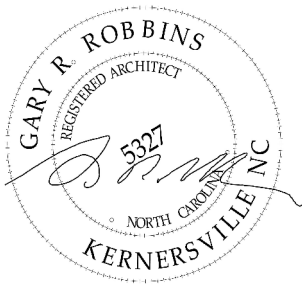


City of Archdale
Public Works
New Equipment Shelter

Project Number 23-11

Construction of New
Equipment Shelter

18 Old School Road
Archdale, NC 27263



July 6, 2023

ROBBINS ARCHITECTURE, P.A.

GARY R. ROBBINS, ARCHITECT
210 N Main Street, Suite 130 Kernersville, NC 27284

TEL: 336-454-6753

EXHIBIT "B"

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ADVERTISEMENT FOR BIDS

Proposals will be received by:

CITY OF ARCHDALE
307 BALFOUR DRIVE
ARCHDALE, NC 27263

Proposals will be received by the City of Archdale until **4:00 PM, September 7, 2023** in electronic format to Zeb Holden at email: zholden@archdale-nc.gov or hard copies will be received until the same time by hand delivery to the Utility Payment/Customer Service desk on the first floor of City Hall at 307 Balfour Drive, Archdale, NC 27263 at which time the package will be dated and timestamped.

Project Includes: Construction of a New Equipment Shelter

Complete plans, specifications, and other contract documents will be open for inspection beginning August 3, 2023, at ROBBINS ARCHITECTURE, P.A., 210 N Main Street, Suite 130, Kernersville, NC 27284 by appointment, and the websites of City of Archdale, National Institute of Minority Economic Development, ConstructConnect and Metrolina Minority Contractors Association. Plans may be obtained at no charge by downloading from www.archdale-nc.gov/Bids.aspx. All plans and specifications shall remain the property of the architect.

A **MANDATORY** Pre-Bid Conference will be held on August 17, 2023, at 3:00PM at the Public Works Department, 18 Old School Road, Trinity, NC 27263. Only bidders attending the pre-bid conference will be allowed to submit a bid.

All bidders are hereby notified that they must hold a proper license under the state laws governing their trades.

Bidders may be asked to submit to the Architect a properly executed AIA Document A305 - 2020, Contractor's Qualification Statement. The contractor shall have been in business under the present company name for a minimum of five (5) years and shall not have declared in default on any construction contract within that time. The contractor shall have successfully completed at least three (3) projects in the last five years of similar size, scope, and value. Contractors shall be disqualified for having any officer or principal within the organization, or ever been an officer or principal of another organization that has failed to complete a construction contract within the last five (5) years. Contractors shall be disqualified for failure to complete AIA Document A-305 - 2020 or disclosing falsified information.

A performance bond and payment bond will be required for One Hundred Percent (100%) of the contract prices as required by NCGS 44A-26.

Bidders are hereby notified that they will be required to meet the requirements established by the City of Archdale with regard to Historically Underutilized Business (HUB) participation levels, as set forth in NCGS 143-128.2.

The contract award will require successful bidder to certify they are not on the federal Debarment List.

Bidders shall not add any conditions or qualifying statements to the bids or otherwise change the specifications in any other manner or the bid may be declared irregular as not being responsive to the bid specifications.

Payment will be made on the basis of ninety five percent (95%) of monthly estimates and final payment made upon completion and acceptance of the work.

No bid may be withdrawn after the scheduled closing time of receipt of bid for a period of thirty (30) days.

The City of Archdale awards public contracts without regard to race, religion, color, creed, national origin, sex, age or handicapped condition as defined by North Carolina General Statutes, Section 168A-3. The City of Archdale reserves the right to reject any and all bids and to waive any informalities and irregularities in conformance with G.S. 143-129.

ZEB HOLDEN
CITY MANAGER, CITY OF ARCHDALE

00200 INSTRUCTIONS TO BIDDERS

1. Final time for receiving:
Receiving Bids: Until 4:00 PM, September 7, 2023

2. Place for receiving proposals:
Electronic Format: zholden@archdale-nc.gov
(Zeb Holden 336-434-7346)
Hand Deliver: Utility Payment / Customer Service (First Floor City Hall)
City of Archdale
307 Balfour Drive
Archdale, NC 27263
Hand delivered packages will be dated and time stamped upon receipt.

3. Proposals received before final time for receiving:
Will remain unopened until time of opening.

4. Proposals received after time for receiving:
Will NOT be accepted.

5. Bid Tabulations posted:
Tabulations will be posted on the City of Archdale website by 2:00PM, Friday September 29, 2023.

6. Examination of drawings and documents:
Should a bidder find discrepancies in, or omissions from the drawings or documents, or should he be in doubt as to their meaning, he should at once notify the architect in writing, via email to Gary@robbinsarchitecture.com who will send written instructions to all bidders. Neither the owner nor the architect will be responsible for any oral instructions. Questions will not be accepted or answered after 5:00 PM Thursday, August 31, 2023. Only questions from contractors will be addressed, sub-contractor inquiries must be submitted via the contractor.

