

SECTION 2
DIVISION 01A
CAPITAL PROJECT GUIDELINES (FORMAL)

DIVISION 01A – Capital Project Guidelines (Formal)

ADD THE FOLLOWING INFORMATION TO THE GENERAL REQUIREMENTS SECTION OF THE SPECIFICATION. Omitted sections and paragraphs are not used. (Modifications may be necessary for this document to be project-specific)

PART 1 - SITE ACCESS AND USE OF PREMISES

1.1 CONTRACTOR USE OF PREMISES

- A. THE CONTRACTOR shall use only the following roads on campus: Toby Creek Road from W.T. Harris Boulevard to Cameron Blvd. to Craver Rd., Cameron Blvd. from University City Blvd. to Craver Road, Craver Road from Cameron Blvd. to the construction entrance. (Modify for specific project.)
1. Each Contractor must coordinate materials deliveries to the project site without recourse to University staff assistance. Shipping documents must contain complete delivery instructions to include a site location, Contractor name, and telephone number for the delivery truck driver's use. In case of fire, medical, ambulance or safety concern dial 911.
 2. Each Contractor using a yard hydrant, wall hydrant or hose bib must use the proper key or handle. A key or handle may be borrowed from Facilities Management. Damage from misuse or abuse will be billed to the offending Contractor. Fire hydrants will not be used for water supply (case-by-case exceptions may be made by Facilities Management if no other water is available).
 3. The Contractor shall take reasonable effort to protect existing surfaces, roadways/haul routes, parking lots, finishes, and adjacent facilities from damage during construction. Prior to construction, the Contractor may initiate a Pre-Construction meeting with the Designated Representative to perform an inspection to record damaged existing conditions. Each Contractor will ensure that vehicles and equipment are not loaded beyond their rated Gross Vehicle Weight, or other load restrictions. Vehicles operating on the Campus must comply with all State weight and axle restrictions. Contractors will be held responsible for repair of damage caused by their vehicles. When hauling material consisting of any form of stone, rock, dirt, debris or concrete the material shall not be piled or placed any higher than the sides of the hauling vehicle without written authorization of the University Project Manager.
 4. If a Contractor intends to install a physical security alarm system, prior coordination must be accomplished with Public Safety.
 5. Explosive blasting generally is not allowed. In extreme rock conditions the blasting alternative may be considered. If blasting is approved, a comprehensive plan will be coordinated with UNC Charlotte staff prior to execution.
 6. All equipment must be secured when Contractor staff is not on-site. Each contractor must accept responsibility for physical security of tools, equipment, materials and other property on-site. The construction fence must be maintained and signed to prevent casual entry into the site.
 7. Contractors are allowed to work 24 hrs per day, 7 days per week, except on Saturday during spring and winter commencements, provided the general contractor's superintendent is on site. Other restrictions apply near housing areas.
 8. Each Contractor is responsible for employee conduct and behavior on Campus. Harassment, verbal abuse, and other such behavior toward students, faculty, staff, or the

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- general public will not be tolerated. Radios and other sound sources are not allowed on the project. All employees are required to wear shirts.
9. Each Contractor (and all Contractor employees) must comply with University Traffic Regulations and Emergency Procedures Manual. All North Carolina motor vehicle laws apply on Campus, including registration and inspection requirements. The University reserves the right to direct the route of all hauling on University property. There shall be no additional payment related to the route being selected or modified by the University. Factors such as traffic disruption, soiling of street, and detriment of pavement will be considered.
 10. All materials, equipment, vehicles and employee vehicles must be contained within the limits of construction. Parking is extremely limited on Campus. Vehicles shall be parked in assigned areas to be arranged with the UPM. Vehicles must display temporary parking permits which will be provided by the UPM. Vehicle operators shall comply with all traffic and parking signs. Parking on sidewalks or lawns for loading and unloading may be arranged on an individual basis, but only after coordination with the UPM or University Construction Manager.
 11. Prior to initial occupation of the site, coordinate with Facilities Management and check in at the Facilities Management office.
 12. Weapons are prohibited on Campus.
 13. Prior to any excavation at any location by any Contractor, the Contractor must coordinate with Facilities Management to establish utilities locations. A University representative in company with the Contractor's representative will locate and mark location of utilities on the ground. The Contractor remains responsible for protecting existing utilities from damage.
 14. Contractors will maintain safe pedestrian ways around the project site. Walkways and roads will not be blocked.
 15. To the extent herein described there is no charge to Contractors for University provided utilities except telephone service. Current telephone charges will be provided upon request. The University will provide power at no cost for office trailer and small tools. The University will identify utility sources and the contractor will be responsible for all costs associated with tie-in, metering, and distribution. Hot and cold water for HVAC equipment, if available, shall be metered by the contractor. Contractor will be invoiced monthly at the current rate.
 16. Utilities outages must be coordinated with Facilities Management at least 30 days prior to the period of the outage. For some critical circuits, longer lead times may be necessary.
 17. All Contractors must provide all labor, materials, tools and equipment required to accomplish the work. The University will not furnish or loan anything except where contract documents so indicate. No Contractor shall use any facility beyond the limits of construction.
 18. Attachment: Contractor's Safety Guide
 19. Added items to be provided to the Contractors by the University:
 - a. Campus Telephone List
 - b. Facilities Management Telephone List
 - c. Campus Map
 - d. UNCC Emergency Procedures Manual
 - e. UNCC Traffic Regulations
 20. The Contract Documents may specifically identify certain existing materials and items which are to be delivered to the Owner. For any other materials removed in the course of the Work, the Contractor shall first offer them to the Owner; if not accepted, the Contractor shall remove them from the Project. Any materials which are paid for under the Contract, but not incorporated into the Work due to Change Orders or for other reasons, shall be similarly offered to the Owner.

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PART 2 - SAFETY

2.1 CONTRACTOR'S SAFETY GUIDE

- A. General: It is University policy to provide a working, teaching, and learning environment as free as possible of recognized hazards to the safety and health of students, faculty, staff and visitors. All Contractors are required to comply with that policy. All safety, health, and fire protection rules, regulations, policies and procedures that apply to UNC Charlotte personnel shall also apply to Contractors and their employees. Prior to initiating any contractual operations, the Contractor's on-site supervisors shall become thoroughly familiar with UNC Charlotte safety rules, procedures, emergency and disaster instructions plus all applicable state and federal safety and health regulations. Contractor shall establish and maintain a functioning safety program including safety meetings and site inspections for the purpose of controlling unsafe acts and conditions at the work site.
- B. Please refer to webpage for contract safety program: <http://safety.uncc.edu/contractors>

2.2 UNIVERSITY SAFETY OFFICE REQUIREMENTS

- A. The following requirements have been established by the University Safety Officer:
 - 1. In case of fire, medical, ambulance, or safety concern dial 911 (off campus line 704-687-2200).
 - 2. Hazard Communication notifications will be made to extension 2200.
 - 3. Notify UNC Charlotte of any hazardous or unusual operation.
 - 4. Notify UNC Charlotte of any impairment of fire protection.
 - 5. Barricades must be erected a safe distance (at least 6 feet) from perimeter of construction areas.
 - 6. A chemical spill prevention plan must be in effect.
 - 7. Accomplish regular removal of scrap and debris.
 - 8. All welding, cutting, or hot work must comply with appropriate safety standards.
 - 9. No parking on sidewalks except as necessary during a specific task.
 - 10. Designate a safety and health coordinator for the project, or assign that responsibility to the on-site superintendent.
 - 11. Comply with UNC Charlotte posted "No Smoking" rules.

2.3 FACILITIES MANAGEMENT DEPARTMENT SAFETY REQUIREMENTS

- A. Care shall be taken to protect all persons in the vicinity from injury and undue inconvenience. Contractor shall provide & maintain pedestrian and vehicular barricades as necessary for the situation.
- B. Pedestrian barricades shall be constructed of continuous temporary fencing completely containing the work area.
- C. Fencing shall be erected with sturdy bracing and shall extend from the ground to a minimum of 48" high and shall meet all ADA requirements for barricading for the visually impaired.
- D. Continuous, plastic mesh, orange safety fencing is acceptable. If the barricade blocks an existing pedestrian sidewalk, the contractor shall properly mark an alternate route by installing and maintaining neat legible signs. "Alternate Route" signs may be required at locations outside the Construction Limits
- E. All workers and traffic control personnel shall wear "safety orange" vests or shirts while performing work in streets, parking lots, or other areas where there may be vehicular traffic.

