

VC & UAB at the Fort Fisher State Historic Site

June 23, 2022

Project Name

CM Clarification #3

Date: June 23, 2022

Project: **Visitor Center & Underwater Archaeology Building
At the Fort Fisher State Historic Site**

The following items modify, add to or delete from the contract documents, plans, specifications and bid manual dated May 25, 2022, for this project. Acknowledge receipt of this CM Clarification in your proposal. Failure to do so may result in the disqualification of your bid. Wherein this Clarification varies or is in conflict with the Contract Documents, the requirements of this Clarification shall govern. In all other particulars, the requirements of the original Project Manual and Contract Documents, including any previous Addenda or Clarifications, shall govern.

This clarification consists of **18** items, **07** attachments, **42** sheets (8.5x11) and **00** sheets (24 x 36)

GENERAL and CLARIFICATION:

Item 01: Confirmation of Re-Bid Bid Packages

The following Bid Packages were not opened on June 21st and will be re-bid on **Thursday, June 30th at 2:00 pm:**

BP-01A General Trades	BP-01B Final Cleaning
BP-02B Demo & Abatement	BP-03A Building Concrete
BP-05A Turnkey Steel	BP-07B Spray Foam Air Barrier
BP-08A Storefront & Glazing	BP-08C Doors & Hardware
BP-09A Metal Framing & Drywall	BP-09B Hard Tile
BP-09C Acoustical Ceilings	BP-09D Resilient Flooring & Carpet
BP-09F Polished & Sealed Concrete	BP-09G Painting
BP-10A Specialties	BP-10C Signage
BP-12A Window Treatments	BP-12B Casework & Lab Hood
BP-13B PEMB	BP-14A Elevators
BP-21A Fire Suppression	BP-22A Plumbing
BP-23A HVAC/Mechanical	BP-31B Special Foundations

Proposals which could not be opened will be retained by BCC and subsequently opened on June 30th at 2:00 pm, unless otherwise directed by the respective Bidder

The following Bid Packages were not opened on June 21st and will be re-bid on **Thursday, July 7th at 2:00 pm:**

BP-31A Site Turnkey	BP-32C Landscaping
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Please refer to Bid Manual for specific bidding instructions, forms, etc.
Bid Forms (Bid Manual--Section 3) will not be revised to amend the Bid Date

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Item 02: **Confirmation of Re-Bid Date & Time**

Bid Date: **Thursday, June 30, 2022**
Bid Time: **2:00 pm**
Bid Location: **Fort Fisher State Historical Site Visitor Center**
1610 Ft Fisher Boulevard South, Kure Beach, NC 28449

On-site, Day of Bid Date (Beginning Noon 12PM EST and up to 2PM): Hand Delivered to **Visitor Center Conference Room at the Fort Fisher State Historic Site, 1610 Ft Fisher Boulevard South, Kure Beach, NC 28449** NOTE: UPS/Courier/USPS will not be accepted on-site

Day of Bid Date, (Up to Nine AM, 9:00 AM): Hand Delivered, delivered via United States Postal Service Certified Mail with Return Receipt Request, or via special courier service (FedEx, UPS, or similar with Return Receipt Service) to **ATTN: Rachel Sayre at Bordeaux Construction Company at 4 Copley Parkway, Suite 100, Morrisville, NC 27560**

Sealed bids will not be accepted at the NC Department of Natural and Cultural Resources

Item 03: **Scope Clarifications—General Note**

CM will accept and will endeavor to answer scope questions prior to the Re-Bid Date

Item 04: **Addendum #2**

Addendum #2, dated June 17, has been issued thru SmartBid; please review and incorporate these amendments in your Base Bid proposal as necessary
Please acknowledge this Addendum and all CM Clarifications issued to date on your Bid Form

Item 05: **Additional Approved Bidders**

The following company has been added as approved Bidders:
BP-05A Structural Steel Steel Technology

Item 06: **Scope Clarification---BP-05A Turnkey Steel**

RFI inquiry: Addendum #2, Details D1 & D2/AE512: Details refer to structural drawings; however, information cannot be found; please advise

CM Response: Provide continuous 3/8-inch-thick galvanized bent plate along deck edge

RFI inquiry: Alternate 1, L303E, Note 8, Concrete Ramp Rail detail: railings are noted as SST; however, no spec is provided

CM Response: Spec 055200 forthcoming; all site metal railings to be SST; railings will not be painted

Item 07: **Scope Clarification---BP-07B Spray Foam & BP-09A Drywall**

CM Response: After further review, the previously referenced alternate bid for a fluid-applied air barrier with rigid insulation will NOT be requested

Item 08: **Scope Clarification---BP-08A Storefront & Glazing and BP-08C Door Hardware**

RFI inquiry: AE601 VC Door Schedule: Please provide missing hardware set information for Doors 101, 209B, 210A & 210F

CM Response: Door 101, set 04; Door 210F, set 09; Door 209B, Set 09; and Door 210A, set 33

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Item 09: Scope Clarification---BP-09A Drywall

RFI inquiry: Specs 054000-2.2.B.2.B & 092216-2.1.B and Drawing AE501, General Partition Notes 3.A & 3.C: Spec 054000 appears to conflict with Spec 092216 regarding horizontal deflection criteria (L/360 @ 5 psf vs L/240 @ 5 psf & L/240 @10 psf in Gallery & exhibits areas); Drawing AE501 indicates L/240 (#3.A) and L/360 (#3.C) Please advise which spec is to be followed for Interior framing purposes and what is the required deflection criteria.

CM Response: The horizontal deflection criteria does not conflict but, instead, designates different areas of the building to meet different criteria (Re: Gallery and Exhibit areas). Typical metal stud walls are required to have a deflection of less than L/240, while walls in the galleries have a more restrictive criterion of L/360.

RFI inquiry: Drawing AE501--General Partition Note #3: Note indicates stud gauge & spacing is determined by manufacturer guidelines to meet performance requirements, UON in the specifications; however, the partition schedule indicates 18 ga framing only. Please advise if we are to provide the 18 ga framing per Schedule or if a 20 ga or 20 ga equivalent stud that meets the deflection criteria can be utilized?

CM Response: Metal studs may be sized to meet deflection criteria

RFI inquiry: Detail B4/AE501: The Architectural Z reveal comes in 5/8" & 1" dimensions; recommend changing the plywood thickness to 5/8" in lieu of 3/4" to accommodate this reveal. Please advise

CM Response: Provide corner bead in lieu of z-clip trim

RFI inquiry: Alternate 1--E&F, Detail A5/AS402E: Can metal stud framing be changed to PT wood?

CM Response: No

RFI inquiry: Specs 054000-2.1.A & 092216-2.2-B.1.a, Approved manufacturers: Spec 054000 indicates 8 manufacturers while 092216 3 manufacturers. Both metal framing materials would come from the same manufacturer. Please advise if spec 054000 manufacturers are acceptable for spec 092216

CM Response: Acceptable

RFI inquiry: Drawing AF601, Finish Remarks: Remark #6 is indicated as "Not Used"; however, it appears multiple times in the VC Finish Schedule; please confirm

CM Response: Disregard; not applicable

RFI inquiry: Spec 061600-2.2.A.2 & 2.3.A.2--Wall & Parapet Sheathing: Spec calls for 5/8" sheathing; however, AE312 & AE511 indicate 1/2"; please advise

CM Response: Provide 5/8" sheathing thickness UON on drawings

RFI inquiry: Detail C4/AE411: The chase wall is marked as S6N, which is GWB each side with sound batts; considering this chase wall covers a concrete stair wall, should partition be marked as SE6 (GWB 1 side with no sound batts). Please advise

CM Response: Change chase wall to GWB one side and no sound batts. Ref: Wall Type SE6

RFI inquiry: Joint Firestopping Spec 078443-1.7.A & Penetration Firestopping Spec 078413: Spec 078443 indicates FM 4991 or UL approval while 078413 does not.

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- CM Response:** Recommend deleting FM 4991 requirement or amend to accept Hilti & STI certifications
Delete FM 4991; Hilti and STI certifications acceptable
- RFI inquiry:** Detail A6/AE313: Can the interior side GWB of the exterior wall be deleted when in a "chase wall" condition? Please advise
- CM Response:** GWB can be deleted
- RFI inquiry:** Partition Types AE501, Details A4/AE310 & A4/AE510 & Drawing AE101: Please confirm the following: 1) Although not marked on AE101, exterior walls in Mechanical 128 & Gift Shop 130 (South wall) are S8N; and 2) Interior chase wall between Mechanical and curtain wall window C1 appears incorrectly marked as marked as S8N and should be revised to a chase wall (SE8) which is not listed. The designation S8N should be extended to the exterior wall. Please amend AE101 and AE501 accordingly
- CM Response:** 1) Confirmed; 2) Confirmed; change interior chase wall to SE6
- RFI inquiry:** UAB, Detail A1/AE311U: Can GWB on exterior walls & furring be deleted above reflected ceilings; stop GWB at 10' AFF. Please advise
- CM Response:** No; GWB on exterior wall to remain above ceilings to deck

Item 10: **Scope Clarification---BP-09D Resilient Flooring**

- RFI inquiry:** Bid Set Review Comments, Note 34--Spec Vol 3a & Sheet AF601: Please provide specs for referenced materials on AF601: 1) Wood treads, risers & landings (WD2); 2) Wood Base (WB1); 3) Slat Wall system (SWD1); and 4) Floor Sealer (S-Conc)
- CM Response:** Spec Section 064023 included in Addendum 2 added the following: Paragraph 2.2 addressed Interior Standing and Running Trim for Transparent Finish; Paragraph 2.3 addressed Interior wood stairs include treads and risers; Paragraph 2.4 addressed slat wall materials. Refer to Spec Section 033543 - Polished Concrete Finishing, Paragraph 2.1, Liquid Floor Treatments. While we are not polishing every exposed concrete floor, this spec still applies

Item 11: **Scope Clarification---BP-10A Specialties**

- RFI inquiry:** Metal Lockers, Spec 105113-2.3: Please provide a specific model for basis-of-design
- CM Response:** Tactical lockers required; use ASI Storage Pro Collection as the Basis of Design
- RFI inquiry:** Toilet Accessories Spec 102800-2.2.D: Please provide basis-of-design for counter-mounted Soap Dispenser C2; refer to AE403 elevations & AE401
- CM Response:** Basis of design for counter-mounted soap dispenser: Zurn Industries Z6950-SD 34oz Deck Mount Automatic Liquid Soap Dispenser - Chrome Plated
- RFI inquiry:** Toilet Accessories Spec 102800-2.2.J: Please provide basis-of-design for framed mirror A2; incorrect reference to Bobrick Model B-2888
- CM Response:** Provide Bobrick B-290 2436 framed mirror.

Item 12: **Scope Clarification---BP-10C Signage**

- RFI inquiry:** Bid Set Review Comments, Note 23--AF602, Signage: Please advise: 1) Is signage is required for FACP on one or both entry doors (124 & 100); 2) Is signage required for fire extinguishers other than that provided with the FE

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cabinet; 3) Is signage required for bracket-mounted FE; 4) Is signage required for Sprinkler Riser Room (Storage 124A); and 5) Is signage required for Elevator Controls Room?

CM Response: No signage unless otherwise indicated

Item 13: Scope Clarification---BP-12B Casework

RFI inquiry: From CMC-02, Item 12, please advise location for door & drawer locks

CM Response: Provide locks on all doors and drawers at Reception Desks, Kitchen and Gift Shop

RFI inquiry: Drawing AE804, Reception Desk: D3 references solid wood transaction counter while other details refer to wood veneered plywood; please clarify requirements and provide information on plywood and veneer materials

CM Response: Wood veneer plywood is acceptable in lieu of solid wood. Veneer to match wood doors which is rift cut white oak.

RFI inquiry: Detail A2/AE801--Casework Bookshelves: Note indicates 3/4" wood with plastic laminate on all exposed surfaces; please confirm Industrial Strength Particle Board as a substrate is acceptable. Please confirm 3mm PVC edge tape in lieu of laminate is acceptable edge finish. PVC edges provide more durable, longer lasting edges than laminate.