7. Examination of the sites:
Each bidder will visit the site at the MANDATORY pre-bid meeting. If at an additional time other than the Pre-Bid Conference, all contactors and subs must coordinate with (Owner or Architect) a time to visit the site. The site is not available for an impromptu visit.

8. Addenda:
 - A. Any addenda issued and received during the time of bidding shall be included and acknowledged in the proposal and in closing a contract; they will become a part thereof.
 - B. Addenda will be available where bidding documents are on file.

9. Pre-bid conference:
Pre-bid conferences will be held August 17 at 3:00 PM, at the Public Works Department, 18 Old School Road, Trinity, NC 27263. Pre-bid conference is **MANDATORY**.

10. Licensed Bidders Required:
All bidders are hereby notified that they must hold a proper license under the state laws governing their respective trades.

11. Contractor's Qualifications Statement:
 - A. AIA Document A305- 2020 may be requested by the owner. Failure to submit property executed documents may result in bidder disqualification.
 - B. Contractor will be required to certify in the contract agreement they are not on the federal Debarment List.

12. Acceptance or Rejection of Proposals:
- A. The competency and responsibility of bidders and their proposed subcontractors will be considered in making the award. The owner does not oblige himself to accept the lowest or any other bid.
 - B. The owner reserves the right to hold proposals for 30 days before award or rejection, and to reject any or all bids.
13. Payments:
- A. Provisions will be made in the agreement for payments on account, in the following words: "on or about the twenty seventh (27th) day of each month ninety five percent of the value, based on the contract prices of labor and materials incorporated in the work and of materials suitably stored at the site thereof up to the first day of that month." The final payment will be made within thirty (30) days after acceptance of the work.
 - B. Payments must be submitted on completed forms AIA G-702 Certificate of Payment and G-703 Continuation Sheet.
 - C. North Carolina sales tax is included in the bid proposal and shall be billed as separate items with each Request for Payment.
 - D. Certifications of sales taxes paid, along with vendor invoices, shall be required for any sales tax paid by the contractor to third party vendors.
14. Bond:
As a condition precedent to effectuation of the contract, furnish bond for performance of contract and payment of obligations, for one hundred (100) percent of the amount of the contract.
15. Preparations of Proposals:
To be entitled to consideration, proposals must be made in accordance with the following instructions:
- A. Proposals shall be made upon the Form of Proposal included in specifications and all blank spaces in the forms shall be filled; numbers shall be stated both in writing and in figures; the signature shall be long hand; and the completed forms shall be without interlineations, alteration, or erasure.
 - B. Proposals shall not contain any recapitulation of the work to be done. No oral, telegraphic, or telephonic proposals or modifications will be considered.
16. Proposals:
- A. Receiving Bids:
 1. Electronic Format: zholden@archdale-nc.gov (Zeb Holden). Time stamp on the e-mail receipt will be used as the verification for time of receipt of bid.
 2. Hand Delivery: Address to owner Zeb Holden and deliver to Utility Payment / Customer Service staff enclosed in an opaque envelope marked:

BID
CITY OF ARCHDALE
PUBLIC WORKS
New Equipment Shelter
 - B. Hand Delivery: Include Contractor's License Number on the envelope.
 - C. Bids shall be submitted on the forms included with the Bid Documents.
 - D. All blanks on the bid form shall be legibly executed with non-erasable medium.
 - E. Sums shall be expressed in both words and numbers. In case of discrepancy, the amount entered in words shall govern.
 - F. Edits or entries made on the bid form must be initialed by the signers.

17. Time for Completion:
- A. Complete project shall be substantially complete no later than March 29, 2024.
 - B. The contract shall contain a liquidated damages clause of \$200.00 per day for each calendar day beyond the final completion day that the total project is not substantially complete.
18. Material Substitutions:
- A. No materials other than those specified, or with written approval of substitution are to be considered for use on the project.
 - B. All material suppliers desirous of having their materials approved equal to materials specified, must submit to the architect substantiating evidence of conformance with the specifications and written approval of substitution must be issued by the architect before materials may be used on the project.
 - C. Written request for substitutions shall be received by the Architect at least ten (10) days prior to the date for receipt of Bids.

00300 Contractor's Qualification Statement

1. The owner may request General Contractor to submit AIA Document A305-2020 Contractor's Qualification Statement.
2. Copies of this document may be purchased from the American Institute of Architects, 1735 New York Avenue, NW, Washington, DC 20066.
3. The owner reserves the right to determine the time and date for the submittal to be delivered.
4. Items to be included in AIA A305-2020 Exhibit "A" General Information but not limited to:
 - A. Number of years in business as a contractor
 - B. Number of years in business under present business name.
 - a. Under what other or former names has your business operate
 - C. If corporation, include:
 - a. Date
 - b. State
 - c. President's name
 - D. If partnership, include:
 - a. Date of organization
 - b. Type of partnership
 - c. Name(s) of general partner(s)
 - E. If individually owned, include:
 - a. Date of organization
 - b. Name of owner
 - F. If the form of your organization is other than listed above, give full description and name of principals.
 - G. List jurisdiction and trade categories you are legally qualified to do business with registration or license numbers.
 - H. List the categories of work you perform with your own forces.
 - I. Has your organization ever failed to complete any work awarded to it?
 - a. Are there any judgements, claims, arbitration proceedings or suits pending against your organization or officers.
 - b. Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years.
 - J. List projects in progress and include description, owner, architect, and scheduled completion date.
5. Items to be included in AIA A305-2020 Exhibit "B" Financial and Performance Information but not limited to:
 - A. Financial statement including latest balance sheet and income statement. showing the following:
 - a. Current assets
 - b. Net fixed assets
 - c. Other assets
 - d. Current liabilities
 - B. Name and address of firm preparing financial statement and date thereof.
 - C. Is the financial statement for the identical organization named on AIA A305-2020
 - D. Will the organization whose financial statement is attached act as guarantor of the contract for construction?

