associated With Construction Activity

I. Permit Type: (Choose Only One)

☐ GAR 100001-Stand Alone ☐ GAR 100002-Infrastructure ☐ GAR 10003Common Development

II. SITE / PERMITTEE INFORMATION

Site/Project Name: _____

GPS Location of Construction Exit: _____

Site Location and Street Address: _____

City: _____ County: _____

Subdivision Name: _____ Lot Number: _____

Owner's Name: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Operator's Name: _____ Phone: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Type of Permittee: ☐ Primary ☐ Secondary ☐ Tertiary

Facility Contact: _____ Phone: _____

If Applicable:

Primary Permittee's Name: _____ Phone: _____

Address: _____ City: _____ State: _____ Zip Code: _____

Number of Secondary Permittees: _____

III. SITE ACTIVITY INFORMATION

☐ Construction Activity Completed ☐ No Longer Owner / Operator of Construction Activity

Construction Activity: ☐ Commercial ☐ Industrial ☐ Municipal ☐ DOT ☐ Utility

☐ Residential ☐ Primary Permittee of a Subdivision Development, or

☐ Individual Lot, or

☐ Individual Lot within a Surface Water Drainage Area where the Primary Permittee has ceased Permit Coverage

Name of Initial Receiving Water(s): _____

Name of Municipal Storm Sewer System Owner/Operator: _____

Name of Receiving Waters: _____

IV. CERTIFICATIONS. (Owner or Operator or both to initial as applicable.)

_____ 1. I certify under penalty of law that either: (a) all storm water discharges associated with construction activity from the portion of the construction activity where I was an Owner or Operator have ceased or have been eliminated; (b) all storm water discharges associated with construction activity from the identified site that are authorized by General NPDES Permit number indicated in Section I of this form have ceased; (c) I am no longer an Owner or Operator at the construction site and a new Owner or Operator has assumed operational control for those portions of the construction site where I previously had ownership or operational control; and/or if I am a primary permittee filing this Notice of Termination under Part VI.A.2. of this permit, I will notify by written correspondence to the subsequent legal title holder of any remaining lots that these lot Owners and /or Operators will become tertiary permittees for purposes of this permit and I will provide these tertiary permittees with the primary permittee's Erosion, Sedimentation and Pollution Control Plan. I understand that by submitting this Notice of Termination, that I am no longer authorized to discharge storm water associated with construction activity by the general permit, and that discharging pollutants in storm water associated with construction activity to waters of Georgia is unlawful under the Georgia Water Quality Control Act and the Clean Water Act where the discharge is not authorized by a NPDES permit.

_____ 2. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner's Printed Name:_____Title:_____

Signature:_____Date:_____

Operator's Printed Name:_____Title:_____

Signature:_____Date:_____

Instructions
Notice of Termination (NOT) For Storm Water Discharges Associated With Construction Activity

NPDES General Permit

Who must file a Notice of Termination (NOT) Form

This Notice of Termination must be typed. Any NOT that contains illegible information will not be accepted. All information on this NOT must be submitted to be a valid Notice. Any information requested on the NOT that is not applicable to the owner or operator or the site must be marked "N/A".

When the facility/site has been finally stabilized and all storm water discharges from construction activities authorized by the NPDES General Permit number indicated in Section I of this form have ceased or when the Owner/Operator of the site changes, the Owner/Operator of the facility/site must submit a Notice of Termination (NOT). Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or equivalent permanent stabilization measures (such as the use of rip rap, gabions, permanent mulches or geotextiles) have been used. Permanent vegetation shall consist of: planted trees, shrubs, perennial vines; a crop of perennial vegetation appropriate for the time of year and region; or a crop of annual vegetation and a seeding of target crop perennials appropriate for the region. Final stabilization applies to each phase of construction

Where to file NOT Forms - The NOT and attachments must be sent to the Regional Office or District Office shown on the next page. Please submit only the first two pages of this document plus your attachments, if necessary.

Section I. Permit Type - Indicate the NPDES General Permit number for which this form is being submitted.

Section II. Site / Permittee Information

Enter the information required. The site/project name is the physical location of the construction activity. Should the site lack a street address, sufficiently describe the facility location so that it can be found by district personnel. **Should additional space be needed, attach the description to the notice.**

The facility contact is the person who the Owner and Operator has assigned the responsibility for the daily on-site operational control. Please do not leave any blanks in this section.

Section III. Site Activity Information

Indicate by marking the appropriate block whether this NOT is submitted due to completion of the construction activity or a change in the Owner and Operator of the construction activity.

Mark the appropriate box to indicate the class of construction activity that was conducted at the site. For residential sites, also mark the block as either a subdivision development or an individual lot.

Section IV. Certifications

All applicants must sign this Notice. Permittees shall initial next to the applicable certification statements on the line provided. Federal and State statutes provide specific requirements as to whom is authorized to sign Notice of Terminations. Signing of a Notice of Termination by others is not a valid submittal. Please be aware Federal and State statues provide severe penalties for submitting false information on this application form. Federal and State regulations require this application to be signed as follows:

- For a corporation: by a responsible corporate officer;
- For a partnership or sole proprietorship: by a general partner or the proprietor; or
- For a municipality, state, Federal or other public facility: by either a principal executive officer or ranking elected official.

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Information shall be submitted to:
West Central District Office
Georgia Environmental Protection Division
2640 Shurling Drive
Macon, GA 31211-3576
(478) 751-6612

B. For facilities/sites located in the following counties: Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Johnson, Laurens, McDuffie, Montgomery, Richmond, Screven, Treutlen, Warren, Washington, Wheeler, Wilkinson

Information shall be submitted to:
East Central District Office
Georgia Environmental Protection Division
1885-A Tobacco Road
Augusta, GA 30906-8825
(706) 792-7744

C. For facilities/sites located in the following counties: Baldwin, Banks, Barrow, Butts, Clarke, Elbert, Franklin, Greene, Hall, Hancock, Hart, Jackson, Jasper, Lincoln, Madison, Morgan, Newton, Oconee, Oglethorpe, Putnam, Stephens, Taliaferro, Walton, Wilkes

Information shall be submitted to:
Northeast District Office
Georgia Environmental Protection Division
745 Gaines School Road
Athens, GA 30605-3129
(706) 369-6376

D. For facilities/sites located in the following counties: Clayton, Coweta, DeKalb, Fayette, Gwinnett, Heard, Henry, Rockdale, Spalding

Information shall be submitted to:
Mountain District - Atlanta Satellite
Georgia Environmental Protection Division
4244 International Parkway, Suite 114
Atlanta, GA 30354-3906
(404) 362-2671

E. For facilities/sites located in the following counties: Bartow, Carroll, Catoosa, Chattooga, Cherokee, Cobb, Dade, Dawson, Douglas, Fannin, Floyd, Forsyth, Fulton, Gilmer, Gordon, Habersham, Haralson, Lumpkin, Murray, Paulding, Pickens, Polk, Rabun, Towns, Union, Walker, White, Whitfield

Information shall be submitted to:
Mountain District - Cartersville Office
Georgia Environmental Protection Division
P.O. Box 3250
Cartersville, GA 30120-1705
(770) 387-4900

F. For facilities/sites located in the following counties: Appling, Atkinson, Bacon, Brantley, Bryan, Bulloch, Camden, Candler, Charlton, Chatham, Clinch, Coffee, Effingham, Evans, Glynn, Jeff Davis, Liberty, Long, McIntosh, Pierce, Tattnall, Toombs, Ware, Wayne

Information shall be submitted to:
Coastal District- Brunswick Office
Georgia Environmental Protection Division
One Conservation Way
Brunswick, GA 31520-8687
(912) 264-7284

G. For facilities/sites located in the following counties: Baker, Ben Hill, Berrien, Brooks, Calhoun, Clay, Colquitt, Cook, Crisp, Decatur, Dodge, Dougherty, Early, Echols, Grady, Irwin, Lanier, Lee, Lowndes, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Telfair, Terrell, Thomas, Tift, Turner, Webster, Wilcox, Worth

Information shall be submitted to:

Southwest District Office
Georgia Environmental Protection Division
2024 Newton Road
Albany, GA 31701-3576
(912) 430-4144

Environmental Protection

SECTION 01355A
ENVIRONMENTAL PROTECTION

1.0 GENERAL

1.1 GENERAL REQUIREMENTS

1.2 SUBCONTRACTORS

1.3 ENVIRONMENTAL PROTECTION PLAN

1.4 PROTECTION FEATURES

1.5 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

1.6 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 TRAINING OF CONTRACTOR PERSONNEL

3.11 POST CONSTRUCTION CLEANUP

1.0 GENERAL

1.1 General Requirements

1.1The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall 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

1.2. SUBCONTRACTORS

The Contractor shall ensure compliance with this section by subcontractors.

1.3. ENVIRONMENTAL PROTECTION PLAN

1.3.1. 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. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. In the environmental plan, The Contractor shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the Contractor considers necessary, shall be identified and discussed after those items formally identified in this section. Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit the Environmental Protection Plan for review and approval by the Contracting Officer. Prior to implementation of the Environmental Protection Plan, the Contractor shall meet with the Contracting Officer for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. The Environmental Protection Plan shall be current and maintained onsite by the Contractor.

1.3.2. 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.

1.3.3. Contents

The environmental protection plan shall include, but shall not be limited to, the following:

1.3.3.1. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.

1.3.3.2. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable

1.3.3.3. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel

1.3.3.4. Description of the Contractor's environmental protection personnel training program

1.3.3.5. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall 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.

1.3.3.6. 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.

1.3.3.7. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

1.3.3.8. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.

1.3.3.9. Drawing showing the location of on-installation borrow areas.

1.3.3.10. The 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:

1.3.3.10.1. 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 Contracting Officer 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.

1.3.3.10.2. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup

1.3.3.10.3. Training requirements for Contractor's personnel and methods of accomplishing the training

1.3.3.10.4. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

1.3.3.10.5. 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

1.3.3.10.6. The methods and procedures to be used for expeditious contaminant cleanup

1.3.3.11. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris. The plan shall include schedules for disposal. The Contractor shall identify any subcontractors responsible for the transportation and disposal of solid waste. Licenses or permits shall be submitted for solid waste disposal sites that are not a commercial operating facility. Evidence of the disposal facility's acceptance of the solid waste shall be attached to this plan during the construction. The Contractor shall attach a copy of each of the Non-hazardous Solid Waste Diversion Reports to the disposal plan. The report shall be submitted on the first working day after the first quarter that non-hazardous

solid waste has been disposed and/or diverted and shall be for the previous quarter (e.g. the first working day of January, April, July, and October). The report shall indicate the total amount of waste generated and total amount of waste diverted in cubic yards or tons along with the percent that was diverted.

1.3.3.12. A recycling and solid waste minimization plan with a list of measures to reduce consumption of energy and natural resources. The plan shall detail the Contractor's actions to comply with and to participate in Federal, State, Regional, and local government sponsored recycling programs to reduce the volume of solid waste at the source.

1.3.3.13. 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.

1.3.3.14. 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, 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 shall be included in the contaminant prevention plan. As new hazardous materials are brought on site or removed from the site, the plan shall be updated. Reference this plan in the Storm water Polution Prevention Plan, as applicable.

1.3.3.15. 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, the plan shall 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, the plan shall 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, a copy of the permit and associated documents shall be included as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

1.3.3.16. 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. The plan shall include methods to assure the protection of known or discovered resources and shall identify lines of communication between Contractor personnel and the Contracting Officer.

1.3.3.17. A pesticide treatment plan shall be included and updated, as information becomes available. The plan shall 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. The Contractor shall follow AR 200-5 Pest Management, Chapter 2, Section III "Pest Management Records and Reports" for data required to be reported to the Installation.

1.4. 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 Contracting Officer 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. This survey report shall be signed by both the Contractor and the Contracting Officer 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.

1.5. 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 Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.6. NOTIFICATION

The Contracting Officer 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 Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer 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 Contracting Officer 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

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.

3.1.1. Work Area Limits

Prior to commencing construction activities, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted

during darkness, any markers shall be visible in the dark. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.1.2. Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.1.3. Erosion and Sediment Controls

The Contractor shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The Contractor shall 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. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The Contractor shall 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. Any temporary measures shall be removed after the area has been stabilized.

3.1.4. Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only when approved. Erosion and sediment controls shall be provided for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

3.2. WATER RESOURCES

The Contractor shall monitor construction activities to prevent pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation unless otherwise indicated. All water areas affected by construction activities shall be monitored by the Contractor. 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

The Contractor shall not enter, disturb, destroy, or allow discharge of contaminants into any wetlands.

3.3. AIR RESOURCES

Equipment operation, activities, or processes performed by the Contractor shall be in accordance with all Federal and State air emission and performance laws and standards.

3.3.1. Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants; shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall 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 will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs. The Contractor shall comply with all State and local visibility regulations.

3.3.2. Odors

Odors from construction activities shall be controlled at all times. The odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.

3.3.3. Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall comply with the provisions of the state and Installation rules.

3.3.4. Burning

Burning will not be allowed on the project site unless specified in other sections of the specifications or authorized in writing by the Contracting Officer. The specific time, location, and manner 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

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. The Contractor shall transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill shall be the minimum acceptable off-site solid waste disposal option. The Contractor shall verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. The Contractor shall comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.4.2. Chemicals and Chemical Wastes

Chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area

when contents are within 6 inches of the top. Wastes shall be classified, managed, stored, and disposed of 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. The Contractor shall, at a minimum, manage and store hazardous waste in compliance with 40 CFR 262 . The Contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. The Contractor shall segregate hazardous waste from other materials and wastes, shall protect it from the weather by placing it in a safe covered location, and shall take precautionary measures such as berming or other appropriate measures against accidental spillage. The Contractor shall be responsible for storage, describing, packaging, labeling, marking, and placarding of hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, State, and local laws and regulations. The Contractor shall transport Contractor generated hazardous waste off Government property in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. The Contractor shall dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Spills of hazardous or toxic materials shall be immediately reported to the Contracting Officer and the Facility Environmental Office. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility. The disposition of Contractor generated hazardous waste and excess hazardous materials are the Contractor's responsibility.

3.4.4. Fuel and Lubricants

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Fuel, lubricants and oil shall be managed and stored in accordance with all Federal, State, Regional, and local laws and regulations.

3.5. RECYCLING AND WASTE MINIMIZATION

The Contractor shall 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. .Fueling areas shall be lined and bermed and discharge points for site run-off shall have storm water control structures established. A liquid containment clean-up kit shall be 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. The Contractor shall protect these resources and shall be responsible for their preservation during the life of the Contract. If during excavation or other construction activities any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. 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, the Contractor shall immediately notify the Contracting Officer 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. The Contractor shall cease all activities that may result in impact to or the destruction of these resources. The Contractor shall secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.7. BIOLOGICAL RESOURCES

The Contractor shall minimize interference with, disturbance to, and damage to fish, wildlife, and plants including their habitat. The Contractor shall be responsible for the protection of 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

In order to minimize impacts to existing fauna and flora, the Contractor, through the Contracting Officer, shall coordinate with the Installation Pest Management Coordinator (IPMC) at the earliest possible time prior to pesticide application. The Contractor shall 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. Installation Pest Management personnel shall be given 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

Pesticides, approved for use on the Installation, shall be delivered 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

For the application of pesticides, the Contractor shall use the services of a subcontractor 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

The Contractor shall formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions.

3.8.4. Application

Pesticides shall be applied by a State Certified Pesticide Applicator in accordance with EPA label restrictions and recommendation.

3.9. PREVIOUSLY USED EQUIPMENT

The Contractor shall clean all previously used construction equipment prior to bringing it onto the project site. The Contractor shall ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. The Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

3.10. TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. Additional meetings shall be conducted 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.

3.11. POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". The Contractor shall, unless otherwise instructed in writing by the Contracting Officer, 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. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

Borrow Pit Procedures

FORT STEWART & HUNTER ARMY AIRFIELD ENVIRONMENTAL DIVISION BORROW PIT EXCAVATION APPLICATION/PLAN

Environmental Branch
1137 Frank Cochran Drive
Fort Stewart, Georgia 31314
912/767-9779 (fax)
912/767-9443 (office)

FOR DEPARTMENT USE ONLY
Project Number:
Training Area:
Operation:
Acreage:
Amount of material required (cubic yards):

APPLICATION FOR BORROW PIT EXCAVATION PERMIT

Instructions: An application for a permit must include the Borrow Pit Operator's Excavation Plan and must be factual and complete. The Application and Plan (original and two [2] copies) must be submitted to the address shown above.

Pursuant to the requirements of the Fort Stewart/HAAF DPW Borrow Pit Management Plan.

1. Applies for a permit to conduct a Borrow Pit Excavation operation as represented in the attached Borrow Pit Excavation Plan;
2. Specifically grants to the applicant or any authorized representative of the applicant the right of entry and travel upon affected lands;
3. Certifies the information provided in or submitted by the Contracting Officer's Representative (COR) on behalf of the Borrow Pit Operator or Contractor as a part of this Borrow Pit Excavation Plan is true and correct, and the COR will ensure the Borrow Pit Operator agrees to comply with provisions of the Fort Stewart/HAAF DPW Borrow Pit Management Plan as specified herein.

Government COR Signature (Date)	Equipment Operator Name & Title
Government COR Name	Operator Contracting Company
Government COR Phone #	Company Address
Government COR Email Address	City, State, Zip
Government COR Building & Office Numbers	Telephone
Project Name	Borrow Pit Identification

The approval of this Application and Borrow Pit Excavation does not relieve the Operator of any obligation or responsibility for complying with the provisions of any other laws or regulations of any other federal, local or state authority.

FOR DEPARTMENT USE ONLY

Plan Recommendation: Approval/Disapproval

Reviewer (Date)

Plan Recommendation: Approval/Disapproval

Program Manager (Date)

Comments:

_____
Plan Number (Borrow Pit ID)
Page 2

BORROW PIT EXCAVATION LAND USE PLAN

NOTE: Any corrections, changes of information or other alternatives of content of this Plan and attachment must be initialed and dated by the Operator and the Fort Stewart Environmental Branch.

I. OPERATOR AND GENERAL INFORMATION

1. DESCRIPTION OF EXCAVATION OPERATOR'S COMPANY *(hereinafter "Operator")*

Name of Company: _____

Address: _____

Telephone: _____

Type of Business: ( ) Corporation ( ) Partnership ( ) Proprietorship ( ) Other

Onsite Manager/Representative: _____

Title: _____ Telephone: _____ Mobile phone: _____

Government Contracting Officer Representative: _____

Training Area Location of Borrow Pit Operation: _____

Borrow Pit Location within T.A.: _____

Environmental Office Contact: _____ Title: _____

Address: _____ Telephone: _____

3. GENERAL SITE LOCATION

Grid Coordinate of Borrow Pit Excavation Operation: _____

_____

_____

_____

4. MATERIAL TO BE EXCAVATED AND METHOD

Mineral/Material: _____

Method of Removal: _____

_____

5. SCHEDULES FOR EXCAVATION AND RECLAMATION

Anticipated Date to Begin _____
(Month/Year)

Anticipated Date to Complete _____
(Month/Year)

Anticipated Date of Final Reclamation _____
(Month/Year)

_____
Plan Number (Borrow Pit ID)
Page 3

NOTE: If excavation is completed prior to the above stated date, the Operator shall notify DPW three (3) days prior to completion regardless of any stated or implied completion date. An inspection of the Borrow Pit is required by DPW to process a release. Failure to comply with the plan as stated herein will require notification to the COR before a release is authorized.

6. INFORMATION ON OTHER PERMITS

A. List any Georgia Surface Mining Permits suspended revoked, or for which a bond was forfeited:

_____

B. List other environmental permits being applied for in relation to this operation (i.e. erosion/sedimentation, storm water, etc…)

_____

C. List other local permits being applied for in relation to this operation:

_____

II. PERFORMANCE CRITERIA FOR BORROW PIT EXCAVATION PLAN AND DEWATERING ACTIVITIES

1. Plan Drawings (attached) shall show but are not limited to the metes and bounds of the property to be excavated, the limits of the affected acreage, the natural drainage features and water disposal, the initial site preparation and overburden (spoil) area(s), the erosion and sedimentation controls, the ingress/egress area(s), the direction, detail and schedule of excavation advancement, the area to be left undisturbed (buffer) where necessary, and the plan that shows projected final reclamation of the site.

2. The Operator will implement site survey control to ensure that all acres affected by the excavation operation will be on designated, permitted lands. Survey control will be accomplished through the use of permanent accessible benchmarks, survey control stakes, and/or boundary markers that designate and/or delineate all permitted acreage. Survey control shall be as indicated on the boundary survey, drawings, maps, etc. included as part of this Borrow Pit Excavation Plan (attached). Where necessary, for construction or operation proposes, vertical as well as horizontal survey control will be established and maintained.

MEANS	**Identifier/Location**
Property Boundary Markers	_____
Affected Acreage Markers	_____
Dredge limits	_____
Clearing Limits	_____
Other:	_____
Permanent Survey Control Markers	_____
Horizontal: (Identifier & Location)	_____
Vertical: (Identifier & Location)	_____
Known Elevation:	_____
Assumed Elevation:	_____

3. The Operator will ensure that all measures and facilities for control of erosion and sedimentation during site preparation, operation, and/or reclamation activities shall adhere to the following:

A. Erosion and sedimentation control measures and facilities will be employed prior to or concurrent with clearing, grading, overburden removal, access or other land disturbing activities for preparation or operation of the site. Provisions will be made for treatment or control of any source of sediments.

B. The Operator, so as to be effective, whether temporary or permanent, shall continuously maintain all erosion and sedimentation control measures or facilities.

C. Sediment in surface runoff water shall be trapped by use of debris basins, sediment basins, silt traps, sediment barriers or similar structures.

D. Permanent vegetation shall be installed as soon as possible. Temporary vegetation and/or mulch shall be employed where necessary to protect exposed critical areas until permanent vegetation or stabilization is attained.

E. Natural vegetation shall be retained, protected and supplemented wherever feasible to provide for natural buffer areas.

F. Diversions, dikes, and berms shall be employed to retain, direct and control surface water runoff from affected areas into sediment control structures.

G. All surface water discharges shall be controlled and released at a non-erosive velocity onto stabilized areas or into stabilized channels.

H. Constructed slopes, at the least should be four horizontal to one vertical (4:1) except where may be approved otherwise in this as shown in the attached Plan/drawings. All slopes shall be marked so as to prevent foot or vehicle traffic from inadvertently falling into the pit. Fill and cut slopes shall be designed and constructed to prohibit slumping or shear failures. Prior to final grading, all slopes will be blended in with the original existing topography. Slope grades shall be uniform. Mechanical or vegetative or both stabilization measures shall be employed as soon as practical to prevent erosion.

***NOTE**: The Operator may refer to design criteria in the "Manual for Erosion and Sedimentation Control in Georgia", published by the State Soil and Water Conservation Commission as a guide or through the use of alternate design criteria which conform to sound conservation and engineering practices.*

4. All permanent landform changes including, but not limited to, berms, drainage structures, surface water channel modifications, etc., shall be constructed in a manner to protect against failure, subsidence and/or erosion and will be permanently stabilized upon completion of construction.

5. Whenever a site lies contiguous to any waters of the State or whenever, in the judgment of the Fort Stewart Environmental Office, proposed operations at such site will adversely affect any portion of a watershed of the State, the Operator will follow sound engineering and conservation measures to provide protective barriers, such as dams, berms, silt ponds, or other similar structures, between the land to be affected and waters or watersheds involved. All such structures are to be approved by the Fort Stewart Environmental Office as a part of this Plan and are to be substantial for the protection of contiguous natural resources of the State. All structures referred to above are to be constructed a reasonable distance from waters of the State, or that portion of a watershed of the State that may be adversely affected, as determined by the Fort Stewart Environmental Office. Borrow Pit Excavation, if conducted within the 100-year floodplain, shall be done in accordance with any applicable local floodplain management ordinance, if any. Where a local floodplain management ordinance does not exist, the Operator shall ensure that the excavation activities are conducted so as to minimize flooding, erosion and/or sedimentation on adjacent upstream or downstream properties.

6. Before natural creeks, streams, rivers, lakes, or other bodies of water may be altered in course or relocated by the Operator, the Environmental Office as a part of this Plan must approve the plan for such alteration or relocation.

7. The Operator shall obtain required storm water permits and maintain compliance with the Water Quality Control Rules, Chapter 391-3-6-.16 (Storm Water Permit Requirements).

8. If archaeological or fossil resources are discovered during the course of an excavation; continued excavation and disturbance of the site will be suspended and the DPW, Environmental Division (767-2010) will be notified immediately. The ED will evaluate the significance of the finding and issue new guidance.

   A. Alternatives or measures to avoid or reduce effects on the historic properties;

   B. Determinations of effects on alteration to features of the property's location, setting, or use;

   C. Determinations of adverse effects which may diminish the integrity of the property's location, design, setting, materials, workmanship, or other structural detail.

Adverse effects on historic properties include, but are not limited to:

A. Physical destruction, damage, or alteration of all or part of the property;
B. Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
C. Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.

***** Anytime archaeological or paleontological materials (e.g. artifacts, arrowheads, fossils, etc…) are encountered, the Fort Stewart Cultural Resources Section must be immediately notified at (912) 767-0992/2010.***

9. Adverse effects from the introduction of atmospheric elements shall be defined as repetitive non-conformance with the National Ambient Air Quality Standards (NAAQS) regarding fugitive dust particles of 10 microns and smaller which may leave the subject property as set forth by the Environmental Protection Agency.

10. Adverse effects from the introduction of audible elements shall be defined as repetitive non-compliance with the Georgia Blasting Standards Act (State of Georgia House Bill 824) regarding atmospheric overpressure limits as governed by the Department of the Fire Marshal for the State of Georgia. Avoidance of adverse effects by the introduction of visual elements shall be accomplished wherever practical by maintaining visual barriers, either by undisturbed buffer areas or manmade structures such as berms, as outlined in the approved Excavation Land Use Plan.

11. It is incumbent upon the Operator to provide satisfactory evidence to the Fort Stewart Environmental Office that alternatives have been considered and this plan contains appropriate measures to provide for minimizing and/or mitigating any adverse effects. If after the excavation operation begins adverse effects become evident, the Fort Stewart Program Manager will give the Operator written notice of the occurrence of such adverse effects. The Operator will then have thirty (30) days to mitigate the adverse effects. In certain cases depending on the nature of the impact the Operator may be required to cease work immediately. If during the thirty-day period no successful action is taken by the Operator to mitigate the adverse effects, the Operator upon notice from the Fort Stewart Environmental Office will cease operations. The Operator will then provide to the Fort Stewart Environmental Office, within ten (10) days, an assessment of the effects and a plan to mitigate the impact. Upon approval by the Fort Stewart Program Manager, the Operator may be allowed to resume excavation operations.

12. ***When Federally listed Endangered and/or Protected Plant/Animal Species are encountered the operator must immediately stop all excavation activities, and contact the Fort Stewart Fish and Wildlife Branch (912) 767-2584.***

13. The Operator shall post an identification sign, which shall display the Operator's Name, Borrow Pit Name/Number, and Permit at the entrance of the Borrow Pit.

14. In the event the Operator ceases active excavation, all exposed critical disturbed areas will be stabilized and the Operator will maintain all measures employed for erosion and sedimentation control. Should extraction of mineral or material cease prior to completion of the Excavation Plan, the Operator shall complete the reclamation as provided for within thirty (30) days from date of cessation.

III. PERFORMANCE CRITERIA FOR RECLAMATION

1. All applicable parts of Section II, 3. Erosion and Sedimentation Control apply including the following:

   A. Reclamation shall be concurrent with excavation activity as lands become available.

   B. Reclamation objectives as shown on Borrow Pit Excavation Plan will be achieved unless Operator submits an amendment.

   C. Following the removal or disposal of all structures, equipment, stock-piles, excavation refuse, and all other materials associated with surface excavation, the Operator will reclaim all affected land in accordance with the provisions of this Plan. All lands except those specifically exempted in this Plan will have a neat, clean appearance, and contain a high quality permanent vegetative cover.

   D. Vegetative Stabilization (planting) Requirement: The Operator will provide a high quality, enduring vegetative ground cover of properly planted and nurtured perennial vegetative species suited for the specific planting zone involved. The perennial vegetative species shall provide a complete, thorough stabilization by establishing root mass and cover for the total disturbed area.

   E. Structural Stabilization: Permanent structural control measures, i.e. stone riprap, ditches, berms, paved chutes, or piped down drains, etc, shall be utilized to convey concentrated storm flows down slopes to stable outlets. These measures are necessary in areas where concentrated storm flow velocities may cause erosion.

2. Specific requirements the Operator will adhere to:

   A. The Operator shall grade all peaks, ridges, and valleys resulting from surface excavation and backfill all pits and trenches resulting from same in a manner to minimize any hazardous effects of excavation adjacent to any Fort Stewart, State, or County maintained road.

B. All affected lands requiring backfilling as stated in the Reclamation Objective of this Plan shall be backfilled utilizing overburden, spoil material, and/or borrow from affected (permitted) land unless approval from the Fort Stewart Program Manager is obtained to utilize other materials. Sound engineering principles shall be applied to ensure that affected lands, as reclaimed, meet the intended use.

C. Immediate erosion control measures shall be applied to protect the topsoil cover until an adequate vegetative cover is established.

D. All high-walls occurring in unconsolidated materials shall be reduced by grading to blend the high-wall with the existing original site topography. High-walls occurring in consolidated material shall be reduced as much as may be practicable. If high walls are to remain they should have a constructed bench with reverse slope to the wall shall be provided at the top of. Any remaining high-walls of fifty (50) feet or greater shall be fenced or "bermed" at the top beyond the initial bench. Such fencing or berms shall be sufficient to provide an adequate degree of protection or warning to foot or vehicle traffic.

E. All affected land, unless otherwise specified in this Plan, shall be graded into a rolling topography and blended in with the existing landscape. All graded areas shall be free of debris, stockpiled materials, boulders, etc. that would interfere with the intended use and/or maintenance of the area.

F. Constructed slopes, at the least should be four horizontal to one vertical (4:1) except where may be approved otherwise in this Plan. Fill and cut slopes shall be designed and constructed to prohibit slumping or shear failures. Prior to final grading, all slopes will be blended in with the original existing topography. Slope grades shall be uniform. Mechanical or vegetative or both stabilization measures shall be employed as soon as practical to prevent erosion.

G. Overburden, spoil or refuse, when used as backfill material, for berms or other construction, shall be segregated as necessary, emplaced and compacted in accordance with sound engineering practices to provide for the purpose intended. Refuse does not include any material, which may be classified as solid waste under provisions of the Georgia Comprehensive Solid Waste Management Act.

H. All new landform structures created with the use of overburden (spoil) or refuse materials shall be constructed in a manner to protect against failure, subsidence and/or erosion and will be permanently stabilized upon completion of construction.

I. When lakes/ponds are proposed, the minimum acceptable design criteria shall meet or exceed those criteria in: Agriculture Handbook Number 590, Ponds – Planning, Design, Construction published by the United States Department of Agriculture, Soil Conservation Service, latest issue. When the dam structure proposed is 35 feet or higher, other acceptable design criteria shall be used.

J. Water shall be of a quality suitable for the intended use. The lake/pond shall have a safe access and be free of underwater hazards. All above water portions of the lake/pond site development shall be re-vegetated with an enduring permanent vegetative cover.

