

## **EXHIBIT B – Scope of Work**

### **Intent:**

In general, this Bid Package is comprehensive to specific CSI Division Work and related Work as referenced, indicated on, or implied by the Project Drawings, Specifications and Project Manual. Subcontractor acknowledges that the following Scope of Work detail is provided as a courtesy and must be used in conjunction with **all** Project Documents. Scope of Work detail listed is not intended to describe a complete and final work scope. It is provided as a summary overview only.

### **Document Inclusions:**

- Sample subcontract agreement with special provisions and exhibits
- Owner contract
- Exhibit B - this scope of work
- Schedule
- Logistics plan
- Soils Report dated 2/5/19 revision 2
- March 29, 2019 75% CD drawings and specifications

### **Scope of Work Summary:**

Furnish all **PLUMBING AND HVAC** submittals and shop drawings, fabrication, materials, safety, quality control, labor, equipment and tools, competent supervision, hoisting, scaffolding, manlifts, campus traffic control measures, and transportation required for a complete installation of all **PLUMBING AND HVAC** as outlined in the contract documents.

- ✓ **Include all plumbing including domestic water and storm drainage**
- ✓ **Include all HVAC including mechanical ventilation and controls**

### **Trade Specific Scope of Work Items:**

The following is a general outline of items specifically included, but not limited to, under this agreement:

1. Provide cleaning of all exposed surfaces furnished under this package prior to final turnover.
2. Subcontractor shall obtain and pay for any required permits, bonds, or fees as required to complete scope of work under this agreement including any required re-inspection fees / costs are responsibility of Subcontractor. It is the responsibility of this Subcontractor to anticipate inspection delays in the installation durations and sequence such work ahead of others as not to impose delays in the schedule.
3. Subcontractor is responsible for all penetrations/block-outs, templates and sleeves in or through concrete, precast concrete, gypsum wall board, ceilings, slabs, roofs or foundations, or any other material or structure necessary to complete this work.
4. Subcontractor understands that multiple areas will be occurring simultaneously and said Subcontractor shall provide required supervision and manpower to maintain multiple work areas. Schedule is not constrained which allows the Drywall and Concrete trades to

proceed ahead of schedule, or work floors than anticipated in the schedule. Subcontractor agrees to adjust manpower and supervision requirements to meet acceleration potential of the building structure at no additional cost to Contractor (i.e. electrical rough-ins shall not be constraint on masonry, concrete, installations).

5. Subcontractor understands the schedule and has included multiple crews in order to achieve the required dates.
6. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction. This includes but is not limited to all seismic qualification certifications and/or calculations as required in various elevator specification sections. Certifications/calculations shall be signed and sealed by a qualified professional engineer.
7. This Subcontractor shall make deliveries by trailer truck. Storage space at the jobsite is extremely limited and will only be available as allowed by the CM. Include all necessary equipment, etc. to unload all deliveries.
8. All welding machines shall be gas/diesel type and no electrical power will be made available for this operation on site.
9. Subcontractor shall include 2% of the total contract value for participation in composite clean-up crew. Balfour Beatty will be responsible for managing this crew.
10. Cleaning of streets if soiled by this subcontractor is included immediately upon occurrence before Owner contracts BBC.
11. Flaggers at site entrance are included for your scope of work entering and existing site
12. Provide cleaning of all exposed surfaces furnished under this package prior to final turnover.
13. Subcontractor shall obtain and pay for any required re-inspection fees / costs are responsibility of Subcontractor.
14. Subcontractor shall be solely responsible for furnishing and installing all blockouts and sleeves in concrete walls, CMU walls, footings, slabs on grade, etc. Core drill of precast assemblies is included with Precast Engineer's approval of size and locations, x-ray locations by 3<sup>rd</sup> party, cleaning precast from any slurry caused by core drill. All exposed penetrations shall include caulking pipe to precast, and installation of prefinished escutcheon around pipe to cover gap.
15. All testing, certification tests, etc. under direction of Owner, Engineer, Inspectors, and governmental authority(s) having jurisdiction. This includes but is not limited to all seismic qualification certifications and/or calculations as required. Certifications/calculations shall be signed and sealed by a qualified professional engineer.
16. Any concrete equipment pads required for this scope of work are included
17. The Electrical subcontractor will provide all line and load side power wiring and installations for all plumbing and mechanical equipment. This includes all final

connections to equipment provided by this scope. Subcontractor shall coordinate final terminations with Electrical Subcontractor to ensure proper connections are made.

18. Subcontractor to include all requirements of insulation as indicated in the Contract Documents and as required by SCO. If a discrepancy should occur within the documents, the more stringent requirement shall apply.