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2.4 QUANTITY OF GENERAL SITE ROCK EXCAVATION:

- A. The following quantity of rock excavation shall be included in the Base Bid and considered as part of the Contract as follows:
1. General Construction Contract: ? cubic yards
 2. THE UNIT PRICE QUOTED ON THE FORM OF PROPOSAL shall apply for adding to and deducting from the above quantity in accordance with the method used.

2.5 QUANTITY OF TRENCH ROCK EXCAVATION:

- A. The following quantity of rock excavation shall be included in the Base Bid and considered as part of the Contract as follows:
1. General Construction:
 2. Plumbing: cubic yards
 3. HVAC: cubic yards
 4. Electrical: cubic yards

2.6 THE UNIT PRICE QUOTED ON THE FORM OF PROPOSAL shall apply for adding to and deducting from the above quantity in accordance with the method used.

2.7 QUANTITY OF GENERAL UNSUITABLE SOILS EXCAVATION:

- A. The following quantity of unsuitable soils excavation and removal offsite and replacement of shall be included in the base bid and considered as part of the contract as follows:
1. General Construction Contract: cubic yards

2.8 THE UNIT PRICE QUOTED ON THE FORM OF PROPOSAL shall apply for adding to and deduction from the above quantity in accordance with the method used.

2.9 QUANTITY OF GENERAL SOILS EXCAVATION AND RECOMPACTION:

- A. The following quantity of soil excavation and re-compaction shall be included in the base bid and considered as part of the contract as follows:
1. General Construction Contract: cubic yards.

PART 3 - ALLOWANCES (NOT USED)

PART 4 - ALTERNATES

4.1 The contractor shall review all addenda, drawings, and specifications to fully appraise the extent of each alternate.

PART 5 - MODIFICATION PROCEDURES

5.1 CUTTING, PATCHING, AND FINISHING:

- A. See General Conditions, Article 39. The repair of all damages made by cutting shall include restoring those surfaces to a state of finish equal to that when construction began, including such things as surface texture, design, and color, unless in remodeled work new finishes are called for. All such repairs shall be performed by persons trained and proficient in the particular trades involved; for example, plaster repairs by plasterers, masonry repairs by masons, tile

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repairs by tile setters, painting by painters, and the like. It is the intent of the Contract Documents that all areas requiring repairs shall be restored to a completely finished condition acceptable to the Architect and the Owner.

5.2 CUTTING AND PATCHING:

- A. All cutting required to perform the work, and install the products specified under a particular Contract or Subcontract, shall be performed under that particular Contract or Subcontract, and all patching work resulting from this cutting shall be performed under that particular Contract or Subcontract unless completely new products have been scheduled or called for. All patching work shall be by craftsmen skilled in the required work and who may already be engaged on the Project. Cutting shall be held to the minimum.

5.3 PAINTING FOR PATCHING:

- A. All patching work within previously painted areas shall be painted by that Contract or Subcontract, which caused the need for this painting, unless completely new finish or finishes have been scheduled or called for. All painting shall be by skilled painters who may already be engaged on the Project.

5.4 CUTTING OF STRUCTURAL MEMBERS:

- A. Shall not be performed without review by the Architect.

PART 6 - ELECTRICAL AND MECHANICAL WORK AND CONNECTIONS

6.1 GENERAL

- A. ALL ELECTRICAL WORK shall be in accordance with Division 16 and applicable codes.
- B. ALL HEATING, VENTILATING, AND AIR-CONDITIONING WORK shall be in accordance with the HVAC Sections of Division 15 and applicable codes.
- C. ALL PLUMBING WORK shall be in accordance with the Plumbing Sections of Division 22 and applicable codes.
- D. PLUMBING WORK also includes work of Div. 2 specification Section_____.

PART 7 - TESTING LABORATORIES LISTING

7.1

- A. ALL CUSTOM FABRICATED ASSEMBLIES of electrically operated equipment provided under this Contract shall be listed by a nationally recognized testing laboratory, such as Underwriters' Laboratories, Inc. This requirement shall apply in every case where such listings have been established for the particular type of materials or devices in question.
- B. ALL STANDARD MANUFACTURED ITEMS of electrically operated equipment shall be listed by a nationally recognized testing laboratory such as Underwriters' Laboratories, Inc. This requirement shall apply in every case where such listings have been established for the particular item in question.

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PART 8 - OVERALL PROJECT COORDINATION

8.1 GENERAL

- A. The contractor shall coordinate all work of his contract to produce the required finished project in accordance with the contract documents. Special attention shall be given to the submission of shop drawings, product data, samples, color charts, and requests for substitution within the specified time; furnishing the proper shop drawings to subcontractors, products suppliers, and separate prime contractors for divided contracts, whose work and equipment is affected by and related thereto; and the furnishing of all information concerning locations, type, and size of built-in equipment and products and equipment utilities. This coordination is in addition to all other coordination requirements called for in the technical sections of the project manual and on the drawings.
- B. COORDINATION DRAWINGS are required for all portions of the project. These drawings shall be developed by the HVAC Mechanical Contractor and shall show the sizes, elevations, and locations of all duct work, mechanical piping larger than 1-1/2" diameter, motors, pumps, and other mechanical equipment, in relation to the structure, walls and ceilings.
1. Drawings shall be of minimum scale of 1/4" equal; 1'-0", contain a block in the upper right corner for sign off by the Contractors and Subcontractors, and be forwarded to the Plumbing Contractor through the General Contractor and shall be in the form of reproducible mylars or other acceptable medium.
 2. The Plumbing Contractor shall receive these drawings and show in the color red, the sizes, elevations, and locations of all equipment and piping larger than 1-1/2" diameter, except that fire protection piping and equipment shall be shown in the color green.
 3. The Plumbing Contractor shall sign each drawing thus indicating coordination, or if coordination has not been attained, shall notify the General Contractor of the need for effective coordination efforts to resolve. Issues and items requiring further coordination shall then be resolved between the Contractors, the results shall be included on the coordination drawings, and the Plumbing Contractor shall sign each drawing thus indicating coordination. Signed coordination drawings shall then be forwarded to the Electrical Contractor through the General Contractor.
 4. The Electrical Contractor shall receive and similarly mark in the color blue; equipment, conduit larger than 1-1/2" diameter, panels, and any light fixtures which may conflict with work of other Contractors or Subcontractors.
 5. Upon completion of this process, these drawings shall then be circulated through the General Contractor for General Contractor coordination. The General Contractor shall distribute to each of the Contractors sepia of final coordination drawings that each can make prints as necessary for field use.
 6. Copies of completed coordination drawings shall be forwarded to the Architect, for information only, and not as shop drawings, prior to the installation of the work.
- C. WORK INSTALLED in advance of the completion of the process required by Paragraph 4.09.01, which must be relocated to effect coordination, shall be relocated as part of the work. Such relocation shall not be basis of entitlement for additional time or money.

THE PROCESS of coordination may require the addition of sleeves and reinforced penetrations not specifically shown by the documents. Such sleeves and reinforced penetrations of the structure are a part of the work and shall be provided by the Contractor needing the sleeve or penetration. Penetrations through concrete shall be effected by forms or sleeves. Penetrations shall not be cored, drilled or chopped through structural elements unless specifically engineered by the Contractor and submitted for review in accordance with procedures for submittal of shop drawings. Penetrations through structural steel members shall be reinforced with pipe sleeves full penetration welded to the webs or flanges of the members or shall be fully reinforced with plates, shapes, and angles. Reinforcement details for penetrations through structural steel will be provided by the structural engineer upon request by the Contractor.