K. Under provisions of the Georgia Safe Dams Act, no permit shall be required to be obtained by the Operator if a dam is constructed with or incidental to "surface mining" as defined in the Georgia Surface Mining Act. If the dam so constructed is classified by the Fort Stewart Environmental Office as a Category I dam, then, before such lake is deemed acceptable reclamation and the Operator is released from his obligations under the Georgia Surface Mining Act, as amended, the Operator will obtain a permit for such dam under the Safe Dams Act.

L. Any proposal for the construction of wetlands as a reclamation objective shall be consistent with accepted practices utilizing the Best Available Technology (BAT) and include the best management practices (BMP's) to attain the desired result. The proposal shall be attached to and be a part of this Plan subject to approval by the Fort Stewart Environmental Office.

M. ***The Operator shall notify the Borrow Pit Management representative for Release upon completion of reclamation responsibilities on affected acreage.*** A report may be filed on reclamation activities that partially complete the Operator's full responsibilities for total acreage affected.

_____
Plan Number (Borrow Pit ID)
Page 7

* The following pass must be obtained from the Range Control Office ***before entering*** any Training Area.

POV PASS FOR FORT STEWART ROADS AND TRAINING AREAS

TO: Appropriate Range Guards and/or military police

FROM: Chief Range Division, Fort Stewart Ga. 31314 (912) 767-877/8100

The following individual(s) is/are authorized access to the following Training Area/Facilities beginning _____ thru _____ _____
(Start Date) (End Date)

_____ _____
Rank, Name (Last, First) Training Area(s) Facility

_____ _____
Organization Phone Number

Reason for Access Pass

Vehicle (Model) Year (License Plate Number)
(State)

Statement of understanding

I understand that I am permitted to use only the above listed training area(s) and roads leading to and from that area. I may only use that area/facility for the date and time listed below. I understand that I am using these roads at my own risk, and the Commander, 3rd infantry Division and Fort Stewart Assume no responsibility for my safety.

Permanently off limit areas- High Risk Dud Area: Artillery Impact Area, Aerial Gunnery Ranges 1-3 (AGR), EOD Area, Tank Gunnery Ranges (B9-16) and small arms impact area, Luzon Range. Abandoned Ranges located in C1 and C4 training areas.

CAUTION: DO NOT DISTURB UNEXPLODED AMMUNITION! Mark location and notify Range Control (912) 767-8777 or call the Military Police at 911.

I have been briefed and understand the OFF-LIMITS areas and the limitations of this pass. I will notify Range Control at 767-8777 prior to entering an area and upon departure.

_____ _____
Chief, Range Division Bearer's Signature

POST ON DASHBOARD OF VEHICLE

ATTACH PLAN DRAWINGS:

Soil Treatment Requirements

Pre-construction treatment for subterranean termite Contract Specification:

1. **SOIL TREATMENT**: Treatment will be applied within three days (in the absence of rain) for all critical phases of construction: pouring concrete slab on grade, pouring of basement slab and prior to backfilling around concrete or masonry foundations and during final grading completion for structures. Application will be made in strict accordance will manufacturer's label.

1.1 **Labeling** information shall be submitted not less than seven days prior to soil treatment is scheduled to occur. All treatment agents shall be delivered to the job site in un-opened containers, bearing the original manufacturers labels. Labels shall bear evidence of registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

1.2 **Approved** termiticide agent will be restricted to the products listed below that have been approved for use in the State of Georgia and approved for the use on Fort Stewart and Hunter AAF. Other products contrary to the list are not approved.

Termidor SC	AI: Fipronil 9.1%	EPA Reg. # 7969-210
Termidor WG	AI: Fipronil 80%	EPA Reg. # 7969-209
Premise 2 Insecticide	AI: Imidacloprid 21.4%	EPA Reg. # 432-1331

1.3 **Inspection** of chemical agent delivery, opening and application will be carried out by Mr. Charles Sikes (PMQAE, DPW), and Mr. Merritt Chambers (PM Supervisor, GSI Inc.) for all construction projects requiring treatment. All materials, equipment and means needed to handle, mix and apply treatments will be inspected for safety and accuracy before the application of chemical agent. Unacceptable materials shall be removed from the job site. Inspection agent shall be notified of treatment schedule at minimum 1 day prior to treatment.

1.4 **Only Applicators** with category # 30 (Wood Destroying Organisms) State certification will be allowed to apply termiticide on the Installation.

1.5 **Treatment** shall be the maximum allowable concentration for the chemical when used as a termiticide during soil treatment according to the label. Any variations will not be permitted.

1.6 **Record** of treatment(s) will be accurately documented and maintained by inspection agent at the time of treatment, along with documentation of services provided from the contractor conducting treatment as required by the State of Georgia.

1.7 **Warranty** of completed treatment shall be in writing and shall be valid for no less than five years after the completion of treatment(s). Warranty shall cover against the infestations or re-infestations by subterranean termites of the building or the buildings addition constructed under this contract, as well as cost of retreating.

Recycling Policy

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
954 WILLIAM H. WILSON AVENUE
FORT STEWART, GEORGIA 31314

REPLY TO
ATTENTION OF

IMSE-STW-IC

FEB 1 2 2007

MEMORANDUM FOR All Personnel, US Army Installation, Fort Stewart / Hunter Army Airfield, Georgia

SUBJECT: US Army Installation, Fort Stewart / Hunter Army Airfield Policy Memorandum # 8, Command Recycling Policy

1. REFERENCES.

a. Executive Order 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, 14 September 1998.

b. Office of the Under Secretary of Defense, Acquisition and Technology, DoD Pollution Prevention Measure of Merit, 13 May 1998.

c. Assistant Chief of Staff, Installation Management, Memorandum, Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities, 6 Feb 06.

d. Fort Stewart /Hunter Army Airfield, Directorate of Public Works (DPW), Environmental Division Recycling Information Sheet, 31 Mar 06.

2. PURPOSE. To provide guidance to all civilian (and/or military) personnel assigned to and/or under the operational control of the Installation Management Command, tenant organizations, contractors and personnel living and/or working at Fort Stewart / Hunter Army Airfield on the Command Recycling Program.

3. APPLICABILITY. These procedures are applicable to all civilian (and/or military) personnel assigned to and/or under the operational control of the Installation Management Command, tenant organizations, contractors and personnel living and/or working at Fort Stewart / Hunter Army Airfield.

4. POLICY. Executive Order 13101 and this policy are the guidelines for personnel on this installation when purchasing supplies and materials for all operations and contracts. Only designated products meeting the requirements of Executive Order 13101 will be purchased. These product categories include paper, construction products, landscaping products, paper products, non-paper office products, parks and recreation products, transportation and alternative fuel vehicles, and miscellaneous items. All office paper purchased must contain no less than 20 percent recycle content. However, 50 percent recycle materials is encouraged. Contact the DPW, Environmental Waste Management Section for a full list of required items or refer to www.epa.gov/cpg/products.html.

5. PROCEDURES.

a. All military units, installation activities, tenant organizations and contractors will:

(1) Establish a Recycling Program Standard Operating Procedure tailored to their organization for the management of recyclable materials. (Recycling programs will be randomly assessed by DPW Environmental Division for compliance).

(2) Appoint a Recycling Compliance Person/s (RCP). The RCP must attend the Installation ECO (Environmental Compliance Officer) course for training and instruction on current recycling procedures. Contact the DPW Environmental Division Office for ECO Course dates/times and location. DPW, Environmental personnel will be available for participation in contract site visits and kick-off meetings to clarify requirements as needed. All appointed RCP's will work directly with the DPW, Environmental Division to ensure program requirements are met. Short-term contractors (less than one year) will schedule a 1 hour briefing with the DPW, Environmental Division to receive policy letter and guidance in lieu of the ECO course.

(3) Provide clearly marked recycling cans/containers (available through SSSC) and establish collection points inside all buildings/facilities and work sites for the collection of commingled recyclable materials. (For further information refer to Environmental Division Recycling Information Sheet, 31 Mar 06 – contained on the Fort Stewart Intranet, DPW Page).

(a) Office paper, junk mail, newspaper, magazines, cardboard, aluminum/bi-metal cans (i.e. vegetable cans), plastic containers (#1, 2 and 5 only), glass bottles/containers (clear, brown, green).

(i) Ensure all "unclassified" documents/paper products are placed in a transparent plastic bag and tied closed prior to placing in blue dumpsters to facilitate the separation process and protect the integrity of the commodity. Can liners are not required for other recyclable material, but if used, they too must be transparent liners/bags.

(ii) Ensure all recyclable cans and bottles are emptied and rinsed (if possible) prior to placing in collection container.

(iii) Ensure that all commingled (mixed) recyclable materials from barracks, motor pools and administration buildings are placed in blue dumpsters provided. (Note: If collections personnel discover trash in recycling dumpsters or recyclables in trash dumpsters, the containers **will not** be emptied. Violators will be reported to the DPW Environmental Division for coordination with offending entity for corrective action.

(b) Ink/toner cartridges, scrap metal, bulk cardboard and serviceable pallets. Deliver these items to the installation recycling facility (Fort Stewart - Bldg. #957 on McFarland Ave or on Hunter Army Airfield - Bldg. TR-727 on Westley Ave); do not place these items in or beside the dumpsters.

(c) Coordinate collection/delivery of bulk cardboard, scrap metals and pallets with the installation recycling facility. Organizations generating large amounts of cardboard scrap metal, and pallets on a continuous basis should contact the DPW, Environmental Division Section for assistance.

(d) Household Movement/Packing Materials. Coordinate the pickup of recyclable packing material (paper and cardboard) generated by newly arriving soldiers and ensure they are made aware of this recycling policy.

(4) Unit Training Exercises. Continue to enforce the recycling policy during unit field training exercises. Provide a means to collect recyclable materials and process these materials upon return IAW with this policy and specific ECO training guidance regarding petroleum, oil, and lubricant containers (i.e. triple rinse).

(5) Collect and deliver yard waste (limbs, leaves, pine straw, pine cones, grass clippings, etc.) to the landfill for proper disposal/composting – do not deposit these items in/near any dumpster.

b. Government Military Housing (GMH) and Housing Residents.

(1) GMH will:

(a) Provide each family housing unit with a blue recycling poly cart and a copy of this recycling policy.

(b) Provide weekly curbside collection of commingled recyclables. (Note: If collection personnel discover trash mixed with recyclables or recyclables mixed with trash, the containers **will not** be emptied and violators will be reported to DPW, Environmental Division for enforcement actions).

(2) Housing Residents will:

(a) Place all bulk household packing material (paper and cardboard) in the identified locations as designated by GMH for collection upon arrival/assignment to housing.

IMSE-STW-IC
SUBJECT: US Army Installation, Fort Stewart / Hunter Army Airfield Policy Memorandum # 8, Command Recycling Policy

(b) Place all recyclable materials (i.e., cardboard, junk mail, magazines, writing paper, newspaper, glass bottles/containers (clear, brown, green), plastic containers (#1, 2 and 5 only), aluminum/bi-metal cans, etc.) in the blue poly carts provided. All paper products must be placed in a transparent plastic bag which must be tied closed prior to being placed in the blue poly carts. Can liners are not required for other recyclable material; but if used, they must be transparent liners/bags.

(c) Place their blue poly carts at the curb before 0800 on their assigned collection day.

(d) Place large items, such as bicycles, "privately owned" washers, dryers, refrigerators, etc. on the curb beside their blue poly carts on their assigned collection day to be collected by the contractor.

c. Installation and tenant organizations will:

(1) Ensure that all contracts include the requirement for contractors to adhere to the Fort Stewart/Hunter Army Airfield Recycling Policy, and ensure through inspections that contractors are adhering to policy.
Contracts will require contractors to provide a copy of landfill scale tickets to their COR (Contracting Officer's Representative /QA for all waste disposed of off the installation. The COR will ensure that the copy of the landfill scale tickets are provided to DPW, Environmental Division, and all recyclables from construction, renovation, and demolition sites will be kept separate from other waste. (Note: This applies even if the contract requires the waste to be hauled off the installation for disposal).

(2) Ensure contracts that involve adding or replacing furniture, fixtures, mattresses, and other such items or in general generate large amounts of cardboard include provisions to collect and transport the cardboard t the installation recycling facility. (Note: The DPW Environmental Division has limited resources and will assist with collection and transporting this material until resources are expended, there are drop-off facilities available that are expected to be utilized when such service is not available. Contractors need to be aware of the limited resources and coordinate further assistance with the COR. (For further information refer to Environmental Division Recycling Information Sheet, 31 Mar 06 – contained on the Fort Stewart Intranet, DPW Page).

(3) Custodial service contracts will include the requirement to deposit the contents collected from any recycling containers in the nearest blue dumpster. Provisions will also be included in the contracts to not service trash receptacles when recyclables are not segregated from the waste stream, and to notifying the COR of the discrepancy. The COR will perform random inspections to ensure these requirements are being met and coordinate with the DPW, Environmental Division upon notification.

d. DPW will: Ensure refuse and recycle collection drivers <u>do not</u> service any trash dumpsters with recyclable materials present, or any recycle dumpsters with trash present. If either of these conditions exists, the driver will notify the DPW, Environmental Division for corrective action.

(1) Ensure all contracts state that contractors must separate, collect and deliver recyclable material generated during the life of the contract to the installation's recycling facility.

e. Self-Service Supply Center will:

(1) Stock clear plastic bags and blue recycling containers marked "We Recycle."

(2) Stock office paper with a minimum of 20% recycled content.

(3) Stock items made from recycled material, and ensure those items are clearly marked and labeled as such.

(4) Ensure that signs are posted stating that customers should purchase items made from recycled material when available.

IMSE-STW-IC
SUBJECT: US Army Installation, Fort Stewart / Hunter Army Airfield Policy Memorandum # 8, Command Recycling Policy

6. PROPONENT: The Directorate of Public Works is the proponent for this policy. The point of contact is DPW, Environmental Division, at commercial (912) 767-2010 or DSN 870-2010.

RICK LYNCH
Major General, USA
Installation Commander

APPENDIX F

Photos of Surrounding Buildings

Existing Barracks - W. 6th St.

Existing Barracks - W. 6th St.

Existing Barracks - W. 6th St.

Existing Barracks - W. 6th St.

A Detention Pond on Site and Dining Facility north of site

B Detention Pond

C Detention Pond, facing east

PN 68863A Fort Stewart EAB Barracks - Site Photos

D View facing Northeast

E Site of Future EAB Barracks View facing Southwest

F Site of Future EAB Barracks View facing east

G Site of Future EAB Barracks Existing ditch on site

H Site of Future EAB Barracks Existing ditch on site

I Adjacent modular buildings

PN 68863A Fort Stewart EAB Barracks - Site Photos

J Modular buildings west of EAB barracks site

K Modular buildings and EAB barracks site

L Existing Ditch, 6th Street south side

M Existing Barracks east of EAB barracks site

N Existing Barracks east of EAB barracks site

O Existing Barracks east of EAB barracks site

PN 68863A Fort Stewart EAB Barracks - Existing Building Photos | 5

P Existing Barracks east of EAB barracks site

Q Existing Dining Facility north of EAB barracks site

R Existing Dining Facility north of EAB barracks site

PN 68863A Fort Stewart EAB Barracks - Existing Buildings Photos

APPENDIX G
GIS Data

Not Used

APPENDIX H

Exterior Signage

DEPARTMENT OF THE ARMY
HEADQUARTERS, FORT STEWART
DIRECTORATE OF PUBLIC WORKS
1587 FRANK COCHRAN DRIVE
FORT STEWART, GEORGIA 31314

REPLY TO
ATTENTION OF

AFZP-PWP-M 25 NOV 2004

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: New Signage Requirements for Fort Stewart and HAAF

1. The purpose of this memorandum is to provide the appropriate personnel with guidance on new signage requirements established by US Army Installation Design Standards (IDS), the Fort Stewart / Hunter Army Airfield Installation Design Guide (August 2001), and Technical Manual (TM) 5-807-10, Signage.

2. Please, take special care to ensure that all appropriate personnel and activities within Ft. Stewart/HAAF are aware of the new requirements contained within the attached enclosure (Signage Annex). The new signage standards are affective 25 November 2004.

3. The point of contact for this memorandum is Will Ingram, DPW, Master Planning Division at 767-9149, e-mail: ingramwh@stewart.army.mil.

Encl

ANNE de la SIERRA
Chief, Master Planning Division

DISTRIBUTION:
GC, Col. John M. Kidd
DGC, Mr. Paul Andreshak
GC, (Hunter Army Air Field) LTC Jeffrey Goble
DGC, (Hunter Army Air Field) Mr. Edward Foerstel
DPW, Mr. Michael Biering
DDPW, Mr. Chester Schratzmeier
RCI, Ms. Jeanne Adams
BOID, Ms. Bonnie Crook
ENRD, Mr. Thomas Fry
ENGR DIV, Mr. Vic Maulden
ENGR DIV, Mr. Doug Saylor
ENGR DIV, Mr. Jon Bairnsfather
OM, Mr. Don Thomas
SCD, Mr. Fred Cavedo
SAS, Mr. Brent Rose

AFZP-PWP-M
SUBJECT: New Signage Requirements for Fort Stewart and HAAF

DISTRIBUTION: (CONT)
SAS, Mr. Charlie McGee, 100 West Oglethorpe Avenue, Savannah, GA 31401
SAS, Mr. Rob Callahan, 100 West Oglethorpe Avenue, Savannah, GA 31401
SAS, Mr. James Landgraff, 100 West Oglethorpe Avenue, Savannah, GA 31401
ENGR DIV, Mr. Tony White
ENGR DIV, Mr. Jim Thomas

SIGNAGE ANNEX

UNIT SIGNS & LOGOS

All unit identification signs will be removed. This is to include all Division, Brigade, and Battalion Headquarters signs, as well as signs identifying Company level units.

All branch insignia, shoulder sleeve insignia, coat of arms and/or distinctive insignia that have been placed on buildings will be removed prior to deployment.

Upon return from deployment, new unit identification signs will be placed at their respective buildings. All signs will comply with the US Army Installation Design Standards, the Fort Stewart / Hunter Army Airfield Installation Design Guide, and Technical Manual (TM) 5-807-10, Signage, in terms of size, color, message, and DoD address standards.

BUILDING ADDRESSES:

Building numbers will no longer be placed on facility identification signs. Only street addresses will be used (see Figure 1). The addressing procedures prescribed in DoD 4525.8-M, DoD Official Mail Manual are mandatory for use by all DoD components. DoD 4525.8-M, Chapter 3 of the manual prescribes the following:

- All DoD address shall be assigned so they are compatible with the United States Postal Services automated delivery point sequencing (C3.3).
- The DoD installation is responsible for assigning city-style, street address on the installation (C3.3.2.2).
- Street addresses shall be assigned and used even though a DoD activity may deliver the mail to the addressee (C3.3.2.2.1).
- Only geographically locatable civilian-style street addresses such as 4102 Cindy Avenue shall be used (C3.3.2.2.4).
- Installations shall not use one street address for the entire installation and then use secondary unit designators such as "Building 123" to designate the delivery addresses on the installation (C3.3.2.2.5).
- Addresses such as "Building 123 Roberts Street" are not a valid address format and shall not be used (C3.3.2.2.6).

Fig. 1 – Use of Street Addresses on All Building Identification Signs

The Fort Stewart Directorate of Information Management (DOIM) is responsible for assigning street addresses to buildings. See attached listing of assigned building addresses.

SIGN STANDARDS

The following standards for facility identification signs are taken from the US Army Installation Design Standards (IDS), the Fort Stewart / Hunter Army Airfield Installation Design Guide, and Technical Manual (TM) 5-807-10, Signage.

The following general guidelines are taken from the IDS and apply to all signs:

Typeface: Lettering is self-adhesive backing material.

- Building Title: Helvetica Medium, Upper and lower case
- Building Numbers: Helvetica regular
- Building Addresses: Helvetica Medium, Upper and lower case

Color:

- Panel: Dark Brown
- Lettering: White
- Post: Dark Brown
- Exposed panel backs and edges: Dark Brown
- All paint: Semi gloss

Materials:

- Panel: Double-face 1/8" thick aluminum
- Post: Steel Pipe
- Foundation: Concrete pier or direct burial

BUILDING IDENTIFICATION SIGN STANDARDS

The standards to apply for signage color, type, and sizing are found in TM 5-807-10, *Signage*. The following paragraphs are the regulations as they apply for Brigade, Battalion, and Company Headquarters signs. TM 5-807-10 must be followed for any specifics not covered here.

NOTE:

1. All figures and paragraphs referenced in the following can be found in TM 5-807-10.
2. Building numbers as described in TM 5-807-10 will not be **will not** be placed on building identification signs
3. Building addresses will be placed on all building identification signs where the building numbers were once placed.
4. Examples of the various sign types are found in an attached document. Reference TM 5-807-10 for any further clarification.

Brigade, Battalion, and Company Building Identification Signs.

Military headquarters identification signs consist of four types:

- Sign type B1, installation headquarters sign, identifies the central administration of the installation.
- Sign type B2, command, division, and brigade headquarters sign.
- Sign type B3, battalion headquarters sign.
- Sign type B4, headquarters building entrance sign, identifies the building entrance for all levels of authority. In addition, type B4 is used to identify a unit headquarters that has a special entry point other than the main entrance of a building.

Graphics appear on both sides of these signs, since they are placed perpendicular to the road and can be viewed by traffic moving in both directions. Sign placement guidelines are described in paragraph 3-11. Sign structures are given in appendix A.

Headquarters Facilities:

- Sign Type B1
  - Type B 1 signs are used to identify the headquarters facilities of each installation as delineated in figure 3-11. When the headquarters of a command or division level organization is located in the same facility as the installation headquarters, the unit name is placed below the installation name. In addition, the authorized insignia of the command or division level unit is located to the left of the unit name.
    - (1) Colors. White letters and numbers on standard brown background; full-color insignia.
    - (2) Sign grid specifications.
      - *(a) Dimensions.* 3ft-6in. H x 8ft-0in. W.
      - *(b) Message.* Installation name—upper and lower case helvetica medium, 6-inch capital letter height, flush left. Average line length-21 characters per line. “Headquarters” — upper and lower case helvetica regular, 6-inch capital letter height, flush left. Average line length—24 characters per line. Command or division level name—upper and lower case Helvetica medium, 4-inch capital letter height, flush left. Average line length-27 characters per line.
      - *(c) Building address.* Upper and lower case Helvetica medium, 4-inch capital letter height, flush left.
      - *(d) Insignia.* Authorized military insignia, 12-inch maximum height x 8-inch maximum width, flush to top of grid box and centered.
    - (3) *Sign grid.* Figure 3-12.

Brigade Headquarters:

- Sign Type B2
    - Type B2 signs are used to identify the headquarters facilities of command, division and brigade level organizations as shown in figure 3-13. The authorized shoulder sleeve insignia or distinctive unit insignia for each command or division is located to the left of the unit name. Brigade level organizations show the name of the command or division under which each serves below the unit name, and display the command or division insignia to the left of the unit name. Only one headquarter unit is identified per sign.
        - (1) Colors. White letters and numbers on standard brown background; full-color insignia.
        - (2) Sign grid specifications.
            - (a) Dimensions. 3ft-6in. H x 6ft-0in. W.
            - (b) Message. Unit name-upper and lower case helvetica medium, 4-inch capital letter height, flush left. Average line length-l 7 characters per line. “Headquarters” —upper and lower case helvetica regular, 4-inch capital letter height, flush left. Average line length-25 characters per line.
            - (c) Building address. Upper and lower case Helvetica medium, 4-inch capital letter height, flush left.
            - (d) Insignia. Authorized military insignia, 12-inch maximum height x 8-inch maximum width, flush to top of grid box and centered.
        - (3) Sign grid. Figure 3-14.

Battalion Headquarters:

- Sign Type B3
- Type B3 signs are used to identify the headquarters facilities of battalion level organizations as shown in figure 3-15. The name of the command or division under which each serves is shown below the unit name. The authorized branch color(s) of the unit is located to the left of the unit name. Battalion headquarters signs do not display the command or division level organizational insignia. If more than one (1) battalion headquarters is located in a specific building all unit names will be displayed on one (1) sign.
    - (1) Colors. White letters and numbers on standard brown background; full-color symbol.
    - (2) Sign grid specifications.
        - (a) Dimensions. 3ft-6in. H x 5ft-0in. W.
        - (b) Message. Unit name-upper and lower case helvetica medium, 3-inch capital letter height, flush left. Average line length—20 characters per line. “Headquarters"— upper and lower case helvetica regular, 4-inch capital letter height, flush left. Average line length—22 characters per line.
        - (c) Symbol. 6-inch diameter overall, 1/4 –inch perimeter ring in white, 1-inch border ring in secondary branch color.

        - (d) Building address. Upper and lower case Helvetica medium, 4-inch capital letter height, flush left.
    - (3) *Sign grid.* Figure 3-16.

Company Headquarters:

Most company operations facilities contain more than one company headquarters unit. When more than one company Headquarters unit is located in a specific building all units will be listed on an individual sign. Sign specifications are as follows:

- **Facilities with one (1) company headquarters unit:**
    - Type C4 signs. Insignias, branch colors, unit mottos, names or titles of individuals are not recommended on company level unit signs.
        - (1) *Colors.* White letters and numbers on standard brown background.
        - (2) *Sign grid specifications.*
            - *(a) Dimensions.* 2ft-6in. H x 5ft-0in. W.
            - *(b) Message.* Facility and unit name-upper and lower case helvetica medium, 3-inch capial letter height, flush left. Average line length-25 characters per line.
            - (c) *Building address.* Upper and lower case Helvetica medium, 3-inch capital letter height, flush left.
        - (3) *Sign grid.* Figure 3-29.

- **Facilities with more than one (1) company headquarters unit:**
    - Sign Type C2 will be used with the extended grid specifications listed below. Insignias, branch colors, unit mottos, names or titles of individuals are not recommended on company level unit signs
        - (1) Colors. White letters and numbers on standard brown background.
        - (2) Sign grid specifications.
            - (a) Dimensions. 4ft-0in. H x 5ft-0in. W.
            - (b) Message. Unit facility and name—upper and lower case helvetica medium 4-inch capital letter height, flush left. Average line length-19 characters per line. Sub-service name-upper and lower case Helvetica regular, 3-inch capital letter height, flush left. Average line length-30 characters per line.
            - (c) Building number. Helvetica regular, 4-inch number height, flush left.
        - (3) Sign grid. Figure 3-24.
        - (4) Extended sign grid specifications.
            - (a) Dimensions. 5ft-6in. H x 5ft-0in. W.
            - (b) Message. Military unit name-upper and lower case helvetica medium, 4-inch capital letter height, flush left. Average line length—19 characters per line. Sub-unit name-upper and lower

case Helvetica regular, 3-inch capital letter height, flush left. Average line length-30 characters per line.

- *(c) Building number.* Helvetica regular, 4-inch number height, flush left.

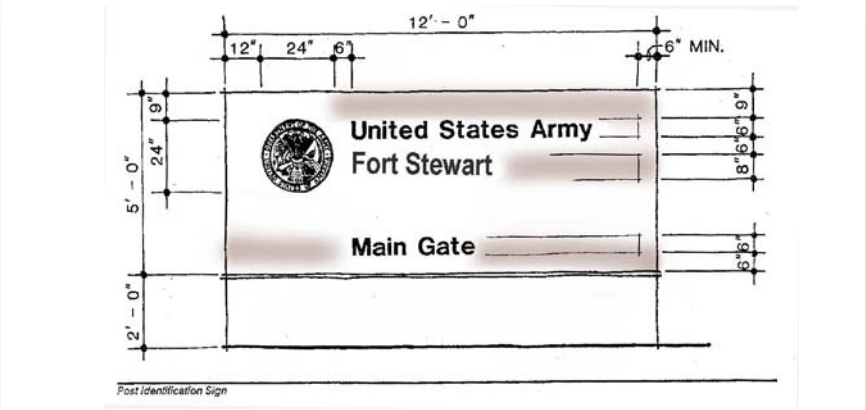
- (5) *Sign grid.* Figure 3-25

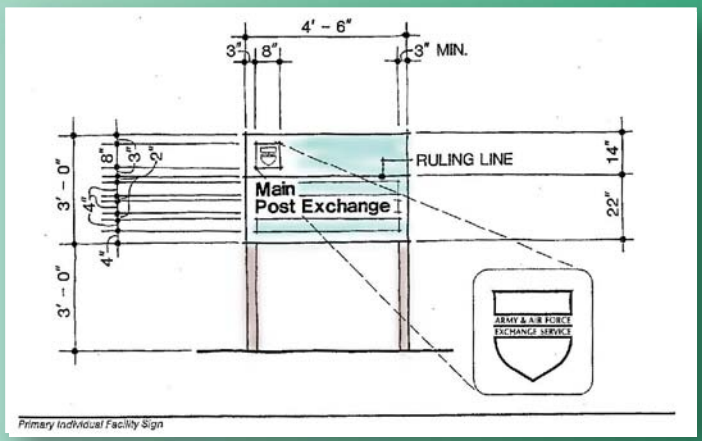
Exceptions to Stated Regulations:

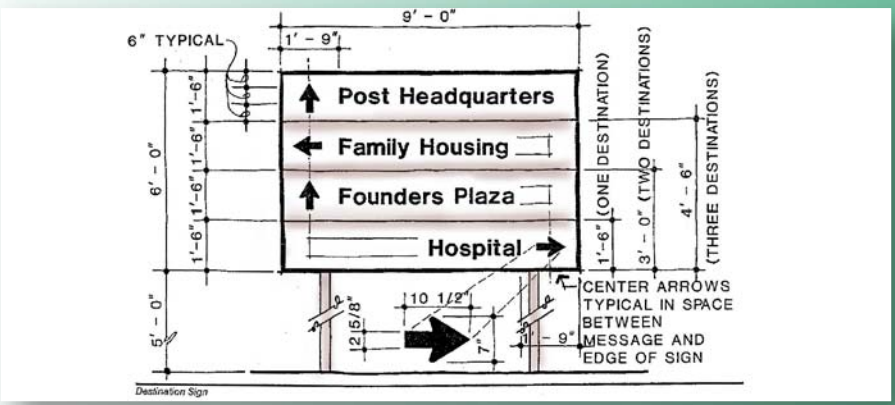
- If companies or detachments are co-located in the same facility with battalion or higher headquarters units, all units will be listed on the facility identification sign of the type associated with the highest echelon unit.

2.7 Design Guidelines

Signage







2.7 Signage

Signs are used to visually communicate information. Utilitarian in function, signs are a highly visible feature of the installation. Careful consideration must be given to their visual appearance and relation to the surroundings. The high visibility of signage and the importance of its function demand that it be an attractive and harmonious piece of the visual environment. The creation of a coordinated signage system will enhance Fort Stewart's visual image and improve the efficiency of movement.

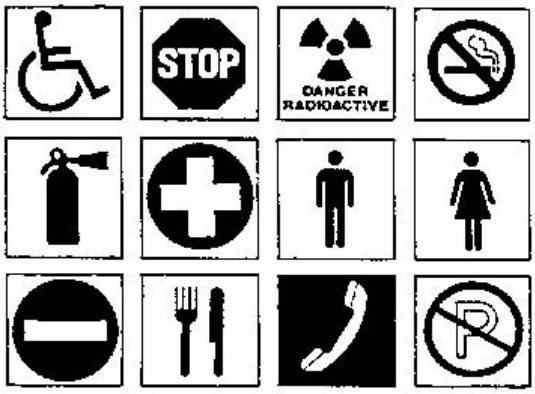
A signage system must communicate information effectively and efficiently. It must present a sequence and hierarchy of information that is logical and responsive to user needs. The system should provide a sense of consistency and continuity to the installation's overall visual image. It must also be designed to be adaptable and compatible with and integrated into the design of other site features.