6. Items to be included in AIA A305-2020 Exhibit "D" Past Project Experience but not limited to:
 - A. List major projects completed in the last five years.
 - a. Project name
 - b. Owner
 - c. Architect
 - d. Contract Amount
 - e. Date of Completion
 - f. Percentage of the cost of work performed with your own forces



AIA® Document A305® – 2020

Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

SUBMITTED BY:

(Organization name and address.)

SUBMITTED TO:

(Organization name and address.)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TYPE OF WORK TYPICALLY PERFORMED

(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)

THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:

(Check all that apply.)

- Exhibit A – General Information
- Exhibit B – Financial and Performance Information
- Exhibit C – Project-Specific Information
- Exhibit D – Past Project Experience
- Exhibit E – Past Project Experience (Continued)

CONTRACTOR CERTIFICATION

The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

Organization's Authorized Representative Signature Date

Printed Name and Title

NOTARY

State of:

County of:

Signed and sworn to before me this day of

Notary Signature

My commission expires:

00400 FORM OF PROPOSAL

General Construction

City of Archdale
307 Balfour Drive
Archdale, NC 27263

CITY OF ARCHDALE
PUBLIC WORKS
PROJECT 23-11
18 Old School Road
Archdale, North Carolina

Bidders:

Having carefully examined the Instructions to Bidders, the General Conditions of the Contract, drawings and specifications entitled: "City of Archdale Public Works, New Equipment Shelter" the undersigned submits the following proposal in accordance with the said documents.

CITY OF ARCHDALE PUBLIC WORKS: NEW EQUIPMENT SHELTER (Includes all construction work shown on drawings and mentioned in specifications):

TOTAL BID: (\$ _____)

TOTAL _____
Dollars

Sitework Amount: (Cost to be included in total bid) \$(_____)

Time for Completion:

The undersigned agrees to complete the total of project no later than March 29, 2024.

Liquidated Damages:

The contract for construction shall contain a liquidated damages clause of \$200.00 per day for each calendar day beyond the completion date that the project is not substantially complete.

Addenda:

The undersigned acknowledges receipt of addendum No. _____ thru No. _____.

Contract Agreement:

The undersigned agrees that if notified of the acceptance of this proposal within 30 days of the time set for the opening of bids, he shall execute a contract for the above work, for the above stated compensation, in the form of the American Institute of Architects. Contract agreement shall include certification the contractor is not on the federal Debarment List.

Bond:

The undersigned agrees, if awarded the contract to execute and deliver to the architect within ten (10) days after the signing of the contract, a satisfactory bond in the form issued by the AIA A-311, and in an amount equal to one hundred (100) percent of the contract sum.

The undersigned has based this proposal on materials specified, or materials approved equal.

Respectfully Submitted,

Contractor: _____

Name of Firm: _____

By: _____

Title: _____

Date: _____

North Carolina Contractor's License No.: _____

N.C. G.S. 87-10 Qualifier: _____

Federal ID Tax No.: _____

Witness / Notary:

UNIT PRICES

CITY OF ARCHDALE PUBLIC WORKS NEW EQUIPMENT SHELTER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, general provisions of the Contract, including General Conditions, other Division 1 Specification Sections, and all other contract bid documents apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Specific requirements of each contract are also indicated in individual Specification Sections, All Bid Documents and on Drawings.
- C. Unit price is an amount proposed by bidders, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit. Unit Prices represent a full and total cost for the listed unit. Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections. **Measurement: The quantity of unsuitable soil or rock and any fill (mass or trench) to be paid for will be the actual number of "Bank" cubic yards removed as measured by the Owner's Testing Agency.**
- B. City of Archdale reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at City of Archdale's expense, by an independent surveyor acceptable to Contractor. If the findings are that the Contractor's measurement of work-in-place is inaccurate, the Contractor shall bear the responsibility for said survey.
- C. List of Unit Prices: A list of unit prices is included in this section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price. The bidder(s) shall submit a completed unit price sheet along with the bid. Failure to include unit prices as required may be grounds for rejection of the bid.
- D. Unit Prices found to be unreasonable in cost may constitute grounds for rejection of the bid.