19. Plumbing Specific:

a. Temporary Water:

- i. Subcontractor shall at Contractor's direction, provide all labor and materials to install a complete temporary water supply to the Contractor's field office.
- ii. Subcontractor shall furnish labor and materials for temporary ¾" and 2" water hookups for any construction purposes required by Contractor (to include water for MEP testing, pressure washing deck, etc.). Backflow preventer is to be included herein.

b. Storm and Deck Drains:

- i. All Parking Deck storm piping including deck and slab on grade drain fixtures, piping, supports, etc. **Include overflow drainage with nozzle**
- ii. Core drilling openings in precast deck with approval of precast subcontractor and include 3<sup>rd</sup> party x-ray as not cut rebar or tensioned cables.
  1. Forming, doweling, reinforcing, pouring and finished concrete around drains is included
  2. Sleeving wall penetrations with caulking and escutcheons is included.
- iii. Subcontractor shall adequately backfill and compact, to specified densities, all trenches immediately following installation and inspection of underground installations.
  1. All trenches not under structural areas shall be immediately backfilled and compacted to allow other traffic over ditches. Tamping operations shall be accomplished under the direction and approval of the materials testing consultant and Contractor.
  2. All spoils are to be evenly distributed in areas as directed by the project superintendent. Any excess spoils from this scope of work are to be removed from the site by this subcontractor.
  3. Building pad subgrade elevation shall be graded back to condition of 9" below finish floor
- iv. Subcontractor shall fully coordinate any underground or underslab work being performed by or for this scope of work.
  1. **Note the two (2) underslab 16" east-west storm lines from civil manholes at pond to column line 2 shall be installed prior to foundation and piling installation as not to disturb piles**
- v. Proper location, grades, and testing of all plumbing installations shall be the responsibility of the Subcontractor. Subcontractor shall test all

underground piping for leaks, verify all piping locations and provide written certification of testing, and provide all needed corrections at no cost after the slab forms are set and prior to pouring slab.

- vi. Subcontractor shall be responsible for any dewatering that may be required to install underground piping.
  - vii. Subcontractor shall properly cap underground piping systems prior to slab pour to prevent concrete from getting into pipes.
  - viii. Plumbing subcontractor shall have a qualified person on-site during all concrete slab pours to observe plumbing penetrations.
  - ix. All piping conditions shall be mocked up in the field so verified piping is neat, tight to structure, located from damage, etc. Costs for extra fittings to meet these conditions shall be included. All cleanouts shall be installed above the steel vehicle guards to allow for access without removing the guards.
  - x. This package is to include provisions to tie a Hub drain into the roof leader at each of the parking deck fan coil units that are currently shown on the mechanical plans. All piping to be routed through the slab and as close to the ceiling on the floor beneath it as possible for the entire run. Tie in below grade at all slab on grade levels.
  - xi. Subcontractor shall extend storm sewer to a minimum of 5' outside the building and shall make all connections to Utility Subcontractor's ~~water and sewer~~ laterals and/or stub outs. All utility locations must be coordinated with sitework utilities Subcontractor & Contractor prior to his commencement.
    - 1. The two (2) 16" PVC underslab storm pipes exiting the deck to the east shall be extend directly to storm manholes at the retaining wall by plumbing subcontractor. Include core drilling manhole, and water sealing PVC pipe to manhole
  - xii. All concrete work for cleanout protection on site, exterior splash blocks for elevator sump pump discharge are to be included by this package.
- c. Elevator sump pumps and alarm panels are included.
- i. Remote alarm shall be installed in location determined by Architect and UNCW (or as shown on drawings).
  - ii. Field measure premanufactured chord from pump to controller. No wiring splices allowed in elevator shaft.
  - iii. Field testing for NCDOL inspection is included.
  - iv. Provide conduit and pull box in hoistway to controller
  - v. Core drill all wall penetrations per precast subcontractor approval including 3<sup>rd</sup> party x-ray.
  - vi. Caulk both sides of precast for penetrations with escutcheons
  - vii. Provide temporary sump pumps at each elevator pit on float and hoses to keep dry.

## d. Domestic Water line (Alternate #3):

## i. Alternate #3A

1. pick up the 2" water line on ~~building~~ **site** side of backflow 5'-0" out installed by site subcontractor. **Backflow preventer, concrete pad, hot box, meter and meter box, and valve is included by plumbing. Also, booster pump shall be provided inside hot box to boost water pressure. Provide means to drain system at pump for cold weather protection.**
2. install valve and cover
3. ~~extend line to inside building pad with 2" hose connection 24" AFF.~~
4. Subcontractor shall furnish and install all electrical heat trace, as required, for all piping installed under this Agreement. If a discrepancy should occur within the documents, the more stringent requirement shall apply. Final Electrical connection shall be by the Electrical Subcontractor.
5. **Provide plaque on wall detail winterizing system**
6. provide 2" piping from stub up inside parking deck on southwest corner to two (2) each 2" hose connections on levels 1 through 5 at each end of ramp.
7. ~~All concrete work for cleanout protection on site~~

## ii. Alternate #3B

1. Subcontractor shall provide and install all wall hydrants and hose bibs per the Contract Documents. Frost-proof wall hydrants and hose bibs with vacuum breakers shall be installed at all locations as directed by Contractor and as indicated on plans and specifications. Each branch shall have a shut off valve.
2. Any exposed insulation exposed to damage conditions shall be assumed to be aluminum jacketed. Subcontractor to include all requirements of insulation as indicated in the Contract Documents and as required by the local code. If a discrepancy should occur within the documents, the more stringent requirement shall apply.
3. Subcontractor shall be solely responsible for protecting his installations from freezing. All damages, whether direct, consequential, or incidental, resulting from Subcontractor's failure to comply with this requirement shall be Subcontractor's sole responsibility. This includes completed systems that are not turned over under SCO Final Inspection. Domestic water system shall be installed to drain back to main, and provide a hosebib in order to drain system.
4. Subcontractor shall flush the water system with chlorinated water from the site water distribution system.
5. This package includes all code required labeling and identification of water, and storm systems.