2.7.1 General Provisions

This section regulates all exterior signs and interior signs positioned for exterior observance. A sign is defined as a placard bearing verbal and/or pictorial information.

- Use only enough signage as is necessary. Remove redundant, unreadable, and outdated signs.
- DPW work and site approval is required prior to installing painting, remodeling, relocating, or expanding any sign.
- No approval is required to perform normal maintenance and repair of a conforming sign or to change a message on an approved sign or marquee specifically designed for this purpose.
- Public safety signs not exceeding two square feet do not require site approval. Examples include emergency telephone, restroom, and underground utilities.
- Street signs, not located in State rights-of-ways, do not require site approval.
- Signs placed for less than 30 days do not require site approval. Those placing these placards shall remove them.
- Signs not conforming to this guide will be removed.

- No nonconforming sign shall be enlarged, repaired, reconstructed, or changed, except to comply; nor shall the wording or graphics be changed, except to comply.
- Signs itemized in this section shall be placed, unless otherwise specified, at the appropriate buildings regardless of its real property categorization.
- No signs shall interfere with or confuse traffic or other aspects of safe driving conditions through use of improper wording, graphics, location, size, shape, or color. No sign shall use the words “Stop”, “Go”, “Caution”, Yield”, etc., when such would be confused with traffic signs or devices.



Acceptable Symbology Commonly Used As Signage Graphics

2.7.2 Sign Details

Signage details include the following:

- All signs will either be pre-manufactured or fabricated by DPWE. Low quality and “homemade” type signs are prohibited.
- Any sign that is mechanically animated (i.e., revolves, rotates, or moves in any way) is prohibited.
- Locate signs where they are most visible and the view unobstructed.
- Signs will be brown Federal Specification Color Number 20140 and white (i.e., Park Service colors).
- Universally recognized color schemes such as the State highway and safety signs may follow the Federal Highway Administration’s “Standard Alphabets for Highway Signs and Pavement Markings” standards.

- Signs generally are not landscaped; however, if ornamental planting occurs in the vicinity of the sign, locate the sign in the planting bed.
- Temporary signs do not require landscaping; changeable signs are not considered temporary.
- Any exposed lighting tubes, strings of lights, spotlights, or any illumination that causes direct glare upon an unrelated building are prohibited.
- Any flashing signs, traveling lights, or signs animated by lights of changing degrees of intensity or color are prohibited.
- Signs may be lit by remote lamps or backlit where nighttime identification is required such as at clubs, shopping areas, and post entry points.
- Internally lit signs must have an opaque message surface displayed at all times, and at no period will views be allowed to the inside of the sign regardless of whether a message is on the sign or not.
- Kiosks, informational signs, and “You Are Here” maps are to be centrally located in “Activity Nodes” as defined by the District Plate graphics.
- For military building signs, quantities are limited to one of each type allowed.
- Quantities are limited regardless of whether facilities are located on corners, have exposure to multiple roads/drives, or have building entrances visually separated from roads/parking lots.
- All signs use Helvetica font.

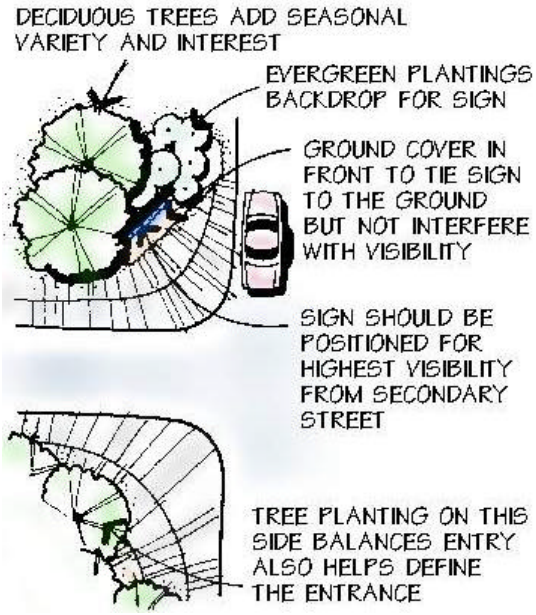
Use Helvetica Type Style

- Traffic signs will follow guidelines in the Federal Highway Administration's "Standard Alphabets for Highway Signs and Pavement Markings" standards.

2.7.3 Sign Mounting and Location

Sign mounting and location standards are as follows:

- Locate identification signs generally at building entrances and/or other parts of the building visible from the main access street. Building signs should be visible from the main circulation paths to the building (vehicular or pedestrian).
- Place building and/or facility identification signs within the first 20 percent of the distance closest to the road between the road and the building. These signs shall be placed as not to obscure any other identification, information or vehicular regulatory signs.
- Signs unable to be located perpendicular to the direction of traffic may be rotated to a 45-degree angle or parallel to traffic.



Consider Basic Planning And Design Objectives In Sign Placement

- The minimum distance between sign and driveway or intersection should normally be 100 feet.
- One identification sign for each building is sufficient unless vehicular access occurs on two or more sides of the building.

- Provide signs to identify facilities dedicated to or accessible to the handicapped, such as parking spaces, building entrances, and restroom facilities.

Mounting Signs on Buildings

- No sign may be mounted on the outside of the door, except small signs (one square foot or less) that indicate required use of an alternate entrance. Signs such as "Escort Required" or changeable signs are not permitted.
- No sign may be attached or mounted to roofs and parapets.
- No sign shall be painted or applied directly onto the surface of a building.
- No permanent signs shall obstruct any window, door, fire escape, ladder, or opening intended for light, air, or egress.
- No temporary sign in windows or glass walls is allowed to cover more than 20 percent of the glass area.
- No signs shall interrupt the vertical and horizontal features of the facade.
- No sign may be tacked, posted, painted, or otherwise affixed to site elements such as sheds, trees, or other structures.
- No sign may be attached to utility poles except for pole identification or warning signs.
- Fasten projecting signs directly to the supporting building wall and integrate the frame into the sign. These signs shall intersect at right angles to the building front and shall not extend above the roofline or the parapet wall. Signs may not project more than five feet from a wall or two-thirds the width of the sidewalk, whichever is less. In no case may signs be closer than 18 inches to the curb line. A clear height of eight feet above the ground is required.

2.7.4 Sign Descriptions and Categories

Criteria for the sign system to be used at this installation are contained within Technical Manual 5-807-10 (TM). This section is designed to assist in using the TM to find the sign needed for a specific situation.

To determine the type of sign needed, first decide which category applies. Chapter Three lists the major sign categories as:

	TM Page
Installation Identification Signs	3-03
Military Headquarters Identification Signs	3-07
Military Facility Identification Signs	3-15
Community Identification Signs	3-36
Motivational Signs	3-50
Guide Signs	3-52
Mandatory/Prohibitory Signs	3-56
Informational Signs	3-69

Chapter Two of the TM deals with sign graphics and Appendix A gives fabrication options. For this installation, all signs shall have square, anodized aluminum posts with matching signboards and white lettering. Exceptions to the manual must be cleared with HQDA (DAEN-ECE-A), Washington, DC 20314. With their approval these guidelines may be waived.

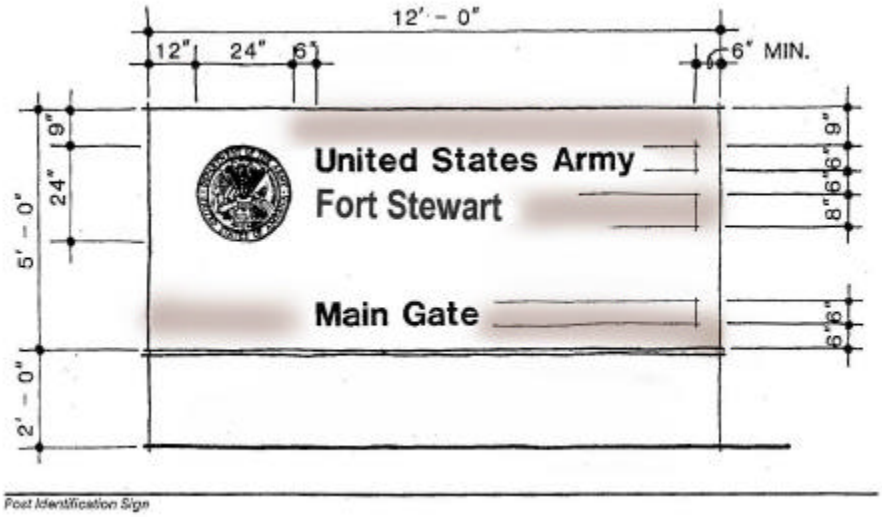
Installation Identification

Installation identification signs name the installation and display the official US Army plaque. When used service wide, these signs convey a uniform image of military strength and stability to the public. Emblems, branch colors, unit mottos, names or titles of individuals are not recommended.

Installation identification signs are categorized within the TM into the following types:

- Type AI: Main Entrance

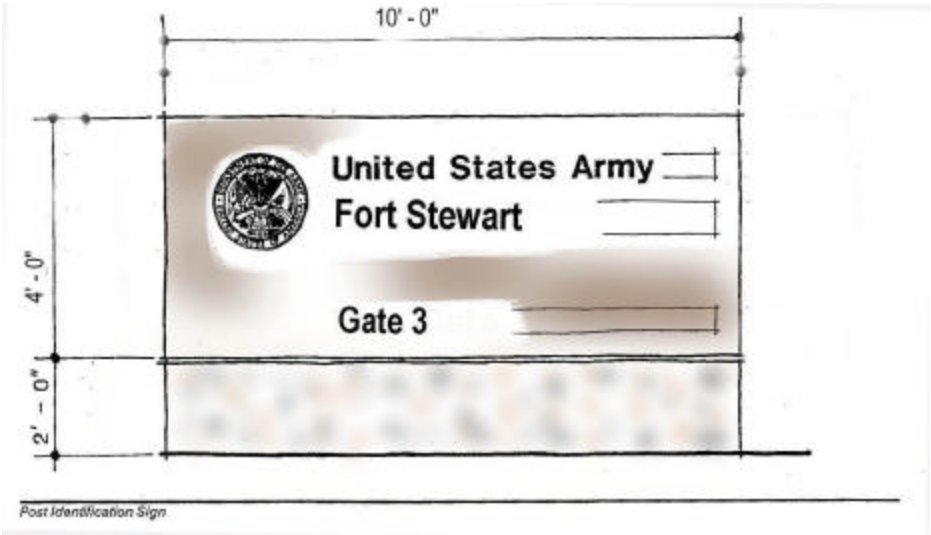
Type A1 signs are used to identify the installation at the main gate and principal visitor entrance.



Type A1

- Type A2: Secondary Entrance

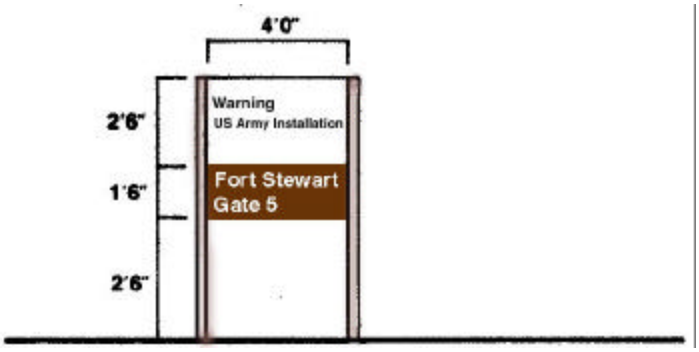
Type A2 signs are used to identify entrances which receive high volumes of visitor traffic in addition to the main gate.



Type A2

- Type A3: Limited Gate Access

Type A3 signs are used to identify secondary entrances, which are used primarily by installation personnel and not by visitors.



Type A3

- Note: Refer to TM for detailed information on sign selection criteria.

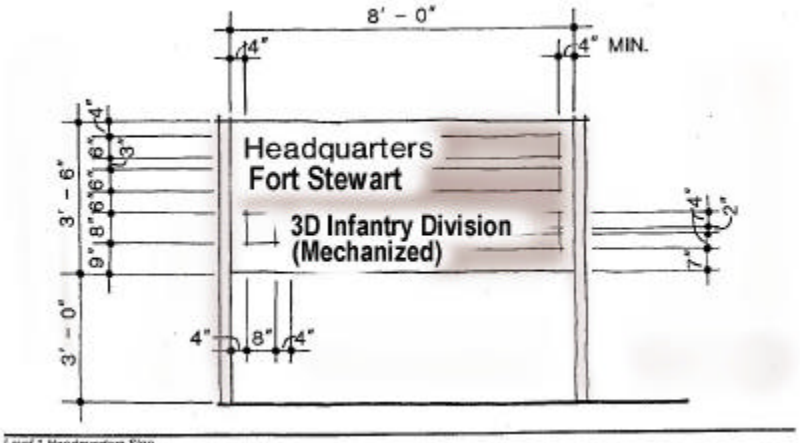
Military Headquarters Identification

Military headquarters identification signs are separated into four categories and sizes to distinguish the different levels of unit authority. The sign face carries the unit name and insignia, emblem, or branch color as appropriate. Unit mottos or names and titles of individuals are not recommended.

Military headquarters identification signs are categorized with the TM into the following types:

- Type BI: Installation Headquarters

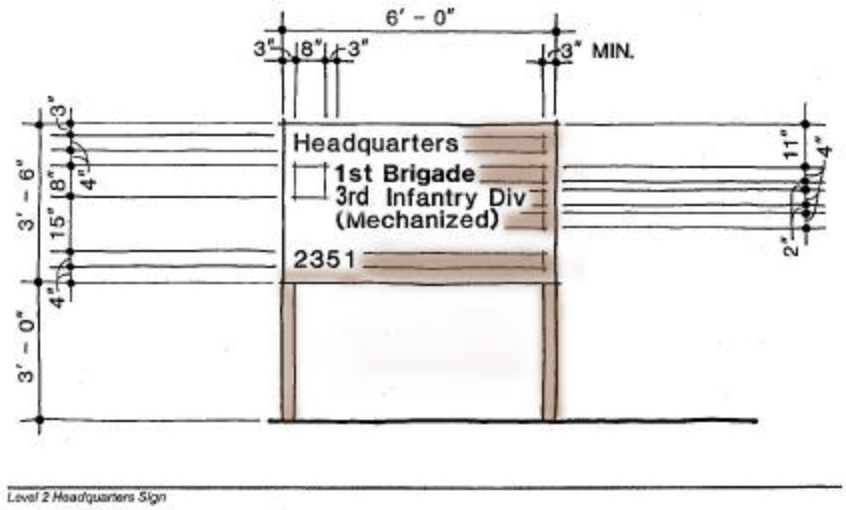
Type B1 signs are used to identify the headquarters facilities of each installation.



Type B1

- Type B2: Command, Division, and Brigade Headquarters

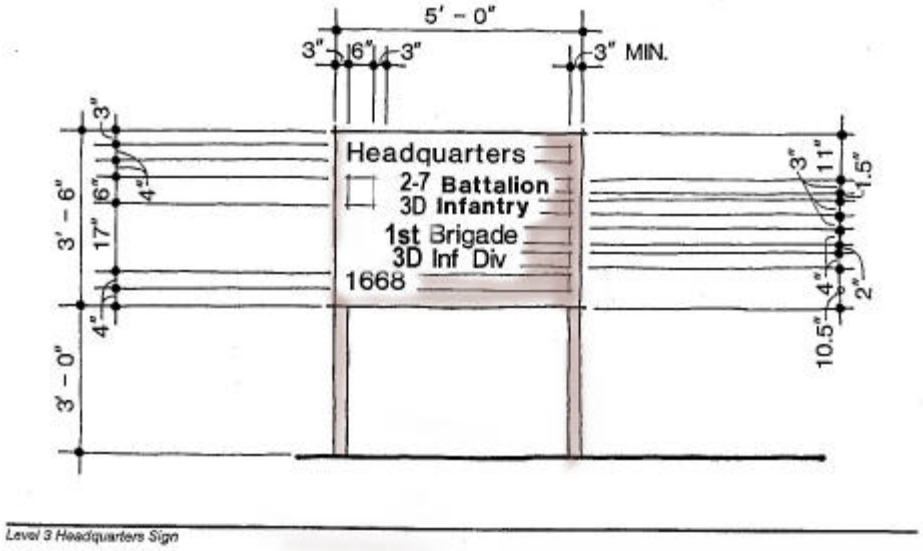
Type B2 signs are used to identify the headquarters facilities of command, division and brigade level organizations.



Type B2

- Type B3: Battalion Headquarters

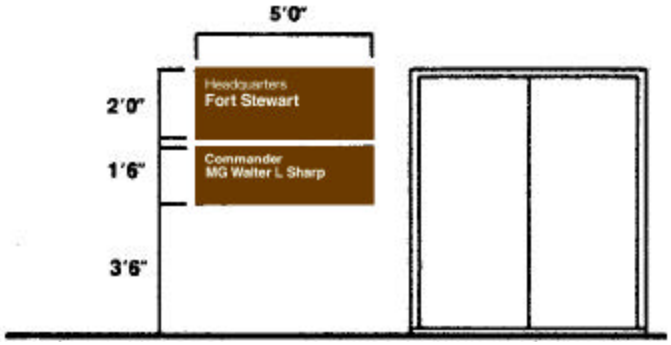
Type B3 signs are used to identify the headquarters facilities of battalion level organizations.



Type B3

- Type B4: Headquarters Entrance

There are two signs used to identify the building entrances of headquarters facilities. The basic sign panel identifies the unit of the headquarters facility and a sign plaque identifies the command personnel of the unit. The sign panel is used alone or in combination with the plaque. Type B4 signs are wall-mounted.



Type B4

- Note: Refer to TM for detailed information on sign selection criteria.

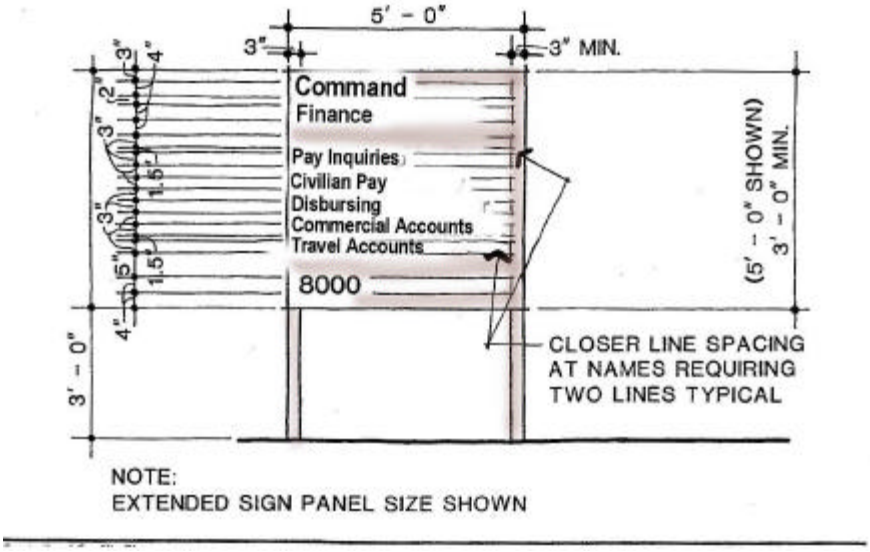
Military Facility Identification

Military facility identification signs are used to identify company-level organizations and other military facilities not included in the installation identification or military headquarters sign types. Insignia, emblems, branch colors, unit mottos, names or titles of individuals are not recommended for use on these signs.

Military facility identification signs are categorized within the TM into the following types:

- Type C1: Centralized Primary Facilities

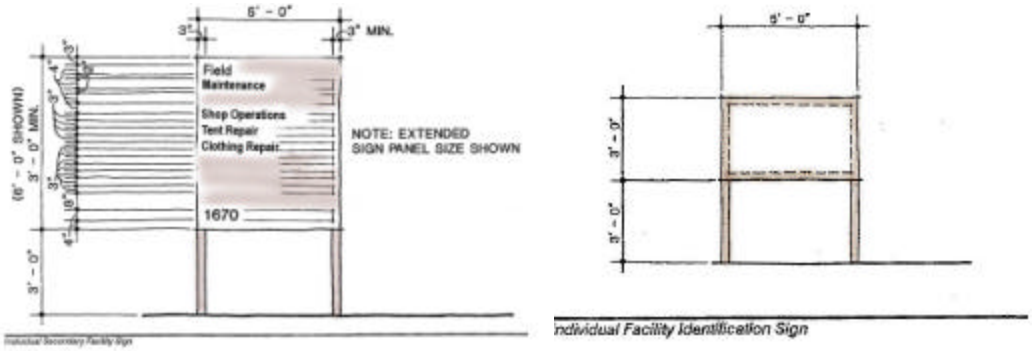
Type C1 signs are used to identify principal service units and their subservices, or multiple service units located in one or a complex of buildings.



Type C1

- Type C2: Centralized Secondary Facilities

Type C2 signs are used to identify services similar to type C1 where the volume of civilian traffic does not warrant the use or cost of type C1 signs.

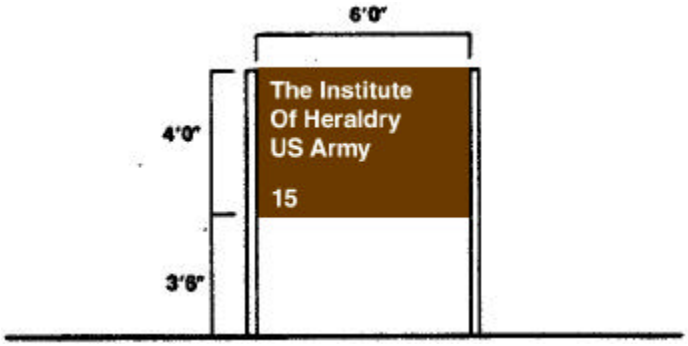


Type C2

Type C2 example

- Type C3: Primary Facilities

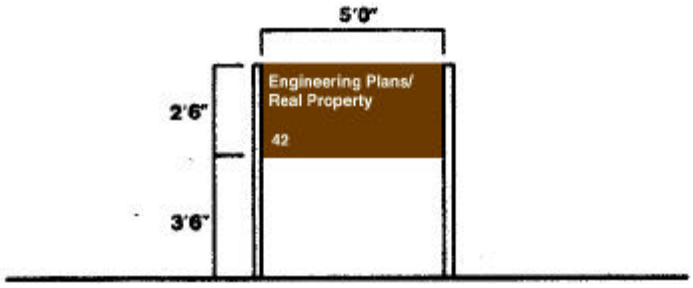
Type C3 signs are used to identify the name of a facility only.



Type C3

- Type C4: Secondary Facilities

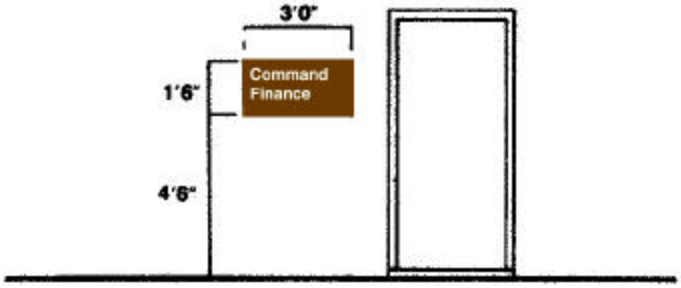
Type C4 signs are used to display the same information as type C3, except they are smaller in size and are used to identify company-level units.



Type C4

- Type C5: Primary Entrance

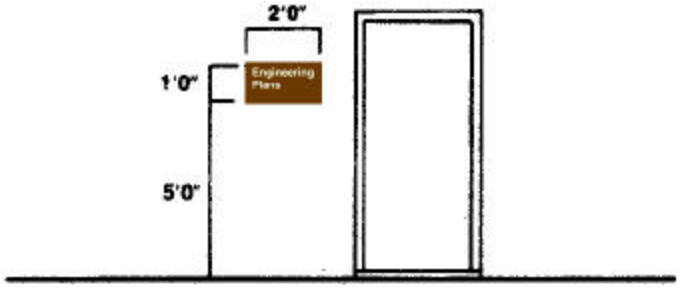
Type C5 signs are used to identify the main entry points of a facility used by a large volume of visitor traffic.



Type C5

- Type C6: Secondary Entrance

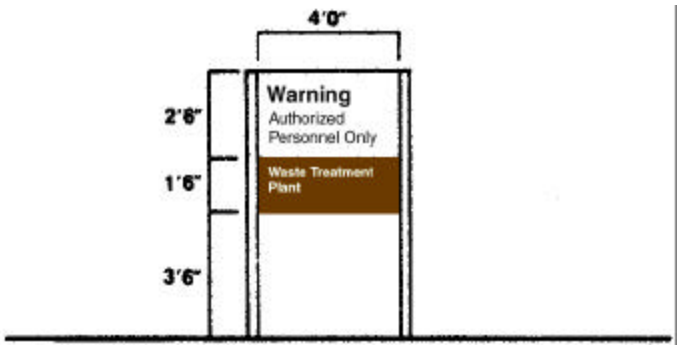
Type C6 signs are used to identify the entry points of company level units and facilities serving a smaller volume of visitor traffic than type C5.



Type C6

- Type C7: Restricted Facility

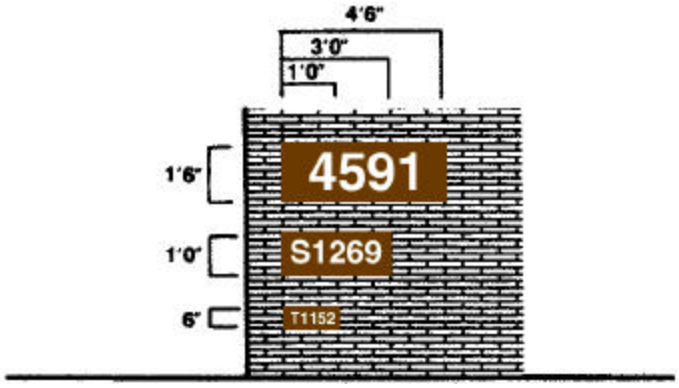
Type C7 signs identifies the name of a restricted area or facility.



Type C7

- Type C8: Building Number

Type C8 signs are used to identify building numbers for permanent, semi permanent and temporary facilities. The size of the sign should be appropriate for the scale of the building and mounting height, regardless of its classification. Signs should be located on the sides of the building where rapid identification is necessary. Type C8 signs are wall-mounted.



Type C8

- Note: Refer to TM for detailed information on sign selection criteria.

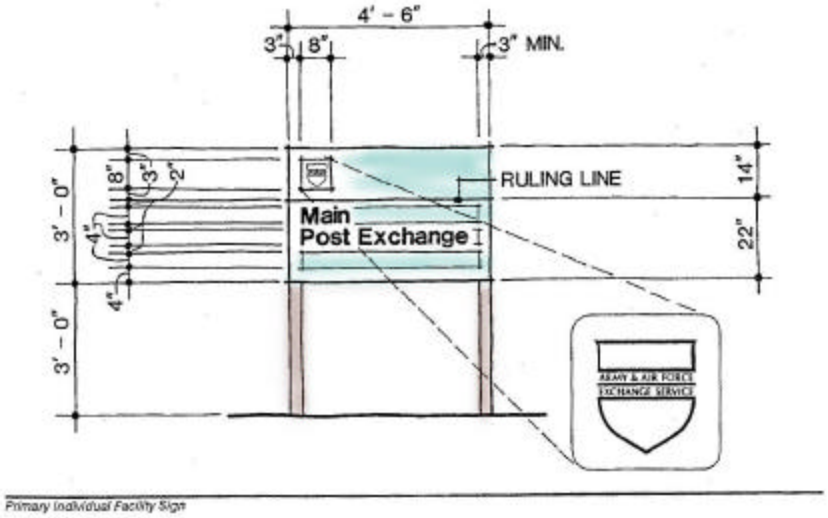
Community Identification

Community identification signs are used to identify activities and facilities used for community, recreational and other nonmilitary purposes.

Community identification signs are categorized within the TM into the following types:

- Type DI: Centralized Primary Facilities

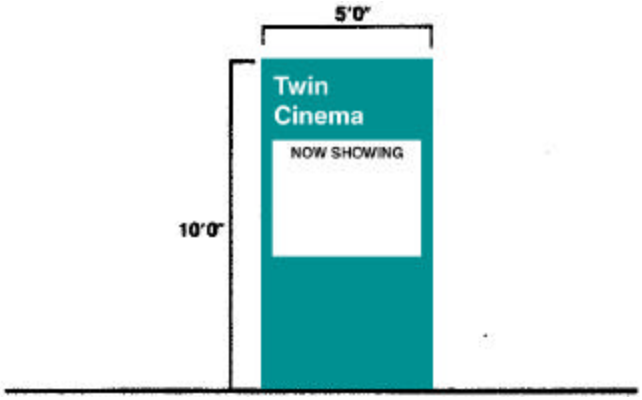
Type DI signs are used to identify community organizations and sub activities in one or more buildings usually with a common parking area.



Type D1

- Type D2: Primary Facilities with Changeable Message Board

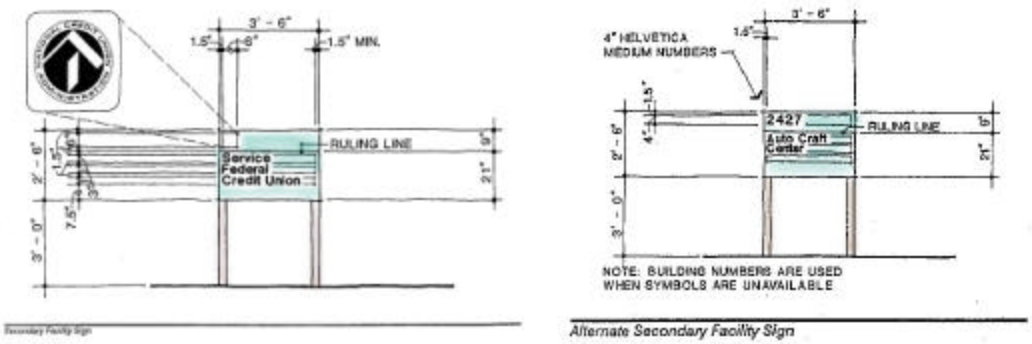
Type D2 signs identifies individual organizations, which support changing activities, such as theaters, gymnasiums, auditoriums, and religious facilities.



Type D2

Type D3: Primary Facilities

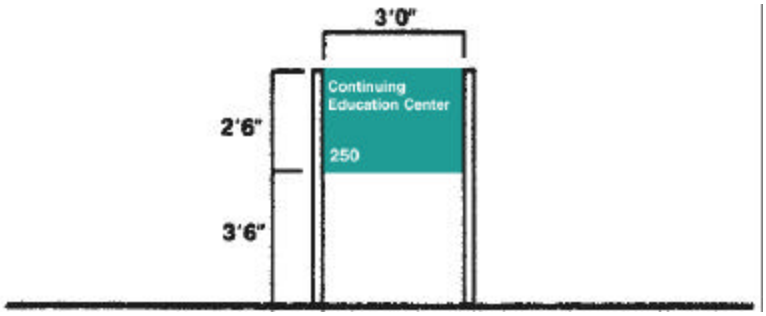
Type D3 signs are used to identify individual organizations, such as the commissary, post office, and bank.