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- 8.2 THE GENERAL CONTRACTOR shall conduct all necessary coordination meetings with the contractors to fully and effectively attain this coordination and to develop these coordination drawings.
- 8.3 COORDINATION DRAWINGS shall be revised, to reflect as-built conditions, by the general contractor, and reproducible mylars of these shall be given to the architect at the time of request for certificate of substantial completion.
- 8.4 COORDINATION OF GRADES: tops of access points to underground systems in unpaved area shall be adjusted as necessary to be 2" higher than surrounding finish elevations.
- 8.5 GENERAL INSTALLATION REQUIREMENTS
- A. INSPECTION OF CONDITIONS: The Contractor shall require the installer of each component to inspect both the substrate to which it is to be installed and the conditions under which the work is to be performed. Do not proceed with the installation until unsatisfactory conditions have been corrected to meet the requirements of the component and its manufacturer.
 - B. INSTALLATION INSTRUCTIONS: The Contractor shall perform the installation work in accordance with the Contract Documents and the manufacturer's installation instructions and recommendations, the more explicit or more stringent requirements governing.
 - C. THE CONTRACTOR shall inspect materials and equipment immediately upon delivery and again prior to installation. Damaged and defective items shall be rejected and removed from the Project.
 - D. THE CONTRACTOR shall provide attachment and connection devices and methods necessary for installing the work in a secure condition. Install work true to required line and levelness. Allow for expansion and building movement.
 - E. VISUAL EFFECTS: The Contractor shall provide uniform joint widths in exposed work of the same material. Joints shall be arranged in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for a final decision.
 - F. CONTRACTOR shall recheck measurements and dimensions before starting each installation.
 - G. THE CONTRACTOR shall install each component during weather conditions and Project status that will insure the best possible results. Isolate each part of the completed construction from incompatible material to prevent deterioration.
 - H. THE CONTRACTOR shall coordinate the installation of temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction work for inspection and testing.
- 8.6 MOUNTING HEIGHTS: Where mounting heights are not indicated or specified, install individual components at the standard mounting heights recognized within the industry and governing code for the particular application. Refer questionable mounting height decisions to the architect for a final decision.
- 8.7 CLEANING AND PROTECTION: See supplementary general conditions. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply a

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non-damaging protective covering where required to insure protection of work from damage or deterioration until owner's acceptance of project.

- 8.8 MAINTENANCE OF EXISTING SERVICES: Conduct construction operations so that heat, air conditioning, ventilation, electrical, telephone, gas, water, sanitary, storm sewer, and any other service required for the building operations, to the existing building are maintained at all times during normal working hours. Any shutdowns or interruptions shall be coordinated with and approved by the owner.
- 8.9 PROTECTION OF INSTALLED WATERPROOFING MATERIALS
- A. ALL TRADES REQUIRING WORK to be done on installed waterproofing materials shall provide means for protecting the waterproofing materials and the General Contractor shall act as coordinator to insure that the protection is provided. Protection for storage of materials, walking areas, and working areas shall be by sheets of 19 mm (3/4") thick plywood or an equal approved by the Architect. Protection from solvents, petroleum products, and other substances detrimental to the waterproofing membrane as listed by the membrane manufacturer shall be by drain buckets, properly wrapped unbroken containers, drop cloths, and plywood. Protection shall be afforded to all work areas and materials transportation and workmen access lanes to the work areas. In no case shall equipment, materials, and substances detrimental to the waterproofing membrane be stored on or allowed to come in contact with the installed waterproofing materials.
- B. THIS PROTECTION shall be provided for:
1. Roofing
 2. Waterproofing
- C. To assure proper and accurate fit, all dimensions of existing facilities are to be considered approximate and installation dimensions shall be taken by the Contractor prior to ordering materials or initiating work.

PART 9 - PROTECTION OF EXISTING WORK

- 9.1 SEE GENERAL CONDITIONS, ARTICLE 11.
- 9.2 ALL CONTRACTORS are hereby reminded and cautioned that extreme care shall be exercised to protect the existing facilities from damage during the progress of the work. Any damage that occurs shall be repaired or damaged areas removed and replaced with new materials equal to the existing and to the owner's satisfaction without additional cost.
- 9.3 The lawn in the material storage areas and elsewhere as affected by the contract shall be protected from unnecessary digging, trenching and rutting, and after completion of the work all holes, trenches, ruts, and other damage shall be filled in, graded, and made ready to receive new grassing. If grassing is included in the project, these areas shall be grassed in accordance

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with the requirements of section 02930. If grassing is not included in the project, these areas shall be grassed to match existing as close as possible.

PART 10 - OTHER REQUIREMENTS

- 10.1 PROVIDE dielectronic isolation between dissimilar metals, such as, but not limited to, between mild steel and aluminum.
- 10.2 ALL WELDING to the structure shall be performed to the same requirements as are described by specification sections 05120 and 05121.
- 10.3 VARIOUS ITEMS will be mounted within rated assemblies such as walls and floors. The contractor providing any such items shall also provide the work necessary to maintain the rating of the assembly.
- 10.4 CEILING SUSPENSION SYSTEMS: Each piece of equipment supported by the ceiling suspension system, particularly in acoustical ceilings, shall have at least 2 safety wires attached to each piece of equipment.
- A. Each piece of equipment in a "narrow face" acoustical ceiling suspension system shall be fully independently supported by wires or straps and NOT supported by the suspension system. "Narrow face" suspension systems have flanges too narrow to effectively support equipment, particularly should there be some movement in the system
- B. All safety wires and all fully supporting wires and straps shall be provided by the installer of the equipment.
- 10.5 CONTRACTOR QUESTIONS: Questions contractors may have of the architect shall be submitted through the project expediter using the "request for information" form which is attached to the beginning of this division. Answers shall be returned from the architect through the project expediter. The project expediter shall assign a number to each question and shall assure that question which is forwarded to the architect includes related inquiries of all contractors. The project expediter shall assure that answers to questions are included in the work of all contractors. The project expediter shall maintain a log including the number of each question, a brief description of each question, the dates forwarded to and returned from the architect, and other pertinent information. A current copy of this log shall be given to the on-site representative of the architect 7 calendar days prior to each monthly progress conference.
- 10.6 UTILITY STANDARDS: All underground piping and utilities (both metallic and non-metallic), except copper pipe, shall have a separate copper tracer wire and non-metallic warning tape installed above the utility line.
- A. The tracer wire shall be traced for continuity prior to backfill, immediately upon completion of backfill and compaction and once again during final utility location/as-built at the end of the project. This also will include landscape irrigation mains to the points of the valves. All above ground utility features such as vaults, manholes, valves, handholds, etc to be properly labeled. Contractor shall provide an inventory of all installed outdoor utility features including type and model.
- B. IDENTIFICATION TAPE: The 1st stage of identification shall be a buried warning tape. This tape shall provide an early warning at shallow depth excavation. The tape shall be 6" wide, and

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buried approximately 18" to 30" above the service pipe, but a minimum of 10" below finished grade. It shall consist of multiple layers of polyethylene with an overall thickness of 3 to 5 mils. It shall be installed continuous from valve box to valve box or manhole to manhole, and shall terminate just outside of valve box or manhole wall. The black colored lettering on the warning tape shall be abrasion resistant and be imprinted on a color-coded background that conforms to APWA color code standards. The lettering on the tape should name the utility it is protecting (i.e. Caution buried sewer line below).

- C. TRACER WIRE: The 2nd stage of identification shall be a buried tracer wire. This tracer wire shall provide pipeline identification, be fully detectable from above grade utility locators, and be able to provide a depth reference point to top of pipe.
 - D. All pipe, including lawn irrigation lines, and metallic pipe with compression gasket fittings installed underground shall have a tracer wire installed along the length of the pipe. The wire shall be taped to the top of the pipe at a maximum of 10' intervals and not allowed to "float freely" within the backfill.
 - E. Tracer wire shall be single-conductor, 12 gauge minimum, copper single-conductor wire with type "UF" (Underground Feeder) insulation, and shall be continuous along the pipeline passing through the inside of each valve box. A #12 AWG or heavier (smaller AWG number), solid, insulated (RHW, THW, or polyethylene insulation is recommended); copper wire shall be taped to pipe at 10 foot intervals. Do not wrap wire around pipe. The wire must be one continuous, unbroken length. Coil tracer wire at meter location and street end with enough wire to extend a minimum of two feet above grade.
 - F. TRACER Wire boxes
 - 1. Plastic gas and water longer than 1000 feet in length from curb valve to meter riser must have tracer wire boxes installed in accordance with UNC Charlotte standards.
- 10.7 FINAL AS-BUILT SITE UTILITY SURVEY: Prior to project completion the Design Engineer shall have the as-built survey finalized by a licensed land surveyor and locating company satisfactory to the University. The locator will locate all utilities using approved methods, where the locator shall connect to the trace wire. Any problems found in the survey shall be documented to the owner and designer. The final as-built survey shall locate and inventory all utilities and also survey the existing conditions. The survey of the site shall also include 1' contours, pipe size, and depth of utility, manhole elevations, inverts, building footprint, and all aspects of the site.
- A. Preparation: Prior to utilities being buried and at completion the site utilities shall be surveyed by a survey and location company registered in North Carolina and satisfactory to the Owner.
 - 1. Progress as-built surveys are to be done as needed.
 - 2. Survey shall be tied to the North Carolina State Plane Coordinate System (a.k.a. N.C. Grid).
 - 3. Surveys shall meet NC Standards for Positional Accuracy.
 - 4. Surveys shall include the following:
 - a. Provide X, Y, and Z coordinates for all newly installed utilities.
 - b. Where new utility installation occurs adjacent to or crosses exposed existing utilities, provide X, Y, Z coordinates and description of existing utilities.
 - c. Gravity Piping (storm water & sanitary sewer):
 - 1) Locate centerline of all manhole and inlet covers and grates.
 - 2) Locate all piping inverts in and out of structures, including headwall and pipe outlet structures.
 - 3) Pipe location is not necessary for gravity piping with the exception of any tee or wye connections.
 - d. Pressure Piping (water, fire, hot & chilled, and gas):