PART 2 - PRODUCTS (Not Used)

UNIT PRICES

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES (INCLUDE WITH BID)

UNIT PRICES APPLICABLE TO ALL CONTRACTORS

Unit Price U-1 Trench Rock Excavation & On-site Disposal

\$_____ per Cubic Yard.

Unit Price U-2 Unsuitable Soils in Trench Excavation & On-site Disposal

\$_____ per Cubic Yard.

Unit Price G-1 Mass Unsuitable Soils Removal & On-Site Disposal

\$_____ per Cubic Yard

Unit Price G-2 Mass Rock Excavation & On-Site Disposal

\$_____ per Cubic Yard

**CITY OF ARCHDALE
NORTH CAROLINA**



**Historically Underutilized Business
(HUB) Program**

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INTRODUCTION

The General Assembly adopted the provisions of Senate Bill 308 which amended G.S. 143-128 allowing all public owners to advertise for bids for public building projects using single contract (single prime) system as an alternative to the traditional separate (multi-prime) contracts system. **Included in the amendments adopted by the General Assembly was the requirement that each public owner adopt and implement a Minority and Women's Business Enterprise (M/WBE) Plan that would include specific conditions to be met for each public building project constructed under the provisions of G.S. 143-128.**

The intent of these amendments was and still is to increase the opportunities for M/WBEs to become involved in public building projects let to contract in North Carolina. Within the guidelines of Senate Bill 308 was the requirement that each public body adopt an appropriate verifiable percentage goal for participation by minority businesses in the total value of work for which a contract or contracts are awarded.

Each local government was given the responsibility for ascertaining their own appropriate verifiable percentage goal(s). On December 20, 2005, the Archdale City Council established a goal of ten percent (10%) for minority participation in building construction contracts awarded that meet the statutory formal bid threshold.

The City of Archdale's Historically Underutilized Business (HUB) Program includes the following goals:

1. Establish a 10% HUB overall participation percentage goal in the total value of building construction projects meeting the statutory formal bid threshold expenditure level.
2. Establish a 10% HUB overall participation percentage goal in the total value of the procurement of consulting and professional expenditures related to building construction projects meeting the statutory formal bid threshold expenditure level.
3. The overall program participation percentage goal will be reviewed annually or on a project by project basis as soon as relevant data becomes available.

The services of the City of Archdale's Underutilized Business Program is not designed to provide in-depth business management, estimating, or other technical assistance to participants in bid preparation and contract negotiations.

OUTREACH PLAN AND GUIDELINES

FOR RECRUITMENT AND SELECTION OF HISTORICALLY UNDERUTILIZED BUSINESSES FOR PARTICIPATION IN THE CITY OF ARCHDALE'S BUILDING CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2, these guidelines establish goals for Historically Underutilized Business (HUB) participation in single-prime bidding, separate-prime bidding, dual bidding, construction manager-at-risk, and alternative contracting methods on City of Archdale building construction projects in the amount of \$300,000 or more. The Outreach Plan shall also be applicable to the selection process of architectural, engineering and construction manager-at-risk services.

The City of Archdale has adopted a verifiable ten percent (10%) goal for Historically Underutilized Business (HUB) participation by HUB businesses in the total value of work for each project for which a contract or contracts are awarded for public building construction. The overall goal will be reviewed annually, or as soon as relevant data is available.

POLICY STATEMENT

To broaden opportunities for participation, increase competition, and ensure the proper diligent use of public funds, it is the intent of the City of Archdale to provide minorities and women equal opportunity to participate in all aspects of the City of Archdale's contracting programs. Opportunities include participation in construction and construction renovation projects, and lease agreements as they relate to requirements established by federal, state, and local governments.

The City of Archdale is committed to economic development of small business enterprises and the minority community and prohibiting discrimination against any person or business in pursuit of these opportunities on the basis of race, color, sex, religion, national origin, age, disability, or veteran status.

The City of Archdale's Historically Underutilized Business Program (HUB) is not a set-aside program as it relates to contracting; it is a voluntary goal program. Competitive bidding is required for all contractors, subcontractors and their suppliers and distributors. The HUB program encourages contractors to actively and aggressively seek HUB participation.

Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from HUB contractors or HUB subcontractors who do not submit the lowest responsible responsive bid or bids.

It is further the intent of these guidelines that the City of Archdale, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded, shall cooperate, and in good faith do all things, legal, proper, and reasonable to achieve participation by HUB in each construction project as mandated by N.C.G.S. 143-128.2.

OBJECTIVES

The primary objective of the City of Archdale Historically Underutilized Business Program will be to focus on full utilization of minority and women businesses in the City's construction activities; the assurance of a Good Faith Effort Program that benefits contractors, subcontractors and vendors alike; and early conflict intervention of general and discriminatory concerns in addition to the following areas of assistance:

- Maintain and promote minority-owned and women-owned business utilization.
- Increase the City of Archdale's knowledge of minority and women owned business firms and become familiar with their product line.
- Provide up-to-date information on City bidding opportunities.
- Management and technical assistance guidance and support throughout the process to ensure significant minority and female business participation.
- Provide and administer procedures for reporting and monitoring compliance of contract activity, subject to the provisions of the HUB requirements of the City of Archdale.
- Provide and administer procedures for resolving complaints of discrimination made against businesses holding construction contracts with the City of Archdale.