Type D3

- Type D4: Secondary Facilities

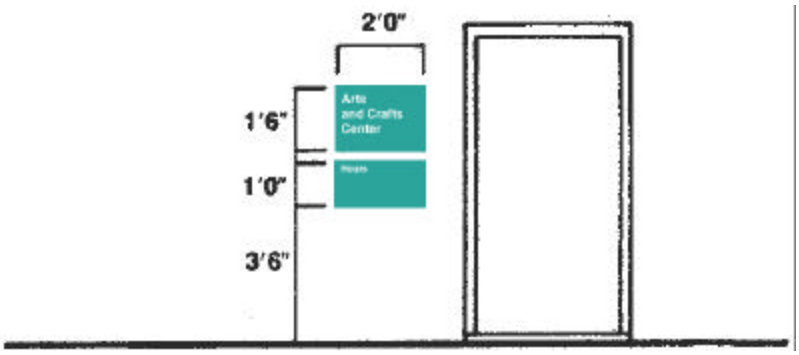
Type D4 identifies the same information as type D3, but is smaller in size.



Type D4

- Type D5: Building Entrance

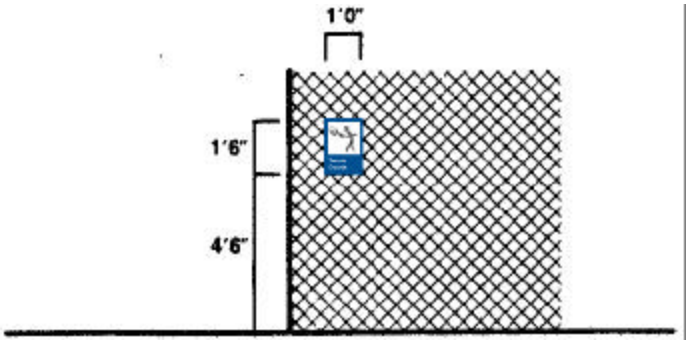
Type D5 signs are used to identify the entry points of a community facility. If required, a sign plaque showing the hours of operation may be placed beneath the basic entrance sign.



Type D5

- Type D6: Recreation Facilities

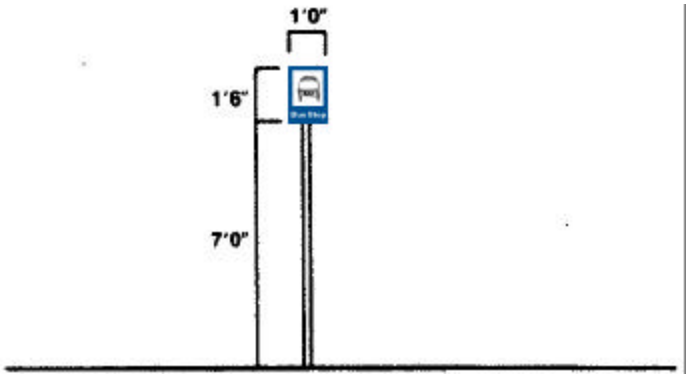
Type D6 signs are used to identify an outdoor recreation or park facility.



Type D6

- Type D7: Bus Route

Type D7 signs are used to identify bus services, such as bus routes, stops and schedules, which are unique to the Army or an extension of local public transportation services.



Type D7

- Note: Refer to TM for detailed information on sign selection criteria.

Motivational

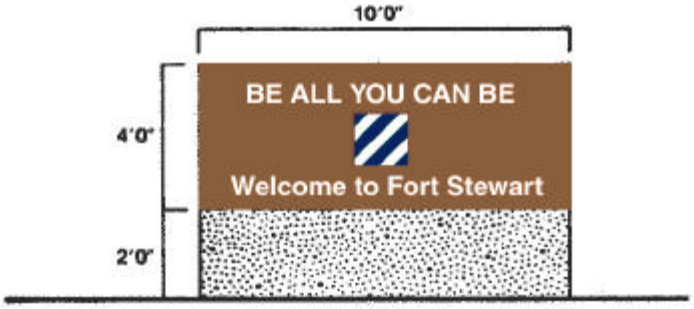
Present throughout Army installations are signs designed to motivate. They are important elements of campaigns to boost morale, improve safety, aid in recruiting, and accomplish other special objectives. Motivational signs are unique in appearance and do not have specified graphic layouts. Unit insignias, emblems, branch colors, mottos, and names and titles of individuals are typically included on these signs.

Motivational signs are the most difficult signs to create. They must be provocative, thoughtful and inspiring without becoming the objects of mild derision. The design, wording and placement of these signs deserve careful consideration if they are to be effective motivators.

Motivational signs are categorized within the TM into the following types:

- Type EI: Installation Motivational

  Type EI signs identify the major military units located at each installation and display their insignia or emblems.

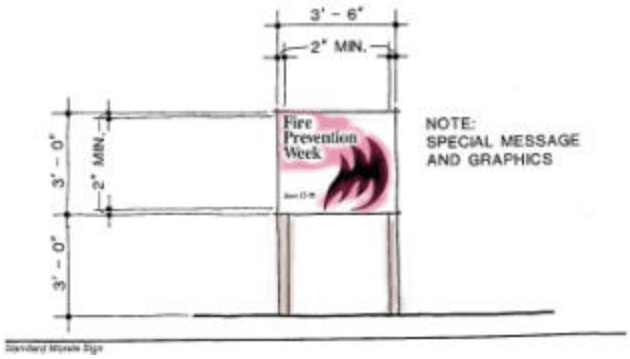


Type E1

Type E1 example

- Type E2: Standard Motivational

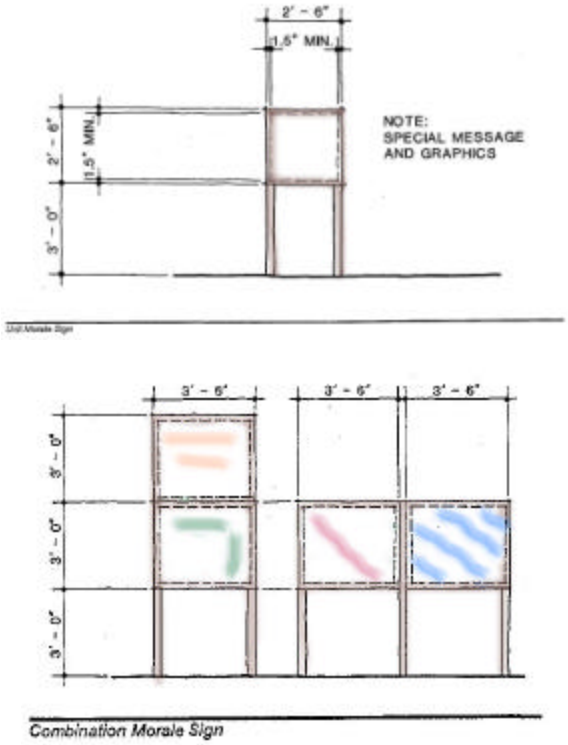
Type E2 signs are used to promote campaigns and support special events, such as safety programs and donation drives.



Type E2

- Type E3: Unit Motivational

Type E3 signs are used to express unit pride and to display organizational insignia, emblems, and mottos.



Type E3

Type E3 example

- Note: Refer to TM for detailed information on sign selection criteria.

Guide

Guide signs are an essential means for locating destinations and routing travel to those destinations within a military installation. This category includes site directory map signs at all entrance gates and other key points within the installation; large street name signs at all inter sections; and large-lettered destination signs of not more than three lines. Together, these signs provide the most efficient means of guiding traffic to destinations within an installation. Installation building addresses similar to a municipality are the basis for this system.

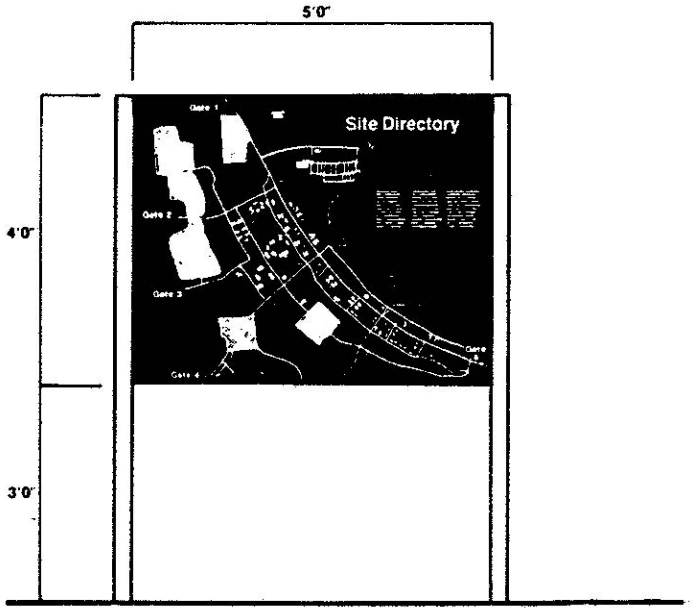
Guide signs are categorized within the TM into the following types:

- Destination and Street Name

  These signs should be in accordance with the "Manual on Uniform Traffic Control Devices," and MTMC Pamphlet 55-14.

- Type FI: Site Directory Map

Type FI site directory map signs provide visitors with a simplified site map of the installation for orientation and directional guidance.



Type F1

- Note: Refer to TM for detailed information on sign selection criteria.

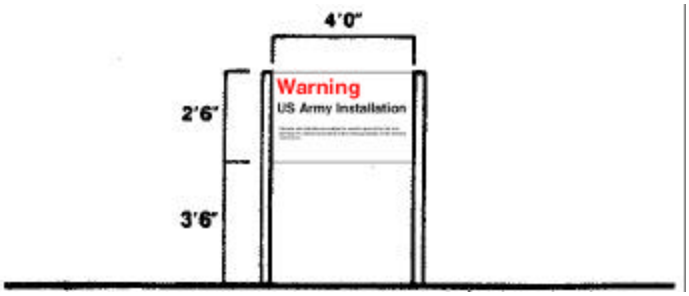
Mandatory/Prohibitory

Mandatory/prohibitory signs restrict, warn and advise visitor and installation personnel in matters of Army security, safety and parking controls. To avoid confusion, directives should not be unnecessarily wordy. Signs should be used in moderation so that their message is not lost among many signs.

Mandatory/prohibitory signs are categorized within the TM into the following types:

- Type G1: Warning

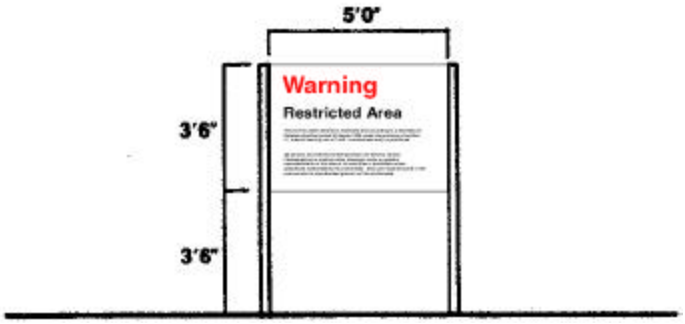
Type G1 signs notify visitors of restrictions governing conduct on the installation and of entrances limited to authorized personnel.



Type G1

- Type G2: Warning

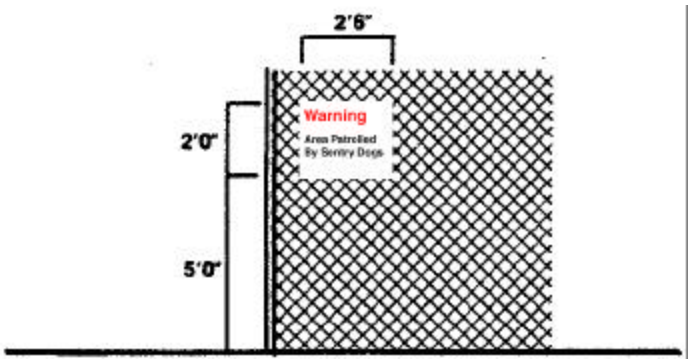
Type G2 signs notify visitors and installation personnel of regulations pertaining to restricted areas on the installation.



Type G2

- Type G3: Warning

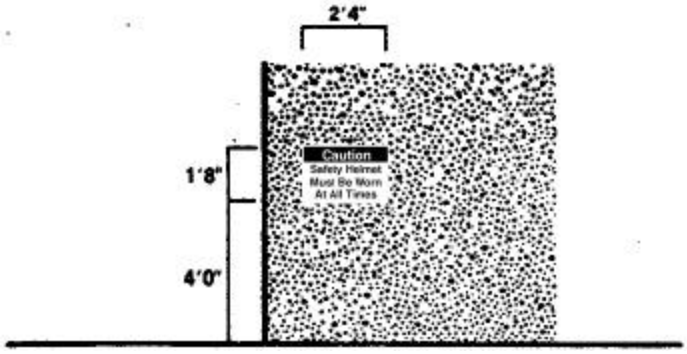
Type G3 signs may notify visitors and installation personnel of general hazards, regulations, and restricted areas similar to types G1 and G2, but on a smaller sized sign.



Type G3

- Type G4: Safety

Specifications for Type G4 safety signs are detailed in AR 385-30, and are in accordance with these guidelines.



Type G4

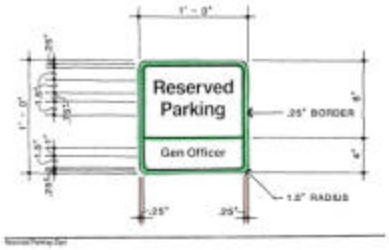
- Type G5: Parking

Type G5 signs have been designed to supplement the "Manual on Uniform Traffic Control Devices" parking standards. Type G5 signs may be freestanding or wall-mounted.

Type G5

- Type G6: Parking

Type G6 signs have been designed to identify reserved parking stalls and to supplement the "Manual on Uniform Traffic Control Devices" parking standards. Parking regulations for the physically handicapped are given in the EM 1110-1103. Type G6 signs may be freestanding or wall-mounted. In addition, curb markings are recommended since they are visually less obtrusive than sign panels on vertical posts. Sign placement guidelines should follow the guidelines in the "Manual on Uniform Traffic Control Devices."



Type G6

- Type G7: Special Traffic

Type G7 signs which identify special conditions, such as tactical equipment limits and trail crossings, follow guidelines established in "Traffic Engineering for Better Signs and Markings," published by the Military Traffic Management Command, and standards in the "Manual on Uniform Traffic Control Devices."

- Note: Refer to TM for detailed information on sign selection criteria.

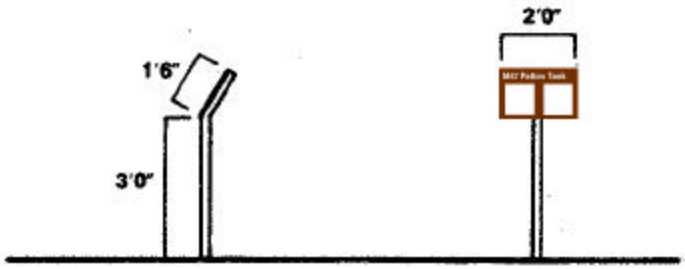
Informational

Information signs are used to provide educational information and directional guidance for visitors.

Informational signs are categorized within the TM into the following types:

- Type HI: Exhibit

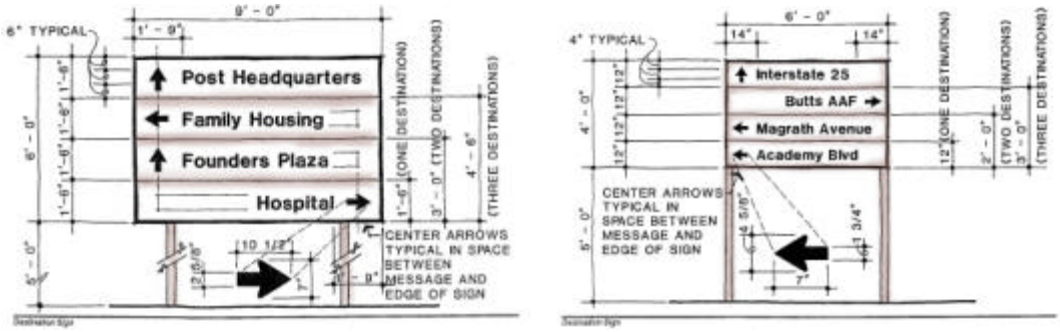
  Type HI signs are used to display information on exhibits of a large or small scale.



Type H1

- Type H2: Pedestrian

  Type H2 signs provides directional guidance for pedestrians. These signs are fabricated from modular sign panels with one destination per panel so that messages can be changed without remaking the entire sign face. Pedestrian signs, which are not expected to receive frequent message changes, should be fabricated from a single sign panel. Messages are grouped in the following order according to their arrow direction: forward, left, and right. In addition, placement of the message on the sign panel is determined by the arrow direction; destinations forward and left have flush left messages, destinations right have flush right messages. The arrow is centered in the space between the message and the edge of the sign. No more than six panels may be mounted on a single base with a maximum of one message line per panel.



Type H2

Type H2 example

- Note: Refer to TM for detailed information on sign selection criteria.

APPENDIX I

PLANT PALETTE

The following table lists the plant material that are permitted for use on Fort Stewart. The table includes information on characteristics of each plant related to their appearance, recommended uses and growing conditions

Section:

PLANT SELECTION LIST
Plant Material Suitability Matrix

Botanical Name	Common Name	Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function							
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen
		Characteristics														Culture								Use							
SHADE TREES																															
Acer rubrum	Red Maple	X				X						X	X	X	X						X	X		X	X		X				X
Betula nigra	River Birch	X				X					X			X						X	X	X			X		X				X
Liriodendron tulipifera	Tulip Poplar	X				X			X	X		X			X							X			X		X				X
Magnolia grandiflora	Southern Magnolia		X			X			X	X		X		X	X					X		X		X	X		X				X
Platanus occidentalis	London Planetree	X				X						X		X	X						X	X		X	X		X				X
Quercus falcata	Southern Red Oak	X		X								X		X	X							X		X	X		X				X
Quercus laurifolia	Laurel Oak	X		X								X		X	X					X	X	X		X	X		X				X
Quercus phellos	Willow Oak	X		X								X		X	X						X	X		X	X		X				X
Quercus shumardii	Shumard Oak	X		X								X		X	X					X	X	X		X	X		X				X
Quercus virginiana	Live Oak	X		X								X		X	X					X	X	X		X	X		X				X
INTERMEDIATE TREES																															
Carpinus caroliniana	Blue Beech	X				X						X	X	X							X	X									X
Cercis Canadensis	Redbud	X				X			X	X			X	X	X				X	X		X					X				X
Cornus florida	Flowering Dogwood	X		X					X	X		X	X	X					X	X		X					X				X
Koelreuteria paniculata	Goldenrain Tree	X				X		X				X			X				X	X	X	X	X		X						X
Lagerstroemia indica	Crapemyrtle	X		X			X	X		X	X	X			X							X					X				X
Magnolia soulangeana	Saucer Magnolia	X		X					X	X	X		X	X						X		X			X						X
Magnolia virginiana	Sweet Bay Magnolia		X	X					X	X	X	X	X	X						X	X	X			X		X				X
Myrica cerifera	Southern Wax Myrtle		X			X			X			X		X	X					X		X				X	X				X
Nyssa sylvatica	Black Tupelo	X		X								X		X	X					X	X	X					X				X
Pyrus calleryana ‘Aristocrate’	Aristocrat Pear	X				X			X	X		X			X				X	X		X	X								X
Sapium sebiferum	Chinese Yellowtree	X				X		X				X		X						X	X	X	X		X						X
Taxodium distichum	Common Bald Cypress	X				X					X	X		X	X						X	X		X			X				
EVERGREEN TREES																															
Butia capitata	Butia Palm		X	X								X			X							X					X				X
Eriobotrya japonica	Loquat		X	X			X			X		X		X	X				X		X	X				X	X				X
Juniperus virginiana	Eastern Red Cedar		X			X					X			X	X					X		X	X			X	X	X			X
Pinus elliottii	Slash Pine		X			X						X		X	X							X				X	X	X			X
Pinus palustris	Longleaf Pine		X			X						X		X	X							X				X	X	X			X
Sabal palmetto	Cabbage Palmetto		X	X								X			X					X		X		X			X				X
Trachycarpus fortunei	Windmill Palm		X	X								X			X				X			X	X	X			X				X
EVERGREEN SHRUBS																															

PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function							
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen
Botanical Name	Common Name	Characteristics														Culture								Use							
Buxus microphyllum	Japanese Boxwood		X	X			X			X		X		X	X						X	X					X		X		X
Camellia sasanqua	Fall-blooming Camellia		X	X			X			X		X		X	X						X	X				X					X
Cotoneaster horizontalis	Rockspray Cotoneaster		X	X								X		X	X							X					X				X
Cycas revolute	Sago Cycas		X	X								X		X	X					X		X					X				X
Elaeagnus pungens	Thorny Elaeagnus		X			X						X	X	X	X					X		X	X			X					X
Fatsia japonica	Japanese Fatsia		X	X			X			X		X		X	X							X					X				X
Hypericum patulum 'Sungold'	Sungold Hypericum		X			X		X		X		X		X	X				X	X		X	X				X				X
Ilex cornuta 'Burfordii'	Burford Holly		X	X								X		X	X					X		X				X	X				X
Ilex cornuta 'Carissa'	Carissa Holly		X	X								X		X	X				X	X		X				X	X				X
Ilex cornuta 'Rotunda'	Dwarf Chinese Holly		X	X								X		X	X				X	X		X				X	X				X
Ilex crenata	Japanese Holly		X	X								X		X	X					X		X				X	X		X		X
Ilex crenata 'Helleri'	Heller Japanese Holly		X	X								X		X	X							X					X		X		X
Ilex opaca 'Fosteri'	Fosters Holly		X	X								X		X	X					X		X				X					X
Ilex opaca 'Savannah'	Savannah Holly		X	X								X		X	X					X		X				X					X
Ilex vomitoria	Yaupon Holly		X	X								X		X	X					X		X				X	X				X
Ilex vomitoria 'Stokes dwarf'	Dwarf Yaupon Holly		X	X								X		X	X					X		X				X	X				X
Illicium parviflorum	Yellow Anise-Tree		X			X	X			X		X	X	X	X					X	X	X					X				X
Illicium floridanum	Florida Anise-Tree		X			X	X			X		X	X	X	X					X	X	X					X				X
Juniperus chinensis 'Torulosa'	Hollywood Torulosa Juniper		X	X								X			X							X									X
Juniperus chinensis 'Pfitzeriana'	Pfitzer Juniper		X	X								X			X				X			X	X				X				X
Juniperis conferta	Shore Juniper		X	X								X			X				X			X	X				X				X
Juniperus horizentalis 'Plumosa'	Andorra Juniper		X	X								X			X				X			X	X				X				X
Ligustrum japonicum	Japanese Privet		X			X			X	X		X		X	X				X			X				X	X				X
Ligustrum lucidum	Golden Privet		X			X			X	X		X		X	X				X			X				X	X				X
Mahonia bealei	Leatherleaf Mahonia		X	X					X	X		X	X	X								X					X				X
Nandina domestica	Heavenly Bamboo		X			X			X	X		X	X	X	X				X		X	X	X				X				X
Osmanthus americanus	Devilwood Osmanthus		X	X			X			X		X	X	X						X		X									X
Osmanthus fragrans	Fragrant Tea Olive		X			X	X			X		X	X	X						X		X				X	X				X
Photinia serrulata	Chinese Photinia		X			X			X	X		X		X	X							X	X			X	X				X
Pittosporum tobira	Japanese Pittosporum		X			X			X	X		X	X	X	X							X	X			X	X				X

PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function							
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen
Botanical Name	Common Name	Characteristics														Culture								Use							
Podocarpus marcrophyllus 'Maki'	Shrubby Yew Podocarpus		X	X					X	X		X	X	X	X				X	X		X	X			X	X	X			X
Prunus caroliniana	Cherry Laurel		X	X					X	X		X		X	X							X				X					X
Pyracantha coccinea	Scarlet Firethorn		X			X		X		X					X							X					X				X
Raphiolepis indica	Indian Hawthorn		X	X					X	X		X	X	X	X				X		X	X	X				X				X
Rhododendron indicum	Indica Azalea		X			X			X	X		X	X	X							X	X					X				X
Rhododendron obtusum	Kurume Azalea		X	X					X	X		X	X	X							X	X					X				X
Ternstroemia gymnathera	Japanese Cleyera		X	X					X	X		X		X	X				X	X		X	X			X	X				X
Viburnum odoratissumum	Sweet Viburnum		X			X			X			X		X								X	X			X	X				X
DECIDUOUS SHRUBS																															
Clethra alnifolia	Summersweet Clethra	X				X		X		X			X	X	X					X		X					X				X
Hibiscus syriacus	Shrub Althea	X		X						X			X	X	X					X		X	X				X				
Hydrangea macrophylla	Bigleaf Hydrangea	X				X		X		X			X	X							X	X					X				X
Hydrangea quercifolia	Oakleaf Hydrangea	X				X		X		X	X			X	X					X		X					X				X
Jasminum nudiflorum	Winter Jasmine	X		X					X	X			X	X	X				X	X		X	X				X				X
Lonicera fragrantissima	Winter Honeysuckle	X				X			X	X			X	X						X		X				X	X				X
Spiraea thunbergii	Thunberg Spirea	X				X		X		X					X							X					X				X
Spiraea x vanhouttei	Vanhoutte Spirea	X				X		X		X					X							X					X				X
GROUNDCOVERS/VINES																															
Ajuga reptans	Carpet Bugle	X				X			X	X		X	X	X	X				X	X	X	X	X				X				
Euonymus fortunei 'Radicans'	Common Wintercreeper		X	X								X		X	X							X					X				
Hedera canariensis	Algerian Ivy		X	X						X			X	X						X		X					X				
Hedera helix	English Ivy		X	X						X			X	X						X		X					X				
Hemerocallis	Daylilly	X				X	X	X		X		X		X	X					X		X					X				
Juniperus chinensis 'Sargentii'	Sargent Juniper		X	X								X		X	X							X	X				X				
Juniperus conferta 'Blue Pacific'	Blue Pacific Juniper		X	X								X		X	X							X	X				X				
Juniperus horizentalis	Creeping Juniper		X	X								X		X	X							X	X				X				
Juniperus procumbrens	Japgarden Juniper		X	X								X		X	X							X	X				X				
Vinca major	Bigleaf Periwinkle		X			X			X	X		X		X	X							X					X				
GRASSES																															
Axonopus affinis	Carpet Grass	X				X						X		X								X					X				

Section:

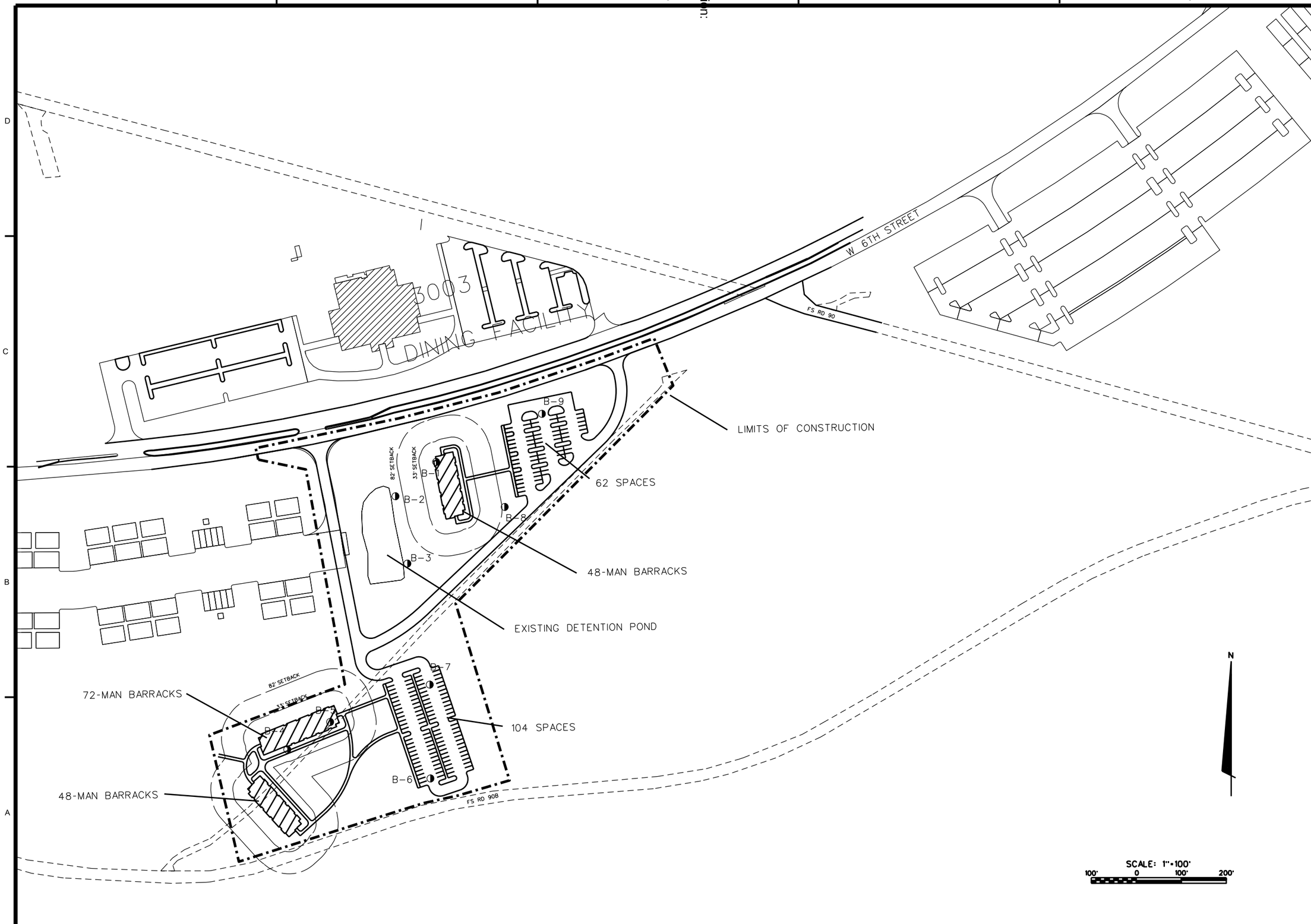
PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function							
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen
Botanical Name	Common Name	Characteristics														Culture								Use							
Cortaderia selloana	Pampas Grass	X				X		X		X			X	X	X					X		X	X				X				X
Cynodon dactylon 'Tiflawn'	Common Bermuda Grass	X				X						X			X							X					X				
Ermochloa ophiuroides	Centipede Grass	X		X						X				X	X							X					X				
Liriope muscari	Big Blue Lilyturf	X				X		X		X		X	X	X					X			X	X				X				
Liriope spicata	Creeping Lilyturf	X				X		X		X		X	X	X					X			X	X				X				
Stenotaphrum secundatum	St. Augustine Grass	X				X						X	X									X					X				

APPENDIX J

Drawings

Site Drawings

Section:



US ARMY CORPS
OF ENGINEERS
SAVANNAH

DATE	DESCRIPTION	BY

CONREC

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE: D
12"X36"
PLOT SCALE:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
CATEGORY CODE:
721-11-05
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