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- 1) Provide pipe locations at fifty-foot intervals along the top centerline of pipes, at all valves, tees, branches, and changes in direction.
 - e. Duct Banks:
 - 1) Provide X, Y, Z locations on top edge, both sides, of the duct bank at fifty-foot intervals, all structural connections and all changes in directions.
 - 2) Note duct bank thickness on drawings.
 - f. Telecom/Electrical Manholes:
 - 1) Dimensions to include structure width, length and depth.
 - 2) Include elevations at top and bottom of vault, top of manhole entrance and at all conduit entering and exiting the manhole.
- B. Format: Digital files to be issued through the Construction Manager to the Architect and Engineers of Record for review of compliance with specification requirements.
- 1. Digital files shall be provided as a CAD (*.dwg) file in GIS format.
 - 2. The CAD file shall be based on the NC GRID.
 - 3. NAD 1983 (tie to the North Carolina State Plane Coordinate System) shall be the projection delivery format.
 - 4. All survey points shall be clearly labeled with X, Y, and Z coordinates.
 - 5. All progress surveys for each utility type shall be merged into one file.
 - 6. If all utility types are merged into one file they shall be separated by layer.
 - 7. Record Survey(s) shall be submitted within 15 days of Final Acceptance.
- C. If required by the University Project Manager the utilities may be surveyed before they are buried. If this is the case the trace wire and locator tape must still be installed to University standard. The trace wire shall be tested prior to project punch list.

10.8 FIELD ENGINEERING

- A. OWNER'S SURVEY: Based on the Owner's Survey, the Contractor shall verify all existing grades and conditions, and verify dimensions of existing construction and report any errors and inconsistencies in writing to the Architect before work is performed in the areas where errors and inconsistencies exist.

10.9 PROJECT MEETINGS (ALSO SEE GENERAL AND SUPPLEMENTAL CONDITIONS)

- A. The Contractor and each of his Prime Subcontractors or each Prime Contractor, as the case may be, shall present a written progress report for his contract work and shall recommend any constructive measures as may be appropriate.
- B. Pre-Roofing Conference - See roofing specification Section
- C. The Designer shall conduct a preconstruction conference according to SCO requirements. A standard agenda is provided at the NC State Construction Website: <http://www.nc-sco.com/forms.aspx>
- D. The Designer shall conduct Monthly Progress Meetings as described in Section 111 of the NCDOA/SCO Blue Book. The meetings shall be conducted by the Designer's Project Manager. The agenda shall include the following elements (at a minimum):
- 1. Distribution of a written agenda
 - 2. Recognition of new personnel assigned to project
 - 3. Confirm attendance by all contractors (circulate attendance sheet)
 - 4. Review minutes of previous meeting for corrections or omissions
 - 5. Changes in Project personnel telephone numbers or pager numbers
 - 6. Short Term Schedule Projections (by each contractor)
 - 7. Progress Report (percentage complete by each contractor)

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8. Report on HUB percentage participation on the project; calculated by dividing the contractor's HUB commitment (value) by the contractor's total contract
 9. Long Term Schedule Projections (by each contractor)
 10. Review of weather-related delays for previous month
 11. RFI's in progress
 12. Review of Bulletin Drawing Log
 13. Change Orders in Progress (Execution)
 14. Potential Change Orders
 15. Accidents
 16. UNC Charlotte Project Manager's Comments
 17. State Construction Office Representative's Comments
 18. Schedule Next Monthly Progress Meeting
 19. Review of Diesel Equipment Logs.
- E. The Designer shall distribute written minutes of the monthly meetings within one week of the meeting. In general, the format of the minutes should include the topics listed in the agenda. Any revisions reported to the Designer, shall be entered and copies redistributed by the Designer no later than the following monthly meeting.
- F. Copies of the minutes will be made for all officials at the meetings. The Designer can deliver copies to each official's office or deliver a set to the University Project Manager who will then distribute them on campus. Minutes should be provided to the UPM for review within five working days after the meeting.
- G. Waste management goals and reporting will be discussed at:
1. Pre Bid Meeting
 2. Pre Bid Meeting
 3. Pre-Construction Meeting
 4. Regular Job site Meetings
 5. See Section 3, Annex B for other supporting documentation in relation to the above.
- 10.10 SUBMITTALS
- A. SEE GENERAL CONDITIONS and SUPPLEMENTS THERETO, the Specification Sections, and TABULATION OF SPECIFICATION SUBMITTALS AND SPECIAL REQUIREMENTS for required submittals
- B. PHOTOGRAPHS OF THE SITE: The General Contractor shall make photographs of the site showing site conditions as existing prior to the starting of any work. Two prints of each photograph shall be made, 1 for the Architect and 1 for the Contractor. Prints shall be 203 mm by 254 mm (8" by 10") in size, glossy prints. A minimum of 2 photographs shall be made of the overall site and additional photographs shall be made of any unusual site conditions that will affect the work. Photographs shall clearly show the existing site condition.
- 10.11 QUALITY CONTROL (ALSO SEE ARTICLE 8 OF THE GENERAL CONDITIONS)
- A. TESTING LABORATORY SERVICES: A TESTING LABORATORY will be employed and paid directly by the Owner. Whenever any retesting and re-monitoring is made necessary because work performed by the Contractor is not in accordance with the requirements of the Contract Documents, the Contractor shall reimburse the Owner for the cost of this retesting and re-monitoring. Testing and monitoring shall be required for:
1. Verification of foundation subsoil conditions in accordance with Division 2.
 2. Testing of soil compaction as specified in Division 2.
 3. Testing of concrete cylinders as specified in Division 3.
 4. Inspection of structural steel as specified in Section 5.

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5. Mortar testing required by Division 4.
6. Floor finishes tolerance measurements required by Division 3.

10.12 QUALITY CONTROL PLAN

- A. The Contractor is responsible for quality control and shall establish and maintain an effective quality control system. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the owner, and shall be responsible for all construction and construction related activities at the site.
- B. The Contractor shall furnish for review by the designer, not later than 20 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The owner will consider an interim plan for the first 20 days of operation. The first application for payment will be processed only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. The second application for payment will not be processed until acceptance of the contractors CQC Plan.
- C. The Contractor shall have a Qualified and Competent Supervisor present whenever workers are performing work. The Supervisor shall notify the Designated Designer's Representative of the work schedule for each day prior to initiating work.

10.13 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS (SEE GENERAL CONDITIONS AND SUPPLEMENTS THERETO, ARTICLE 40.)

- A. FIRE PROTECTION: The General Contractor and each Prime Contractor or Prime Subcontractor shall establish and maintain a Project fire protection program and procedure to be followed in the event of fire.
- B. TEMPORARY SANITARY FACILITIES: The General Contractor shall provide and maintain self-contained, chemically-treated, temporary toilets adequate for the accommodation of all persons engaged on the work. Temporary toilets shall be enclosed and weatherproof and shall be kept in sanitary condition at all times. As soon as conditions of work will allow, a temporary toilet within building shall be provided. This toilet shall be equipped with a temporary water closet fixture and connections to sewer. All temporary toilets shall be in accordance with the regulations of the authorities having jurisdiction.
- C. TEMPORARY TELEPHONE SERVICE: All long-distance and toll calls shall be paid for by party making call. Telephone service is available from the Owner. Each Contractor may arrange for connection to this service, as part of the work.
- D. BARRIERS: Shall be provided by the General Contractor.
- E. TEMPORARY CONSTRUCTION FENCE: A metal 2438 mm (8') high fence with locked vehicle gates and locked pedestrian gates shall be erected as indicated and maintained. Vehicle gates shall be located as close as possible to any required permanent vehicle entry to the area. Before Project final review, this temporary fence and its foundations and appurtenances shall be

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removed from the site, and all resulting post holes and damage and disfiguration to the site repaired to the satisfaction of the Owner and any other parties involved.