DEFINITIONS

- **Bidder**
Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
- **Certification**
To qualify for certification, a firm must meet the definition of a minority person, as outlined in accordance with N.C.G.S. 143-128, and/or be socially and economically disadvantaged as defined in 15 U.S. C. 637 of the Federal Code.

Any person having a current 8(a) certification from the Small Business Administration is considered socially and economically disadvantaged.
- **Contract**
A mutually binding legal relationship, or any modification thereof, obligating the seller to furnish equipment, materials, or services, including construction, and obligating the buyer to pay for them.
- **Contractor**
Any person, firm, partnership, corporation, association, or joint venture, which has contracted with the City of Archdale to perform construction, work, or repair.
- **Designer**
Any person, firm, partnership, or corporation, which has contracted with the City of Archdale to perform architectural or engineering work.
- **HUB Program Administrator**
Owner's representative responsible for administering the City's Historically Underutilized Business Program.

- **Minority**

A person who is a citizen or lawful permanent resident of the United States and who is:

- a. American Indian, that is, a person having origins in any of the original peoples of North America.
- b. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, or the Pacific Islands.
- c. Black, that is, a person having origins in any of the black racial groups in Africa.
- d. Female.
- e. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central American, or the Caribbean Islands, regardless of race.
- f. Persons qualifying as socially or economically disadvantaged.

- **Minority Business**

- a. A business in which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
- b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

- **Socially and economically disadvantaged individual**

Means the same as defined in 15 U.S.C. 637 of the Federal Code.

Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regards to their individual qualities.

Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged.

- **Owned and Controlled**

A business which is (1) a sole proprietorship legitimately owned by an individual who is a minority or female, (2) a partnership or joint venture controlled by minorities and/or females, or (3) a corporation or other entity controlled by minorities and/or females and in which at least 51% of the voting interests and 51% of the beneficial ownership interests are legitimately held minorities and/or females. These persons must control the management and operation of the business on a day-to-day basis.

- **Owner**

City of Archdale.

- **Public Entity**

State and all public subdivisions and local government units.

- **Subcontractor**

A firm under contract with the prime contractor or Construction Manager-at-Risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in the subcontract.

- **Verifiable Goal**

The City of Archdale has adopted written guidelines specifying the actions that will be taken to ensure a Good Faith Effort in the recruitment and selection of female and minority businesses for participation in contracts awarded.

PROGRAM ADMINISTRATION

Responsibilities of the Owner

1. Develop, implement, manage, and monitor for compliance, the City of Archdale's Historically Underutilized Business (HUB) Outreach Plan, as contained herein, in accordance with federal, state, and local government requirements.
2. Work with minority-focused and small business groups that support Historically Underutilized Business and small business inclusion in the solicitation of bids.
3. Place more emphasis on the importance of soliciting certified Historically Underutilized Business firms and small businesses for subcontracting opportunities at pre-bid conferences and in the bid documents. Examine specifications to identify special subcontracting opportunities and strongly encourage prime contractors to solicit bids for subcontracts from HUB firms.
4. Hold meetings with the majority contractors to provide detailed information concerning the Guidelines for Recruitment and Selection of Historically Underutilized Business, information on G.S. 143-128 and G.S. 143-129, and to ensure that solicitations contain the clauses and goals required by the program.
5. Explain the City of Archdale's Historically Underutilized Business participation requirements at pre-bid conferences.
6. Assess the effectiveness of the HUB Program, and identify opportunities to enhance it, by evaluating HUB participation and compliance and reviewing the "Good Faith Efforts" provided in bid packages.
7. Identify subcontracting opportunities unique to each construction contract and project and concentrate heavily on targeting certified HUB firms and small businesses that have expressed an interest in City of Archdale projects.
8. Make available to minority-focused agencies, a list of subcontracting opportunities when they are identified, and a list of prime bidders that subcontractors may wish to contact for subcontracting consideration no later than 10-days prior to the bid opening.
 - a. A description of the work for which the bid is being solicited.
 - b. The date, time, and location where bids are to be submitted.
 - c. The name of a representative of the Owner who will be available to answer questions about the Project.
 - d. Where bid documents may be received.
 - e. Any special requirements that may exist, such as insurance, licenses, bonds, and financial arrangements.

9. Build new business relationships through networking and continue networking with other North Carolina cities and counties to find out how their Outreach Program and HUB program is working and sharing “*best practices and ideas*” to improve the program.
10. Participate in education opportunities throughout the community as they become available and offer training sessions to share the City of Archdale’s Outreach Plan with interested businesses and organizations.
11. On-going Communications Program.

Upon request, the City of Archdale will make available complete information on the City’s construction programs and projects and a brief description of each to HUBs, HUB associations, assistance agencies, and training resources. A copy of this list will be maintained in the office of HUB Program Administrator.