CM Response: Provide 3/4" plywood; no ISPB; 3mm PVC edge ok

RFI inquiry: AF601 Casework Countertop Surface materials: QTZ1 Wilsonart Quartz "Duomo" (group 3) is being discontinued; please advise alternate color

CM Response: If specified color is not available, then price Group 3 quartz material with color to be selected via submittals

RFI inquiry: Addendum #2, Details A1, A2 & A4/AE403U: Details refer to A2/AE804 which could not be found; please advise

CM Response: Detail transmitted via this CM Clarification

Item 14: Scope Clarification---BP-21A Fire Suppression

RFI inquiry: Fire Suppression Pump: The proposed fire suppression system may not calculate without a fire pump. Please review and advise

CM Response: Proposal should be based upon adequate water pressure and flow availability. Do not include fire pump. If pump is required, it will be addressed post-bid during submittals

Item 15: Scope Clarification---BP-31A Site Turnkey

RFI inquiry: Detail A5/AS400E references "sand finished" on the board-stamped concrete; please provide spec for this finish

CM Response: Delete reference to "sand finish"

RFI inquiry: Addendum #2, Details A2, A6 & B1/AS403E: Previous review note #53 requested concrete footing & burial depth for fence, steps & railing. With absence of this information, is it acceptable to scale details for minimum concrete encasement; please advise

CM Response: CN Comment: For steps & railing, provide circular concrete footing 2-feet deep with 8-inches minimum cover around edges of posts. For fence, provide circular concrete footing 12-feet deep with 8-inches minimum cover around posts.

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- RFI inquiry:** Addendum #2, Details A2, A6 & B1/AS403E: Previous review note #53 requested concrete footing & burial depth for fence, steps & railing. With absence of this information, is it acceptable to scale details for minimum concrete encasement; please advise?
- CM Response:** CN Comment: For steps & railing, provide circular concrete footing 2-feet deep with 8-inches minimum cover around edges of posts. For fence, provide circular concrete footing 12-feet deep with 8-inches minimum cover around posts.
- RFI inquiry:** Alternate #1, E&F Exhibit—Scope modification
- CM Response:** Rough carpentry and heavy timber construction requirements have been deleted from Alternate #1 scope; revised Bid Scope is transmitted thru this CM Clarification

Item 16: Scope Clarification---BP-31B Special Foundations

- RFI inquiry:** Auger Cast Piles Reinforcing (dwg. S501): Please define the basis of design reinforcing for the ACP; final reinforcing design will be by contractor based upon test piles
- CM Response:** Sketch is transmitted thru this CM Clarification; length of reinforcing is 60'
- RFI inquiry:** Drawing S-002, ACP Note #1: Please provide referenced Pile Loading Analysis Results Report dated August 04, 2020
- CM Response:** Report transmitted via this CM Clarification
- RFI inquiry:** Please confirm the following understanding is correct: Geotechnical Engineer is responsible for geotechnical design of the piles; Contractor is responsible for the structural design of the piles
- CM Response:** Confirmed
- RFI inquiry:** Drawing S-002, ACP Note #4: Please clarify if 9.7T lateral load is ultimate load or service (allowable) load
- CM Response:** Pile capacities are service level
- RFI inquiry:** Auger Cast Grout Piles, Spec 316316-3.2.A, Excavation: Spec indicates pile excavation to auger refusal; however, soil borings do not indicate material that would cause auger refusal. Please clarify geotechnical designer intent and amend requirements as necessary
- CM Response:** It is anticipated that auger cast piles should reach desired capacity at 60-feet below ground surface. Piles are to be installed at depth needed to achieve listed design (service level) capacity listed. Test piles are to be used to verify.
- RFI inquiry:** Drawing S-002, ACP Note #4: Please confirm location of all tension piles.
- CM Response:** Sketch is transmitted thru this CM Clarification

Item 17: Scope Clarification---BP-32C Landscaping

- RFI inquiry:** Alternate #1 and Base Bid--Scope modification regarding sod installation
- CM Response:** All areas designated as "lawns", "grassed" or "seeded" should be interpreted as providing sod; match indicated seed type.
Water source is available on-site thru the new permanent domestic and fire water supply

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Item 18: Scope Clarification---BP-23A HVAC

CM Response: Alternate #1, E&F Exhibits: add scope requirements to include installation of EF-1-E and associated ductwork as indicated on MH101E and include louvers indicated on A1/AS403E. Revised Bid Scope and Bid Form are transmitted thru this CM Clarification

RFI inquiry: Louver U-L2: Louver for AHU-2 is not clearly marked or defined; please advise

CM Response: Refer to D3/AE701U for size; louver is fixed blade

End of CM Clarification No. 3

Subcontractor Scope of Work
Exhibit A

**Visitor Center & Underwater Archaeology Building at the Fort Fisher State Historic Site
Job No. 1954**

BP 23A - HVAC

This bid package is intended to be complementary to the Contract Documents including the Project Drawings, Specifications, Addendum, and Project Manual. Subcontractor acknowledges that the Subcontractor Specific Requirements are not intended to describe the complete and final work scope. Reference is made to the Specifications Sections, but is in no way intended to limit or alter the intent of the contract documents.

Subcontractor shall perform all work and shall furnish all layout, supervision, materials, labor, scaffolding, tools, equipment, supplies, services, rigging, craning and hoisting of all materials and equipment, temporary protection of own work, coordination of own work and interaction of work of others, home office and field administration, project management, scheduling, field supervision, engineering, quality control, safety, taxes, insurances, permits, punch list, closeouts and all other things necessary or reasonably incidental for the construction and completion of their work as portrayed in the enclosed enumerated contract documents and specification sections as referenced below:

SUBCONTRACTOR'S WORK SPECIFICALLY INCLUDES:

Bordeaux Bidding Requirements and Information 5/25/2022

Division 01 – General Requirements

Division 07 – Thermal & Moisture Protection

Section 078413 Penetration Firestopping (as it applies to this scope)

Section 078443 Joint Firestopping (as it applies to this scope)

Division 08 – Openings

Section 089116 Operable Wall Louvers

Section 089119 Fixed Louvers

Division 22 – Plumbing (as it applies to this scope)

Division 23 – Mechanical Complete Division

Division 26 – Electrical (as it applies to this scope)

Division 27 – Communications (as it applies to this scope)

Division 28 – Electronic Safety & Security (as it applies to this scope)

Division 31 – Earthwork (as it applies to this scope)

All Related Sections/Requirements referenced within each Division and/or Section

SUBCONTRACTOR SPECIFIC REQUIREMENTS:

1. Payment and performance bond are required for this bid scope. Cost of payment and performance bonds are included in the base bid price.
2. BP-01 General Inclusion Items as applicable to complete Work

3. The on-site foreman or superintendent for this work scope shall have a cellular service enabled iPad, tablet or smart phone with iOS 13/Android 6.0 or later and shall have the latest version of the Procore Construction Management Software application installed in order to have all live project documents, drawings, specs, submittals, punch lists, forms, etc. in hand and immediately accessible
4. This project will utilize Building Information Modeling to facilitate the preparation of coordinated shop drawings. Participation in the BIM model is a requirement of this bid package. Reference Bid Package BP-01 General Inclusions of the bid manual and Exhibit M for detailed BIM requirements for this project
5. Complete installation of work in this bid scope in accordance with all local, state and federal (OSHA) safety regulations and/or requirements
6. Complete installation as outlined in the construction documents and within this scope package to include all insurances and taxes
7. Dispose of all trash and waste materials in dumpster provided by Construction Manager
 - a. Cardboard packaging is to be recycled as part of this scope of work; general construction waste container is not suitable for this use
 - b. Piping and ductwork removed under this bid scope shall be hauled off-site and legally disposed of under this bid package
8. The following is a general outline of the items specifically included, but not limited to, in this bid scope:
 - a. Furnish all labor, material, equipment, accessories, sleeves, pumps, piping, ductwork, insulations, protective coverings, identifications, controls systems, associated conduit & conductors, devices, supports, hangers, angles, Unistrut, anchors bolts, and other accessories and incidentals, etc. to make a complete installation of all **mechanical system** requirements:
 - i. Air-Handling Units
 - ii. Chiller Water system
 1. Chillers, pumps, tanks, air separators & all hydronic piping
 2. Include all exterior hydronic piping
 - iii. Chemical Treatment systems
 - iv. Ductless Mini-Split Systems and Condensing Units
 - v. Ventilators and Fans (exhaust, pressurization, etc.)
 - vi. Terminal Units (VAVs)
 - vii. Electric Heaters & Panels
 - viii. Steam Humidifiers
 - ix. Ductwork
 1. Install duct detectors provided under BP-26A; coordinate location and installation with electrical and fire alarm contractors
 2. Furnish & install access doors for all dampers, duct detectors, etc.
 - x. Unit heaters
 1. Furnish & install all unit heaters and duct heaters
 2. Furnish & install all control wiring including thermostats
 3. Electrical connections under BP-26A Electrical
 - xi. Grilles, Registers & Diffusers

1. Include additional wire supports for grilles, dampers, etc. as required to meet code
2. Wires to be supported only from structure
3. Do not attach wires to supports intended for equipment (duct, pipe, grilles, etc.) or light fixtures
- xii. Roof curbs, duct supports, equipment supports, pipe supports, roof sleeves, vents, etc. as required for this bid scope:
 1. Coordinate locations & sizes of roof curbs with other trades
 2. Curbs to be seismic designed as required
 3. Include all cutting requirements of roof deck openings
 4. Insulate space between deck and unit as required
 5. Curbs to be of sufficient height to provide a minimum clearance of 12" between finished roof surface and roof equipment
 6. Secure all roof-mounted equipment as required
- xiii. Louvers, Vents and Dampers (manual, balancing, smoke/fire, motorized, backdraft, etc.):
 1. Include sheet metal flashings, trim, blank panels, caulking, sealants, etc. as required
 2. Provide custom color at no additional cost to the project
 3. Include motorized dampers, controls, interlock & low voltage wiring and raceways between control panel, fans, devices and louvers
 4. Louvers in doors provided under BP-08C Doors & Hardware
- xiv. All condensate drain piping, pans, pipe supports, splash blocks, etc. for equipment provided under this bid scope
- xv. All **heat trace** requirements
 1. Controllers to be sized for actual heat trace installed
 2. Coordinate circuit amperage requirements with BP-26A Electrical prior to conduit rough-in
 - a. Any additional cost to upsize conduit, conductors or circuit breakers after rough-in or ordering electrical equipment resulting from Subcontractor's failure to timely coordinate will be borne by Subcontractor at no additional cost to project
- xvi. All pipe expansion requirements
- xvii. All **identification and labeling** requirements for this bid scope
 1. Label all access doors
 2. Include stencil painting, pipe markers, tagging, name plates & jacketing
 3. Include "power source" labeling for all equipment
 4. Include all conductor, conduit & raceway identification requirements
 5. Provide permanent color pigmented conduit in all areas above ceiling
- xviii. All **excavation, backfill and compaction** requirements for this bid scope
 1. Subgrade to be properly compacted, graded and left ready for others
- xix. Complete **Building Automation System and Controls (DDC)** requirements
 1. All cabling to be Plenum-rated
 2. Provide all relays and monitoring modules for communication with fire alarm system