1. Fencing shall be chain link fabric with posts and top rails of pipe sections and a bottom wire. Fabric shall contain a dark green mesh for screening.
- F. TREE AND PLANT PROTECTION: Contractors are hereby reminded and cautioned that care shall be exercised to protect trees and plants which are to remain during the progress of the Project. Suitable barriers shall be provided around all trees and plants that are to remain and which are in the construction area and product handling area. All damage to such trees and plants shall be repaired; broken limbs properly and neatly pruned and painted with pruning paint; all trunk damage neatly dressed and painted with pruning paint. Any trees and plants which are excessively damaged shall be replaced in like, kind, size, and species by the Contractor at no additional cost. All work shall be by a recognized and approved nursery.
1. All grading around trees and plants to remain shall be such that the root system shall not be disturbed. Earth shall not be temporarily piled around trees and plants, nor shall earth be graded to the trees and plants above the natural root depth for that particular species.
 2. Established trees and plants, which are in the way of construction and which are in the material handling areas, shall be removed and stored for future replanting. The services of a recognized and approved nursery shall be employed to remove the trees and plants and prepare them for storage. Removed trees and plants shall be properly balled and burlapped in accordance with their size. During the time of storage, they shall be properly watered and cared for in accordance with the instructions from the nursery. After the construction work is completed, the stored trees and plants shall be replanted, and those trees and plants not replanted shall be disposed of as directed by the Owner.
- G. PROVIDE AND MAINTAIN SUITABLE TEMPORARY sidewalks, closed passageways, fences, or other structures required by law so as not to obstruct or interfere with traffic in public streets, alley ways, or private right-of-way. Leave an unobstructed way along public and private places for pedestrians and vehicles.
- H. PROVIDE WALKS over and around all obstructions in public places. Maintain from the beginning of twilight, through the whole of every night, sufficient light and guards to protect persons from injury.
- I. LEAVE ACCESS TO FIRE HYDRANTS. Should these hydrants be susceptible to damage caused by the operations of this Contract, they shall be protected by means approved by the governing authority.
- J. TEMPORARY PARTITIONS: Provide temporary partitions between occupies areas and the work. Locate as required to facilitate Owner's continued occupancy. Construct of minimum 25 ga. metal stud with 5/8 inch gypsum board panel each side tight to adjoining construction. Provide sound and thermal insulation. Construct temporary partition in accordance with applicable fire-separation requirements of authorities having jurisdiction. Where required, provide acceptable lockable doors in temporary partitions.
- K. TEMPORARY EGRESS: Provide emergency egress from existing occupied areas at all times as required by authorities having jurisdiction. Maintain egress path in compliance with requirements of North Carolina State Building Code requirements.
- 10.14 SECURITY:
- A. Each contractor shall be responsible for security and protection to his equipment and the site-stored and installed products under his jurisdiction, at all times whether paid for by the owner or not, until the owner accepts the project.
 - B. CONDUCT CONSTRUCTION WORK so that the owner's existing building can be locked securely at all times when it is not normally opened. All temporary outside walls and barriers shall be constructed so they will be reasonably tamperproof.

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- C. CONTRACTORS shall provide identification for their vehicles and all employees on this project. Identification methods shall be approved by the owner. The contractor shall be held responsible for each of his employees wearing the identification while on the project.
- D. THE GENERAL CONTRACTOR, AS COORDINATOR FOR THE PROJECT, shall establish a color code for the hard hats to differentiate between the various trades and visitors. Twelve (12) hard hats for Owner's and Architect's representatives shall be furnished by the Contractor and kept in clean condition.
- E. Except for communication devices, no radios or other sound-emitting devices not directly associated with the work will be operated by the workers at the job site. All workers will behave in a polite manner and all workers will wear shirts and shoes when on campus. Workers are not to make any comments or gestures to any University personnel, students or guests. Workers are permitted to smoke in designated smoking areas. Workers not complying with these requirements will not be allowed to work and may be instructed to vacate the work site. If workers are restricted from working, such restriction(s) shall not alter the terms of the contract.

10.15 ACCESS ROADS AND PARKING AREAS:

- A. THE GENERAL CONTRACTOR shall provide and maintain for the duration of the Contract, a graded and graveled site access road for the use of himself, his Subcontractors, his product suppliers, and Prime Contractors as the case may be. Additional access ways shall be furnished and maintained to the product storage areas and the work itself. All access roads and ways shall be properly maintained for passage during all weather conditions while work is being performed.
- B. ADDITIONAL ACCESS ROADS AND PARKING AREAS shall be furnished and maintained during all weather conditions for the use of the Owner, Owner's visitors, and other persons and services having proper business at the Project until permanent roads and parking areas are provided.
- C. SHOULD ACCESS ROADS not be located for permanent roads, they shall be removed, prepared for grassing, and grassed. Otherwise, they shall be prepared for permanent roads.

10.16 TEMPORARY CONTROLS:

- A. WATER CONTROL: THE CONTRACTOR OR EACH PRIME CONTRACTOR, AS THE CASE MAY BE, SHALL PROVIDE THIS WATER CONTROL FOR ALL WORK PERFORMED UNDER THE CONTRACT OF THE CONTRACTOR OR EACH PRIME CONTRACTOR. Furnish all labor and necessary equipment and provide all necessary products for the temporary control of surface water and seepage water during construction. Furnish and operate pumps and other equipment required to keep all excavations, pits, and trenches free from water at all times. Dikes and ditches shall be constructed around excavations and elsewhere as necessary to prevent surface water from flooding the excavations or standing in areas adjacent to excavations, in work areas or in product storage areas. The Contractor shall take all necessary precautions to protect adjacent areas and properties from damage. He shall not divert water onto adjacent areas and properties at points other than that which would be considered the natural flow, prior to construction, without the expressed consent of the Owner in writing with a copy to Architect. He shall take steps to prevent the erosion of soil, earth and other material and the conduction of the eroded materials onto adjacent properties, and shall be responsible for the removal of such materials, the restoration of adjacent areas to their original condition, and at the proper time, the removal of all water control means and methods.

10.17 EROSION CONTROL:

- A. Temporary erosion control is specified in Division 2 and on the drawings.

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10.18 FIELD OFFICES AND SHEDS:

- A. LOCATION of all temporary offices and storage sheds shall be approved by the Architect and owner.
- B. STORAGE SHEDS shall be provided and maintained by the Contractor in accordance with the requirements of the Contract Documents.

10.19 CONFERENCE AREA:

- A. The General Contractor shall provide and maintain, as part of the Contract, in a weather tight condition a separate conference area for his use and for the use of periodic Project conferences and other related conferences for the duration of the Project. This area shall be at least 22 square meters (230 square feet) in size, insulated, heated in cold weather, air conditioned in hot weather, and ventilated during other times when heat and air conditioning is not required. Conference area shall be illuminated by at least four 610 mm by 1219 mm (2' by 4') light fixtures each containing four 40 watt fluorescent lamps. Conference area shall contain four 762 mm by 1524 mm (30" by 60") tables and 30 stacking side chairs. Adjacent to the conference area shall be an illuminated and ventilated toilet room containing 1 water closet, 1 lavatory with mirror, 1 waste basket, and a supply of toilet tissue, paper towels, and liquid hand soap. All utilities, supplies, cleaning, and maintenance shall be by the Contractor as part of the Work and at no additional cost.