## e. Project award includes erection times (fill in durations):

1. Shop Drawing Time: \_\_\_\_\_ weeks
2. Fabrication Time: \_\_\_\_\_ weeks
3. Estimated duration of underslab: \_\_\_\_\_ weeks
4. Estimated duration of above grade: \_\_\_\_\_ weeks

## 20. Mechanical Specific

- a. Subcontractor understands that all references to 'by Contractor', 'by General Contractor', or 'by Construction Manager' on the Mechanical Drawings or Specifications shall be inferable and assumed as to be 'By this Subcontractor'.
- b. Subcontractor shall furnish all access panels required to access this scope of work.
- c. Subcontractor shall furnish and install all mechanical equipment indicated in the contract drawings and specifications. This includes but is not limited to all ductless split systems (including any required condensate pumps), ~~exhaust fans~~, electric wall heaters, etc. required for a complete Parking Deck HVAC system.
- d. All equipment and controls shall be U.L. approved.
- e. Subcontractor shall furnish and install all necessary items as required to install equipment per manufacturer's recommendations.
- f. This includes any and all required ~~roof curbs~~, equipment wall mounting brackets, vibration isolation, piping supports, etc. for installation. **All materials shall be hot dipped galvanized or stainless steel.**
- g. All manufacturer startup and testing.
- h. All manufacturer Owner training (separate trip from startup)
- i. Subcontractor shall furnish and install any raised platforms or wall mount brackets in closets or other areas required for support of the HVAC equipment. All supports shall be galvanized steel. Subcontractor to provide all required blocking locations to the framing subcontractor prior to wall installation.
- j. If any, Subcontractor shall furnish and install all wall louvers indicated on the architectural and mechanical drawings and schedules. Louvers shall include all motor operated dampers. Louvers to be installed level, plumb, square to the nearest wall and flat against the mounting surface. All architectural louvers that do not have ductwork tied into them are the responsibility of this package. Color to match architectural selections
- k. All thermostats including conduit and wiring shall be installed as indicated on the Contract Documents or as directed by the Contractor. If a remote tstat, provide a proper wall mounted device to store the tstat. Include any plumbing related controls herein
- l. Complete BAS controls system for HVAC and lighting controls. **Integrate into UNCW system.**
  - i. All HVAC units **and room temperatures**
  - ii. Furnish, install and monitor domestic water meter

## iii. Lighting controls

- m. Refrigerant lines shall be installed neat and orderly, and be properly supported. All insulation shall be aluminum jacked for protection. Pipe labeling included.
- n. Subcontractor shall install all copper condensate piping (no PVC, copper only), insulation **and with aluminum jacketing exposed outside a room**, float switches, drain pans, splash blocks, etc. as indicated in the Contract Documents. Wiring of all float switches are included. All insulation shall be aluminum jacked for protection. Pipe labeling included. All condensate piping shall be installed to drain, and in areas where least likely damage is to occur to the exposed lines, even if this requires additional piping and fittings. Poured concrete splash blocks are included where dumped on grade.
- o. Certified 3<sup>rd</sup> party test and balancing is included, included final report to be approved by mechanical engineer of record. Include any plumbing related TAB in this agreement
- p. All filters shall be replaced, and spare filters turned over to Owner within 24 hours of State Construction inspections. Cleaning of coils as required is included.
- q. Project award includes erection times **(fill in durations)**:
  - 1. Shop Drawing Time: \_\_\_\_\_ weeks
  - 2. Fabrication Time: \_\_\_\_\_ weeks
  - 3. Estimated duration of erection: \_\_\_\_\_ weeks

**EXCLUSIONS:**

- 1. Sanitary systems (none required)
- 2. ~~Alternate #3A = Add domestic water source from southwest site new fire hydrant to west side of deck with backflow, meter and hotbox (by site subcontractor)~~

**ALTERNATES:**

- 1. Alternate #3 – domestic water line to parking deck
  - a. ~~Alternate #3A = pick up the 2" water line on building side of backflow 5' 0" out, install valve and cover, extend line to inside building pad with 2" hose connection 24" AFF. Heat trace is included. **see scope above**~~
  - b. ~~Alternate #3B = provide 2" piping from stub up inside parking deck on southwest corner to two (2) each 2" hose connections on levels 1 through 5 at each end of ramp. Provide ability to drain system in cold weather. **see scope above**~~