3. Provide all thermostats with associated control wiring
4. Include controls, interlock & low voltage wiring and raceways between control panel and mechanical equipment, air terminal units, fans & ventilators, heaters, motorized dampers and louvers, thermostats, devices, etc.
5. Provide sufficient manpower for running of control raceway within concrete construction. Control raceway crews must work same hours as concrete contractor, regardless of weather, and in addition to requirements to meet other scheduled controls/mechanical work
- xx. Complete **Certified Testing, Adjusting & Balancing** requirements
 1. All air, hydronic and life-safety systems installed under BP-23A HVAC
 2. All domestic water systems installed under BP-22A Plumbing
 3. All Certified Test and Balance (TAB) Reports as specified
 - a. Measure and record all pressure differentials across smoke control zones as part of Test and Balance Report
 4. All submittal requirements
 5. All reporting requirements [Document Review, Submittal Review, TAB Plan, Test & Inspection Reports, Initial Certified TAB Reports and Final Certified TAB Report]
 6. Include prompt documentation to Construction Manager of all inspections and noted deficiencies; include items which may hinder a successful TAB effort
 7. All submittal review requirements
 8. Participation in all meetings and conferences
 9. All associated costs to conduct and participate in inspections
 10. All associated costs to verify and adjust TAB work during seasonal periods (near-peak summer and winter conditions)
 11. All associated costs to verify and adjust TAB work at 90 days post-acceptance
 12. Coordinate work with respective trades, Commissioning Agent and Construction Manager
 13. Provide a single-source 3rd party firm to complete the testing, adjusting, and balancing of all mechanical and domestic water systems as specified
- b. Complete **delegated-design** requirements for this scope of work
 - i. Include all associated cost to provide design, submittals, engineered sealed drawings, etc.
 - ii. Drawings to be signed and sealed by a Professional Engineer licensed in NC
- c. Complete **Firestopping** requirements for this scope of work
- d. Complete **Construction Layout** requirements for this scope of work
 - i. Coordinate, layout & install sleeves, dampers and other requirements for mechanical penetrations thru walls, floors and roof decks
 - ii. Coordinate & assist in layout of all framed-openings required mechanical penetrations in elevated slabs, roof decks and roof panels
 - iii. Any penetration missed or incorrectly located will be corrected at subcontractor's expense

- iv. Coordinate and assist in layout of all house-keeping and equipment pads required for HVAC equipment
 - 1. Pads provided by BP-03A Concrete or BP-31A Turnkey Site as applicable
 - 2. Furnish & install any precast pads required for mechanical equipment
- v. Coordinate with BP-09A Drywall regarding curtain wall bracing and exterior duct chase framing to ensure adequate clearance is provided for duct & runouts (refer to A2/AE511 & A1/MH101)

e. Additional Requirements:

- i. Construction Manager will pay for all initial Building and Trade permits
 - 1. Subcontractor shall obtain and activate its respective permits
 - 2. Subcontractor shall be responsible for all re-inspection fees and associated costs
- ii. Full compliance with underground location requirements as required by law
 - 1. Contact North Carolina 811 (aka "NC One Call") at least 72 hours prior to construction or excavation by dialing 811
 - 2. Provide Construction Manager with NC 811 locate ticket number prior to commencement of work
 - 3. Advise Construction Manager of any underground conflict with proposed work prior to commencement of work
- iii. Furnish & install all electrical requirements outlined in the mechanical specifications, unless otherwise specified or indicated within the Construction Documents:
 - 1. BP-26A Electrical to install all motor starters, disconnects switches and combo starters furnished under this bid package
 - 2. Items marked "Provide with unit" are to be furnished & installed by under this bid scope
 - 3. Include all VFD/VSDs, interconnect wiring, controls, etc. required for equipment furnished & installed under this bid scope
 - 4. Include power wiring from disconnect to mechanical equipment and additional power wiring associated with the equipment that is not specifically shown on the electrical drawing
- iv. Include all final mechanical connections to all equipment, whether furnished or installed under this bid package
- v. Provide factory testing, start-up services and training as required for this scope
- vi. Furnish all access doors in GWB assemblies required for this bid scope:
 - 1. Installation by BP-09A; coordinate locations prior to start of framing
 - 2. Label access doors as required
- vii. Protect ductwork from infiltration of dust & debris
 - 1. Clean ductwork as required prior to testing and Owner acceptance
 - 2. Duct must be sealed when delivered and stored on dunnage
 - 3. Installed duct must be sealed at the end of each day
 - 4. Construction Manager reserves the right to reject any un-protected duct
- viii. Include all required vibration isolation, pipe expansion supports, etc.
- ix. Include seismic design and bracing requirements to meet project's seismic zone

- x. Clean, prepare, prime and paint all piping, ductwork, conduit, steel supports, hangers and other mechanical items installed under this scope in accordance with contract requirements
- xi. Furnish & install all sleeves for this bid package
- xii. Include all flushing, chlorination, testing and certification of systems as required
- xiii. Include participation in mock-ups as required
- xiv. Include all link seal requirements
- xv. All actuators and valves shall be rated for the environmental conditions they are installed
- xvi. Subcontractor shall submit a record of all HVAC and other system maintenance that has been performed between System Start-up and Owner acceptance
 - 1. Failure to do so will delay payments after 90% completion
 - 2. If no maintenance occurred, submit letter stating such
- xvii. Include all temporary and new permanent filters as required
 - 1. Replace permanent filters immediately prior to substantial completion
 - 2. Verify completion in writing to Construction Manager
- xviii. Provide, maintain and remove temporary filter media on all return air ducts and grilles during construction
 - 1. Replace media when dirty or as directed by Construction Manager
- xix. Include all cost associated with extending warranties so the warranty requirement from the date of Owner Acceptance is maintained
- xx. Coordinate with Commissioning Agent, participate as required in all commissioning activities and processes, and comply with all requirements
- xxi. Coordinate work such that all systems (equipment, ductwork, controls, FA, etc.) are ready for HVAC equipment startup to establish building climate control prior to scheduled start of interior finishes
- xxii. Coordinate all equipment to fit through doors
 - 1. Advise Construction Manager in writing during Submittals of any conflict
 - 2. Cost associated with enlarging door openings after construction as a result of Subcontractor's failure to timely advise Construction Manager shall be borne by this Subcontractor at no cost to the project
- xxiii. Include all core drilling and cutting for any required penetration or opening
- xxiv. Broom clean roof after each day working on roof. Subcontractor will be responsible for roof damage and discoloration from metal shavings or fasteners left on roof associated with HVAC or controls installations.
- xxv. Furnish & install all backflow prevention devices as required for this scope
 - 1. Provide certification for all backflow devices installed by this scope
 - 2. A representative certified in backflow prevention assembly in the State of North Carolina and acceptable to Owner must be employed for this work
- xxvi. Provide all concrete materials as required for this scope of work, unless otherwise noted within this bid scope
 - 1. All exposed concrete shall be rubbed and patched as required to remove surfaces defects
- xxvii. Include all "local" dewatering measures as required for this work

9. Inspections are required on this project:

- a. Refer to Specifications and Drawings for schedule of special inspections
 - b. Coordinate with special inspector, testing agencies, local inspectors and/or Engineer of Record as may be required
 - c. Include all associated cost to participate and support inspections
 - d. Perform quality control testing to demonstrate compliance with contract documents in advance of inspections and 3rd-party testing
 - e. Subcontractor shall be responsible for all costs (re-testing, corrective measures, repairs, etc.) at no additional cost to the project when its installation fails to meet compliance
 - f. Owner and Construction Manager reserve the right to request additional testing in the event of significant or continual test failures
 - g. Coordinate with Construction Manager for scheduling of inspections
10. Forklifts and other equipment will not be allowed on finished slab on grade areas without written authorization from Construction Manager
- a. Scissor lifts and other non-marking equipment may be allowed upon review of Subcontractor's erection plan with Construction Manager and receipt of written authorization thereof
11. Wash out all concrete materials at designated location; see Site Logistics Plan
- a. Maintain washout as needed for removal of concrete materials
 - b. Consolidate all concrete rubble to a central point as directed by Construction Manager for removal by BP-31A Turnkey Site
 - c. General waste construction container is not suitable for concrete waste disposal
12. Provide all traffic control, flagging, guides, signage, etc. as required for this scope
13. Permanent roads will be expedited along with temporary drive and laydown areas shown on Site Logistics Plan
- a. Subcontractor shall take special care to stay on temporary drives during inclement weather
14. Subcontractor shall repair all land disturbances caused by equipment under this bid scope regardless of wet/dry conditions to include, but not limited to, repair of rutting, damages to erosion control measures, damage to temporary or permanent roads, curbing, etc.
- a. Restore all disturbed areas to equal or better condition than original
15. Maintain all roads, streets, parking, on-site and off-site roadways, etc. free and clear of any mud or debris created by this trade and its deliveries; clean-up shall occur immediately
- a. Sufficient personnel & equipment shall be on-site at all times to expedite this work
 - b. Spillage of water, materials, etc. in public traffic areas shall be immediately cleaned
16. Inspect all substrates and conditions for suitability to receive work under this scope prior to starting work
- a. Advise Construction Manager immediately in writing of any deficiencies or issue
 - b. Commencement of work guarantees acceptance of conditions
17. Daily clean-up of all trash and debris caused by this work
18. Furnish all ladders, lifts, shoring, scaffolding, etc. as required for this work
19. Furnish all supplemental lighting and power as required for this scope
20. Include field measure of all work in this bid scope prior to fabrication
21. Include all necessary mobilizations, multiple crews and equipment, night and weekend shifts as required or directed by Construction Manager to complete the work

22. Protect all work under this scope from damage until accepted by Owner
23. Protect adjacent surfaces from damage by this scope of work
 - a. Any damage during execution of this scope shall be repaired or replaced by this Subcontractor at no additional cost to Construction Manager
 - b. Repairs shall be finished to match existing or adjacent construction
24. Protect roadways, parking areas, curbs, sidewalks and lawns from damage caused by loading, unloading & staging of materials and equipment, hoisting & lifting activities, etc. All repair costs shall be borne by subcontractor responsible for said damages.
25. Subcontractor is responsible for all corrective repairs resulting from its defective workmanship
26. All corrective and repair work shall be performed within 24-hours after notification and shall be accepted prior to payment issuance to Subcontractor for said work performed
27. OSHA Safety measures shall be required and implemented
 - a. Delivery drivers shall wear proper PPE while on site (staging, off-loading, etc.)
28. Project planning to include, but not limited to:
 - a. Participation in development of Master Construction Schedule
 - b. Submit a Safe Plan of Action (SPA) for each definable feature of work each day thru the Procore app (Forms) for Construction Manager review prior to starting work
 - c. Participation by foreman and all workers in a Preparatory Meeting to review SPA, safety requirements, proposed work, approved submittals and other applicable documents prior to starting work
29. Provide all warranties, guarantees, extended service agreements, training, etc. as required
30. Pricing is firm, not subject to escalation for duration of project

SPECIFIC EXCLUSIONS

1. Temporary and permanent electrical usage costs are excluded from this bid scope

ALLOWANCES

Not Applicable

UNIT PRICES

Not Applicable

ALTERNATES

SCOPE ADDED CM CLARIFICATION 03, ITEM 18

Alternate #1, Earthworks and Fortification Exhibit, if selected by Owner, shall include all requirements outlined in the drawing set and specifications:

- **Base Bid:** Not Applicable
- **Alternate:** Provide Exhaust Fan and associated ductwork as indicated on Drawing MH101E and louvers indicated on A1/AS403E
- Include all requirements outlined within this bid package

FORM OF PROPOSAL

Project: Visitor Center and Underwater Archaeology Building
Fort Fisher State Historic Site
1610 Fort Fisher Boulevard South
Kure Beach, NC 28449

Bids Submitted To: Bordeaux Construction Company, Inc. – Construction Manager

BID PACKAGE: **BP – 23A HVAC / Mechanical**

BIDDER: _____

NC License #: _____

(License applies to BP 02 Surveying, BP 21A Fire Protection, BP 22A Plumbing, BP 23A HVAC, BP23B HVAC & Plumbing, BP 26A Electrical, BP-28A Security Electronics, or others as required by NC Statute)

Date: **Thursday, June 30th**

Bid Time: **2:00 pm**

The undersigned, as Bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. Bidder further declares that he/she has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that Bidder has satisfied themselves relative to the work to be performed.

Bidder proposes and agrees if this proposal is accepted to contract with Bordeaux Construction in the form of contract specified in the bid manual, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of:

Bid Package 01 – General Inclusions
Bid Package 23A HVAC / Mechanical

in full in complete accordance with the plans, specifications and contract documents, within the contract time as detailed in the Visitor Center and Underwater Archaeology Building Bid Schedule, to the full and entire satisfaction of Owner and Bordeaux Construction with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the Contract Documents.