All bid notices for construction projects over \$300,000 will be advertised in a daily newspaper having general circulation in the area for which bids are requested. The City will ensure that bid notices are made available to HUB trade associations, minority economic development groups, and HUBs with capabilities relevant to the bid notices as identified by the HUB Source Listing.

12. Advertise upcoming bid opportunities in minority-focused media, if available.
13. Work with architects, consultants, and engineers to ensure that subcontracting opportunities are more noticeable, that specific opportunities are identified and easily understood by potential contractors and subcontractors.
14. Provide reports to the North Carolina State Department of Administration, minority participation, as contained herein.

Designer

Under the single-prime bidding, separate prime bidding, dual bidding, construction manager-at-risk, or alternative contracting method, the designer must do all the following:

1. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
2. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
3. Maintain documentation of any contacts, correspondence, or conversations with minority business firms made in an attempt to meet the goals.
4. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. Bidder’s proposal for identification of the minority businesses that will be utilized with corresponding dollar value of the bid and Affidavit Listing Good Faith Efforts or Affidavit of Self-Performance of Work, if the contractor will perform work under contract by its own workforce) – prior to recommendation of an award.
5. During the construction phase of the project, review “HUB Documentation for Contract Payment” form with monthly pay applications to the owner and forward copies to the City of Archdale.

Prime Contractor(s), Construction Manager-At Risk, and its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, dual bidding, Construction Manager-at-Risk, and alternative contracting methods, contractor(s) must do all the following:

1. Attend the scheduled prebid conference.
2. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
3. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification must include all the following:
 - a. A description of the work for which the subbid is being solicited.
 - b. The date, time, and location where subbids are to be submitted.
 - c. The name of the individual within the company who will be available to answer questions about the project.
 - d. Where bid documents may be reviewed.
 - e. Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.
4. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
5. Identify on the bid the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and Affidavit Listing Good Faith Efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f) or Intent to Perform Contract With Own Workforce Affidavit.
6. Make documentation showing evidence of implementation of Prime Contractor, Construction Manager-at-Risk, and First Tier Subcontractor responsibilities available for review by City of Archdale upon request.
7. Provide one of the following upon being named the apparent low bidder: (1) an Affidavit that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal. This affidavit shall give rise to a presumption that the bidder has made the required good faith effort; or (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. The documentation must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations, and evidence of other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
8. Identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values.

9. Submit with each monthly pay requests(s) and final payment(s), “HUB Documentation for Contract Payment” for designer’s review.
10. If at any time during the construction of a project, it becomes necessary to replace a minority business subcontractor, immediately advise the owner in writing of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.
11. Make a good faith effort to solicit subbids from minority businesses during the construction of a project if additional subcontracting opportunities become available.

Historically Underutilized Business (HUB) Responsibilities

While minority businesses are not required to become certified in order to participate in the City of Archdale’s construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. Minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

Only those firms holding current certification through at least one of the following agencies will be considered eligible for inclusion in meeting the HUB participation percentage goals:

- North Carolina Administration Department
Historically Underutilized Business (HUB) Certification
- North Carolina Department of Transportation
Minority/Disadvantage/Woman-owned Business Certification
- Small Business Administration 8(a) Certification
- Other governmental agencies on a case-by-case basis

A copy of these guidelines will be issued with each bid package for City of Archdale building construction projects. These guidelines shall apply to all contractors regardless of ownership.

To request placement on the City of Archdale’s HUB list contact the HUB Program Administrator at P.O. Box 14068, Archdale, NC 27263, 336-431-9141, Fax 336-431-2130.

Calculating Historically Underutilized Business (HUB) Participation

The degree of participation by HUB subcontractors, minority-majority joint ventures, and HUB contractors in contracts awarded will be calculated as follows:

1. The total dollar value of the contract awarded to the HUBs.
2. The total dollar value of purchases of equipment or supplies from HUBs.
3. Participation by HUBs by race and gender classification.

Monitoring Historically Underutilized Business (HUB) Program Activity

In order to monitor the implementation of the HUB policy to provide minorities and women equal opportunity for participating in all aspects of the City's construction programs, participation shall be documented by the HUB Program Administrator with cooperation of each department of the City involved in a construction project.

Documentation on construction projects shall include:

1. The number of solicitations to HUBs
2. The number of bids submitted by HUBs
3. The number of contracts awarded to HUBs
4. The value of contracts awarded the HUBs

Penalties

A penalty of five percent (5%) of the contract payment amount will be imposed against prime contractors who fail to meet the requirements of the "Good Faith Efforts" as documented herein.

All documents and information submitted by the contractor will become a legal and binding part of the contract documents. A finding by the City that any of the information submitted is deliberately inaccurate, false, or incomplete will constitute grounds for non-compliance, and the penalty of five percent (5%) of the contract payment amount applied.

If the contractor is found to be continuously in non-compliance, with these provisions or in direct contention, such action may be considered by the City as a basis for not awarding future contracts.