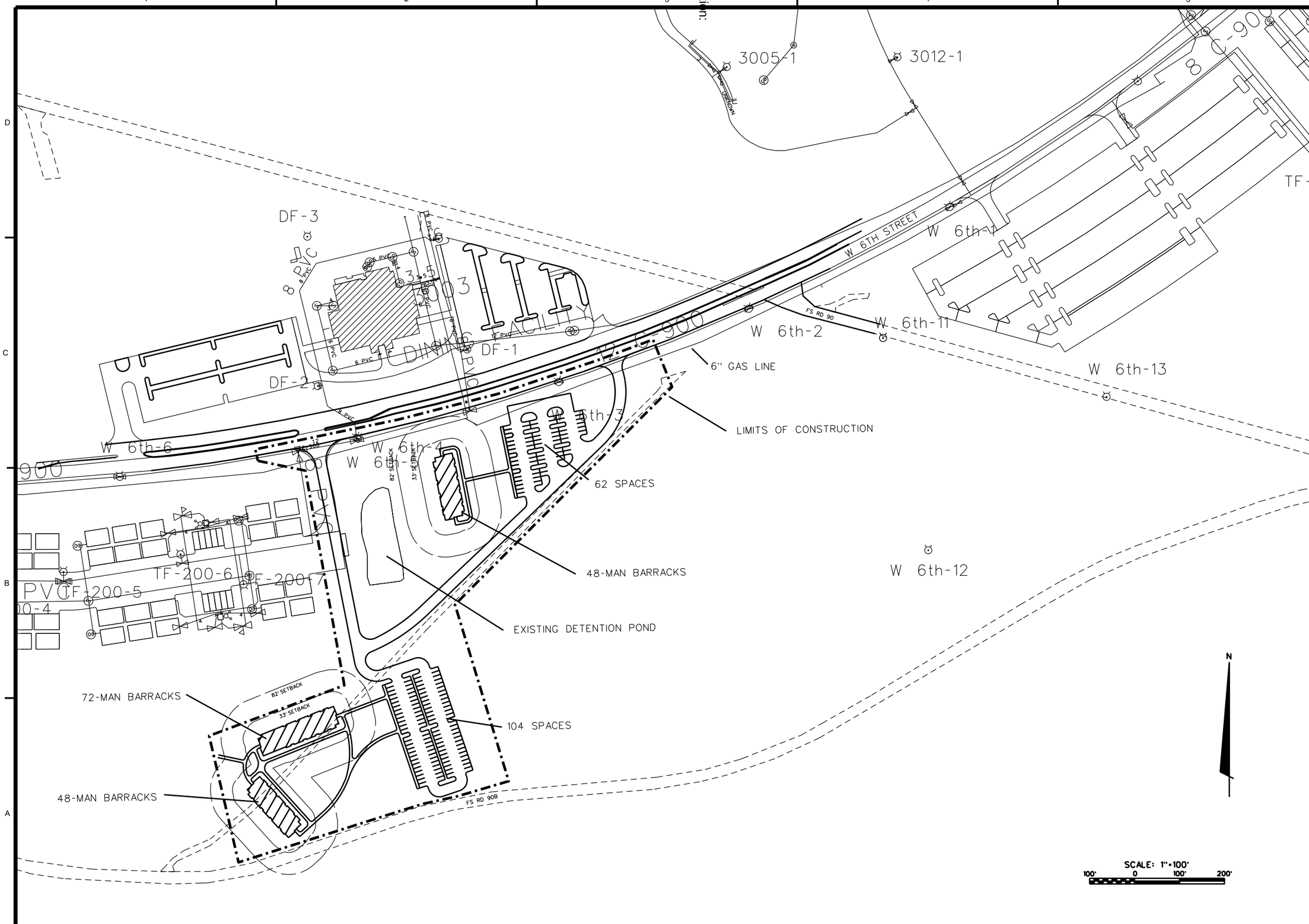
ECHELONS ABOVE BRIGADE (EAB) BARRACKS
FORT STEWART, GEORGIA

CIVIL

SITE PLAN

PLATE
REFERENCE
NUMBER
CS01
SHEET 1

$$OGNSPEC$$
$$SYSTIME$$
$$USERNAME$$



US ARMY CORPS
OF ENGINEERS
SAVANNAH

DATE	DESCRIPTION	BY

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME:
SIZE: D
PLOT SCALE:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
CATEGORY CODE:
PLOT DATE: 7-21-11-05

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

ECHELONS ABOVE BRIGADE (EAB) BARRACKS
FORT STEWART, GEORGIA

CIVIL

UTILITY PLAN

PLATE
REFERENCE
NUMBER
CU01
SHEET 2

$$OCNSPEC$$
$$SYSTIME$$
$$USERNAME$$

Architectural Drawings

48-Man Barracks

Section:

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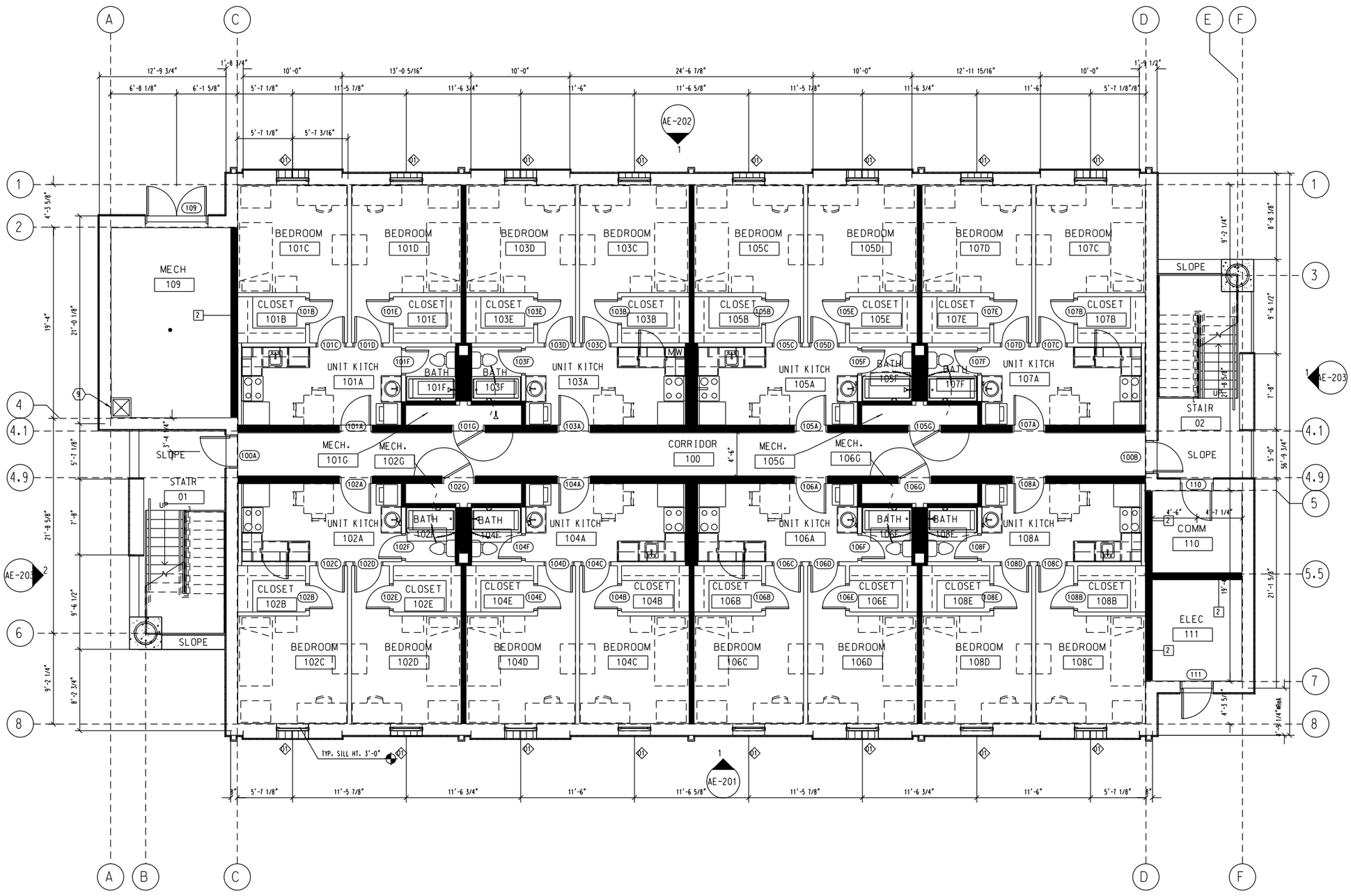
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA



KEYNOTES:

1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. GUTTER
7. LAMINATED COUNTER TOP
8. DOWN SPOUTS
9. MOP SINK
10. COUNTER
11. REFRIGERATOR
12. NOT USED
13. STANDING SEAM METAL ROOF
14. TILE
15. SPLASH BLOCKS
16. NOT USED
17. FIRE EXTINGUISHER
18. FIRE EXTINGUISHER CABINET
19. SIDEWALK, REFER TO CIVIL

LEGEND:

- SEPARATION WALL (1/2 HOUR OR BETTER)
- 1 HOUR RATED CHASE

1 / AE-101 FIRST FLOOR PLAN
3/16" = 1'-0"

3/16"=1'-0" 1' 4' 12' 0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: | DATE:
DWN BY: | CKD BY: | SOLICITATION NO.:
SUBMITTED BY: | CONTRACT NO.:
FILE NAME: S2A AE-101 | CATEGORY CODE: 721-11-10
SIZE: 22X34 | PLOT SCALE: As indicated | PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

FIRST FLOOR PLAN

AE-101

Section:

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APRIL 23, 2009

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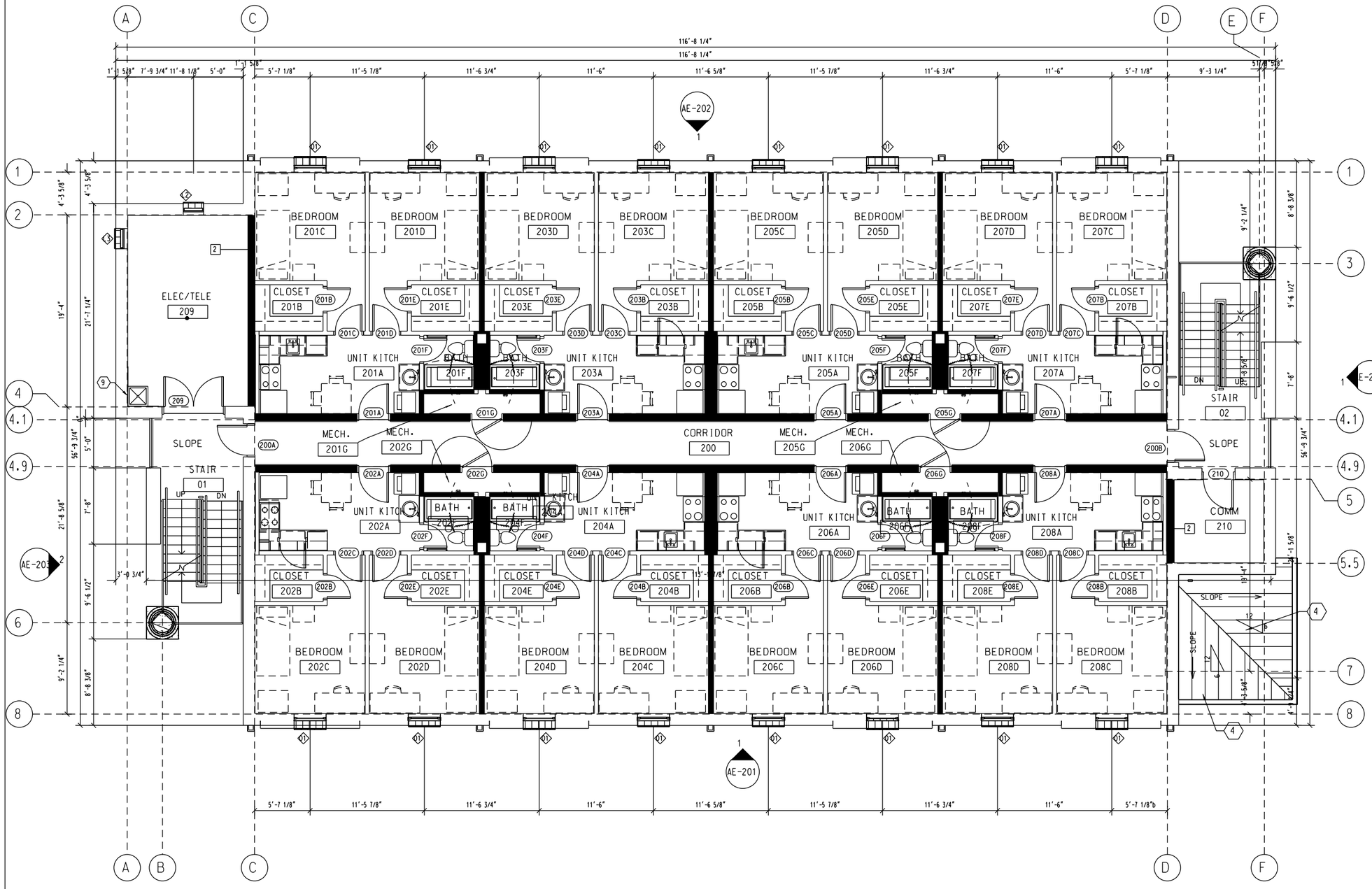

KEYNOTES:

1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. GUTTER
7. LAMINATED COUNTER TOP
8. DOWN SPOUTS
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10. COUNTER
11. REFRIGERATOR
12. NOT USED
13. STANDING SEAM METAL ROOF
14. TILE
15. SPLASH BLOCKS
16. NOT USED
17. FIRE EXTINGUISHER
18. FIRE EXTINGUISHER CABINET
19. SIDEWALK, REFER TO CIVIL

LEGEND:

- SEPARATION WALL (1/2 HOUR OR BETTER)
- 1 HOUR RATED CHASE

1 SECOND FLOOR PLAN
AE-102 3/16" = 1'-0"

3/16"=1'-0"

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: S2A AE-102 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

SECOND FLOOR PLAN

AE-102

Section:

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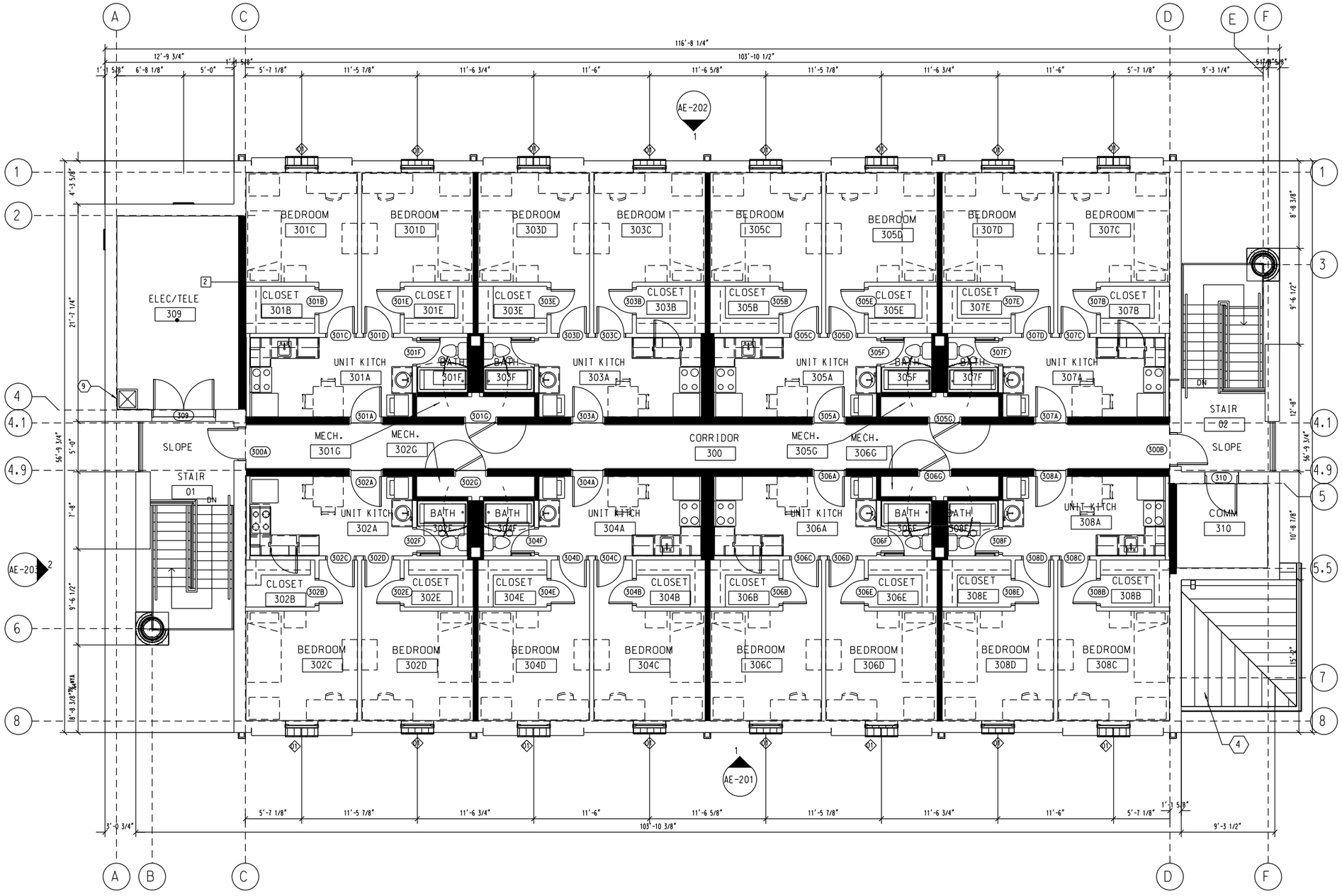

KEYNOTES:

1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. GUTTER
7. LAMINATED COUNTER TOP
8. DOWN SPOUTS
9. MOP SINK
10. COUNTER
11. REFRIGERATOR
12. NOT USED
13. STANDING SEAM METAL ROOF
14. TILE
15. SPLASH BLOCKS
16. NOT USED
17. FIRE EXTINGUISHER
18. FIRE EXTINGUISHER CABINET
19. SIDEWALK, REFER TO CIVIL

LEGEND:

- SEPARATION WALL (1/2 HOUR OR BETTER)
- 1 HOUR RATED CHASE

1 / AE-103 THIRD FLOOR PLAN
3/16" = 1'-0"

3/16"=1'-0" 1' 4' 12' 0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: S2A AE-103 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: As indicated PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

THIRD FLOOR PLAN

AE-103

Section:

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U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA

ELEVATION KEYNOTES:

1. FACE BRICK VENEER ON EXTERIOR GYPSUM SHEATHING.
2. DOUBLE SOLDIER COURSE HEADER
3. BULLNOSE BRICK SILL
4. METAL ROOF PANEL
5. NOT USED
6. METAL GUTTER
7. EIFS FINISH
8. DOWN SPOUT
9. NOT USED
10. BRICK EXPANSION JOINT
11. CONCRETE BASE
12. METAL FASCIA
13. EXTERIOR LIGHT
14. BULLNOSE WATER TABLE
15. SPLASH BLOCKS
16. BRICK JACK ARCH HEADER
17. BRICK ROWLOCK
18. (GFRG) COLUMN

1 AE-201 ELEVATION 1
3/16" = 1'-0"

3/16"=1'-0" 1' 4' 12' 0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: S2A AE-201 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: As indicated PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

EXTERIOR ELEVATION 1

AE-201

Section:

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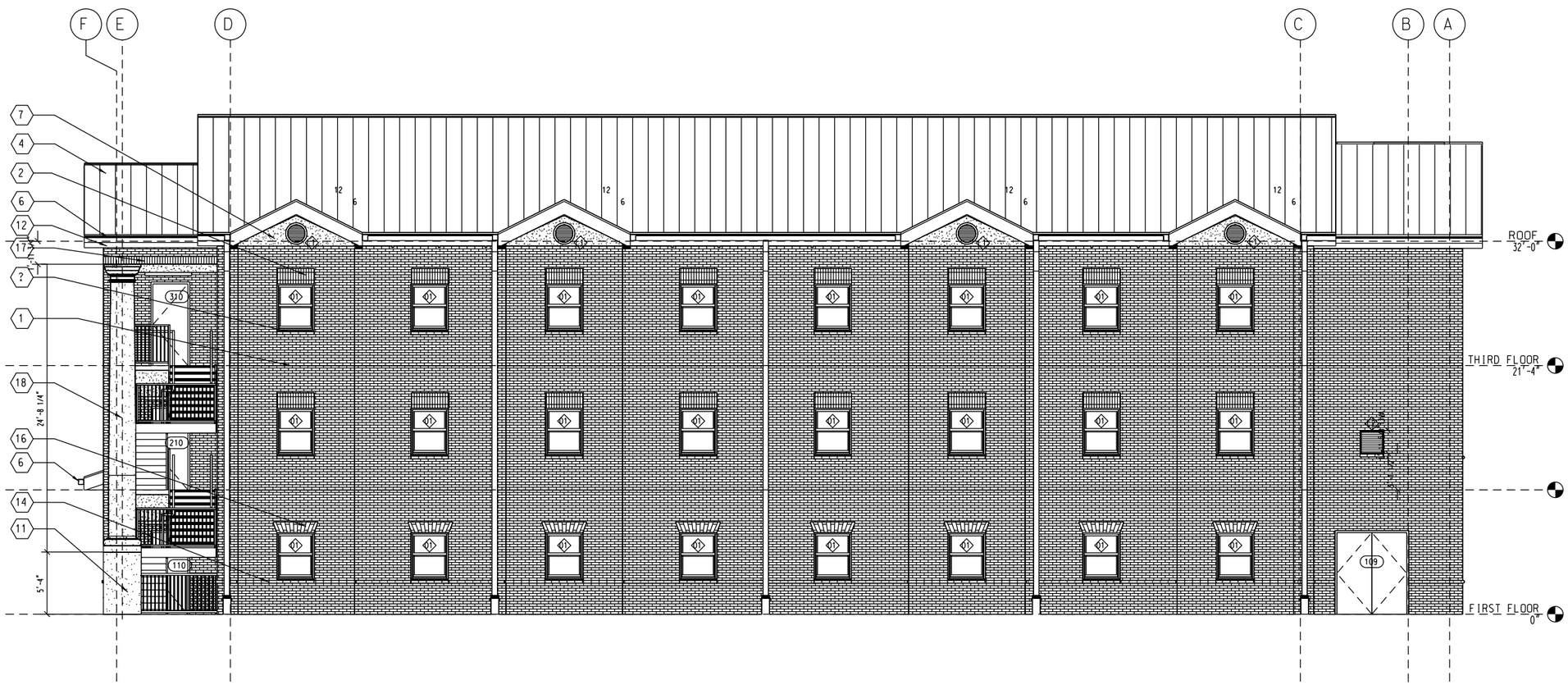
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA

ELEVATION KEYNOTES:

1. FACE BRICK VENEER ON EXTERIOR GYPSUM SHEATHING.
2. DOUBLE SOLDIER COURSE HEADER
3. BULLNOSE BRICK SILL
4. METAL ROOF PANEL
5. NOT USED
6. METAL GUTTER
7. EIFS FINISH
8. DOWN SPOUT
9. NOT USED
10. BRICK EXPANSION JOINT
11. CONCRETE BASE
12. METAL FASCIA
13. EXTERIOR LIGHT
14. BULLNOSE WATER TABLE
15. SPLASH BLOCKS
16. BRICK JACK ARCH HEADER
17. BRICK ROWLOCK
18. (GFRG) COLUMN



1 AE-202 ELEVATION 2
3/16" = 1'-0"

3/16"=1'-0"
1' 4' 12'
0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: SZA AE-202 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: As Indicated PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

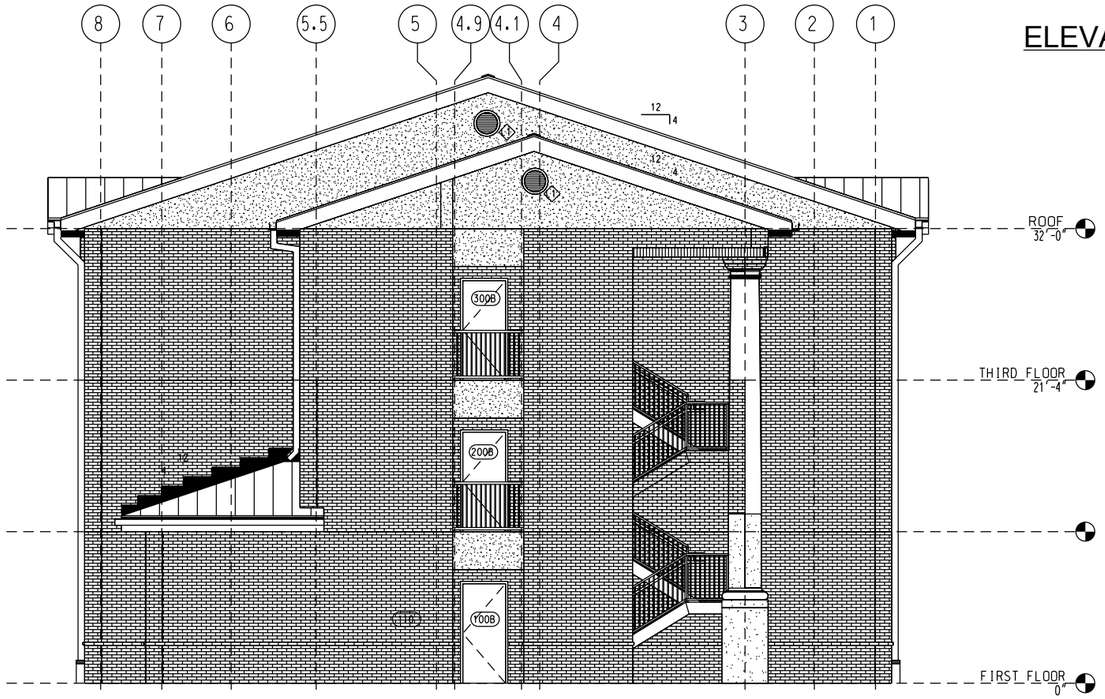
EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

EXTERIOR ELEVATION 2

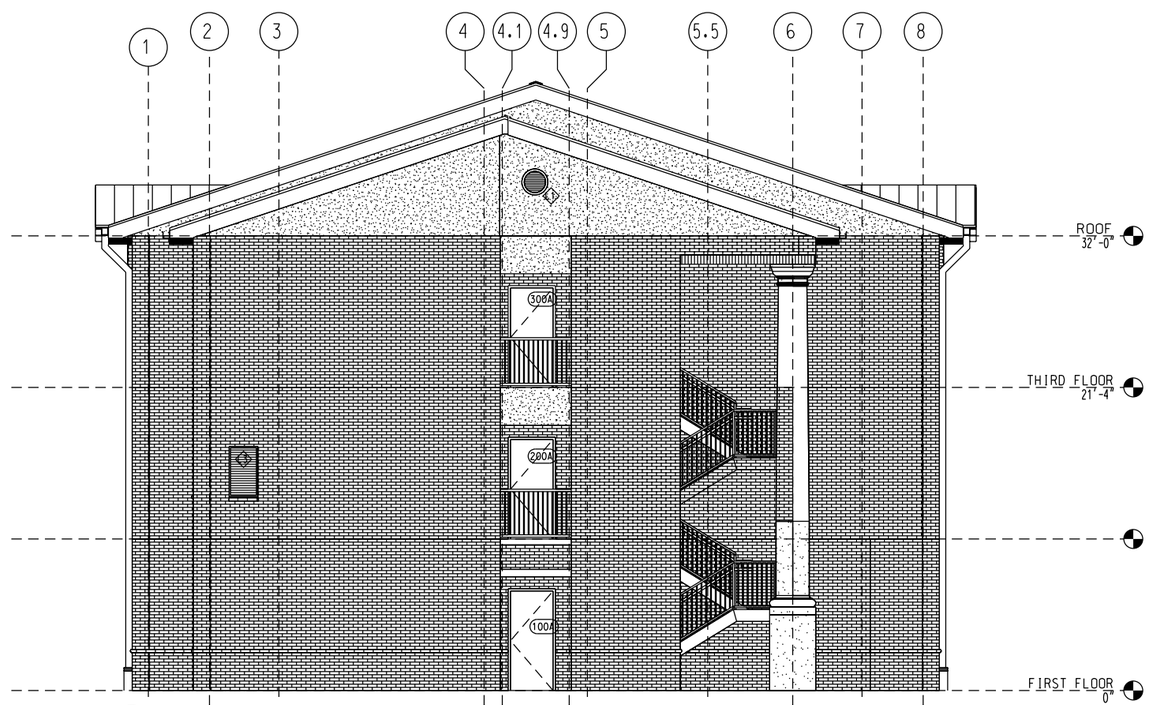
AE-202

Section:

ELEVATIONS ARE PROVIDED FOR INFORMATION ONLY



1 / AE-203 ELEVATION 3
3/16" = 1'-0"



2 / AE-203 ELEVATION 4
3/16" = 1'-0"

3/16"=1'-0"
1' 4' 12'
0' 2' 8'

ISSUED FOR REVIEW
NOT APPROVED FOR CONSTRUCTION
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA

ELEVATION KEYNOTES:

1. FACE BRICK VENEER ON EXTERIOR GYPSUM SHEATHING.
2. DOUBLE SOLDIER COURSE HEADER
3. BULLNOSE BRICK SILL
4. METAL ROOF PANEL
5. NOT USED
6. METAL GUTTER
7. EIFS FINISH
8. DOWN SPOUT
9. NOT USED
10. BRICK EXPANSION JOINT
11. CONCRETE BASE
12. METAL FASCIA
13. EXTERIOR LIGHT
14. BULLNOSE WATER TABLE
15. SPLASH BLOCKS
16. BRICK JACK ARCH HEADER
17. BRICK ROWLOCK
18. (GFRG) COLUMN

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY: CKD BY:
SUBMITTED BY:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NAME: SZA AE-203
CATEGORY CODE: 721-11-10
SIZE: 22X34
PLOT SCALE: As indicated
PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

EXTERIOR ELEVATION 3 AND 4

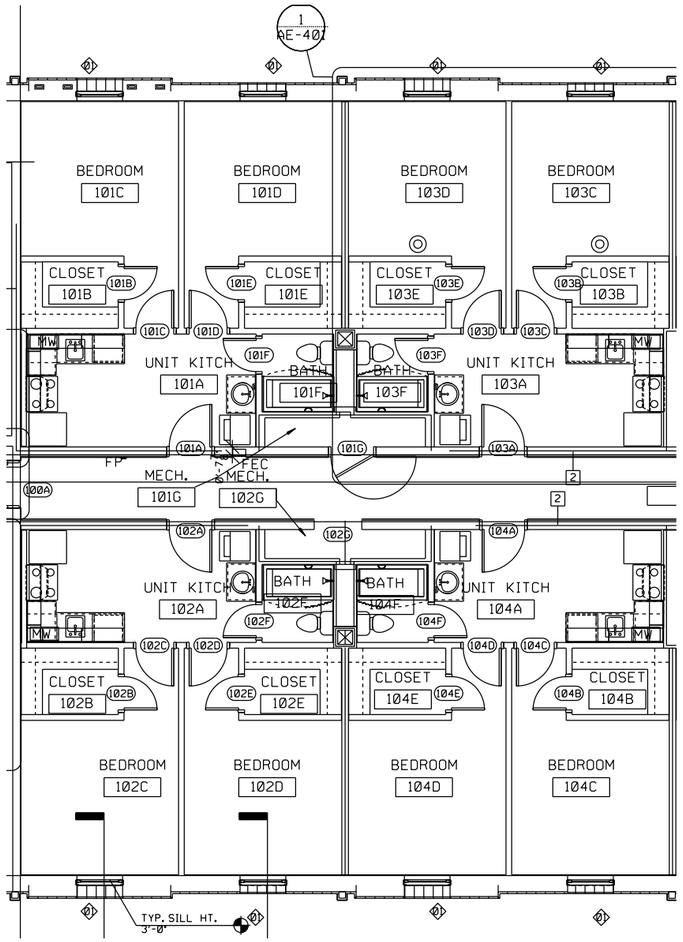
AE-203

Architectural Drawings

72-Man Barracks

Section:

MODULE IS PROVIDED FOR INFORMATION ONLY



TYPICAL 8 SLEEPING ROOM MODULE

THE INTENT OF THIS RFP IS TO RECONFIGURE THE CURRENT 48-MAN BARRACKS LAYOUT TO INCLUDE ONE ADDITIONAL 8 ROOM MODULE (AS SHOWN) PER FLOOR. THIS WILL INCREASE ROOM TOTAL PER FLOOR FROM 16 SLEEPING ROOMS TO 24 SLEEPING ROOMS. THE 3 FLOOR LIMIT WILL REMAIN AS THE BARRACKS BUILDING STANDARD, RESULTING IN A 72-MAN (72 SLEEPING ROOM) BARRACKS STRUCTURE. OTHER THAN THE TOTAL LENGTH OF THE BUILDING INCREASING BY APPROXIMATELY 45 FEET FOR THE 72-MAN CONFIGURATION, THE EXTERIOR APPEARANCE OF THE STRUCTURE WILL CONTINUE TO MATCH THE APPROVED INSTALLATION STANDARD DESIGN FOR THE AREA.