Bid Package: **23A HVAC / Mechanical**

BASE BID PRICE

The Base Bid Price includes all Work required by and in strict accordance with the Bid Documents for this Project, for the Lump Sum of:

\$ _____ (Figures only)

ALTERNATES

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "**added to**" the base bid. Alternate price should include all cost of overhead and profit. Construction Manager and Owner expressly reserve the right to accept or reject any or all Alternate Prices in any sequence. Acceptance or rejection of alternates shall not change the contract duration nor relieve the Bidder of timely completion of work within the time periods indicated in the contract documents.

Alternate #1 – Earthworks and Fortification Exhibit

Base Bid: Not Applicable

Alternate: Provide scope of work outlined in this Bid Package and the Construction Documents

Indicate the cost to provide Alternate scope:

(Add) _____ Dollars (\$) (figures only)

ALLOWANCES

Allowances should include all cost of work, overhead and profit to make a complete installation and shall be based upon indicated Quantities and Unit Prices, unless otherwise noted. Use of any allowance shall be as directed by Construction Manager.

All listed allowances shall be included as part of the Base Bid Price:

Not Applicable

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents. Construction Manager reserves the right to reject, negotiate or accept all unit prices prior to contract award.

Not Applicable

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B**) to that effect in lieu of Affidavit (**A**) required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Construction Manager will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

* OR *

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. Affidavit **A** or Affidavit **B**, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

Bidder further proposes and agrees to commence work under this contract on a date to be specified by the Construction Manager at Risk and shall pursue the scope of work included in its contract in accordance with the schedule prepared by the Construction Manager at Risk.

Respectfully submitted this,

(Write the Date of the Month in Words) Day of _____, _____
(Write the Name of the Current Month & Year)

WITNESS:

By: _____
(Printed Name of Person Signing Bid)

(Witness Signs here if you are a Proprietorship or Partnership)

(Signature)

ADDRESS:

TITLE: _____
(Owner, Partner, President or Vice President)

LICENSE #: _____

FEDERAL ID#: _____

ATTEST:

By: _____

(CORPORATE SEAL)

TITLE: _____
(Corporate Secretary or Asst. Secretary Only)

Bid Manual received and used in computing bid (Initial here) _____

Addendum received and used in computing bid. Failure to acknowledge receipt of addendum may result in bid being considered non-responsive. (Initial each as applicable)

Addendum No. 1 _____ Addendum No. 2 _____ Addendum No. 3 _____ Addendum No. 4 _____

Construction Manager Clarification received and used in computing bid. Failure to acknowledge receipt of clarification may result in bid being considered non-responsive. (Initial each as applicable)

Clarification No. 1 _____ Clarification No. 2 _____ Clarification No. 3 _____ Clarification No. 4 _____
Clarification No. 5 _____ Clarification No. 6 _____ Clarification No. 7 _____ Clarification No. 8 _____

Subcontractor Scope of Work
Exhibit A

**Visitor Center & Underwater Archaeology Building at the Fort Fisher State Historic Site
Job No. 1954**

BP 31A - Site Turnkey

This bid package is intended to be complementary to the Contract Documents including the Project Drawings, Specifications, Addendum, and Project Manual. Subcontractor acknowledges that the Subcontractor Specific Requirements are not intended to describe the complete and final work scope. Reference is made to the Specifications Sections, but is in no way intended to limit or alter the intent of the contract documents.

Subcontractor shall perform all work and shall furnish all layout, supervision, materials, labor, scaffolding, tools, equipment, supplies, services, rigging, craning and hoisting of all materials and equipment, temporary protection of own work, coordination of own work and interaction of work of others, home office and field administration, project management, scheduling, field supervision, engineering, quality control, safety, taxes, insurances, permits, punch list, closeouts and all other things necessary or reasonably incidental for the construction and completion of their work as portrayed in the enclosed enumerated contract documents and specification sections as referenced below:

SUBCONTRACTOR'S WORK SPECIFICALLY INCLUDES:

Bordeaux Bidding Requirements and Information 5/25/2022

Division 01 – General Requirements

Division 02 – Existing Conditions

(as it applies to this scope)

Division 03 – Concrete

(as it applies to this scope)

Section 034100

Structural Precast Concrete

(as it applies to Alternate Bid)

Division 10 – Specialties

Section 107516

Ground-set Flag Poles

Division 22 – Plumbing

(as it applies to this scope)

Division 26 – Electrical

(as it applies to this scope)

Division 31 – Earthwork

Complete Division with exception of:

Section 313116

Termite Control

(excluded from this scope)

Division 32 – Exterior Improvements

Section 321216

Asphalt Paving

Section 321613

Concrete Paving

Section 321400

Unit Paving

Section 321443

Porous Unit Paving

Section 323113

Chain Link Fence and Gates

Section 323119

Ornamental Fence

Section 329000

Planting

(as it applies to this scope)

Division 33 – Utilities

Section 330500

Common Work Results for Utilities

Section 334200

Stormwater Conveyance

All Related Sections/Requirements referenced within each Division and/or section

SUBCONTRACTOR SPECIFIC REQUIREMENTS:

1. Payment and performance bonds are required for this bid scope. Cost of payment and performance bonds are included in the base bid price.
2. BP-01 General Inclusion Items as applicable to complete Work
3. The on-site foreman or superintendent for this work scope shall have a cellular service enabled iPad, tablet or smart phone with iOS 13/Android 6.0 or later and shall have the latest version of the Procore Construction Management Software application installed in order to have all live project documents, drawings, specs, submittals, punch lists, forms, etc. in hand and immediately accessible
4. Complete installation of work in this bid scope in accordance with all local, state and federal (OSHA) safety regulations and/or requirements; OSHA Safety measures shall be required and implemented
5. Complete installation as outlined in the construction documents and within this scope package to include all insurances and taxes
6. The following is a general outline of the items specifically included, but not limited to:
 - a. **Complete Project Surveying** requirements
 - i. Include surveying and staking:
 1. Establish a minimum of three new permanent benchmarks
 2. Survey and establish Limits of Construction/Disturbance
 3. Survey and establish benchmarks and control lines for all buildings
 4. Survey and establish building corners (10' offset)
 - ii. Include Final Surveys:
 1. As-built survey of all anchor bolts locations and elevations
 2. Final Site As-built Survey of Buildings
 3. As-built survey of all site utilities
 4. Certified Survey and Final Property Survey showing boundary lines, monuments, streets, improvements, grade contours, etc.
 5. Certified Survey of all piles (ref: S-002, ACDP Note #7)
 6. Provide As-built & Final Surveys to Construction Manager
 - iii. Surveyor shall be registered in the State of North Carolina
 - iv. Benchmark elevation and CAD files will be provided for surveyor's use
 - v. Coordinate and Schedule work at the direction of Construction Manager
 - vi. Notify Construction Manager immediately in writing of all deviations and discrepancies
 - vii. Layout for landscape plantings and site furnishings by BP-32C Landscaping
 - viii. Layout for auger piles, concrete foundations and CHW piping by respective trades
 - b. **All Construction Layout** requirements

- i. Provide all construction layout and staking required to complete the work in this bid package
 - ii. Protect and maintain all staking installed by others; re-staking costs will be borne by this Subcontractor
 - iii. Subcontractor shall be responsible for any required remedial work due to its work being installed incorrectly
- c. All **Temporary Construction Fencing** requirements
 - i. Furnish & install temporary construction fence and access gates as indicated on Logistics Plan in Bid Manual Section Five
 - 1. Temporary fence to include screening and three separate logos at 50' intervals; screening to be vented for wind relief
 - 2. Remove temporary fence as directed by Construction Manager
 - 3. Temporary fence posts shall be driven into ground unless otherwise directed by Construction Manager
 - 4. Furnish temporary construction access gates
 - a. Access gates shall be cattle-style gates including posts and necessary hardware
 - b. Gates shall be of sufficient size to span permanent entrance drives
 - c. Include replacement of posts after installation of curb and gutter
 - d. Remove gates as directed by Construction Manager at project completion
- d. Complete **Site Demolition** requirements:
 - i. Complete removal and disposal off-site of **all** items (Notes) outlined on CD101 Demolition Plan to the limits indicated:
 - 1. Demo and abatement of structures provided under BP-02B Demolition & Abatement (Note #4)
 - 2. All existing utilities and foundations within new building limits
 - 3. All utilities, pavements, furnishings, signage and other appurtenances as may be required for installation of new work, whether indicated or not
 - 4. Include pumping and cleanout of all tanks prior to removal
 - 5. All utility poles not scheduled for reuse
 - 6. Include saw cut and square pavements, sidewalks and curbs as directed
 - 7. Salvage, clean & store pavers on wood pallets (#10) for Honor Walk
 - 8. Salvage, clean, store & reinstall canons (#17) and anchors (#16)
 - 9. Salvage & return stone columns to Owner at an on-site location TBD (#28)
 - ii. Include all cost associated with cut, cap and make safe respective utilities prior to start of demolition
 - 1. Coordinate with each utility provider to ensure utilities are cut, capped and demolished in accordance with their regulations and requirements
 - iii. Salvage, store & deliver non-potable pressure water tank, gauge and pressure switch (CU502 & A4/PE103) to BP-22A Plumbing for installation; coordinate as required
 - 1. Include all new exterior piping, fittings, valves, etc.

2. Associated electrical work to restore well and NPW system operations (refer to Utility Note #4 & Construction Note #40/CU101 and Key Note #5/ES102) under BP-26A Electrical
- e. Complete **Earthwork** requirements
- i. Tree-protection fence
 - ii. Site Grading
 - iii. Screened topsoil & fine grading of topsoil
 - iv. Temporary roads, crane pads, laydown areas & entrances (See Site Logistics Plan)
 - v. Stone Storage Area and Stone Emergency Access Drive (including weed barrier and pre-emergent)
 - vi. All erosion control measures & required maintenance including:
 1. Construction entrances
 - a. Maintain as required or directed by Construction Manager
 - b. Provide wash stations as required to maintain clean pavements
 2. Silt fence and Super silt fence; stone outlets
 3. Diversion Ditches
 4. Check dams
 5. Rip Rap
 6. Geotextile fabrics as required
 7. Jute matting and other stabilization materials as required
 8. Inlet protection
 - a. Silt socks, stone, fabric, silt sacks, etc. as specified
 - b. Protect new and existing structures whether indicated or not
 9. Temporary sediment traps & basins
 - a. Include sediment baffles
 - b. Remove sediment accumulation as required
 - c. Repair and restore baffles and vegetation as required
 - d. Install skimmers & outlets
 - e. Drainage structures as indicated
 10. Temporary seed
 11. Temporary slope drains
 12. Observation and monitoring wells
- f. All **Site Seat Wall and Raised Planter** requirements:
- i. Include all excavation, backfill and compaction requirements
 - ii. Excavate area to top of foundation; foundation excavation by BP-03A
 - iii. Concrete foundations and walls by BP-03A Concrete
 - iv. Include all drainage piping, drainage fill (#57 stone) and geotextile fabrics for complete backfill of walls
- g. Complete **Storm and Roof Drainage systems** requirements
- i. Roof drainage collection system
 1. Connect to internal roof drainage stub-outs at 5' outside of building
 2. Connect to roof drainage gutters at downspouts
 - a. Include all metal boots, powder-coat finish to match downspouts
 3. Include cleanouts at all roof drainage connections