10.20 CONTRACTOR'S FIELD OFFICE:

- A. The General Contractor shall provide and maintain, as part of the Contract, a weather tight office for his daily use and the use of the Architect and his representatives when a separate office for the Architect's representative is not called for. Office shall be properly illuminated, heated during cold weather, and shall have operating windows with locks, doors with locks, tables, chairs, and drawing racks. Office shall have an illuminated and ventilated toilet room containing 1 water closet, 1 lavatory with mirror and a supply of toilet tissue, paper towels and liquid hand soap. All utilities, supplies, cleaning, and maintenance shall be by the Contractor as part of the Work and at no additional cost. Provide telephone service as called for hereinbefore. **All temporary offices and conference areas shall be smoke free.**

10.21 CONSTRUCTION CLEANING:

- A. This requirement shall be strictly enforced. The site in general and all areas in and around the Project construction shall be clear of waste at all times in order to present a clean and orderly appearance and prevent hazards to safety and health.

10.22 WASTE: The general contractor shall be responsible for the collection and removal of waste on a daily basis and in a lawful manner. Burying and burning of waste on the property shall not be permitted. Washing waste down sewers or into waterways shall not be permitted. Waste shall not be allowed to accumulate and shall not be allowed to become hazards to safety and health.

- A. The General Contractor shall furnish rodent proof containers in each construction area for the workmen to deposit their garbage and similar waste. This waste shall be kept separate from all other waste and shall be so identified in order that it can be disposed of as required by local regulations. Upon evidence of pest infestation, the General Contractor shall provide extermination services as a part of the work.
- B. Hazardous and dangerous waste, as listed by the EPA, shall be kept separate from all other waste. The trade responsible for this waste shall be solely responsible for the handling, removal, and disposing, in accordance with the regulations pertaining to such waste, on a daily basis.

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- C. The General Contractor shall be responsible for furnishing means and methods for preventing mud being brought into the building or onto the construction by workmen.
- 10.23 PUBLIC STREETS AND PRIVATE WAYS:
- A. All public streets adjacent to the site and all private ways at the site shall be kept clear of waste, spilled materials and products, and wet and dry earth at all times and shall be cleaned at the end of each working day. When wet earth is encountered, it shall be cleaned from the vehicles before they leave the site and enter the streets and private ways. All by the general contractor
 - B. THE REQUIREMENTS of this Article 9 do not prevent the General Contractor from entering into an agreement between him and the other Prime Contractors for the General Contractor to remove their waste.
- 10.24 CLEANING PRIOR TO INSTALLING FINISHES:
- A. The General Contractor shall remove all debris and soot, smudges, dust, and other deposits from the walls, ceilings, floors, and other exposed surfaces prior to installing finishes. Do not perform any finishing work until such surfaces are properly clean.
- 10.25 FIRST AID KITS:
- A. Each Prime Contractor and each Prime Subcontractor shall provide adequate provisioned first aid kits on the Project site for personnel employed by him and for the convenience of workmen employed by their Sub-subcontractors.
- 10.26 MATERIAL AND EQUIPMENT (SEE GENERAL CONDITIONS, ARTICLE 8).
- A. NEITHER THE OWNER NOR THE ARCHITECT WILL BE RESPONSIBLE FOR ANY ORAL INSTRUCTIONS BY OR ANY WRITTEN CONFIRMATIONS OF ANY ORAL INSTRUCTIONS FROM THE CONTRACTOR, SUBCONTRACTOR, PRODUCT SUPPLIERS, ETC.
- 10.27 PRODUCT SUBSTITUTIONS:
- A. Products and systems specified are the absolute minimum quality standard and substitutions of lesser quality are not acceptable.
 - B. REQUEST FOR SUBSTITUTION will not be considered verbally nor will approval be issued verbally. All requests for substitution shall be in written form as hereinafter stated and shall be transmitted through the bidding contractor with his concurrence.
 - C. REQUESTS FOR SUBSTITUTION of products by, manufacturers other than those listed in or performance requirements specified in the sections of the specifications, addenda, and on the drawings, will be considered by the architect if received not later than 10 working days prior to the date for receipt of bids, not including any bid date extension, so as to allow a reasonable time for the evaluation of requests for substitution and the notification, by addendum, of all bidding contractors as to the approved and accepted substitutions.
 - D. REQUEST FOR SUBSTITUTION:
 - 1. After Contract(s) is (are) signed, no substitutions will be evaluated by the Architect without compensation from the requesting Contractor to the Owner for cost of evaluation charged the Owner by the Architect.
 - E. ANY REQUEST FOR SUBSTITUTION which does not clearly show equality, to the architect's satisfaction, will be rejected. The burden of proof that the proposed substitution is equal to and meets the requirements specified and shown in the project documents including type, design, quality, operation, function, use, size, appearance, capability, electrical requirements,

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mechanical requirements, and manufacture shall be solely the responsibility of the bidding contractor through which the substitution was transmitted and thereby concurred with the substitution.

- F. REQUEST FOR SUBSTITUTION for a system and for each separate product item shall include: reason for substitution request; cost of both specified item and proposed substitution item; laboratory test reports; catalogs and drawings showing capacities, operations, functions, dimensions, construction details and methods of assembly; connections; and installation to the work. If a proposed substitution of products, equipment, or systems have different dimensions or configuration than that which is specified and required, then the contractor proposing the substitution shall furnish full drawings and details verifying the suitability of the proposed substitution with respect to space provided, functional operation (including maintenance accessibility), and aesthetic values, as a condition precedent to acceptance of the substitution. If the proposed substitution is accepted by the owner, after architect's review, the contract sum will be adjusted by change order reflecting extras or credits involved. Should the request for a substitution be accepted, shop drawings and samples shall be submitted in accordance with the general conditions and supplements thereto. Substitutions of a minor nature not involving a change in the contract sum or the contract time may be approved by the architect, without referral to the owner, in accordance with general conditions of the contract, form oc-15, North Carolina Department of Administration; article 21.
- G. MANUFACTURER'S LITERATURE which is readily available to the architect will not be acceptable for establishing proof of equality. Laboratory test reports shall have been performed by a nationally recognized independent testing laboratory which is known for its testing expertise. The laboratory test shall include type of materials used in the product including their thickness and strength, and a direct comparison to that specified for capacities, capabilities, coating, functions, life cycle usage, and operations. Where products will be exposed, and where systems will be used, no change in the architect's design and engineering intent will be allowed.
- H. IF PROPOSED SUBSTITUTIONS are accepted by the Owner, after Architect's review, the bidding Contractor's price may include prices reflected by the substitutions so indicated by Addendum.
- I. AFTER THE TIME FOR REQUESTING SUBSTITUTIONS has expired, requests for substitutions will be reconsidered, after signing of Contract, should circumstances arise that will be detrimental to the Project with respect to the time of completion and quality of performance as required by the Contract Documents. These circumstances shall be limited to strikes and other conditions beyond the Contractor's control. Request for reconsideration will be judged on the merit of each individual request.
- J. PRODUCTS PROPOSED FOR USE IN PROJECT: Within 20 consecutive calendar days after the Notice to Proceed, the Contractor shall furnish to the Architect for review, a complete list of products with manufacturers and suppliers of each that the Contractor will provide in the Project. This list shall be broken down into the Sections of the Project Manual. If an item is to be substituted, it shall be so noted and the request for substitution shall be submitted as hereinbefore called for. If an item is not listed and a request for substitution is not offered, then the Architect for expedience will select colors and finishes when preparing the color schedule and the Contractor shall match these colors. All materials installed by the Contractor shall be new. All materials shall meet NC State Building Codes and should there be any discrepancies between design and code, the more stringent requirement shall apply. All materials shall be in compliance with standards (or approved products) of the NC State Construction Office. Unless specified otherwise, NO PRODUCT CONTAINING ANY AMOUNT OF ANY FORM OF ASBESTOS SHALL BE INSTALLED AT UNC CHARLOTTE. ASBESTOS MEANS ASBESTIFORM VARIETIES OF CHRYSOTILE, CROCIDOLITE, AMOSITE, ANTHOPLYLLITE, TREMOLITE OR ACTINOLITE. BY DEFINITION, INSTALLATION OF ASBESTOS MATERIALS WILL BE CONSIDERED CONTRACTOR'S NEGLIGENCE AND THE

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CONTRACTOR SHALL PERFORM ALL NECESSARY WORK TO REMOVE THE ASBESTOS AND RESTORE THE SITE TO THE "POST-CONTRACT" CONDITION.

- K. ALL REVISIONS resulting directly or indirectly from equipment, products, and systems to be provided, which have different characteristics from that which the Project was designed for, shall be the financial responsibility of the Contractor or Subcontractor providing the equipment, products, and system which caused the revision. For example: Should a unit of equipment require a utility supply of larger capacity, such increase required in the supply system and its related components, back to a point where an increase will not be required, shall be paid for by the Contractor or Subcontractor providing that unit of equipment.