DESIGNED BY: | DATE:
DWN BY: | CKD BY: | SOLICITATION NO.:
SUBMITTED BY: | CONTRACT NO.:
FILE NAME: | CATEGORY CODE:
SIZE: 22X34 | PLOT SCALE: | PLOT DATE:

PLATE REFERENCE NUMBER
A100
SHEET ____ OF ____

Section:

FLOOR PLAN IS PROVIDED FOR INFORMATION ONLY

ISSUED FOR REVIEW
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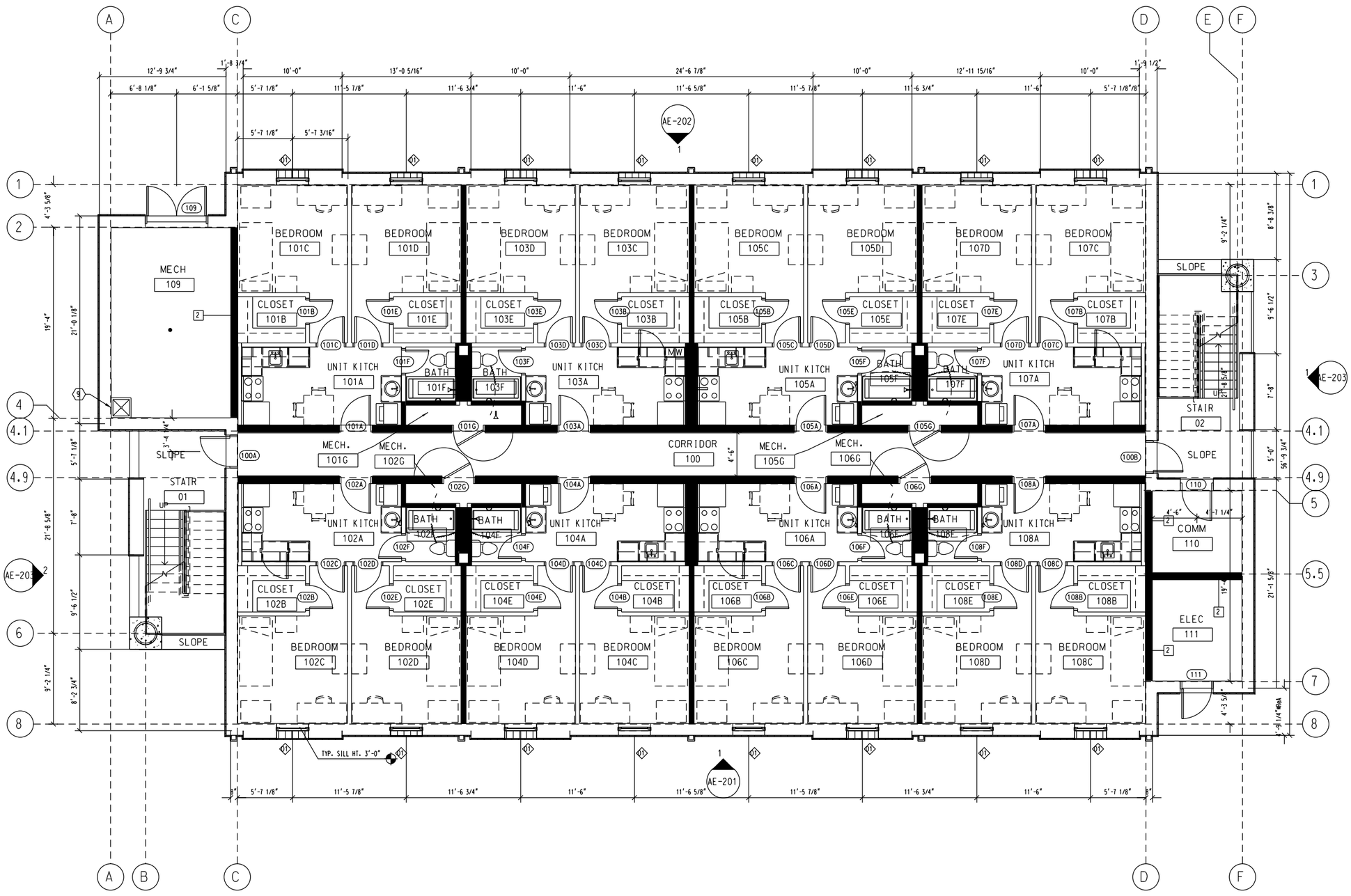
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA



KEYNOTES:

1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. GUTTER
7. LAMINATED COUNTER TOP
8. DOWN SPOUTS
9. MOP SINK
10. COUNTER
11. REFRIGERATOR
12. NOT USED
13. STANDING SEAM METAL ROOF
14. TILE
15. SPLASH BLOCKS
16. NOT USED
17. FIRE EXTINGUISHER
18. FIRE EXTINGUISHER CABINET
19. SIDEWALK, REFER TO CIVIL

LEGEND:

- SEPARATION WALL (1/2 HOUR OR BETTER)
- 1 HOUR RATED CHASE

1 / AE-101 FIRST FLOOR PLAN
3/16" = 1'-0"

3/16"=1'-0" 1' 4' 12' 0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: | DATE:
DWN BY: | CKD BY: | SOLICITATION NO.:
SUBMITTED BY: | CONTRACT NO.:
FILE NAME: S2A AE-101 | CATEGORY CODE: 721-11-10
SIZE: 22X34 | PLOT SCALE: As indicated | PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

FIRST FLOOR PLAN

AE-101

Section:

FLOOR PLAN IS PROVIDED FOR INFORMATION ONLY

ISSUED FOR REVIEW
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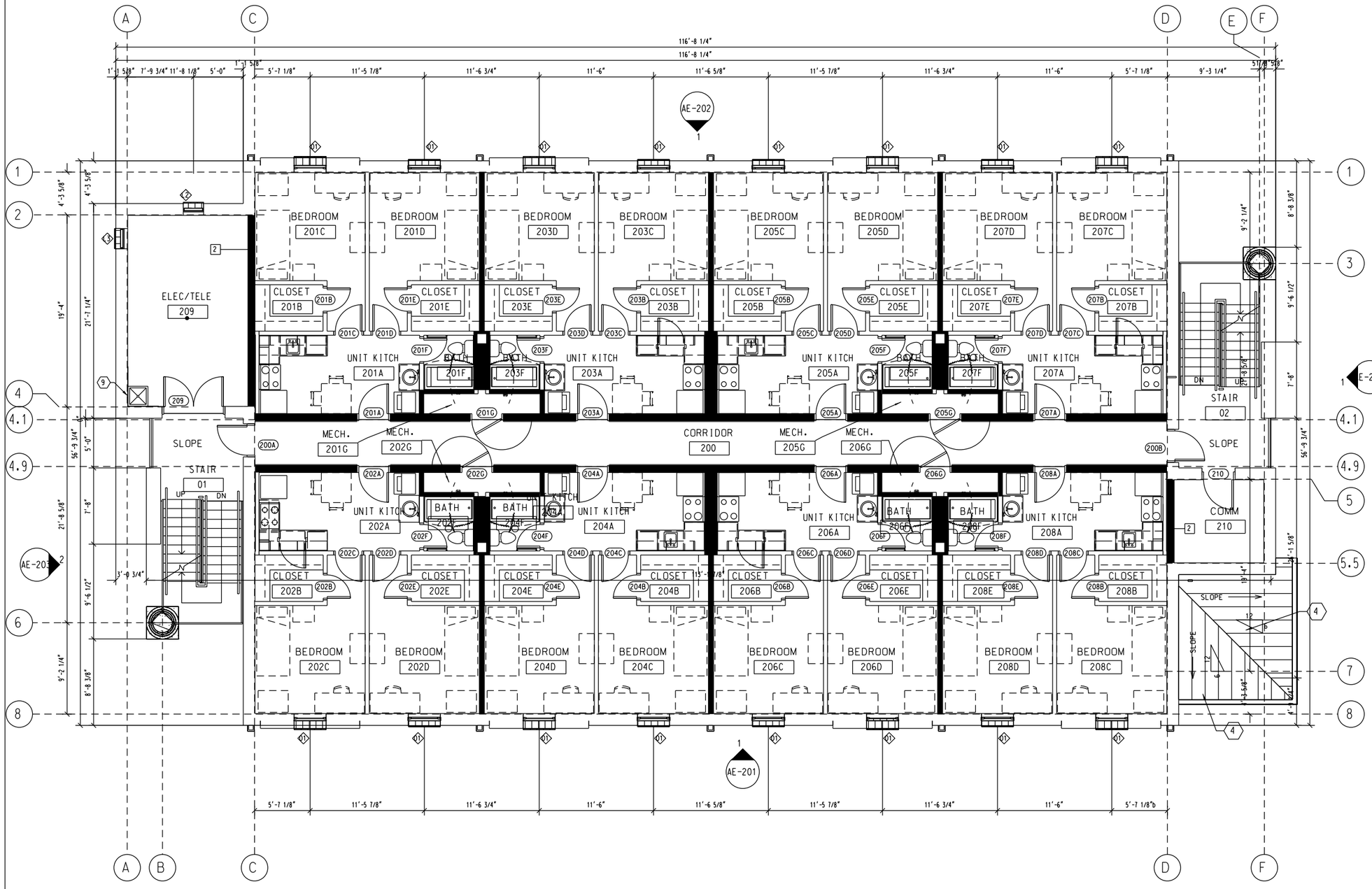
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA



KEYNOTES:

1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. GUTTER
7. LAMINATED COUNTER TOP
8. DOWN SPOUTS
9. MOP SINK
10. COUNTER
11. REFRIGERATOR
12. NOT USED
13. STANDING SEAM METAL ROOF
14. TILE
15. SPLASH BLOCKS
16. NOT USED
17. FIRE EXTINGUISHER
18. FIRE EXTINGUISHER CABINET
19. SIDEWALK, REFER TO CIVIL

LEGEND:

- SEPARATION WALL (1/2 HOUR OR BETTER)
- 1 HOUR RATED CHASE

1 SECOND FLOOR PLAN
AE-102 3/16" = 1'-0"

3/16"=1'-0"

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: S2A AE-102 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

SECOND FLOOR PLAN

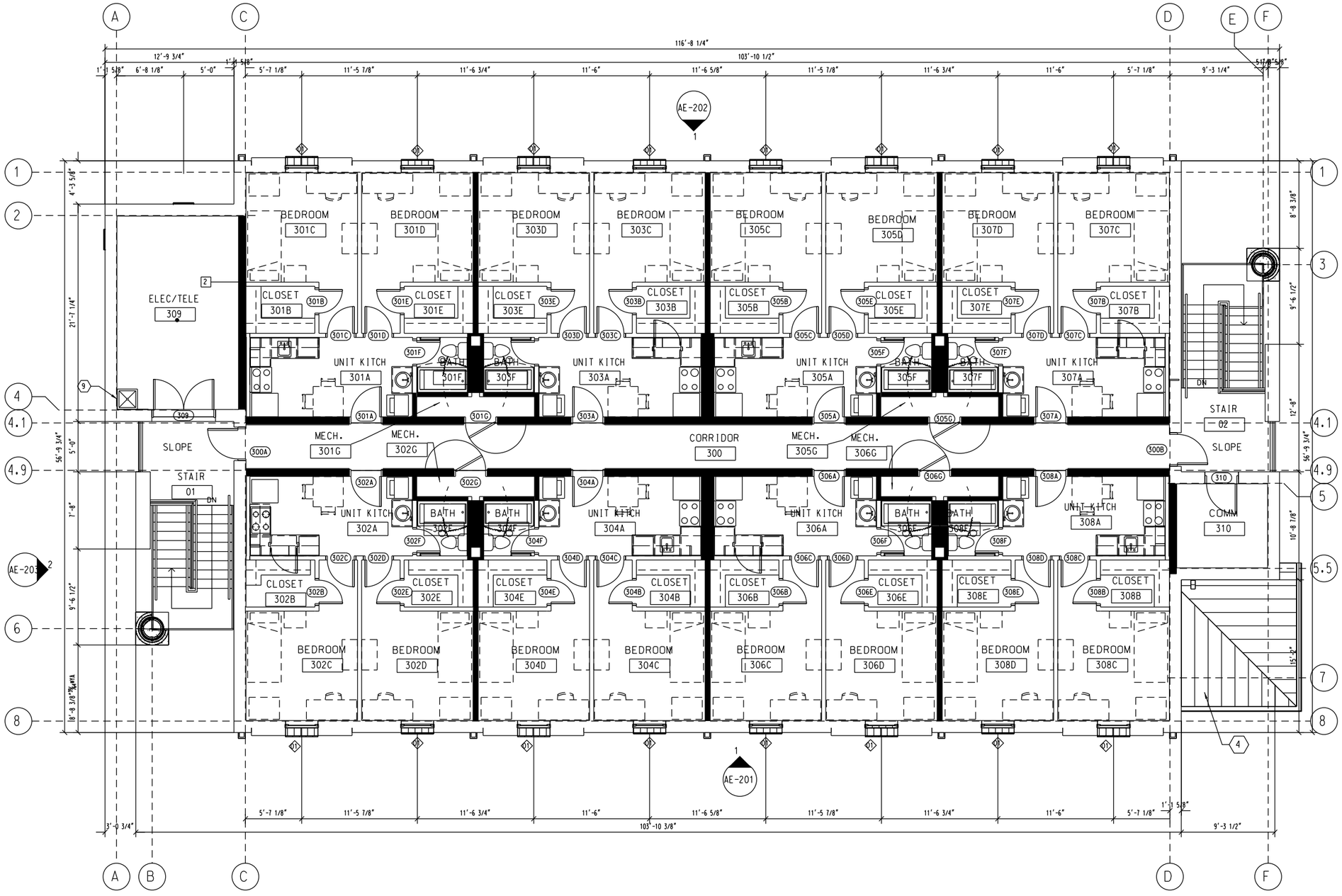
AE-102

Section:

FLOOR PLAN IS PROVIDED FOR INFORMATION ONLY

ISSUED FOR REVIEW
NOT APPROVED FOR CONSTRUCTION
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA



KEYNOTES:

1. NOT USED
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. GUTTER
7. LAMINATED COUNTER TOP
8. DOWN SPOUTS
9. MOP SINK
10. COUNTER
11. REFRIGERATOR
12. NOT USED
13. STANDING SEAM METAL ROOF
14. TILE
15. SPLASH BLOCKS
16. NOT USED
17. FIRE EXTINGUISHER
18. FIRE EXTINGUISHER CABINET
19. SIDEWALK, REFER TO CIVIL

LEGEND:

- SEPARATION WALL (1/2 HOUR OR BETTER)
- 1 HOUR RATED CHASE

1 / AE-103 THIRD FLOOR PLAN
3/16" = 1'-0"

3/16"=1'-0" 1' 4' 12' 0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: S2A AE-103 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: As indicated PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

THIRD FLOOR PLAN

AE-103

Section:

ELEVATION IS PROVIDED FOR INFORMATION ONLY

ISSUED FOR REVIEW
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APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA

ELEVATION KEYNOTES:

1. FACE BRICK VENEER ON EXTERIOR GYPSUM SHEATHING.
2. DOUBLE SOLDIER COURSE HEADER
3. BULLNOSE BRICK SILL
4. METAL ROOF PANEL
5. NOT USED
6. METAL GUTTER
7. EIFS FINISH
8. DOWN SPOUT
9. NOT USED
10. BRICK EXPANSION JOINT
11. CONCRETE BASE
12. METAL FASCIA
13. EXTERIOR LIGHT
14. BULLNOSE WATER TABLE
15. SPLASH BLOCKS
16. BRICK JACK ARCH HEADER
17. BRICK ROWLOCK
18. (GFRG) COLUMN

1 AE-201 ELEVATION 1
3/16" = 1'-0"

3/16"=1'-0" 1' 4' 12' 0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: S2A AE-201 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: As indicated PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

EXTERIOR ELEVATION 1

AE-201

Section:

ELEVATION IS PROVIDED FOR INFORMATION ONLY

ISSUED FOR REVIEW
NOT APPROVED FOR CONSTRUCTION
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA

ELEVATION KEYNOTES:

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5. NOT USED
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7. EIFS FINISH
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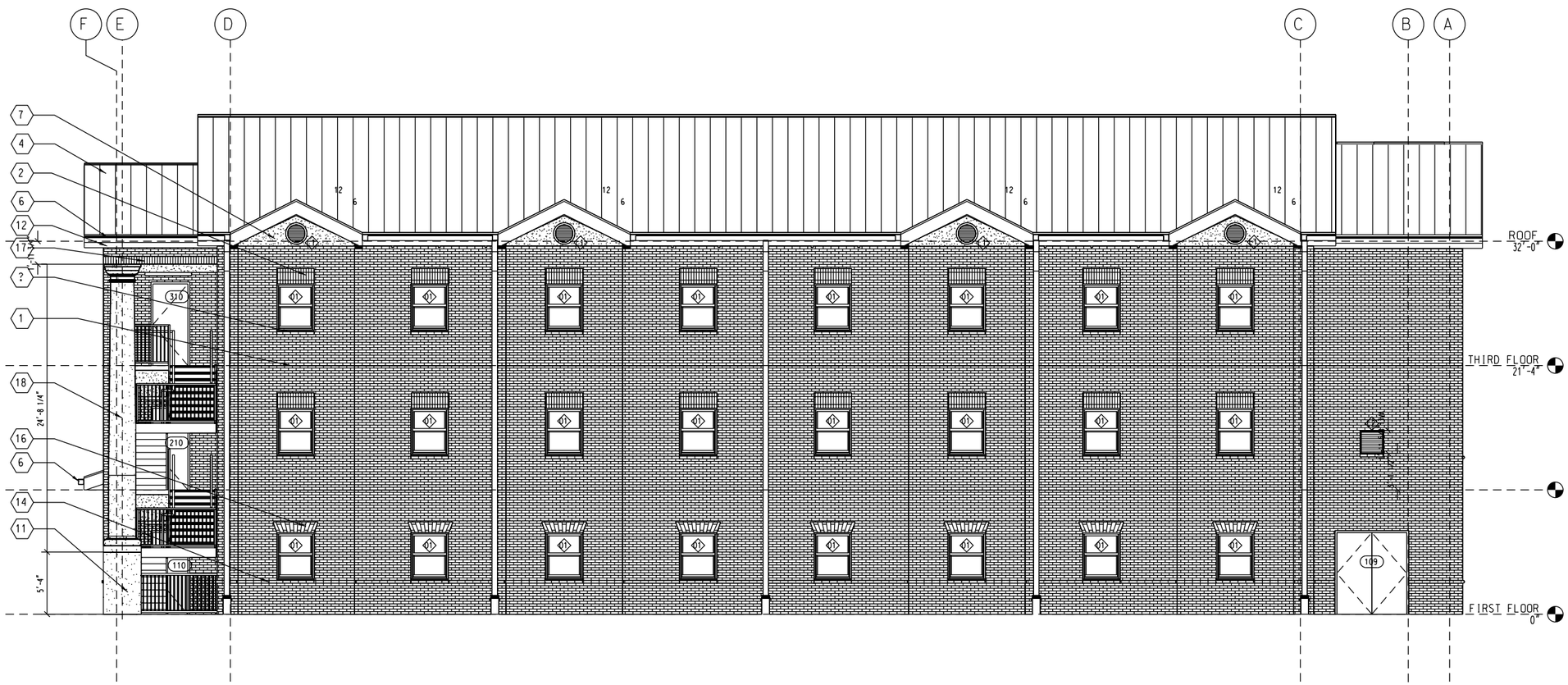
9. NOT USED
10. BRICK EXPANSION JOINT
11. CONCRETE BASE
12. METAL FASCIA
13. EXTERIOR LIGHT
14. BULLNOSE WATER TABLE
15. SPLASH BLOCKS
16. BRICK JACK ARCH HEADER
17. BRICK ROWLOCK
18. (GFRG) COLUMN



1 AE-202 ELEVATION 2
3/16" = 1'-0"

3/16"=1'-0"
1' 4' 12'
0' 2' 8'

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: DATE:
DWN BY: CKD BY: SOLICITATION NO.:
SUBMITTED BY: CONTRACT NO.:
FILE NAME: SZA AE-202 CATEGORY CODE: 721-11-10
SIZE: 22X34 PLOT SCALE: As Indicated PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

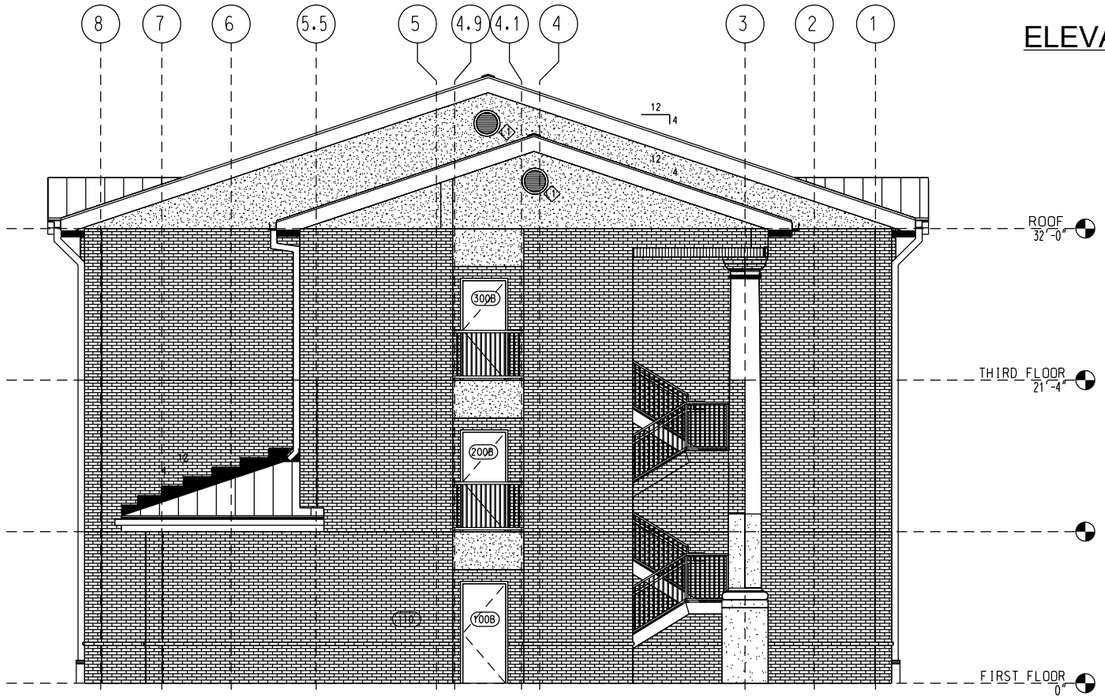
EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

EXTERIOR ELEVATION 2

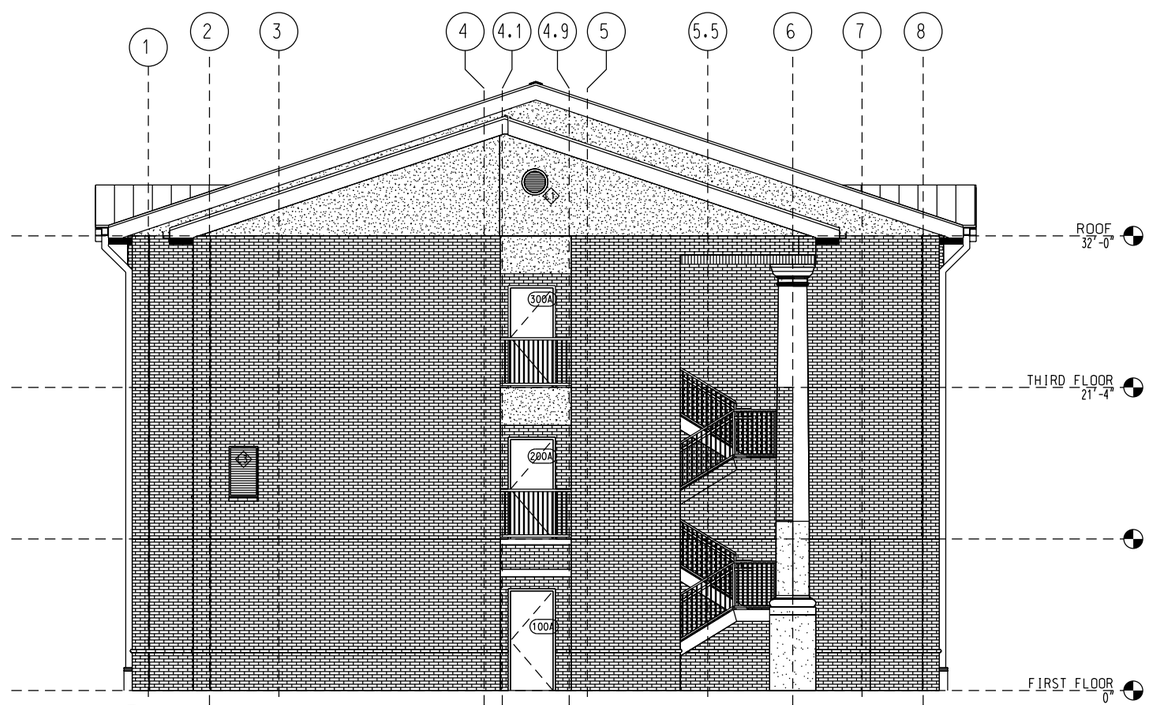
AE-202

Section:

ELEVATIONS ARE PROVIDED FOR INFORMATION ONLY



1 / AE-203 ELEVATION 3
3/16" = 1'-0"



2 / AE-203 ELEVATION 4
3/16" = 1'-0"

3/16"=1'-0"
1' 4' 12'
0' 2' 8'

ISSUED FOR REVIEW
NOT APPROVED FOR CONSTRUCTION
APRIL 23, 2009

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH GEORGIA

ELEVATION KEYNOTES:

1. FACE BRICK VENEER ON EXTERIOR GYPSUM SHEATHING.
2. DOUBLE SOLDIER COURSE HEADER
3. BULLNOSE BRICK SILL
4. METAL ROOF PANEL
5. NOT USED
6. METAL GUTTER
7. EIFS FINISH
8. DOWN SPOUT
9. NOT USED
10. BRICK EXPANSION JOINT
11. CONCRETE BASE
12. METAL FASCIA
13. EXTERIOR LIGHT
14. BULLNOSE WATER TABLE
15. SPLASH BLOCKS
16. BRICK JACK ARCH HEADER
17. BRICK ROWLOCK
18. (GFRG) COLUMN

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY: CKD BY:
SUBMITTED BY:
DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NAME: SZA AE-203
CATEGORY CODE: 721-11-10
SIZE: 22X34
PLOT SCALE: As indicated
PLOT DATE:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EAB BARRACKS
48-MAN BARRACKS
FORT STEWART, GEORGIA

EXTERIOR ELEVATION 3 AND 4

AE-203

Electrical / Communications

Section:

LEGEND

EXISTING	NEW	
E	E	UNDERGROUND SECONDARY POWER DISTRIBUTION, 600V OR LESS
		REMOVE EXISINTG PRIMARY AERIAL POWER DISTRIBUTION
		REMOVE EXISINTG PRIMARY UNDERGROUND POWER DISTRIBUTION
C	C	UNDERGROUND COMMUNICATIONS DUCTLINE
C	C	COMMUNICATIONS MANHOLE
	H	ELECTRICAL/COMMUNICATIONS HANDHOLE
		REMOVE EXISTING EXTERIOR LIGHT FIXTURE OR POWER POLE
		EXTERIOR LIGHT FIXTURE - PROVIDED BY SANDHILLS UTILITY SERVICE (NOT IN CONTRACT).
		EXTERIOR LIGHTING CIRCUIT - PROVIDED BY SANDHILLS UTILITY SERVICE (NOT IN CONTRACT).
	R	GROUND RECEPTACLE
		GROUND ROD
		GROUND ROD INSPECTION PIT
		GROUNDING CONDUCTOR SIZE #1/0 AWG COPPER

ABBREVIATIONS

A	AMPERE
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
ATC	ASTRONOMICAL TIME CLOCK
C	CONDUIT
CATV	CABLE TELEVISION
CCTV	CLOSED CIRCUIT (SURVEILLANCE) TELEVISION
CB	CIRCUIT BREAKER
CDEC	CONTINENTAL DIVIDE ELECTRIC COOPERATIVE
CKT	CIRCUIT
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER
FACP	FIRE ALARM CONTROL PANEL
FD	FIRE DAMPER
FSD	COMBINATION FIRE/SMOKE DAMPER
GFCI	GOVERNMENT FURNISHED CONTRACTOR INSTALLED
G	GROUND FAULT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HACR	HEATING AIR CONDITIONING REFRIGERATION
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HT	HEIGHT
HZ	HERTZ
IDS	INTRUSION DETECTION SYSTEM
KWH	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
LVS	LOW VOLTAGE SWITCH
MCB	MOLDED CASE BREAKER
MCCP	MASTER CLOCK CONTROL PANEL
MFR	MANUFACTURER
MH	MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NF	NON FUSED
NO.	NUMBER
NSF	NATIONAL SANITATION FOUNDATION
OS	OCCUPANCY SENSOR
PAF	PAINTED AFTER FABRICATION
PH	PHASE
PIR	PASSIVE INFRARED
R/W	RACEWAY
SD	SMOKE DAMPER
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPRESSOR
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UOI	UNLESS OTHERWISE INDICATED
UON	UNLESS OTHERWISE NOTED
V	VOLT
VT	VARIABLE AIR VOLUME TERMINAL UNIT
W. WP	WEATHERPROOF