- ii. Concrete aprons & rings at cleanouts, valve boxes, inlets, etc.
- h. Complete **Exterior Improvements** requirements
 - i. Asphalt pavements
 - 1. Tack coat, prime coat, herbicide treatment as specified
 - 2. Milling as required
 - 3. Asphalt patching for site utilities as required
 - 4. Saw cut and square pavements as required
 - ii. Aggregate Base Course
 - iii. Aggregate for stone drives & paths (include geogrid)
 - iv. Concrete curbs (curbs, curb & gutter, curb cuts)
 - v. Concrete pavements and aprons
 - vi. Striping, Markings and Signage
 - 1. Vehicular signage and pavement markings as required
 - 2. Concrete wheel stops as required
 - vii. Site Concrete
 - 1. All sidewalks complete
 - a. Include all required ADA ramps, landings and curb ramps
 - b. Include all detectable warnings
 - c. Railings by BP-05A Turnkey Steel
 - 2. All site bollards complete
 - a. Include concrete footing/base and pipe fill, backfill, grout, etc.
 - b. Bollard (steel pipe) furnished by BP-05A
 - 3. All exterior pads for MEP equipment
 - a. Coordinate size, layout, finishes, etc. prior to placing any pad
 - b. Point, patch & rub all exposed concrete surfaces
 - c. Transformers pads by BP-26A Electrical
 - d. ACC Platform by BP-05A Turnkey Steel; foundations by BP-03A
 - 4. Concrete pavement for cannon and anchors
 - 5. Saw cut and square sidewalks and curbs as required
 - 6. Site concrete drainage materials included under this bid scope
- i. Complete **Ground-set Flagpole** requirements
 - i. Include all foundation requirements
- j. Complete **Unit Paver** requirements:
 - i. Entry and Event Plaza pavers (#G/L101)
 - ii. Permeable concrete pavers (#D/L101)
 - iii. Honor Walk pavers (#10/CD101 & #U/L101)
 - iv. Include all edge restraints, geotextiles, aggregate subbase and bedding layers
- k. Complete **Site Utilities** requirements
 - i. Site Domestic Water to within 5' of building
 - ii. Fire line to 1' AFF in Sprinkler Riser/Mechanical Room
 - 1. All valve boxes, meter boxes, hydrants, PIVs, etc. as indicated in contract documents; adjust as required to meet grades
 - 2. All site hotboxes, tracer wire and heating elements in hot boxes
 - 3. All backflow devices for this scope
 - 4. All joints must be 100% restrained, whether indicated or not

5. Provide tamper switches and relays as required; final installation and terminations by others
6. All related signage (FDC, PIV, etc.) and markings as required
7. Conduits and pull strings for electrical and fire alarm installed by BP-26A Electrical; coordination required
- iii. Meter/BFP/Valve vault
 1. Install link seals at all piping thru underground vaults
- iv. Sanitary Sewer to within 5' of building
 1. Include all manholes, cleanouts, etc.
 2. Make necessary adjustments to cleanouts, ring & covers, valve boxes, inlet grates, etc. to meet grade
 3. Make connections to plumbing lines at cleanouts
- v. Sanitary Sewer Grinder Pump Stations and Force Mains complete
 1. Include all controls and mounting panels under this bid scope (CU502)
 2. Include underground vaults
- vi. Temporary Construction
 1. Provide domestic water service to Construction Manager's Field Office
 2. Provide temporary water hook-up for concrete and general construction use; coordinate location with Construction Manager
 3. Usage fees paid by Construction Manager
- I. Complete permanent **Fencing** requirements
 - i. Chain link fencing and gates
 - ii. Ornamental fence (#DD/L101)
 - iii. Remove & restore fence for CHW pipe installation
 - iv. Pipe railings furnished & installed by BP-05A Turnkey Steel
 - v. Palisade fence (#R/L102E & B1/AS403E) installed under Alternate #1
- m. **Allowances**
 - i. **Include all stated allowances as outlined within this bid scope**

7. General Requirements

- a. All work shall be constructed in accordance with all Local, State (NCDOT, OSHA, NCDENR and NCDEMLR) and Federal standards and specifications. Notify Construction Manager of any conflicts between specifications and Agency requirements prior to beginning work
- b. All excavation, trenching and earthwork in full compliance with OSHA trench and shoring requirements including any temporary shoring, trench boxes, benching, fall protection, egress requirements, etc.
- c. Subcontractor shall provide and maintain a construction activity pollution prevention plan. Plan must be submitted to Construction Manager within 30 days from Notice to Proceed. Documentation of plan execution must be submitted to Construction Manager with each monthly pay application. At a minimum, plan shall address inspection and reporting requirements and procedures, construction entrance, surface stabilization, run off control, run off conveyance, outlet protection, inlet protection, sediment tramp installation and maintenance. Provide copies of all paperwork and reporting to Construction Manager on a weekly basis.

- d. Install, maintain & remove all erosion control measures per Construction Documents through Project Acceptance; restore site as required
 - i. Include all NCDEQ requirements for inspections, documentation & maintenance
 - ii. Conduct Self-monitoring Inspections for all land disturbing activity as required by NCGS 113A-54.1(e) and 15A NCAC 04B.0131
 - iii. All Inspection and Monitoring Records (DEMLR form) shall be maintained on-site in Construction Manager's office
 - iv. Remove erosion control measures, as specified in the erosion and sedimentation control plan, with approval from DEMLR Inspector
- e. Full compliance with underground location requirements as required by law:
 - i. Contact North Carolina 811 (aka "NC One Call") at least 72 hours prior to construction or excavation by dialing 811
 - ii. Provide Construction Manager with NC 811 locate ticket number prior to commencement of work
 - iii. Advise Construction Manager of any underground conflict with proposed work prior to commencement of work
- f. Schedule is schematic in nature and will be amended after all trades have been contracted
- g. All "local" dewatering measures as required for this scope. Wellpointing and other "whole site" dewatering methods are not included unless otherwise addressed within this scope.
- h. Legally dispose of all exported materials and debris; general construction waste container is not suitable for this use
- i. Remove project mock-up walls and foundations at project closeout or as directed by Construction Manager; restore site as required
- j. Subcontractor shall install jute matting on all slopes 2:1 or greater including erosion control ponds. Subcontractor shall include swales and corrugated drainage piping at the top of slopes greater than 4:1 to conduct water to bottom of slope.
- k. Install temporary seed and jute matting on all slopes of each sediment basin
- l. Provide & maintain construction entrances as indicated on the Site Logistics Plan and Construction Documents. Construction entrances to be maintained accessible to vehicular traffic, free from ruts, bumps, potholes, etc. for duration of the project.
- m. Comply with all notes on plans and specifications regarding land disturbing activities
- n. Furnish & install two "Crane Pads", location to be determined in field
 - i. Crane pads are to be 12" CABC over geotextile fabric, 30'x30' (minimum) or as required for crane
 - ii. Include all associated costs to remove stone and fabric upon completion of concrete and roofing operations or as directed by Construction Manager (CM)
 - 1. Stone determined suitable for reuse may be salvaged to replenish permanent drives during construction
 - 2. Include cost to haul off-site excess stone not used to replenish drives
- o. Subcontractor acknowledges there is no long-term storage for surplus materials, topsoil, etc. available on site. All materials shall be removed from the site at time of excavation.

- i. Temporary stockpiles are granted approval at sole discretion of Construction Manager
 - ii. Location of any stockpile shall be coordinated with Construction Manager prior to establishing stockpile
 - iii. Stockpiles shall not be located such that they impede construction of utilities, storm drainage, parking lots, access roads, etc
- p. Include all associated cost to remove contaminated stone from permanent drives used during construction and replenish stone as required
- q. Include all necessary demolition, to include but not limited to, saw cut and removal of existing curb & gutter, pavement, concrete sidewalk, storm drainage, fencing, fire hydrants, water lines, sewer lines, sewer lines, etc. to complete this scope of work
- r. Include all necessary clearing and stripping of site
 - i. Subcontractor may elect to chip stumps and utilize mulch for stabilization of slopes/areas as directed by Construction Manager
- s. Burning on site will not be permitted
- t. Maintain all on-site and off-site roadways free and clear of mud from construction activities
 - i. Include cost for a street sweeper with operator through duration of the project
 - ii. Streets shall be maintained as needed, but no less than daily, or as directed by Construction Manager
- u. Provide all necessary dust control measures to complete this scope of work and as directed by Construction Manager
- v. Include all excavation, embankment, backfill and compaction requirements for this scope
- w. Proof roll all structural subgrades for building pads, paved areas and stone drives
- x. Provide all rough-grading and fine grading activities to within +/- 0.10'
- y. Building pad subgrade will be turned over +/- 0.10' as follows:
 - i. **-8'-0" BFF** (8' below finished floor) for auger piles and pile cap, grade beam, shear wall and column construction
 - ii. **-1'-6" BFF** (18" below finished floor) for first floor construction
 - iii. **-0'-8" BFF** (8" below finished floor) for UAB building pad
- z. Protect & seal exposed subgrades on a daily basis
- aa. Maintain positive drainage throughout project to eliminate and ensure no standing water on-site:
 - i. Ensure positive drainage from building is maintained
 - ii. Subcontractor must keep adequate equipment and operator on-site at all times
 - iii. Site maintenance shall occur prior to each rain event and at least once weekly
 - 1. Maintain site with a smooth drum vibratory compactor
 - 2. Smooth ruts frequently each day
- bb. All topsoil shall be screened. **Screened Topsoil requirement will be strictly enforced.** Include cost to material screen all topsoil on-site prior to its installation. It is understood that the requirement for screened topsoil may be above requirements indicated in the specifications. At Subcontractor's option, and at no additional cost to the project, imported screened topsoil material may be utilized. Topsoil to be graded to +/- 0.10' and free of rocks, roots, trash and any other debris. Topsoil depth for all

lawn areas to be 6"; maximum particle size ½" 100% passing. While hand-raking, disking and other methods of removing deleterious materials from topsoil are encouraged, these methods will not be acceptable as the sole source procedure for topsoil preparation.

- cc. Provide pre-cast "donuts" for all cleanouts provided under this bid scope
- dd. Backfill foundation exterior after completion as part of this scope:
 - i. Work will be completed in phases; Subcontractor shall include all necessary mobilizations to backfill foundations to ensure masonry progresses without delay
 - ii. Include dewatering and removal of wet soils, mud, trash & debris, etc. as required to prepare foundation walls for backfilling
- ee. Backfill all curbs and sidewalks immediately upon completion of these trades, but no less than weekly when constructing curb or sidewalk
- ff. Include all associated cost to flush all storm drain lines to remove all sediment accumulated during construction; notify Construction Manager prior to flushing.
 - i. Subcontractor shall exercise all necessary care to minimize sediment entering storm drainage system through use and rigorous routine maintenance of inlet protection as part of this bid scope
- gg. Include removal and off-site disposal of foundation spoils as part of this bid scope. Spoils to be deposited in a central location by others; spoils may be reused if deemed suitable for use.

8. Bituminous Asphalt Concrete Pavement Requirements

- a. Adjust manhole covers, cleanouts, valve covers, etc. as required to flush with paving
- b. Traffic signage shall include all handicap signage, stop signs, yield signs, regulatory, caution & directional signs, etc. inclusive of excavation, posts, hardware, concrete, etc.
- c. Include cost to clean binder of all debris, mud, etc. as required to install surface course
- d. Subcontractor shall include restriping and marking existing pavements as indicated
- e. All pavement markings in Public Rights-of-Way shall be thermoplastic

9. Site Concrete Requirements

- a. Provide all site concrete including vehicular paving, curbs, gutters, aprons, sidewalks, ADA ramps, loading dock pavement, door stoop pads and site pads for MEP equipment
- b. Include all necessary fine grading, stone base, reinforcement, formwork and specified finishes for all site concrete
- c. Include all detectable warning surfaces, even though not indicated
- d. Provide all fabrication, delivery, materials and material handling (crane, pump, buggy) as required for the Work
- e. Subcontractor must coordinate exterior door and window transitions to ensure positive drainage from building and finish transitions (troweled finish to broomed finish) occur under frames and thresholds. Include saw cut or removal & replacement of any concrete where transitions do not occur under a frame or threshold (i.e. troweled finishes visible from the exterior will not be accepted)
- f. Site concrete shall be held down ½" to ensure positive drainage away from building. Care shall be taken to ensure concrete maintains ADA accessibility. Remove and