CITY OF ARCHDALE
NORTH CAROLINA
RANDOLPH COUNTY

**Historically Underutilized
Business (HUB) Program**

**Instructions for
Compliance with the City of Archdale's
Historically Underutilized (HUB)
Business Program**

CONTRACT COMPLIANCE REQUIREMENTS

The Guidelines for Recruitment and Selection of Historically Underutilized Business for Participation in the City of Archdale's Contracts are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from:

Physical Address: City of Archdale
307 Balfour Dr.
Archdale, NC 27263

Representative: HUB Program Administrator

Mailing Address: P.O. Box 14068
Archdale, NC 27263

Telephone Number: 336-431-9141
FAX Number: 336-431-2130

Website: www.archdale-nc.gov

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the City of Archdale for the performance of the contract. Failure to comply with any of these statements, affidavits, or intentions, or with the minority business guidelines shall constitute a breach of contract. A finding by the City that any information submitted either prior to award of the contract or during the performance of the contract, is inaccurate, false, or incomplete shall constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the City of Archdale whether to terminate the contract for breach.

The City of Archdale shall include in all contract specifications specific instructions and procedures to define HUB compliance requirements. Historically Underutilized Business requirements will be reviewed at pre-bid meetings for all potential contractors.

Each contractor proposing to bid a project meeting the requirements of the City's HUB Program shall submit the following information with their bid:

1. Items that will be subcontracted.
2. General list of materials to be used in the project.

The City will provide to contractors an updated listing of certified minorities and female-owned businesses listed with the City's HUB Program. The list is available to contractors for use in recruiting and selecting HUB subcontractors.

Subcontract Goals

The goal for participation by minority firms as subcontractors on a project has been set at **10%**.

BID SUBMITTAL REQUIREMENTS

The bidders must submit one of the following with their bid:

1. Affidavit A: Identification of Historically Underutilized Business Participation

This form illustrates the areas in which the contractor has identified potential HUB subcontract opportunity and the dollar value in which the contractor proposes to attain in HUB utilization.

2. Affidavit B: Good Faith Efforts

In accordance with G.S. 143-128.2(c), the purpose of this document is to measure the contractor's "Good Faith Efforts" in the pre-bid stage. It is not the intent of this document to commit the Contractor to subcontracting these areas only to HUB firms or releasing the contractor from negotiating with HUB firms for subcontract opportunities in other areas.

OR,

3. Affidavit C: Intent to Perform Contract With Own Workforce

This form is to be submitted if the bidder does not intend to subcontract any portion of the work and if there are not any significant material purchases on which HUB firms can be utilized. The bidder must certify that this has been a typical practice on projects of similar scope and dollar value; and provide with his/her bid a list of those projects along with the project name, the owner, the owner's project manager and/or representative, total dollar value, the beginning and completion date.

By submittal of "Intent to Perform Contract with Own Workforce" (Affidavit C) for self-performance", the contractor is certifying that:

- a. He/she will not enter into any subcontracts for the duration of the project, and if he/she does decide to subcontract any portion of the work he/she will:
 - (1) Notify the City immediately of the decision to subcontract.
 - (2) Adhere to the provision of "Good Faith Efforts" in filling that subcontract opportunity.
- b. He/she does not typically subcontract on projects of similar scope and dollar value.

The Historically Underutilized Business Program may request the apparent low bidder to provide additional information to clarify the bidder's responsiveness.

Failure to submit the completed forms with your bid may deem the bid as non-responsive.

After the Bid Opening

The City of Archdale will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon receipt of the Notice/Letter of Intent to Award/Letter of Award, the apparent low bidder will be requested to attend a pre-construction conference at which time they will be required to submit the following HUB documentation:

1. Affidavit D: Portion of the Work to be Performed by HUB Firms

This form shall be submitted by the apparent lowest responsible, responsive bidder within **72-hours** after notification of being low bidder if the portion of the work to be executed by minority businesses, as defined in **GS 143-128.2 (g)**, is **equal to or greater than 10%** of the bidders total contract.

OR,

2. Affidavit E: If HUB participation **does not equal or exceed the overall City goal(s)**

If the percentage is not equal to the applicable goal, provide evidence of **Good Faith Efforts** to meet the goal that include:

- a. Copies of solicitation for quotes to at least three (3) minority business firms from the source list provided for each subcontract to be let under this contract (if three or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contract, and location, date, and time when quotes must be received.
- b. Copies of quotes or responses received from each firm responding to the solicitation.
- c. A telephone log of follow-up calls to each firm sent a solicitation.
- d. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- e. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- f. Copy of pre-bid roster.
- g. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- h. Letter detailing reasons for rejection of minority business due to lack of qualification.
- i. Letter documenting proposed assistance offered to minority businesses in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.
- j. The City may require the contractor to submit additional information to verify his/her "Good Faith Efforts".

The HUB documentation will be received at the pre-construction conference and forwarded to the HUB Program Administrator within three (3) working days for a determination of compliance. The HUB Program Administrator will make a determination of compliance within five (5) working days from receipt of the documentation. If the contractor does not submit his HUB documentation at the pre-construction conference, he/she may be deemed to be in non-compliance with the "Good Faith Efforts". The HUB Program Administrator will notify the contractor of the determination of compliance or non-compliance.