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: | DATE:
DWN BY: | CKD BY: | SOLICITATION NO.:
SUBMITTED BY: | CONTRACT NO.:
FILE NAME: | CATEGORY CODE: 721-11-05
SIZE: D 22"X34" | PLOT SCALE: | PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

ECHELONS ABOVE BRIGADE (EAB) BARRACKS
FORT STEWART, GEORGIA
CIVIL

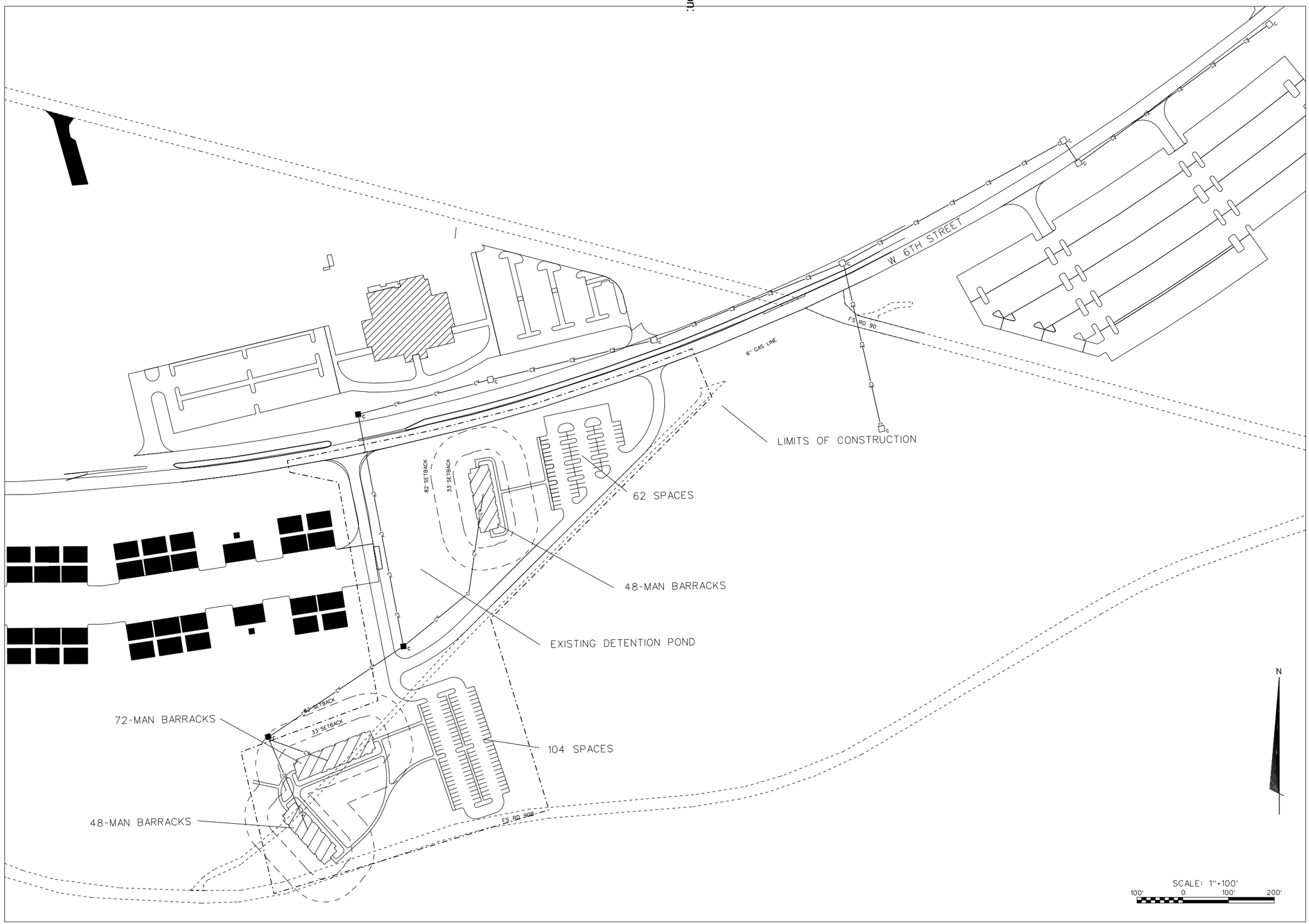
EXTERIOR ELECTRICAL LEGEND

PLATE REFERENCE NUMBER
ES001

SHEET 89

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

Section:



US ARMY CORPS
OF ENGINEERS
SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
FILE NAME: $$FILE_NAME$$
SIZE:
PLOT SCALE:
DATE:
SOLICITATION NO.: W912HN-07-X-1014
CONTRACT NO.:
CATEGORY CODE: 214-(1-20)
PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

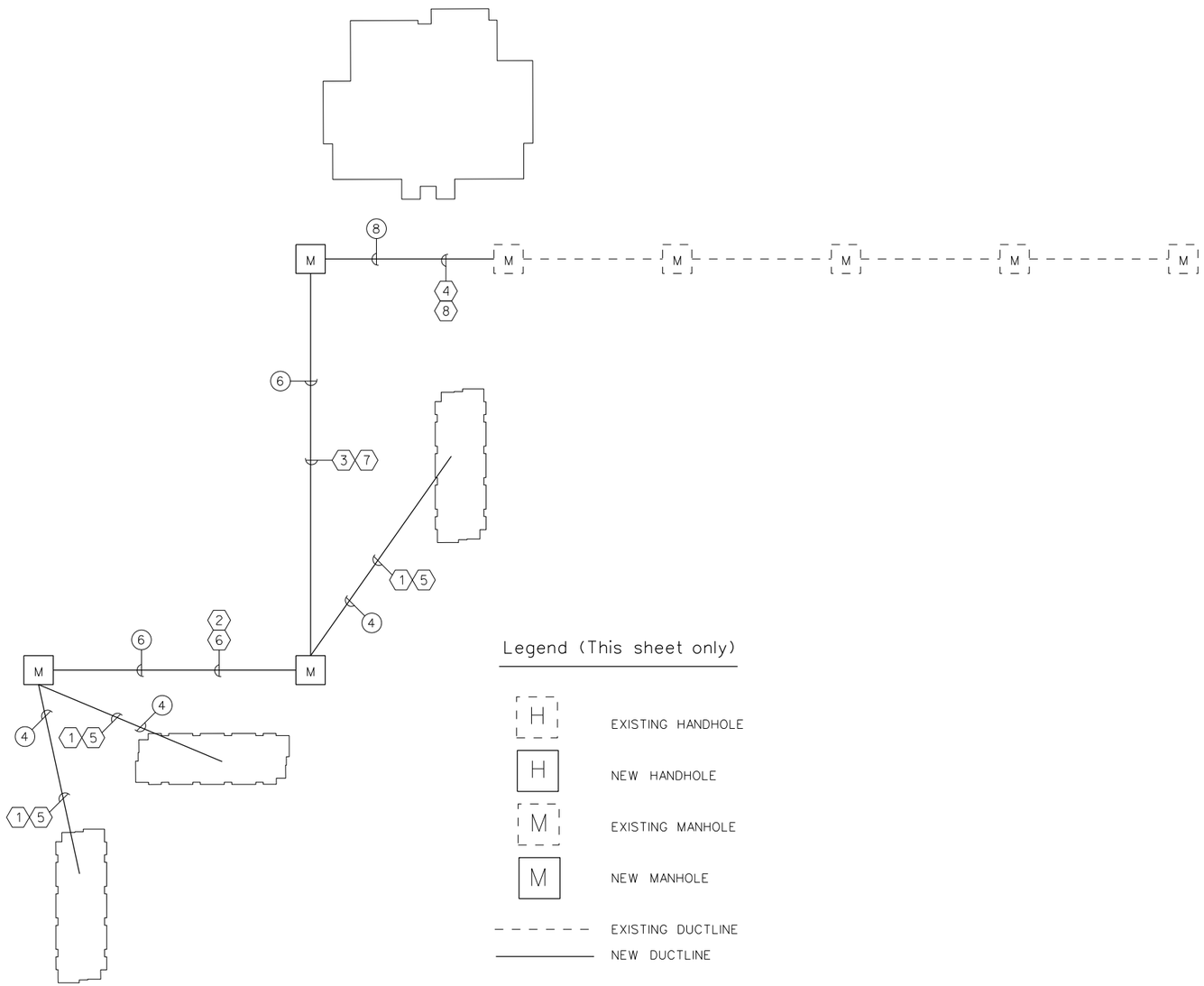
VEHICLE MAINTENANCE SHOP
77TH TRANSPORTATION BATTALION
FORT BRAGG, NORTH CAROLINA

CIVIL
EXTERIOR
COMMUNICATIONS PLAN

PLATE
REFERENCE
NUMBER
ES101C
SHEET

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

Section:



Legend (This sheet only)

H	EXISTING HANDHOLE
H	NEW HANDHOLE
M	EXISTING MANHOLE
M	NEW MANHOLE
- - - - - -	EXISTING DUCTLINE
———	NEW DUCTLINE

(4) NEW 4-WAY, 4" DUCTLINE COMMUNICATIONS SERVICE TO BUILDING. 3 DUCTS TO MAIN TELEPHONE BACKBOARD ONE DUCT (WITH 3 - 1" INNERDUCTS). ONE DUCTLINE TO CATV BACKBOARD. SEE RESPECTIVE COMMUNICATIONS FLOOR PLAN FOR EXACT LOCATION OF DUCTLINE ENTRANCE.

(#) NEW (#)-WAY DUCTLINE WHERE THE (#) IN THE CIRCLE IS THE QUANTITY OF CONDUITS IN THE DUCTLINE. DUCTLINES BETWEEN MANHOLES SHALL BE 4". DUCTLINES TERMINATING IN BUILDINGS SHALL BE 4" (UNLESS OTHERWISE INDICATED).

Copper OSP Cables

(1) (1) 25-Pair #24 Copper OSP Cable

(2) (1) 100-Pair #24 Copper OSP Cable

(3) (1) 200-Pair #24 Copper OSP Cable

(4) (1) 400-Pair #24 Copper OSP Cable

Fiber Optic Cables

(5) (1) 12 Strand SM Fiber Optic Cable with (4) 1.5-inch innerducts

(6) (1) 24 Strand SM Fiber Optic Cable with (4) 1.5-inch innerducts

(7) (1) 36 Strand SM Fiber Optic Cable with (4) 1.5-inch innerducts

(8) (1) 48 Strand SM Fiber Optic Cable with (4) 1.5-inch innerducts

Notes:

1. (General) Each Outside Plant (OSP) copper cable shall be in a single duct.

2. (General) Each Fiber Optic cable shall include (3) 1-inch Innerduct. The cable shall be installed in one innerduct, the other 2 innerducts shall have pull wires.

3. (General) All Cables, innerducts, choice of ductline duct, and splices shall be coordinated with and approved by the Fort Stewart Network Enterprise Center (NEC) prior to installation. Final installation shall also be approved byNEC. All coordination and approvals shall be conducted through the Contracting officer's representative.

4. Provide cable splices in manhole as required. Brand name splice case housings, shall be used. Splice cases will be sized as needed.(Pre-form PN 800-0630 9.5" splice case Typical).

5. Coil cables (10 feet) in manhole and seal ends.

US ARMY CORPS OF ENGINEERS SAVANNAH

SYMBOL	DESCRIPTION	DATE	BY

DESIGNED BY: | DATE: | DWN BY: | CKD BY: | SOLICITATION NO.: | SUBMITTED BY: | CONTRACT NO.: | FILE NAME: | CATEGORY CODE: 721-11-05 | SIZE: D 22"X34" | PLOT SCALE: | PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH DISTRICT

ECHELONS ABOVE BRIGADE (EAB) BARRACKS
FORT STEWART, GEORGIA
CIVIL

COMMUNICATIONS ONE LINE DIAGRAM

PLATE REFERENCE NUMBER
ES601C
SHEET

$$DGNSPEC$$
$$SYSTIME$$
$$USERNAME$$

APPENDIX K

UTILITY COST INFORMATION

Fort Stewart, GA

Utility Cost Information

(Updated: 6 Jan 2010)

The following utility rates for this installation are provided for the purpose of performing life cycle cost calculations in response to this solicitation and for design development in accordance with Section 01 10 00 Design After Award:

Electrical:
Demand Charge – $0.0724 per KWH

Natural Gas:
Commodity Charge Rate – $0.725 per therm

Water:
Commodity Charge Rate – $0.6316 per 1,000 Gal

Sewer:
Commodity Charge Rate – $1.022 per 1,000 gallons of Water consumption

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LEED Project Credit Guidance (OCT 09)

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			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	Pref		See paragraph APPLICABLE CRITERIA
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.

Owner's Project Requirements Document for LEED Fundamental Commissioning

Project: Army Standard Design Unaccompanied Enlisted Personnel Housing (UEPH)

Approved:

_____	_____	_____
Name	Owner's Representative	Date
_____	_____	_____
Name	Design Agent's Representative	Date

Overview and Instructions

The purpose of this document is to provide clear and concise documentation of the Owner's goals, expectations and requirements for commissioned systems, and shall be utilized throughout the project delivery and commissioning process to provide an informed baseline and focus for design development and for validating systems' energy and environmental performance.

The Owner's Project Requirements Document is a required document for LEED Version 2.2 EA Prerequisite 1, Fundamental Commissioning of the Building Energy Systems. It shall be completed by the Corps District/Design Agent based on coordination with the Installation/User/Proponent and shall be approved by the Installation/User/Proponent representative.

Use of this template is not required, nor are there any restrictions on editing of it. It is provided simply as a tool to assist project teams in meeting the documentation requirements for LEED Fundamental Commissioning. The intent of the Owner's Project Requirements Document, per the LEED v2.2 Reference Guide, is to detail the functional requirements of a project and the expectations of the building's use and operation as it relates to commissioned systems. This template contains the basic recommended components indicated in the LEED v2.2 Reference Guide. It should be adapted as needed to suit the project, remaining reflective of the LEED intent.

The Owner's Project Requirements Document should ideally be completed before the start of design and furnished to the design team. It must be completed prior to the approval of Contractor submittals of any commissioned equipment or systems to meet LEED requirements.

Updates to the Owner's Project Requirements Document throughout the course of project delivery shall be made by the Corps District/Design Agent based on decisions and agreements coordinated with and agreed to by the Installation/User/Proponent.

The Owner's Project Requirements Document shall be included in the project's LEED documentation file under EA PR1, Fundamental Commissioning of the Building Energy Systems.

Owner's Project Requirements Document for LEED Fundamental Commissioning

Table of Contents

1. Owner and User Requirements
   - Primary Purpose, Program and Use
   - Project History
   - Broad Goals
2. Environmental and Sustainability Goals
   - Energy Efficiency Goals
   - General
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   - Building Façade
   - Building Fenestration
   - Building Envelope
   - Roof
   - Other
3. Indoor Environmental Quality Requirements
   - Intended Use
   - Occupancy Schedule
   - Accommodations for After-Hours Use
   - Lighting, Temperature, Humidity, Air Quality, Ventilation, Filtration
   - Acoustics
   - Occupant Ability to Adjust System Controls
   - Types of Lighting
4. Equipment and Systems Expectations
   - Space Heating
   - Ventilation
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   - Refrigeration
   - HVAC Controls
   - Domestic Hot Water
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   - Other
5. Building Occupant and O&M Personnel Requirements
   - Facility Operation
   - EMCS
   - Occupant Training and Orientation
   - O&M Staff Training and Orientation

TABLE 1

1. *Owner and User Requirements*

What is the primary purpose, program and use of this project? (Example: office building with data center)

The project objective is to design and construct facilities for the military that are consistent with the design and construction practices used for private sector projects that perform similar functions to the military projects. For example, an unaccompanied enlisted personnel housing (UEPH) facility has the similar function as an apartment building or apartment complex in the private sector; therefore, the design and construction practices should be consistent with the design and construction of an apartment building. These components are more fully described in Paragraph 3 of the Scope of Work in the RFP.

Describe pertinent project history. (example: standard design development)

It is the intent of Government to issue design-build Request for Proposals (RFPs) under the contracts awarded as a result of this solicitation, which may be used as the basis for subsequent RFPs/task orders at the same or other installations within the region, i.e., "adapt-build" and/or as fully-designed RFP/task orders.

Broad Goals

What are the broad goals relative to program needs?

Design objective of the basic UEPH is to provide a flexible facility suitable to house soldiers while utilizing a modular approach. Goals for the UEPH also include providing an economical, standardized facility that meets the basic functional needs of the unit.

What are the broad goals relative to future expansion?

The goals relative to future expansion include providing structural system that are compatible with the intended functions, and components that allow for future expansion where appropriate. In addition, the goal is to have all mechanical building equipment and HVAC controls systems available for future connection to a base-wide UMCS, including but not limited to air handlers, makeup air units, pumps, chillers, boilers, cooling equipment down to 10 tons, etc.

What are the broad goals relative to flexibility?

Goals for flexibility include providing structural systems that are compatible with the intended functions, and components that allow for future flexibility and renovation of the interior space. The goal is to allow ready adaptability in response to changes in force structure, equipment and doctrine.

What are the broad goals relative to quality of materials?

The government places value in methods that streamline construction, manage labor and other resource constraints in an effort to reduce costs and support an aggressive schedule, including such things as fast-tracking, using factory built modules or assemblies, panelization, pre-cast, tilt-up, standard designs, etc., while meeting contract and quality requirements. 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 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.

What are the broad goals relative to construction costs?

Facility must meet budget.

What are the broad goals relative to operational costs?

Meet EPACT (reduced water, energy consumption). Minimize operating costs as much as possible within first cost budget.

Other broad goals: ***(Insert as applicable)***

To provide essentially the same functional facility at all locations (site-adapt) to the extent possible to facilitate unit mobility and to reduce repetitive design costs. To achieve overall program efficiencies and cost reductions using regional task order contracts for each standard.

2. Environmental and Sustainability Goals

What are the project goals relative to sustainability and environmental issues? (example: LEED Silver rating)

The project goals relative to sustainability and environmental issues are to achieve LEED Silver rating.

What are the project goals relative to energy efficiency? (example: Meet EPACT)

The project goals relative to energy efficiency are to meet EPACT.

What are the project goals and requirements for building siting that will impact energy use?

Same facility must be site-adapted nationwide with minimal design effort. Consistent building orientation cannot always be expected. Consider variations in availability of fuel sources. Special local requirements are indicated in Paragraph 6 of the Scope of Work.

What are the project goals and requirements for building facade that will impact energy use?

Same facility must be site-adapted nationwide with minimal design effort. Exterior appearance will vary to be compatible with adjoining environment's architectural theme and Antiterrorism/Force Protection requirements. Special local requirements are indicated in Paragraph 6 of the Scope of Work.

What are the project goals and requirements for building fenestration that will impact energy use?

Same facility must be site-adapted nationwide with minimal design effort. Fenestration will vary to be compatible with adjoining environment's architectural theme and Antiterrorism/Force Protection requirements. Consistent building orientation cannot be expected at all sites. Antiterrorism/Force Protection criteria (UFC 4-010-01) requires laminated glass and heavy-duty frame. Special local requirements are indicated in Paragraph 6 of the Scope of Work.

What are the project goals and requirements for building envelope that will impact energy use?

ASHRAE 90.1 and EPACT are required. Special local requirements are indicated in Paragraph 6 of the Scope of Work.

What are the project goals and requirements for building roof that will impact energy use?

Special local requirements are indicated in Paragraph 6 of the Scope of Work.

Other: ***(Insert as applicable)***

3. Indoor Environmental Quality Requirements

What is the intended use for all spaces? For all spaces that have an intended use that is not readily apparent from the space name, provide this information in Table 1.

An Unaccompanied Enlisted Personnel Housing (UEPH) facility has the similar function as an apartment building or apartment complex in the private sector.

What is the anticipated occupancy schedule (numbers of occupants and time frames) for all occupied spaces? Indicate the default occupancy schedule below and for all spaces that have an occupancy schedule that differs from the default, provide this information in Table 1.

Typical occupancy schedule is normal business workday as well as occupancy during nights and weekend.

What accommodations for after-hours use are required? (example: access control, lighting controls, HVAC controls) Indicate general accommodations required below and for all spaces that have special requirements, provide this information in Table 1.

Accommodations for after-hours will be required. Special local requirements are indicated in Paragraph 6 of the Scope of Work.

What are the lighting, temperature, humidity, air quality, ventilation and filtration requirements for all spaces? Indicate the default requirements below and for all spaces that have a requirement that differs from the default, provide this information in Table 1.

Lighting: See the Scope of Work of RFP
Temperature: See the Scope of Work of RFP
Humidity: See the Scope of Work of RFP
Air Quality: See the Scope of Work of RFP

Ventilation: See the Scope of Work of RFP

Filtration: See the Scope of Work of RFP

What are the acoustical requirements for all spaces? Indicate the default acoustical requirements below and for all spaces that have a requirement that differs from the default, provide this information in Table 1.

See the Scope of Work of RFP.

What is the desired level of occupant ability to adjust systems controls? Indicate the default desired levels below and for all spaces that have a desired level that differs from the default, provide this information in Table 1.

Lighting: See the Scope of Work of RFP

Temperature: See the Scope of Work of RFP
Humidity: See the Scope of Work of RFP
Air Quality: See the Scope of Work of RFP

Ventilation: See the Scope of Work of RFP

What, if any, specific types of lighting are desired? (example: fluorescent in 2x2 grid, accent lighting, particular lamps)

Special local requirements are indicated in Paragraph 6 of the Scope of Work.

4. Equipment and System Expectations

(Complete for each category as applicable or indicate "none identified" or "N/A". Add desired features information for other anticipated commissioned systems as applicable)

Indicate desired features for the following commissioned system: Space Heating

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility: _____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Ventilation

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility: _____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Air Conditioning

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Refrigeration

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies:

Indicate desired features for the following commissioned system: HVAC Controls

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Domestic Hot Water

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Lighting Controls

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Day-lighting Controls

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Emergency Power

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

Indicate desired features for the following commissioned system: Other - _____

Desired Type: _____

Quality: _____

Preferred Manufacturer: _____
Reliability: _____
Automation: _____

Flexibility:_____
Maintenance Requirements: _____
Efficiency Target: _____

Desired Technologies: _____

5. Building Occupant and O&M Personnel Requirements

How will the facility be operated? Who will operate the facility?

See the Scope of Work of RFP._____

Will the facility be connected to an EMCS? If so, what are the interface requirements? (example: monitoring points, control points, scheduling)

See the Scope of Work of RFP._____

What is the desired level of training and orientation for building occupants to understand and use the building systems?

See the Scope of Work of RFP._____

What is the desired level of training and orientation for O&M staff to understand and maintain the building systems?

See the Scope of Work of RFP._____

Table 1

Space	Use / Activity	Number Occupants	Special Occupancy Schedule	After Hours Use Reqmt.	Special Cooling Reqmt.	Special Heating Reqmt.	Special Humidity Reqmt.	Special Ventil./Filtration Reqmt.	Special Acoustic Reqmt.	Special Lighting Reqmt.	Special Occup Adjustability Reqmt.

APPENDIX N
LEED Requirements for Multiple Contractor Combined Projects

Not Used

APPENDIX O
LEED Strategy Tables

Not Used

APPENDIX P

USGBC Registration of Army Projects

Typical Registration Procedure

1. Complete the online registration form (see guidance below) at the USGBC website http://www.usgbc.org/showfile.aspx?documentid=875 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. The USGBC will follow up with a final invoice, the LEED-online passwords and template information.
4. If you have any questions, the USGBC contact (as of October 08) is:
Courtney Yan, LEED Program Assistant
U.S. Green Building Council
202/587-7180
cyan@usgbc.org

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
Total gross area all buildings in project
Total construction cost for buildings only (see Project Details Section instructions below)

ACCOUNT/LOGIN INFORMATION SECTION

1. The person registering the project **must have an account with USGBC** (login and password) to complete the form. If you have an account, select "I already have a USGBC Web site account" and enter email and password (twice). If you do not have an account, you may select "Create a new USGBC website 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 on the form (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.

PROJECT TYPE SECTION

Self-explanatory. As of October 08 USACE projects use LEED for New Construction V2.2. USACE staff members are USGBC members.

GENERAL PROJECT INFORMATION SECTION

Project Title: Match the project name used in P2. Contact the USACE Project Manager for this information.
Is Project Confidential: Indicate NO except if project has security sensitivity (elements that are FOUO or higher security) indicate YES.
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
How Did You Hear About LEED: USACE requirement

PRIMARY CONTACT INFORMATION

The Primary Contact may be a Contractor or a USACE staff member. USGBC considers this individual the primary point of contact for all aspects of the project. It is recommended this person be the Contractor Project Manager or the USACE Project Manager.

PROJECT OWNER INFORMATION

Project Owner First Name, Last Name, email: The Project Owner is the USACE Project Manager.
Organization Name: 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.

PROJECT DETAILS

Owner Type: Military Base
Project Scope: Provide brief description (example: barracks complex)
Site Conditions: Provide brief description (example: wooded with steep grades)
Occupant Type: Provide brief description (example: military and civilian employees)
Owner Occupied: No
Gross Square Footage: Provide total area all buildings in project
Project Budget: Do not include the cost for design, site work, demolition, abatement or other work – do not include Government contingency or supervision costs. For design-build and construction projects registered after award, use the awarded contract cost for construction of buildings only. For projects registered prior to award of design-build or construction contract, use the total Primary Facility cost from DD1391 or updated Primary Facility cost based on design development if available.
Current Project Phase: Identify phase at time of registration (example: design start, construction start)
Project Type: Self-explanatory

PAYMENT INFORMATION

Self-explanatory

APPENDIX Q
REV 1.1 – 31 MAY 2009
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 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

RMS SUBMITTAL REGISTER INPUT FORM

CONTRACT NUMBER

DELIVERY ORDER

TITLE AND LOCATION

Button <-----Right click for Instructions

SECTION	PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL											CLASSIFICATION						REVIEWING OFFICE					
			01 - PRECON SUBMITTALS	02 - SHOP DRAWINGS	03 - PRODUCT DATA	04 - SAMPLES	05 - DESIGN DATA	06 - TEST REPORTS	07 - CERTIFICATES	08 - MFRS INSTRUCTIONS	09 - MFRS FIELD REPORT	10 - O&M DATA	11 - CLOSEOUT SUBMITTALS	FIO - FOR INFORMATION ONLY	GA - GOVERNMENT APPROVED	DA - DESIGNER OF RECORD APPROVAL	CR - CONFORMANCE REVIEW	DA / CR	DA / GA	DO - DISTRICT OFFICE	AO - AREA OFFICE	RO - RESIDENT OFFICE	PO - PROJECT OFFICE	DR - DESIGNER OF RECORD	AE - ARCHITECT / ENGINEER
00 72 00	52.236-13	Accident Prevention Plan	X														X				X				
00 73 00	1.11	Dev. From Accept. Design. No Deviation from Contract					X											X			X			X	
00 73 00	1.11	Dev. From Accepted Design - Deviates from Contract					X												X		X			X	
00 73 00	1.17	Supplemental Price Breakdown	X											X							X				
00 73 00	1.18	SSHO Qualifications	X												X						X				
01 10 00	5.2.3.1	(if concrete pavement) Joint Layout Plan with design drawings					X										X								
01 10 00	5.5.2	Building Envelope Sealing Performance Testing						X						X							X				
01 10 10	***	Tests as Req by Codes - DOR Develops Test Program						X						X							X			X	
01 10 00	5.8.3	BAS Review Information		X														X		X	X			X	
01 10 00	5.8.3	BAS Performance Verification Test						X						X							X			X	
01 10 00	5.8.4	Testing Adjusting and Balancing						X						X							X			X	
01 10 00	5.8.5	Commissioning						X						X							X			X	
01 10 00	6.15	Environmental As Required for Site Specific					X										X				X			X	
01 10 00	6.16	Permits as required for Site specific					X										X				X			X	
01 10 00	5.10.2	Fire Protection Tests						X	X					X							X			X	
01 32 01.00 10	3.4.1	Preliminary Project Schedule	X												X						X				
01 32 01.00 10	3.4.2	Initial Project Schedule	X												X						X				
01 32 01.00 10	3.4.3	Design Package Schedule	X												X						X				
01 32 01.00 10	3.6.1	Periodic schedule updates from the Contractor	X												X						X				
01 32 01.00 10	3.7	Time Extension Request (Schedule)	X												X						X				
01 33 00	1.8	Submittal Register - DOR Input Required	X												X						X			X	
01 33 00	1.8	Submittal Register Updates (Design Packages, etc.)	X												X						X			X	
01 33 00	1.3.1	Substitution of Manuf or Model Named in Proposal		X	X													X			X			X	
01 33 16	1.2	Identify Designer(s) of Record	X												X						X				
01 33 16	1.1.2 / 3.2.4	Fast Track Design Package(s)					X										X			X	X				
01 33 16	1.2	Identification of all Designers of Record	X														X				X				
01 33 16	3.2.1	Site and Utility Des Package, incl. Substantiation					X										X			X	X				
01 33 16	3.2.2/3.5	Interim Des Subm Package(s), incl. Substantiation					X										X			X	X				
01 33 16	3.5.1	Drawings					X										X			X	X				
01 33 16	3.5.2.2	Sitework Design Analyses					X										X			X	X				
01 33 16	3.5.2.3	Structural Design Analyses					X										X			X	X				
01 33 16	3.5.2.4	Security Design Analyses					X										X			X	X				
01 33 16	3.5.2.5	Architectural Design Analyses					X										X			X	X				
01 33 16	3.5.2.6	Mechanical Design Analyses					X										X			X	X				
01 33 16	3.5.2.7	Life Safety Design Analyses					X										X			X	X				
01 33 16	3.5.2.8	Plumbing Design Analyses					X										X			X	X				
01 33 16	3.5.2.9	Elevator Design Analyses (as Applicable)					X										X			X	X				
01 33 16	3.5.2.10	Electrical Design Analyses					X										X			X	X				
01 33 16	3.5.2.11	Telecommunications Design Analyses					X										X			X	X				
01 33 16	3.5.2.12	Cathodic Protection Design Analyses					X										X			X	X				
01 33 16	3.5.3	Geotechnical Investigations and Reports					X										X			X	X				
01 33 16	3.5.4	LEED Submittals					X										X			X	X				
01 33 16	3.5.5	Energy Conservation Documentation					X										X			X	X				
01 33 16	3.5.6	Specifications					X										X			X	X				
01 33 16	3.5.7	Building Rendering					X										X			X	X				
01 33 16	3.2.4/3.7	Final Des Submittal Package(s), incl. Substantiation					X										X			X	X				
01 33 16	3.7.5	DD Form 1354 (Transfer of Real Property)											X				X				X				
01 33 16	3.2.5/3.8	Design Complete Submittal Package(s)					X										X			X	X				
01 33 16	3.3.3	Design and Code Review Checklists					X										X			X	X				
01 33 16	A-2.0	SID - Interim and Final (as applicable)			X	X	X								X						X				
01 33 16	B-2.0	FFE (as Applicable)					X								X						X				
01 45 04.00 10	3.2	Design and Construction QC Plan	X														X				X				
01 57 20.00.10	1.2	Environmental Protection Plan	X														X				X				
01 78 02.00 10	1.2.1	Final as-Built Drawings											X		X										
01 78 02.00 10	1.2.7	Provide final as-built CADD and BIM Model files											X		X						X				
01 78 02.00 10	1.2.9	Provide scans of all other docs in Adobe.pdf format											X		X						X				
01 78 02.00 10	1.3.1	Equip-in-Place list of all installed equip and cost											X		X						X				
01 78 02.00 10	1.3.2	Data on equip not addressed in O&M manuals											X		X						X				
01 78 02.00 10	1.3.3	Final as-built specs - electronic files											X		X						X				
01 78 02.00 10	1.4.2.1	Warranty management plan - FAR 52.246-21											X		X						X				
01 78 02.00 10	1.4.2.1	Certificates of Warranty for extended warranty items											X		X						X				
01 78 02.00 10	1.4.2.1	Contractor's POCs for implementing warranty process											X		X						X				
01 78 02.00 10	1.4.2.1	List of each warranted equip, item, feature or system											X		X						X				
01 78 02.00 10	1.5	See also Section 01 10 00 par. 5.8.4 and 5.8.5											X		X						X				
01 78 02.00 10	1.6.1.2	Equipment O&M Manuals - 1 electronic / 2 hard copies											X		X						X				
01 78 02.00 10	1.7	Field Training DVD Videos										X		X							X				
01 78 02.00 10	1.8	Pricing of CF/CI and GF/CI Property											X	X							X				
01 78 02.00 10	1.11	List of Completed Cleanup Items											X				X				X				

RMS INPUT FORM 4288A

Export to RMS in CSV(MS-DOS) (*.csv) Format

Note: Reviewing Office Optional

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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 underground 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. Protection bollards will be installed by GC if required.