- replace any concrete installed under this bid package without positive drainage or out of compliance with ADA.
- g. Provide concrete in compliance with specification and hot and cold weather concrete procedures:
 - i. Provide all necessary admixtures and additives to include, but not limited to, water reducing admixture, hot water, cold water, ice, retardant, super-plasticizer, air entrainment, fly ash, corrosion inhibitors, etc.
 - ii. Refer to Bid Schedule (Bid Manual--Section 5). Schedule is schematic in nature and will be adjusted once approved subcontractors are on board
 - iii. Include all associated cost for surcharges, environmental fees, short loads, heated & chilled water, ice, etc. as part of this bid package
 - h. All concrete shall be shipped within and shall maintain specified temperatures throughout the approved placement and curing time allotments specified in the Contract Documents at no additional cost to Construction Manager. Delaying concrete placements to avoid controllable concrete temperature placements is not acceptable means and methods.
 - i. Subcontractor is responsible for the strength of concrete as determined by specimens taken at point of discharge or sampling in accordance with all applicable ACI and ASTM standards and specifications for sampling, curing and testing:
 - i. Provide curing box or a safe location for storage and safekeeping of test samples until testing agency takes possession
 - ii. Actual records of Subcontractor's Ready Mix Vendor's delivery performance shall be kept and furnished to Construction Manager
 - iii. If said concrete does not achieve design strength or Owner's acceptance, Subcontractor will be responsible for all costs of removing, testing and retesting, replacing and/or shoring said concrete
 - j. Construction Manager will not be responsible for payment of defective concrete, returned concrete not in-compliance with approved submittals, short-loads, minimum load requirement charges, weekend or after-hour concrete placements requirements, environmental fees or chargers, fuel surcharges, concrete delivered without inspection approvals for work to be placed, or returned deliveries which were not coordinated with Contractor
 - k. Subcontractor is responsible for all cold and hot weather requirements:
 - i. Provide concrete blankets or temporary heat as required
 - ii. Review weather procedures with Construction Manager prior to each placement
 - l. All horizontal dowels to be "Speed Dowel" type at all concrete pavement and pad construction joints, whether indicated or not
 - i. Dowels shall not be "wet set"
 - ii. Dowels shall not be installed while adjacent construction is on-going
 - iii. Protect exposed dowels from damage
 - m. Coordinate concrete finishes with Construction Manager
 - n. Wash out all concrete materials at designated location; see Site Logistics Plan
 - i. Construct and maintain washout as needed for removal of concrete materials
 - ii. Install necessary identification signage as required

- iii. All concrete rubble will be removed from a central point under this bid scope
- iv. General waste construction container is not suitable for concrete waste disposal

10. Site Utilities Requirements

- a. Complete excavation, bedding course installation and backfill per specification
- b. Provide open cut and patch for all water, sewer and storm drainage crossings of public streets, roads and drives. Include costs for steel plates as required. Subcontractor may, at their option, jack and bore at no additional cost to the project. Coordinate connection with AHJ and Construction Manager
- c. Provide all specified separations between sanitary sewers in relation to water and storm sewers. Notify Construction Manager immediately if separation is not possible.
- d. Provide thrust restraints as specified for all work installed under this bid scope
- e. Include concrete pads for any valve boxes, hot boxes or cleanouts installed under this bid scope
- f. Connect to sanitary sewer stub outs by Plumbing Contractor. Include necessary coordination to include locating and connecting as part of this bid scope.
- g. Provide detectable marking tape and wire as specified for all work as specified installed under this bid scope
- h. Furnish & install "meter setter", water meter and meter box as part of this scope
 - i. Water meter and tap fees paid by others
 - ii. Meter shall be established in Construction Manager's name
 - iii. All temporary usage fees are paid by Construction Manager
- i. Include all costs (hydrant meter, water use, fees, etc.) associated with testing and certification of all domestic water and fire lines (main & FDC runout) installed under this bid scope
- j. Include flushing and chlorination of domestic potable water lines
 - i. Provide bacteria test report for site water line
 - ii. Dechlorination method to be approved by AHJ
 - iii. Extend invitation to Construction Manager and fire protection contractor to witness flushing of domestic and fire lines
 - iv. Provide NFPA 24 Certification at completion of site fire lines
 - v. Provide pressure testing of domestic water lines to point of connection with plumbing contractor
- k. Provide certification for all backflow (RPZ/BFP) devices installed under this scope; a representative certified in backflow prevention assembly in the State of North Carolina and acceptable to Owner must be employed for this work
- l. Include all trenching requirements to include trench boxes, shoring, dewatering, etc.
- m. All utility piping shall have ends sealed on a daily basis to prevent water, dirt, silt, debris, etc. from entering
- n. All penetrations thru foundation walls created by this scope shall be made watertight to include core drilling and link seals; restore below-grade waterproofing as required
- o. Coordinate with utility service providers as required:
 - i. Include under pavement sleeves where required

- ii. Utility Company shall not open cut pavement structures after permanent CABC has been installed
- iii. Subcontractor shall be responsible for any restoration of subgrade, geotextile fabrics, CABC, curb & gutter, etc. at no cost to the project
- p. Remove obstructions as required to install utilities; restore as required

11. Fencing requirements

- a. Include all labor, materials (fabrication & delivery), equipment, accessories, bracing, fabric, ties, tension wires, ground barrier stakes, gates, grounding & bonding, etc. for this scope
- b. Form, prep, place & finish all concrete gate operator pads, post footings, receivers, mow strips, etc. for this scope
- c. Coordinate curb cut locations for gate operation
- d. Include all sleeves, conduits, wiring, etc between motors/operators and disconnects
- e. Coordinate gate operators to allow integration with security system
- f. Furnish & install detector loops as required
- g. Include all control and electrical wiring between disconnect and gate operator
- h. Include all fence screening materials (PVC slats, fabric) where indicated
- i. Include all excavation, concrete, reinforcing, grout and backfill requirements
- j. All materials furnished under this bid scope shall be unloaded, staged and stored on cribbage, dunnage or pallets
 - i. All materials must be clean, free of dirt, mud, stains, etc. prior to installation
 - ii. All materials installed under this scope which require supplemental cleaning shall be Subcontractor's responsibility at no cost to the project

12. Allowances

Use of any allowance shall be as directed by Construction Manager and supported with sufficient documentation as required to include quantification by Geotechnical Engineer. Any work performed without prior written authorization will be considered as a requirement to complete the scope of work in this bid package and at no cost to the project.

Include as **Allowances for designated scope and quantity**, installed as directed by Construction Manager and shall be based upon indicated Quantities and Unit Prices:

#03a	Unsuitable soils (Mass) remove & dispose off-site	1,000 CY
#03b	Unsuitable soils (Trench) remove & dispose off-site	100 CY
#04a	Replacement of soils (Mass) with import fill	1,000 CY
#04b	Replacement of soils (Trench) with import fill	100 CY
#05	Replacement of soils (Trench) with #57 stone	100 CY
#06	Crushed Stone (NCDOT ABC)	100 CY
#07	Rock excavation (trench), remove & dispose off-site	20 CY
#18	Geotextile fabric, in-place	300 SY
#19	Geogrid, in-place	300 SY

- a. Allowances shall include all associated cost for purchase of materials, transportation, placement, compaction and quantity verification
- b. Allowances to include all requirements outlined within this bid package

Include all stated allowances as outlined within this bid scope

- 13. Inspections are required on this project:
 - a. Refer to Specifications and Drawings for schedule of special inspections
 - b. Coordinate with special inspector, testing agencies, local inspectors and Engineer of Record as may be required
 - c. Include all associated cost to participate and support inspections
 - d. Perform quality control testing to demonstrate compliance with contract documents in advance of inspections and 3rd-party testing
 - e. Subcontractor shall be responsible for all costs (re-testing, corrective measures, repairs, etc.) at no additional cost to the project when its installation fails to meet compliance
 - f. Owner and Construction Manager reserve the right to request additional testing in the event of significant or continual test failures
 - g. Coordinate with Construction Manager for scheduling of inspections
- 14. Permanent roads will be expedited along with temporary drive and laydown areas shown on Site Logistics Plan
 - a. Subcontractor shall take special care to stay on temporary drives during inclement weather
- 15. Subcontractor shall repair all land disturbances caused by equipment under this bid scope regardless of wet/dry conditions to include, but not limited to, repair of rutting, damages to erosion control measures, damage to temporary or permanent roads, curbing, etc.
 - a. Restore all disturbed areas to equal or better condition than original
- 16. Provide all traffic control, flagging, guides, signage, etc. as required for this scope
- 17. Maintain all roads, streets, parking, on-site and off-site roadways, etc. free and clear of any mud or debris created by this trade and its deliveries; clean-up shall occur immediately
 - a. Sufficient personnel & equipment shall be on-site at all times to expedite this work
 - b. Spillage of water, materials, etc. in public traffic areas shall be immediately cleaned
- 18. Inspect all substrates and conditions for suitability to receive work under this scope prior to starting work
 - a. Advise Construction Manager immediately in writing of any deficiencies or issue
 - b. Commencement of work guarantees acceptance of conditions
- 19. Daily clean-up of all trash and debris caused by this work
- 20. Furnish all ladders, lifts, shoring, scaffolding, etc. as required for this work
- 21. Furnish all supplemental lighting and power as required for this scope
- 22. Include field measure of all work in this bid scope prior to fabrication
- 23. Include all necessary mobilizations, materials, equipment (transport, light towers, etc.), multiple crews, night and weekend shifts as required to facilitate construction progress or as directed by Construction Manager to complete the work
- 24. Protect all work under this scope from damage until accepted by Owner
- 25. Protect adjacent surfaces and work from damage by this scope of work

- a. Any damage during execution of this scope shall be repaired or replaced by this Subcontractor at no additional cost to Construction Manager
 - b. Repairs shall be finished to match existing or adjacent construction
26. Protect roadways, parking areas, curbs, sidewalks and lawns from damage caused by loading, unloading & staging of materials and equipment, hoisting & lifting activities, cranes, etc. All repair costs shall be borne by subcontractor responsible for said damages.
27. Subcontractor is responsible for all corrective repairs resulting from its defective workmanship
28. All corrective and repair work shall be performed within 24-hours after notification and shall be accepted prior to payment issuance to Subcontractor for said work performed
29. OSHA Safety measures shall be required and implemented
 - a. Delivery drivers shall wear proper PPE while on site (staging, off-loading, etc.)
30. Project planning, to include, but not limited to:
 - a. Participation in development of Master Construction Schedule
 - b. Submit a Safe Plan of Action (SPA) for each definable feature of work each day thru the Procore app (Forms) for Construction Manager review prior to starting work
 - c. Participation by foreman and all workers in a Preparatory Meeting to review SPA, safety requirements, proposed work, approved submittals and other applicable documents prior to starting work
31. Provide all warranties, guarantees, extended service agreements, training, etc. as required
32. Pricing is firm, not subject to escalation for duration of project

SPECIFIC EXCLUSIONS

1. Termite Control by BP-03A Concrete
2. Site Lighting by others
3. Transformer pad by BP-26A Electrical
4. Drainage course for Visitor Center and UAB slabs-on-grade by BP-03A
5. Landscaping (permanent grass, plantings, trees, etc.) by BP-32C Landscaping
6. CHW & hydronic piping by BP-23A HVAC/Mechanical

ALLOWANCES

#03a	Unsuitable soils (Mass) remove & dispose off-site	1,000 CY
#03b	Unsuitable soils (Trench) remove & dispose off-site	100 CY
#04a	Replacement of soils (Mass) with import fill	1,000 CY
#04b	Replacement of soils (Trench) with import fill	100 CY
#05	Replacement of soils (Trench) with #57 stone	100 CY
#06	Crushed Stone (NCDOT ABC)	100 CY
#07	Rock excavation (trench), remove & dispose off-site	20 CY
#18	Geotextile fabric, in-place	300 SY
#19	Geogrid, in-place	300 SY

UNIT PRICES

UP-3a	Unsuitable soils (Mass) remove & dispose off-site	\$ / CY
UP-3b	Unsuitable soils (Trench) remove & dispose off-site	\$ / CY
UP-4a	Replacement of soils (Mass) with import fill	\$ / CY

UP-4b	Replacement of soils (Trench) with import fill	\$ / CY
UP-05	Replacement of soils (Trench) with #57 stone	\$ / CY
UP-06	Crushed Stone (NCDOT ABC)	\$ / CY
UP-07	Rock excavation (trench), remove & dispose off-site	\$ / CY
UP-18	Geotextile fabric, in-place	\$ / SY
UP-19	Geogrid, in-place	\$ / SY