10.28 STORAGE AND PROTECTION:

- A. All products both stored and installed, shall be properly stored and protected from damage in accordance with the type of product and its manufacturer's recommendations. See Specification Sections for any special storage and protection requirements.
- B. PRODUCTS THAT CAN BE DAMAGED by weather, dampness and sunlight shall be stored in a weatherproof building or similar enclosure. On-site yard storage on pallets under a canvas or plastic sheet or the like is NOT a substitution for a weatherproof building or similar enclosure. Products that will not be damaged by weather, dampness, and sunlight and that can be stored outside a weatherproof building or similar enclosure shall be stored off the ground and shall be protected from dirt, grime, mud, etc., with particular attention being given to those products that will be exposed to view in the finished work. Products that can also be damaged by high and/or low temperatures shall be stored in weatherproof building or similar enclosure where the proper storage temperature can be maintained as required by the product being stored. Stored products, when installed, shall be in a new, undamaged, and factory finished condition.
- C. NO FINISHING PRODUCT OR FINISHED PRODUCT shall be stored in the Project or installed in the Project until the Project is fully enclosed; is heated to the minimum temperature required by the product; and the humidity can be controlled to that required by the product. Coordinate with all finishing trades involved, in order that the required environmental conditions can be furnished and maintained prior to, during, and after the time of storage or installation of finishing products and finished products.

10.29 DIESEL EMISSION REDUCTION STANDARDS:

- A. Applicability: This guideline applies to any person or business that owns or operates any diesel fueled compression ignition vehicle engine, 25 horsepower or greater, that is used to provide motive power at any UNC Charlotte construction site or project location.
- B. No vehicle or engine subject to this standard shall idle for more than five consecutive minutes, except as allowed below. The idling limit does not apply to:
- Idling necessary to ensure the safe operation of equipment, including idling to ensure the equipment is in safe operating condition and equipped as required by provisions of law, either as part of daily equipment inspection or as is otherwise needed;
 - Idling required to bring the machine system to operating temperature;
 - Idling when queuing if said queuing requires intermittent movement forward to perform work or a service, when shutting the engine off would impede the progress of the work, or would otherwise be impractical to the queuing. This does not include the time an operator may wait motionless in line before the start of the workday or prior to the opening of a location where work or service will be performed; or
 - Idling of any vehicle being used in an emergency or public safety capacity.
- C. Idling of a vehicle or engine that is owned by a rental company or third party is the responsibility of the renter, lessee, or other responsible operator.
- D. Equipment subject to this standard must be located away from sensitive receptors (building fresh air intakes, entrances to facilities, enclosed occupied areas, etc.).

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- E. Equipment subject to this standard is required to meet or be modified to meet Tier 4 Emission Requirements as set forth by the EPA.
- F. Enforcement: It shall be incumbent upon the General Contractor to keep appropriate logs and data to validate the enforcement of this standard. For the purpose of inspecting and reporting equipment or to question compliance with these regulations, any individual has the right to observe, inquire and report any perceived violation of this standard.
- G. UNC Charlotte reserves the right to discharge without prejudice any tier contractor that willfully and knowingly violates the provisions of this guideline, with no additional payment for termination being due to the offending party.
- H. Nothing in this standard is intended to allow idling in excess of any applicable law, including but not limited to any local ordinance or requirement as or more stringent than this standard.
- I. The General Contractor shall be responsible to maintain a log of all equipment meeting the intent of this standard as soon as it is on the project site. Minimal documentation required shall be make, model and serial number of the equipment (and or engine) along with the rated horsepower.

10.30 STARTING OF SYSTEMS: SEE SPECIFICATION SECTIONS for requirements to be performed under each particular section.

10.31 TESTING, ADJUSTING, AND BALANCING OF SYSTEMS: SEE SPECIFICATION SECTIONS for requirements to be performed under each particular section.

PART 11 - CONTRACT CLOSEOUT

- 11.1 See general conditions and supplements thereto and specification sections for document submittals, demonstrations, written instructions, personnel instructions, and any other special requirements.
 - A. PROJECT RECORD DRAWINGS: Shall be furnished to the Architect with each application for payment and at time of closeout. Project record drawings shall meet North Carolina Department of Administration Standards of the most current North Carolina Construction Manual.
 - B. THE GENERAL CONTRACTOR shall file one (1) complete set of Contract Drawings in his field office. Each Prime Contractor and each Prime Subcontractor, as the case may be, shall fully and accurately note in red on this set any and all changes and deviations in the Project from that originally indicated on the drawings, as required by change orders, bulletin drawings, addenda, alternates, products, equipment, and methods of construction. All utility services and other concealed work which are built into walls, floor slabs, roof slabs, below slabs on grade, and in general unexposed shall be accurately located to avoid damage to them in case a change or renovation takes place at some future date. All changes in dimensions, elevations, location of building components and equipment, and the location of any existing work which are different from that originally shown shall be indicated on these drawings. A copy of these, showing the work for which payment is requested shall be provided with each application for payment.
 - C. UPON COMPLETION of construction, the Contractors shall each furnish a copy of surveys by a N.C. Registered Land Surveyor showing the final and accurate location of all new underground utilities each has installed giving spot elevations of the utilities at 30'-0" intervals maximum. All encountered existing underground utilities shall also be noted on the site plan if their location, type, or elevation is different from that indicated on the Contract Drawings or if the utility is not

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indicate don the Contract Drawings. Further, the survey provided by the General Contractor shall accurately locate the building and shall give as built contours of the site.

- D. AT THE CONCLUSION OF THE PROJECT, the Contractors shall turn over to the University all equipment, files, logs, drawings or submittals, etc., belonging to the Owner.
- E. AT THE CONCLUSION OF THE PROJECT, Contractors shall provide receipts signed by the Owner for all required items of the attic stock. The Project Expeditor shall submit a listing (specification section, type of material, and quantity) of all required attic stock items for review by the owner and designer prior to the preliminary final inspection.
- F. AT THE CONCLUSION OF THE PROJECT Contractors shall provide one copy of all packing slips, instruction sheets, Owner's guides, etc., that were packed with items of equipment and materials incorporated into the project.
- G. AT THE CONCLUSION OF THE PROJECT each Contractor shall provide a comprehensive listing of subcontractors and suppliers showing the generic name of materials, work or equipment provided, trade or brand name, name, address, telephone number and contract person, and a reference to the drawings or specification.
- H. AT THE CONCLUSION OF THE PROJECT Shop Drawings, Fire Sprinkler and Fire Alarm Drawings shall be sent in AutoCAD and PDF formats. Other General shop drawings, not specific to UNC Charlotte may be sent in PDF format.
- I. AT THE CONCLUSION OF THE PROJECT Design manuals, warranty information, and paper documentation provided to the owner be in a digital format to facilitate storage. Acceptable file types are pdf, doc, xls, tiff, jpg, and dwg.

PART 12 - FINAL CLEANING UP

12.1 SEE GENERAL CONDITIONS, ARTICLE 41.

- A. BEFORE THE DATE OF THE PRELIMINARY REVIEW, the Work and the site shall be cleaned of all debris, boxes, cartons, crates, wrappings, etc. Only such cleaning materials and equipment absolutely required shall be allowed on the Project at this time. If approved beforehand by the Architect, other materials may be stored on the Site in designated areas in a neat and orderly manner. Clean up shall include removal of all dirt and construction debris from the roof structure.
- B. BEFORE THE DATE THE FINAL REVIEW is made to determine completion of the Project, in accordance with the Contract Documents, all of the Contractor's products and equipment shall be removed from the site, the Project given a thorough cleaning, such as: Glass cleaning, carpets vacuumed, building surfaces and equipment washed as required, resilient tile waxed and buffed as required, paint splatter removed, general dusting, debris removed, resilient wall bases buffed, etc., and the Project made 100 percent complete and ready for the Owner's occupancy and use as intended. All other cleaning and preparation shall be in accordance with the specification sections.
- C. PERMANENT BUILDING POWER AND UTILITIES: These services shall remain the responsibility of the Contractors during all reviews up to and including the day of Project acceptance.
- D. **ASBESTOS AND POLYCHLORINATED BIPHENYL (PCB) REQUIREMENTS** (See GENERAL CONDITIONS, Article 48.)
- E. DURING THE WORK PROCESS, should the Contractor encounter any material identified as asbestos and/or PCB, or be suspect of containing asbestos and/or PCB, he shall immediately initiate the required procedures of the Environmental Protection Agency (EPA), and/or state or local agencies having jurisdiction, which include, but are not necessarily limited to, the following:

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1. INITIATE PROCEDURES for the protection of any and all persons exposed to the affected areas or adjacent areas affected thereby.
 2. ON BEHALF OF THE OWNER the Contractor shall: Secure quotations for the Owner's approval to engage the services of a licensed industrial hygienist to perform an asbestos and PCB identification survey, the purpose of which is to
 - a. verify presence of asbestos and PCB
 - b. determine the type of asbestos and PCB
 - c. make asbestos and PCB exposure assessments
 - d. make any other tests required to comply with EPA requirements not specifically noted herein
 - e. determine the scope of the Project required to be corrected
 - f. make recommendations with respect to possible corrective actions which the Owner may take, i.e., encapsulation and/or removal and disposal, as may be required
 3. Upon consultation with the Owner and the Architect, and upon determination of corrective actions to be taken, instruct the hygienist to prepare a specification in sufficient detail to outline the procedures required by EPA, for encapsulation, and/or removal and disposal, as the case may be, so as to furnish the Contractor with sufficient information to bid competitively the remedial work by specialty Contractors engaged in the encapsulation or elimination of asbestos and PCB material, based on an identified scope of work.
 4. During the corrective process, require the hygienist to review the Contractor's procedures for compliance with EPA, state and local requirements, make such test as may be required and, at the conclusion of the work, certify that the area is free and clear of asbestos and/or PCB materials and particles in the air.
 5. Secure quotations, for approval by the Owner, from specialty Contractors to perform the corrective work determined by the hygienist. The quotations shall include both time required and cost. In addition to the above, the Contractor shall submit itemized quotations for the replacement of any insulation or other asbestos and/or PCB containing materials removed, with insulation or other materials selected by the Architect, together with any other associated cost for replacement of materials and finishes necessarily removed to accommodate removal of asbestos and/or PCB materials, and time extensions allowed by the specifications.
- F. OWNER-APPROVED QUOTATIONS for the hygienist and for corrective work to be performed will be incorporated into the Contract by Change Order.
- G. NORTH CAROLINA AND FEDERAL ASBESTOS REGULATIONS INFORMATION:
1. The Environmental Protection Agency's (EPA's) National Emission Standards for Hazardous Air Pollutants (NESHAP) require an asbestos inspection and a ten (10) working day notification prior to demolition and renovation of all commercial, institutional, or industrial facilities. This excludes residential buildings with four (4) or fewer dwelling units. NESHAP also applies to the demolition of all residences which are being demolished for commercial, institutional, or industrial purposes. Notification of all demolitions is required whether or not the structures are found to contain asbestos.
 2. If an inspection, conducted by a North Carolina accredited asbestos inspector, confirms that a facility contains at least 160 square feet, 260 linear feet, or 35 cubic feet, of Regulated Asbestos Containing Materials (RACM), then these materials are to be removed prior to starting the renovation or demolition activity. When removal of RACM is required, a notification and a removal fee shall be submitted as part of the notification process. The notification and the removal fee, when applicable, shall be submitted to the Asbestos Hazard Management Branch. The removal of RACM shall be conducted by North Carolina asbestos accredited individuals.
 3. Please note that Forsyth, Buncombe/Haywood, and Mecklenburg Counties have local NESHAP programs and should be contacted directly for local requirements.

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PART 14 – BIM

14.1 Design Manual:

Designers are expected to adhere to the standards explained in the “University’s Design and Construction Manual” and “Space Standards” that can be found at the following link: <http://facilities.uncc.edu/our-services/business-related-services/facilities-planning/design-and-construction-manual>

Deviations can only be authorized by the University’s Capital Project Manager. Also refer to Annex J.

A. VDC/BIM Requirement:

The University’s VDC/BIM requirements were developed as a planning service for creating a VDC to IWMS vision. It is to assist the entire AEC/O Team during new construction and renovation projects through all 5 phases of a projects Lifecycle to achieve that VDC to IWMS workflow vision.

The BIM, VDC Workflows and Metadata will serve as the “live” data source used throughout the life of the project. It is important that there be a balance of structured information to support both design and constructability as well as building maintenance and operations, but not so much as to become burdensome to the AEC Team. The University is not attempting to track more metadata than can be practically use or update, all of which is further described in the VDC/BIM Requirements Implementation Plan.

14.2 Use of Document

The Implementation Plan provides guidance around the scope of VDC/BIM modeling and metadata required by the Architects, Engineers, Contractors and Sub-Partners for the University of North Carolina at Charlotte. Guidance on BIM use and Asset Naming by the Architects and Engineers during the design phases as well as defining the Contractors scope of work during construction for those assets and the required deliverables during construction and at project close-out. Further review and explanations of the process can be reviewed at Design and Construction Project Kick-Off meetings.

A Referenced Documents

Designers and contractors shall adhere to the requirements as listed in the “University of North Carolina at Charlotte Design and Construction Manual; Section 3, Annex J – UNC Charlotte VDC/BIM Requirements Implementation Plan”
<http://facilities.uncc.edu/sites/facilities.uncc.edu/files/media/Planning/design-manual-current/49sec3-annex-j-ilm.pdf>

B. Functional Requirements

1. The Design Team shall submit to UNC Charlotte their Design BEP (BEP-D) before the start of schematic design or within thirty [30] days of contract being awarded, outlining the strategy and schedule for utilizing BIM to execute design related activities and project coordination. Further review and collaboration around VDC workflows will need to be reviewed once the Construction BEP (BEP-C) has been issued. For further details see the VDC/BIM Requirements Implementation Plan.
2. The Construction Team shall submit to UNC Charlotte their Construction BEP(BEP-C)

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within thirty [30] days of contract being award, outlining the strategy and schedule for utilizing BIM and VDC Technology to execute construction related activities and project coordination. TO make this a collaborative process the Construction Team needs to involve the Design Team in their VDC workflow when creating their BEP-C. For further details see the VDC/BIM Requirements Implementation Plan.

C. Equipment Metadata Requirements

The metadata requirements during the BIM/VDC workflow can be found in the Appendix sections of the VDC/BIM Requirements Implementation Plan. The document itself explains the processes and workflows that UNC Charlotte has put in place internally for managing this process. This document should sever as a road map for helping create the BEP-D and BEP-C for a project Familiarity with the process is recommended and additional data points are in the body of the document as well, not everything can be correctly executed just by relying on the Appendix documents.

D. Deliverable Documents

The University of North Carolina at Charlotte will provide the AEC Team with a template folder file structure to populate all Documentation for the life of the project. This folder structure has a direct relationship to the Digital Management Exchange Guidelines found in the Implementation Plan.

E. Deviations

Changes or deviations can only be authorized by the University’s Capital Project Manager in conjunction of Facilities Operations. Deviations or changes will need to be submitted in writing or highlighted in the BEP-D or BEP-C for the University to review and approve.

14.3 Construction Routes:

Designers and contractors shall adhere to the requirements as listed in the “University of North Carolina at Charlotte Design and Construction Manual Section 2, Division 01A – Capital Project Guidelines (Formal); PART 1 - SITE ACCESS AND USE OF PREMISES.”

<http://facilities.uncc.edu/sites/facilities.uncc.edu/files/media/Planning/07sec2div1aa-project.pdf>

However, for some projects additional/ different requirements (including route maps) shall be provided by the University’s Capital Project Manager. An overview of routes can be accessed on the “5-year Capital Plan Projects Map” by selecting the “Show/ Hide Construction Routes” icon on the time lapse slider.

<http://capitalconstructionplan.uncc.edu/5-year-capital-plan-rojects-map>

Deviations can only be authorized by the University’s Capital Project Manager.

14.4 Deliverables:

Designers and contractors shall adhere to the requirements as listed in the “University of North Carolina at Charlotte Design and Construction Manual; Section 3, Annex J – UNC Charlotte VDC/BIM Requirements Implementation Plan”

<http://facilities.uncc.edu/sites/facilities.uncc.edu/files/media/Planning/design-manual-current/49sec3-annex-j-ilm.pdf>