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, (excluding IBCTC) Canoochee EMC will provide and install for underground construction all primary conduit of 4" to 6" diameter buried a minimum of 48 inches deep for COE Projects as directed per project. 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

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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 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.

Contractually, CEMC can not start any project until a Notice to Proceed (NTP) has been received from our contracting officer.
Third party jobs fees must be paid before construction can begin.

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.

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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 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	Walt Lee	912-459-1112 extension 3003	Sam Alexander	912-459-1112 extension 3002
Hunter Army Airfield	Joe Holton	912-459-1113 extension 6000	Daniel Phillips	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.

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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.

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.

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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.

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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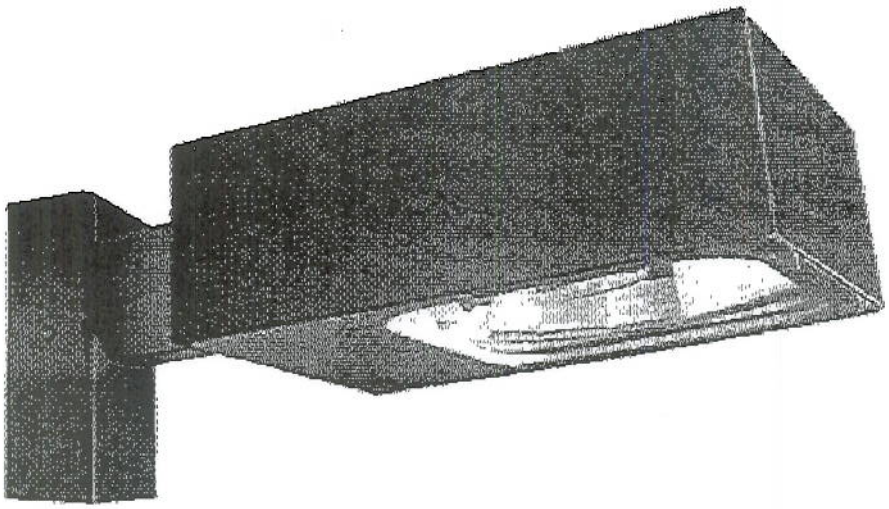
Shoebox Fixture **General Electric (GE) DECASHIELD Series**
Dark Bronze finish

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

Note: These units are multi-wattage.

Shoebox Accessories

M25-S1-BR	Pole Top Tenon Adapter Square

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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-PS15-BR	SYL Multi-Volt	150W	MH	Salem Post Top-Bronze
M27-PS15-BL	SYL Multi-Volt	150W	MH	Salem Post Top-Black

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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-BK	SYL Multi-Volt	150W	HPS	D547 Post Top-Black

These units used in housing areas only.

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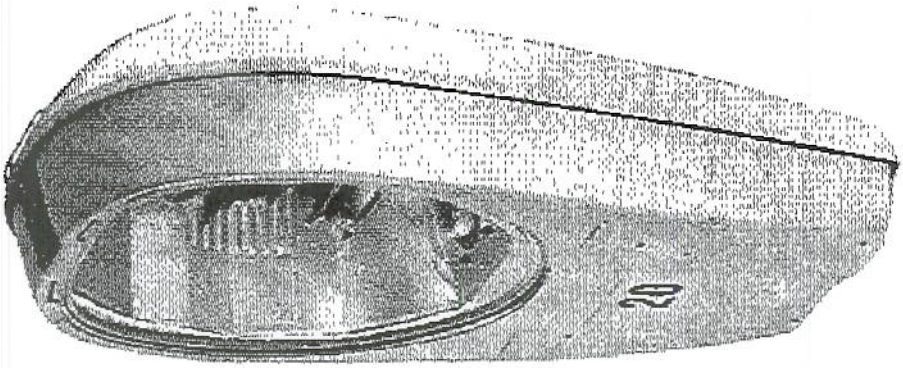
Standard Cobra head **General Electric (GE) M250R Series**
Grey Finish recommended for use along roadways where aesthetics are not of primary concern



Standard Cobra head

Model	Voltage	Wattage	Type	Design
M26-25C	SYL Multi-Volt	250W	HPS	Cobrahead-Gray
M26-40C	SYL Multi-Volt	400W	HPS	Cobrahead-Gray

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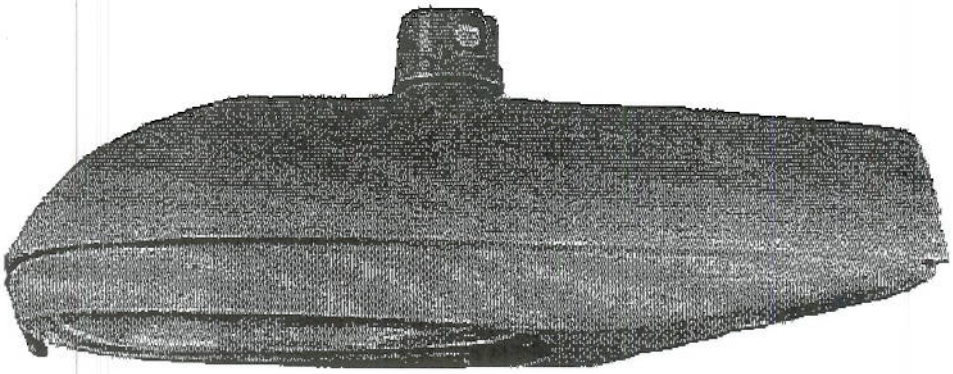
Premium Cobrahead Fixtures Cut-Off **General Electric (GE) M-250R Series**
Bronze or black finish

Recommended for use in non-residential areas where aesthetics are not of primary concern.



Premium Cobrahead

M26-C25-BR	SYL Multi-Volt	250W	HPS	Cobrahead-Bronze
M26-C40-BR	SYL Multi-Volt	400W	HPS	Cobrahead-Bronze
M27-C40-BR	SYL Multi-Volt	400W	MH	Cobrahead-Bronze

Premium Cobrahead Accessories

M25-C1-BR	8' Bronze Aluminum Arm Tenon Mount
M25-C2-BR-4	4' Bronze Aluminum Double Arm Tenon Mount
M25-C2-BR-8	8' Bronze Aluminum Double Arm Tenon Mount

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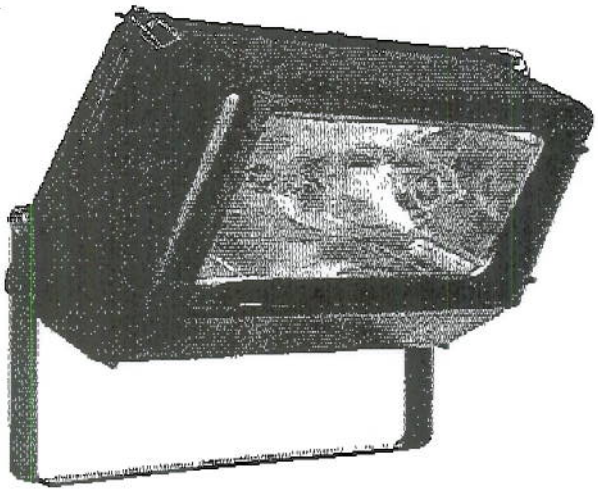
Power Floodlight **General Electric Power Directional Flood Light**
Dark Bronze

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-F40-BR	SYL Multi-Volt	400W	MH	PowerFlood -Bronze
M27-F100-BR	SYL Multi-Volt	1000W	MH	PowerFlood –Bronze

Note: 1000 watt flood lights are special order only.

Floodlight Accessories

M25-F2-BR	Double Floodlight Arm Tenon Mount Bronze
M25-F3-BR	Three Floodlight Arm Tenon Mount Bronze
M25-F4-BR	Four Floodlight Arm Tenon Mount Bronze

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Direct Burial Poles

PA-16-BR	16' Aluminum Pole Bronze (12' mounting height)
PA-25-BR	25' Aluminum Pole Bronze (22' mounting height)
PA-35-BR	35' Aluminum Pole Bronze (30' mounting height)
PF-25-BL	25' Fiberglass Pole Black (Used in housing areas only)

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)

Note: Black poles are special order only.

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-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

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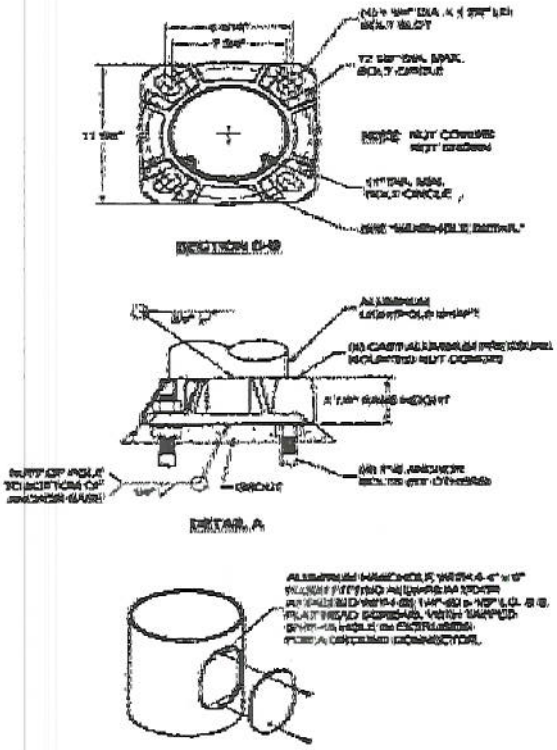

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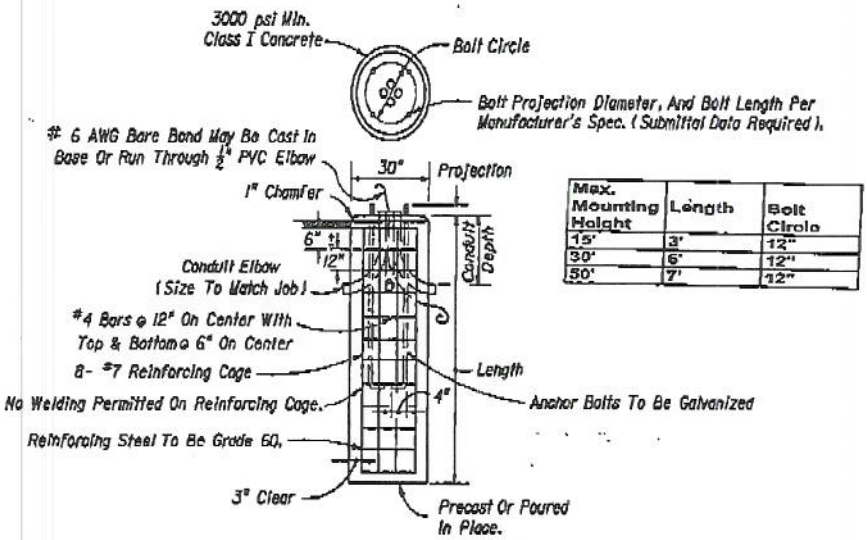
Foundations apply only to slopes of 1:4 or flatter.



Max. Mounting Height	Length	Bolt Circle
15'	3'	12"
30'	6'	12"
50'	7'	12"

METAL POLE CONCRETE FOUNDATION DETAIL

Note: For 15' or smaller pole near traffic, Foundation should be 5' in length with 30" above grade.

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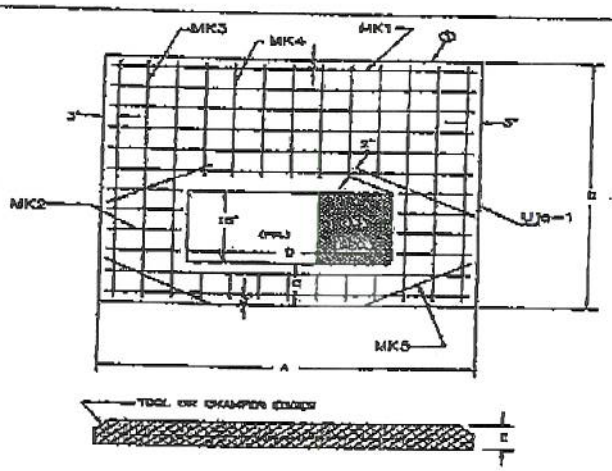

PAD	3-PHASE TRANSF. KVA	DIMENSIONS IN INCHES					REINFORCING BARS				
		A	B	C	D	E	MK1	MK2	MK3	MK4	MK5
#1	75, 112 1/2, 150, 225, 300, 500	70	[illegible]	10	42	8	7 #4 70"	4 #4 40"	6 #4 57"	6 #4 25"	4 #4 20"
#2	750, 1000 1500, 2000	104	100	10	54	8	12 #4 85"	6 #4 [illegible]	6 #4 96"	7 #4 [illegible]	4 #4 20"

NOTES:

1. CONCRETE TESTING, 3000 POUNDS MIN. PER SQUARE INCH; 4% TO 6% ENTRAINED AIR. 3/4" MAXIMUM SIZE AGGREGATE.
2. REINFORCING STEEL, ASTM-A615 GRADE 60, PLACE APPROX. 6" O.C. EACH WAY AND SECURELY TIED TOGETHER.
3. MINIMUM CONCRETE COVER OVER REINFORCING STEEL 2 INCHES UNLESS NOTED.
4. GOOD FLOAT FINISH, LEAVING NO DEPRESSIONS.

THREE PHASE TRANSFORMER CONCRETE PADS

2000 UM1-6C

http://image.hpphoto.com/rs/404F1F6C-5B9D-4EF9-B694-FCC24EB67D16/large-screen-... 3/20/2009

Ricky Simons	Charlie Brewer	Michael Wasson	7/23/09	4
Drawn	*Edited*	*Approved*	*Date*	*Revision*

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04/20/2010 TUE 10:43 FAX 19124082063 016/018

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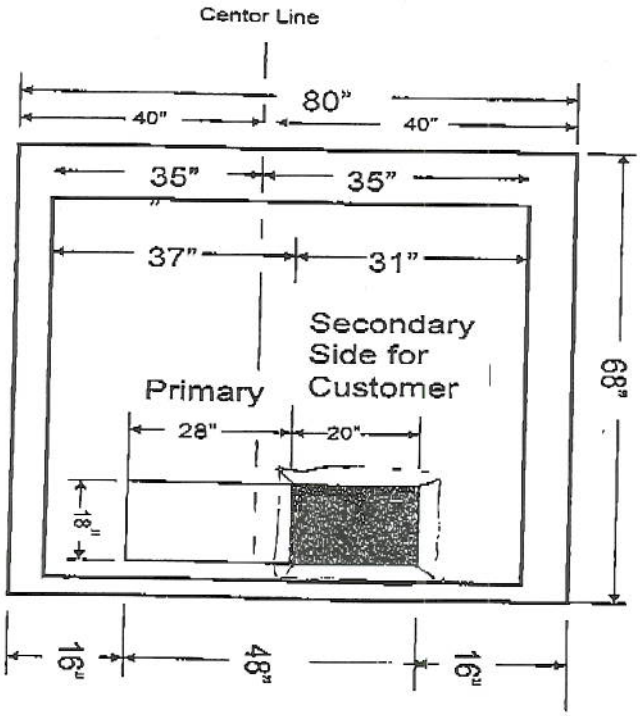
Note: Contractor to install all service entrance conduit in Secondary Side of pad opening.



Three Phase Transformer Pad

Canoochee EMC

Ricky Simons	Charlie Brewer	Michael Wasson	7/23/09	4
Drawn	*Edited*	*Approved*	*Date*	*Revision*

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Color Coding of Customer's Service Conductors. Color coding of Customer's service conductors shall be as follows in Table 3.G. [Phase arrangement shall be (A), (B), (C), front to back, top to bottom, or left to right, as viewed from the front of the service equipment and metering equipment. (N) shall be the neutral.]:

TABLE 3.G
COLOR CODING OF CUSTOMER'S SERVICE CONDUCTORS

Service Type	*Phase*			
	A	*B*	*C*	*N*
120/240V, Single-Phase, 3-Wire	RED	BLACK		WHITE
120/240V, 3-Phase, 4-Wire, DELTA				
Through Metering Equipment	RED	BLACK	ORANGE (High-Leg)	WHITE
In Service Equipment	RED	ORANGE (High-Leg)	BLACK	WHITE
120/208V, Single-Phase, 3-Wire	RED	BLACK		WHITE
120/208V, 3-Phase, 4-Wire, WYE	RED	BLACK	BLUE	WHITE
277/480V, 3-Phase, 4-Wire, WYE	BROWN	YELLOW	PURPLE	NATURAL GRAY

Green shall be used for the *grounding conductor* only.

Marking of conductors at all termination points will be approved for sizes #6 AWG and larger.

Per COA Ordinance No. 000928-107, Section 110-35 Color Coding of Electrical Conductors – ALL COLORS SHALL BE CONSISTENT THROUGHOUT EACH SYSTEM. (Four wire wye secondary services from AE to multiple occupancy buildings require that the Customer install a four wire wye service to each occupant to satisfy to color consistency requirement of this COA ordinance.)

Note: Normal Rotation For Canoochee EMC Is Clock-Wise.

Ricky Simons	Charlie Brewer	Michael Wasson	7/23/09	4
Drawn	*Edited*	*Approved*	*Date*	*Revision*

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04/20/2010 TUE 10:43 FAX 19124082063 018/018

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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*

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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*

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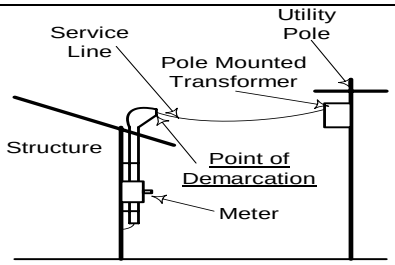
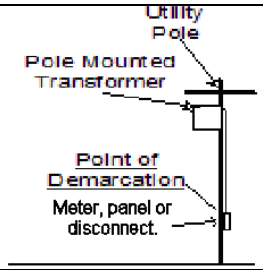
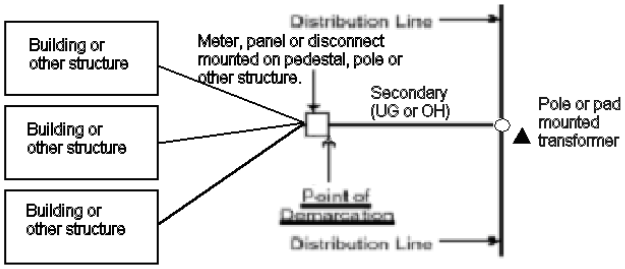
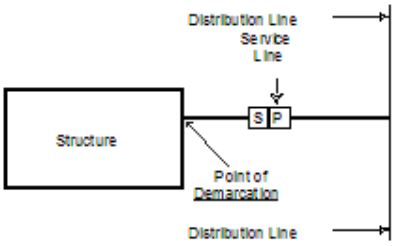
Overhead Service Applies to metered and non-metered locations. Demarcation is at the mast head.	
Underground Secondary on Pole. Demarcation is at the meter, panel or disconnect device.	
Service to Panel, Disconnect device or meter mounted on pedestal, pole or other structure. Not applicable to lighting 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*

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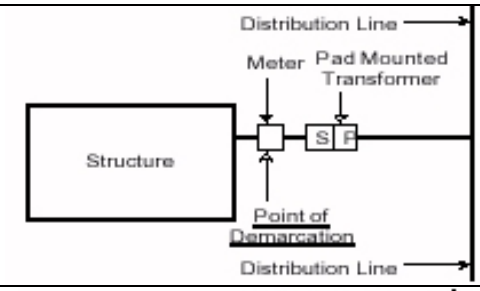
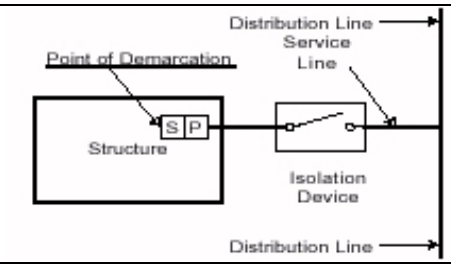
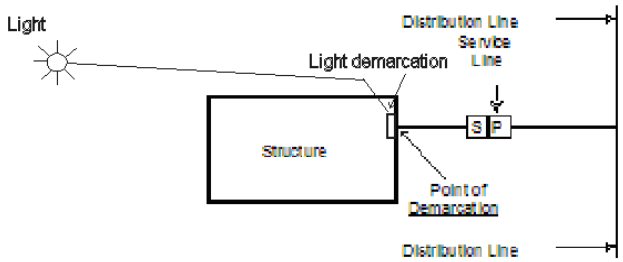
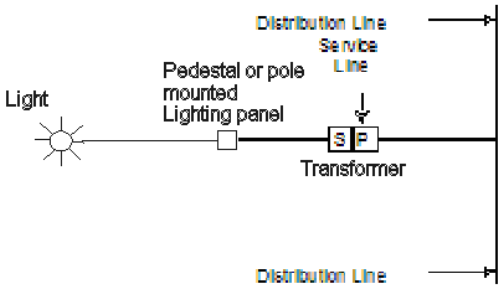
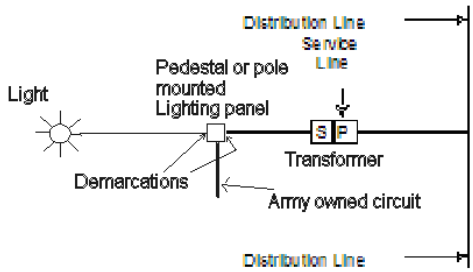
<u>Underground Service</u> to residential location. Applies to units with secondary panels between the transformer and the residence. Demarcation is at the meter or meter base. Typically for 600 amp or greater.	
<u>Indoor Transformers.</u> Demarcation is at the secondary lugs of the transformer.	

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*

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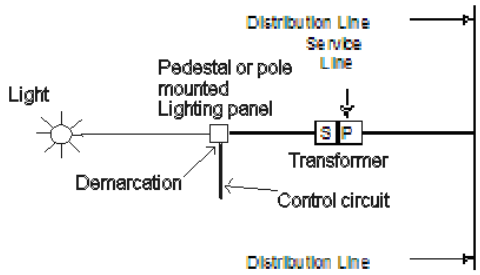
Lighting circuits from panel used exclusively for lighting but with external controls. Typical for ball fields. Any external controls and the control circuits are Army-owned.	

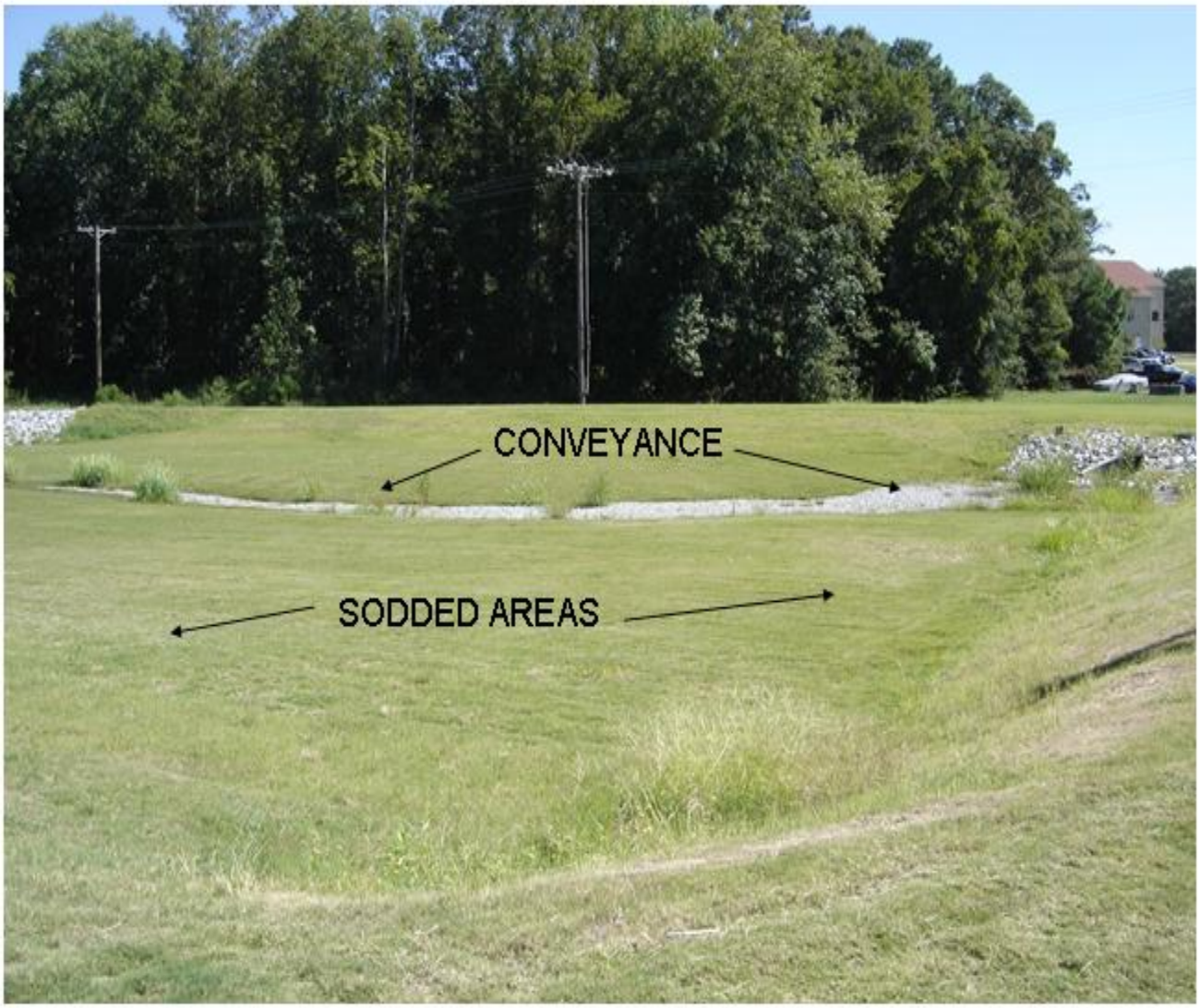
5-Ricky Simons	8/1/08	Michael Wasson	8/1/08	0
Drawn	*Date*	*Approved*	*Date*	*Revision*

APPENDIX CC

Dry Detention Pond Specifications

Dry Detention Pond Specifications

1. The final grade of the floor shall be a minimum 1 foot above seasonal high water table.
2. A conveyance to be installed from all inlets to outfall.
    a. Conveyance final grade to be at or above seasonal high water table elevation.
    b. Conveyance to be lined with geo-textile and with four (4”) of stone over same. Graded 2”- 4” stone.
    c. Conveyance to be a minimum of 4 feet wide.
3. The following areas will be sodded:
    a. Bottom of detention pond
    b. Inside side slopes of detention pond
    c. Outward, ten feet from the edge of detention pond.
4. All other disturbed areas will be seeded with temporary and permanent grass.
5. Use erosion control blankets, permanent and/or temporary, blankets as required, to prevent erosion rills.


CONVEYANCE
SODDED AREAS

MINIMUM OF TEN
FEET OF SOD

APPENDIX DD

Contractor Storage Areas

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
954 WILLIAM H. WILSON AVENUE
FORT STEWART, GEORGIA 31314-5000

REPLY TO
ATTENTION OF

IMSE-STW-PWF

AUG 05 2009

MEMORANDUM FOR All US Army Garrison Fort Stewart/Hunter Army Airfield Directorates and Directorate of Contracting

SUBJECT: US Army Garrison, Fort Stewart and Hunter Army Airfield Policy Memorandum #10 - Design and Maintenance of Contractor Storage Areas

1. PURPOSE: To set forth the Fort Stewart and Hunter Army Airfield policy regarding on-post contractor operations and storage areas.

2. APPLICABILITY: This policy applies to all contractors conducting operations on Fort Stewart and Hunter Army Airfield.

3. POLICY: On-post contractor operations and storage areas must be maintained in an overall clean and orderly condition. To ensure a minimum level of upkeep and uniformity contractors must:

a. Submit to the Contracting Officer Representative (COR) a detailed sketch depicting the location and view of all facilities placed on, and all improvements to be made to, a storage site; obtain written approval from the Directorate of Public Works (DPW) prior to placing any facilities on or making any improvement to the site; and bear all expenses associated with establishing and maintaining the site.

b. Install and maintain a six foot high chain link fence around all storage yards.

c. Install and maintain appropriate weatherproof signs identifying the contractor and the governing contract; locate such signs on the main gate to each storage yard and on any trailer; and list on said signs the names(s) and phone number(s) of the emergency point(s) of contact responsible for the site and available to resolve problems at all times regarding the site.

d. Install and maintain appropriate weatherproof signs on all storage containers identifying the owner of the container and the governing contact; keep all storage containers inside the fenced storage yards, and align storage containers in a neat and orderly manner.

IMSE-STW-PWF
SUBJECT: US Army Garrison, Fort Stewart and Hunter Army Airfield Policy Memorandum #10 - Design and Maintenance of Contractor Storage Areas

e. Stack and arrange all materials not maintained inside an enclosed storage container in a neat and orderly manner inside the fenced storage yard. Where practical, place all materials on pallets, not directly on the ground.

f. Allow no trash or other debris to accumulate in an unsightly manner; and coordinate with the COR on the proper placement and use for dumpsters.

g. Cut and maintain grass and weeds to a height of no more than 6 inches; and maintain all hedges, bushes and other vegetation growth in a neat and presentable manner.

h. Place cone and barrier materials only when and where needed to protect work areas and collect immediately upon completion of the work.

i. Remove all materials, office trailers, storage containers, fence and utilities at the conclusion of the contract; and restore the site to its original grade and condition including seeding with permanent grasses as required.

4. CONSEQUENCE OF NONCOMPLIANCE: Should a contractor fail to comply with requirement in paragraphs 4a-i, or any changes or modification thereto, the contractor's use of such sites and facilities may be terminated and the contractor will be required to move its operations to an off-post location.

5. PROPONENT: The point of contact is the Directorate of Public Works, Contract Construction Branch, at (912) 767-3872 or DSN 870-3872

KEVIN W. MILTON
COL, FA
Commanding