ALTERNATES

Alternate #1, Earthworks and Fortification Exhibit, if selected by Owner, shall include all requirements outlined in the drawing set and specifications:

- **Base Bid:** Not Applicable
- **Alternate:** General scope includes all Project Survey, Construction Layout, Site Demolition, Earthwork, Exterior Improvements, Unit Pavers and Fencing requirements:
 - Include temporary fencing requirements
 - Include removal & disposal of all items outlined on CD101E Demolition Plan
 - Include relocation of cannon, anchor & sign (CD101E #5, #1 & #4)
 - Include all surcharge & settlement monitoring requirements (BB101)
 - Surcharge materials which cannot be used on-site shall be hauled off-site and legally disposed of as part of this bid scope
 - Include Allowance #20 for supplemental gauge monitoring
 - Include all reinforced soil slope requirements (CG501E)
 - Include all L102E Key Note requirements applicable to this Alternate
 - Include all excavation, backfill and compaction requirements
 - Excavate to top of foundations for site retaining walls, bombproof & vault
 - Excavate to subgrade for precast structural culverts
 - Excavate to subgrade for SOG at Gun Embankments & Lunette
 - Include all drainage (pipe, aggregate, geotextile) requirements associated with site retaining walls, structural and precast concrete, etc.
 - Include all lunette and gun emplacement timber retaining walls, caps, railings & stairs
 - Foundations by BP-03A Concrete
 - Furnish posts to BP-03A Concrete for installation (A4/AS403E)
 - Waterproofing by BP-07D Caulking & Sealants
 - Include all sand dune protection rails (D4/AS403E)
 - Include palisade fence (#R/L102E & B1/AS403E)
 - Include all precast structural concrete (culverts, walls, roofs, etc.) requirements
 - Include all delegated-design requirements
 - Include all cost associated with design, engineering, shop drawings and submittals, etc.
 - Furnish engineering calculations and drawings stamped and sealed by a Professional Engineer licensed in North Carolina
 - Include aggregate base bedding
 - Include all fabrication, delivery, staging and handling requirements
 - Include all welding requirements
 - Waterproofing by BP-07D Caulk & Sealants

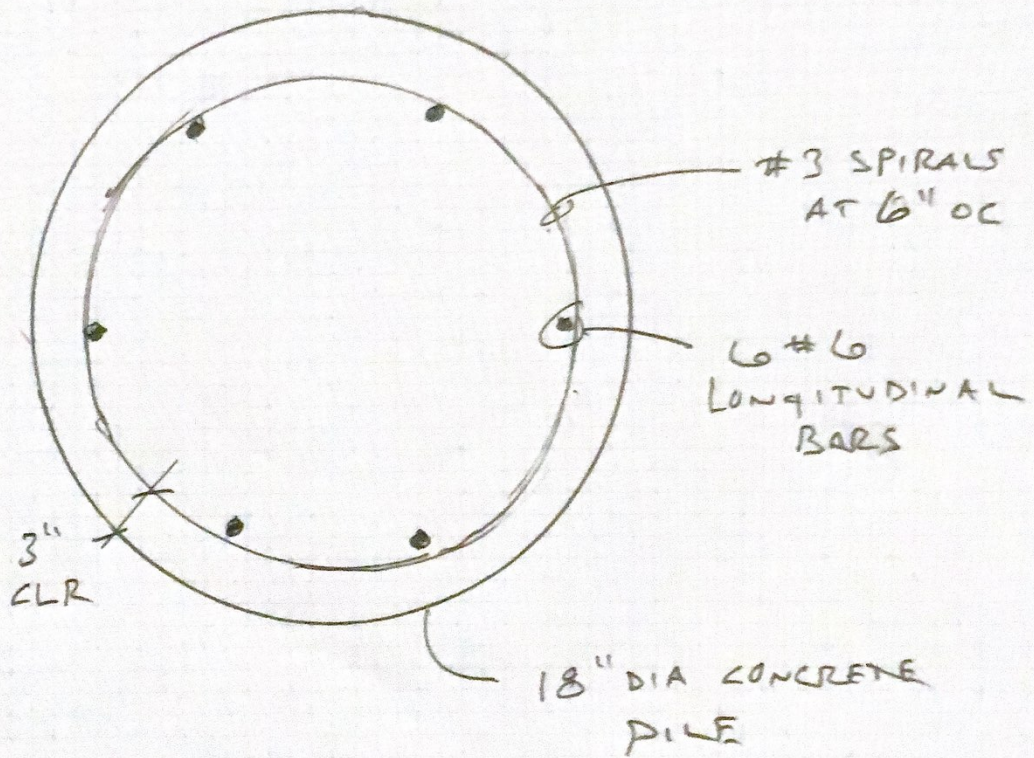
- PVC membrane & insulation protection board by BP-07D Caulk & Sealants
- Include all concrete SOG requirements within tunnels, sally port, entrances, bomb shelter, vaults, etc.
 - Include aggregate base
 - Include board-stamped ~~and sand~~ finish as required **(CMC-03, Item 15)**
- **Rough Carpentry & Heavy Timber construction requirements deleted per CM Clarification 03, Item 15**
- Include all site concrete (walks, ramps & steps) requirements:
 - Include board-stamped finish as required
 - Include aggregate base
 - Railings by BP-05A Structural Steel
 - Concrete slabs for Gun Emplacements and Lunette by BP-03A Concrete
 - Gun pintel blocks by BP-03A Concrete
- Include all temporary power and lighting requirements including generator and fuel costs for this alternate bid scope
- Termite control by BP-03A Concrete
- Allowance #20, included in Alternate #1 cost proposal:
 - Additional gauge monitoring **8 weeks** **\$ /week**
- Include all requirements outlined within this bid package

Alternate #2, Fencing and Gate at UAB Utility Yard, if selected by Owner, shall include any specific or special requirements, above and beyond that of the base bid, to support the indicated scope of work:

- **Base Bid:** Not Applicable
- **Alternate:** Provide **fencing and gates** associated with the UAB Utility Yard as indicated in the construction documents; ref: Drawing L101, Items KK & LL
- Include all requirements outlined within this bid package

Computations

Title PRELIMINARY PILE REINFORCING
Date 6-17-2022 Computed By KLP
Comm. No. 7173 Checked By _____
Project FL. FISHER Sheet No. 1 of 1 sheets



Mary H. Russo

From: Weritz, Mark A. <Mark.Weritz@terracon.com>
Sent: Wednesday, August 5, 2020 10:32 AM
To: Mary H. Russo; Klaus L. Perkins
Cc: Nash, Andrew A.
Subject: Fort Fisher Estimated AD Pile Capacities
Attachments: Lpile-analysis-result (002).pdf

| External Sender |

Mary, Klaus,

See email message below regarding estimated AD pile capacities. Attachment shows estimated lateral capacities as a function of allowable lateral movement.

The pile capacities provided below are essentially those of typical auger cast piles. Auger displacement piles utilize equipment that can densify soil during installation and can increase capacity of about 10 to 20 percent above typical auger cast piles. The actual pile capacity increase of auger displacement piles above typical auger cast piles is dependent on contractor equipment and experience.

Please contact me if you have any questions.

Sincerely,

Mark Weritz, P.E., P.G.
Senior Engineer

Terracon

2401 Brentwood Road, Suite 107 | Raleigh, NC 27604
D [984] 202-4043 | P [919] 873-2211 | M [303] 859-7140
mark.weritz@terracon.com | terracon.com

Mark,

Please see the tables below for pile capacities of AD piles. Auger displacement piles can densify the surrounding soils and lessen the soil liquefaction potential but the densification affect during construction is hard to quantify. For a conservative purpose, we still considered the downdrag force due to the settlement from the liquefiable soils.

Recommended Allowable Axial Capacities (30 and 37 ton Downdrag Force Considered for 14 and 18 inch AD Piles, respectively)

Pile Tip Depth BGS (feet)	14-inch AD Pile	18-inch AD Pile
Allowable Compression Capacities (tons)		
50	20	26
55	25	32
60	30	38
Allowable Tension Capacities (tons)		
50	15	20

55	19	24
60	22	28

Recommended Pile Lateral Design Capacities (kips) for AD piles

Connection	14-inch ACIP Pile	18-inch ACIP Pile
Fixed Head Connection	6.5	9.7

Note: Based on an allowable lateral deflection of 0.1 inch.

Thanks,

Yan Jiang, Ph.D., P.E.
Project Geotechnical Engineer



2201 Rowland Avenue | Savannah, Georgia 31404

DIRECT LINE: (912) 200 9140

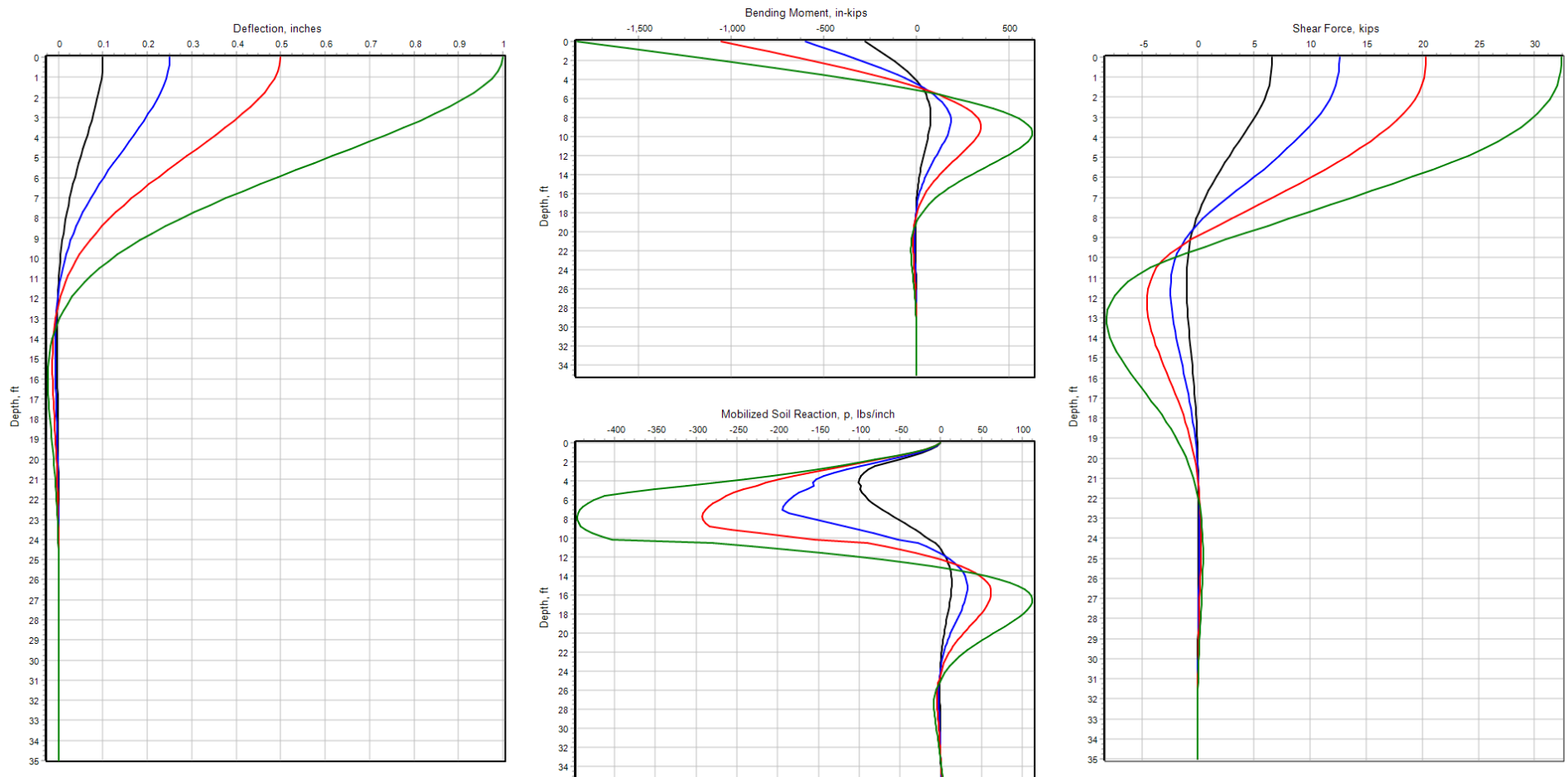
O (912) 629 4000 | F (912) 629 4001 | M (785) 312 4235

yan.jiang@terracon.com | terracon.com/savannah

Terracon provides environmental, facilities, geotechnical, and materials consulting engineering services delivered with responsiveness, resourcefulness, and reliability.

Private and confidential as detailed here (www.terracon.com/disclaimer). If you cannot access the hyperlink, please e-mail sender.

14" AD Piles, Static Loading, Fixed Head



Lateral Load Applied at Pile Head



Note:

- Depth in vertical axis means the distance below pile head.
- Pile head is at the existing ground surface

Project Manager:	MW	Project No.	70195145
Drawn by:	YJ	Scale:	N.T.S.
Checked by:	GL	File Name:	
Approved by:	GL	Date:	8/4/2020

Terracon
Consulting Engineers & Scientists

2201 Rowland Avenue Savannah, Georgia 31404
Phone (912) 629 4000 Fax (912) 629 4001

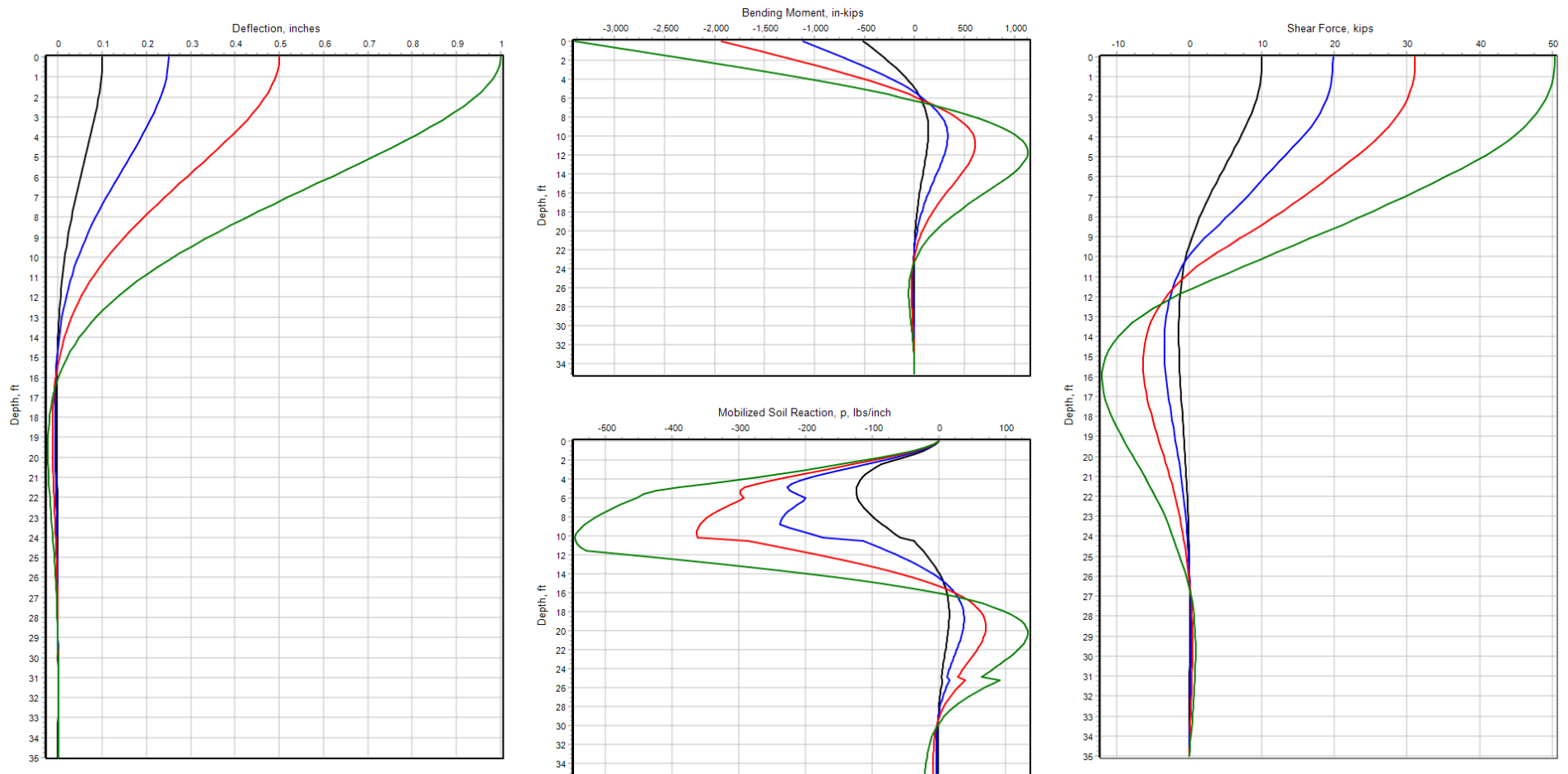
LPILE Analyses

New Fort Fisher Visitor's Center
Kure Beach, North Carolina

Figure

B-2-2

18" AD Piles, Static Loading, Fixed Head



Lateral Load Applied at Pile Head



Note:

- Depth in vertical axis means the distance below pile head.
- Pile head is at the existing ground surface

Project Manager:	MW	Project No.	70195145
Drawn by:	YJ	Scale:	N.T.S.
Checked by:	GL	File Name:	
Approved by:	GL	Date:	8/4/2020

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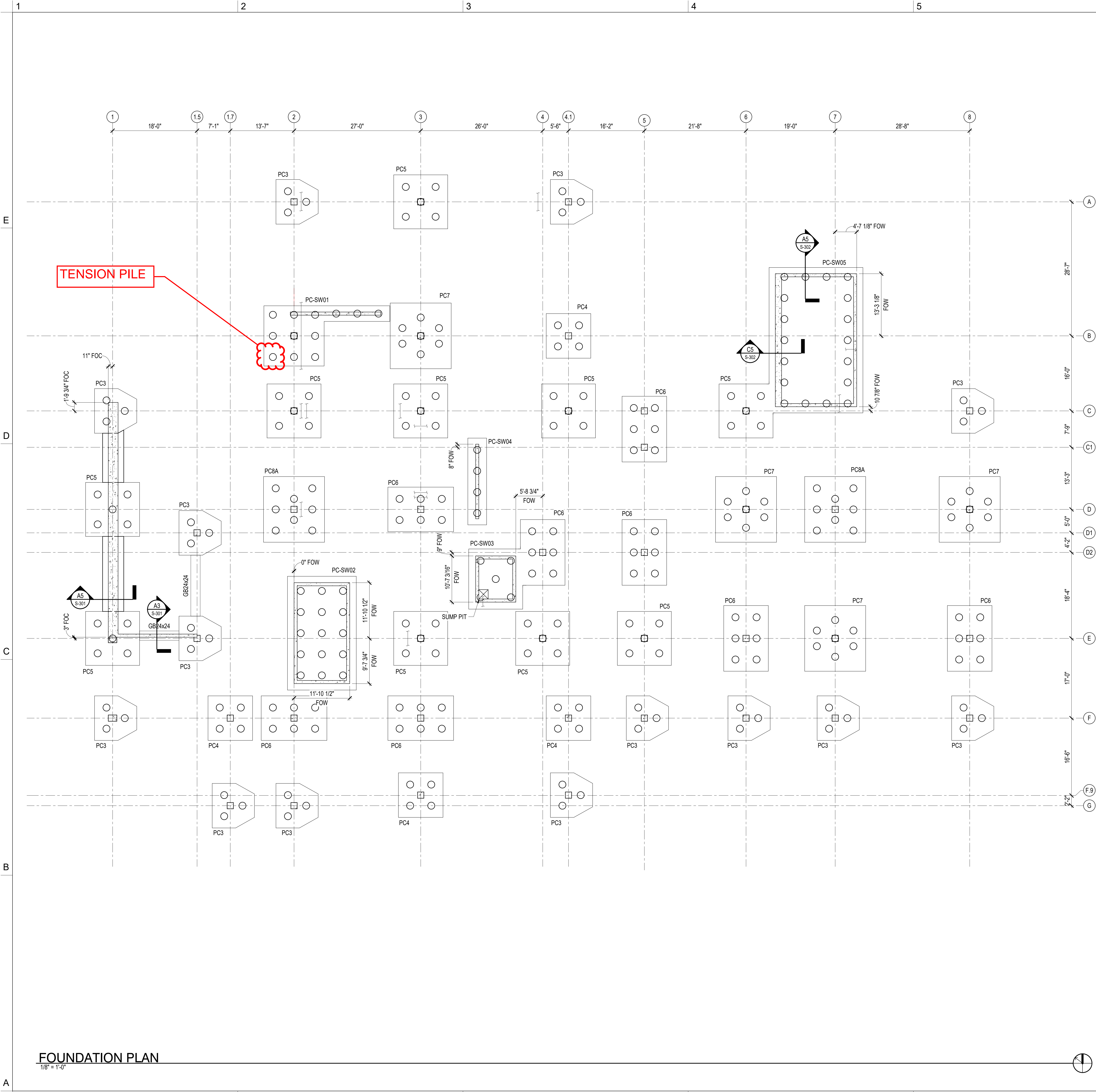
LPILE Analyses

New Fort Fisher Visitor's Center
Kure Beach, North Carolina

Figure

B-2-1




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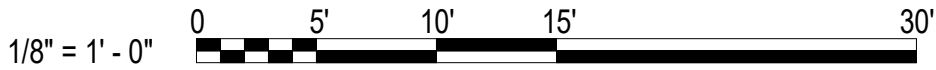
FOUNDATION PLAN

1/8" = 1'-0"

FOUNDATION PLAN NOTES

- FOR GENERAL NOTES AND ABBREVIATIONS, SEE S-001 AND S-002.
- TOP OF PILE CAP ELEVATION = -8'-0" BELOW FFE, UON. TOP OF PILE CAP ELEVATION INDICATED ON PLAN:
 INDICATES TOP OF PILE CAP ELEVATION, SEE PLAN.
- TOP OF GRADE BEAM ELEVATION = -8'-0" BELOW FFE, UON.
 INDICATES TOP OF GRADE BEAM, SEE PLAN.
- BOTTOM OF SHEAR WALL ELEVATION = -8'-0" BELOW FFE, UON. [X'-X'] INDICATES TOP OF WALL ELEVATION, SEE PLAN.
- "PC#" INDICATES PILE CAP, SEE S-501.
- REFER TO SHEET S-602 FOR SHEARWALL REINFORCING DIAGRAM AND SCHEDULE.
- SEE S-601 FOR COLUMN SCHEDULE.
-  INDICATES UTILITY LOCATED OVER FOUNDATION, COORDINATE LOCATION W/ MEP CONTRACTOR.
- SEE S-502 FOR TYPICAL GRADE BEAM DETAILS AND SCHEDULE.
- SEE SHEET AS104 IN THE ARCHITECTURAL DRAWINGS FOR DUMPSTER ENCLOSURE FOUNDATION.
- SEE S-501 FOR TYPICAL SECTION THROUGH ELEVATOR PIT.

GRAPHIC SCALE(S)



DEPARTMENT OF NATURAL
AND CULTURAL RESOURCES

VISITOR CENTER
AND UNDERWATER
ARCHAEOLOGY BUILDING
AT THE FORT FISHER
STATE HISTORIC SITE

1610 FORT FISHER BLVD S
KURE BEACH, NC 28449

SCOP: 16-16311-02A
CODE: 41614
ITEM: 4C01

DESIGNER



CLARK NEXSEN

333 FAYETTEVILLE STREET, SUITE 1000
RALEIGH, NORTH CAROLINA 27601
919-828-1876

CLARK NEXSEN LICENSE NUMBER: C-1028
PROFESSIONAL SEAL

SUBMITTAL

APRIL 29, 2022

BID SET

REVISIONS

SHEET

FOUNDATION PLAN

S-101

DESIGN: KLP
DRAWN: SWE
REVIEW: MSH

CN 7173-B