The penalty for non-compliance will be applied against the contract until the contractor is determined to be in compliance with his/her “Good Faith Efforts”.

At the time of the final request for payment upon completion of the project, the Contractor shall submit a Statement of Final Payments to HUB Subcontractors and Suppliers. Final payment will not be released until Statement of Final Payments to HUB Subcontractors and Suppliers form is submitted.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

Good Faith Efforts

In determining whether a contractor has made Good Faith Efforts, the City of Archdale will evaluate all efforts made by the Contractor and will determine compliance regarding quantity, intensity, and results of these efforts. **At least 50 points must be earned from the good faith efforts listed below in order to meet the Good Faith Efforts requirement:**

1. **10 points:**
Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least (10) days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
2. **10 points:**
Making the construction plans, specifications, and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
3. **15 points:**
Breaking down or combining elements of work in economically feasible units to facilitate minority participation.
4. **10 points:**
Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and those included in the bid documents to provide assistance in recruitment of minority businesses.
5. **10 points:**
Attending any pre-bid meetings scheduled by the public owner.
6. **20 points:**
Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
7. **15 points:**
Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
8. **25 points:**
Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder’s suppliers in order to help minority businesses in establishing credit.

9. **20 points:**

Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public building construction or repair project when possible.

10. **20 points:**

Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.



**CITY OF ARCHDALE
NORTH CAROLINA
RANDOLPH COUNTY**

**Affidavit B
GOOD FAITH
EFFORT**

County of _____

Affidavit of _____
(Name of Bidder)

I have made a good faith effort to comply under the following areas checked:

(A minimum of 50 points is required to have achieved a “Good Faith Effort”)

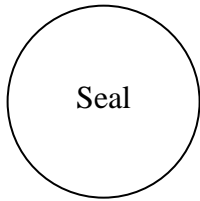
(Y/N)

- ___ (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government-maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed. **Value = 10 points.**
- ___ (2) Making the construction plans, specifications and requirements available for review by prospective minority businesses or providing these documents to them at least 10 days before the bid or proposals are due. **Value = 10 points.**
- ___ (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation. **Value = 15 points.**
- ___ (4) Working with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses. **Value = 10 points.**
- ___ (5) Attending any pre-bid meetings scheduled by the public owner. **Value = 10 points.**
- ___ (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors. **Value = 20 points.**
- ___ (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of minority business based on lack of qualification should have the reasons documented writing. **Value = 15 points.**
- ___ (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily is required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit. **Value = 25 points.**
- ___ (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible. **Value = 20 points.**
- ___ (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands. **Value = 20 points.**

In accordance with GS143-128.2(d) the undersigned will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon execution of a contract with the Owner. Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certified that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

State of _____, County of _____

Subscribed and sworn to before me this ____ day of _____ 20 ____

Notary Public _____

My commission expires _____



**CITY OF ARCHDALE
NORTH CAROLINA
RANDOLPH COUNTY**

**Affidavit C
INTENT TO PERFORM
CONTRACT WITH
OWN
WORKFORCE**

County of _____

Affidavit of _____
(Name of Bidder)

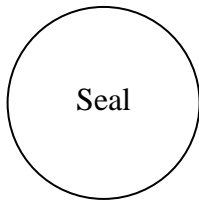
I hereby certify that it is our intent to perform 100% of the work required for the
_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

State of _____, County of _____

Subscribed and sworn to before me this ____ day of _____ 20 ____

Notary Public _____

My commission expires _____

DO NOT ATTACH TO BID

DO NOT ATTACH TO BID

DO NOT ATTACH TO BID

DO NOT ATTACH TO BID



CITY OF ARCHDALE
NORTH CAROLINA
RANDOLPH COUNTY

Affidavit D
PORTION OF THE
WORK
TO BE PERFORMED
BY HUB FIRMS

If the portion of the work to be executed by HUB Firms as defined in **GS 143-128.2 (g)** is **equal to or greater than 10%** of the bidder's total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72-hours** after notification of being low bidder.

Affidavit of: _____ I do hereby certify that on the
(Bidder)

(Project Name)

Project ID # _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority Businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

(Attach additional sheets if required)

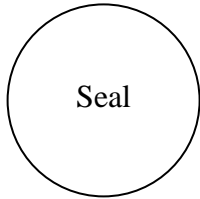
Name	Telephone Number	Minority Category	Work Description	Dollar Value

Minority categories: (I) American Indian, (A) Asian American, (B) Black, African American, (F) Female, (H) Hispanic, (D) Socially and Economically Disadvantaged

Pursuant to G.S. 143-128.2 (d), the undersigned will enter into a formal agreement with HUB Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the Bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

State of _____, County of _____

Subscribed and sworn to before me this ____ day of _____ 20 ____

Notary Public _____

My commission expires _____



CITY OF ARCHDALE
NORTH CAROLINA
RANDOLPH COUNTY

Affidavit E
GOOD FAITH
EFFORTS

If the goal of **10%** participation by HUB Firms **is not** achieved, the Bidder shall provide the following documentation to the Owner of his Good Faith Efforts.

Affidavit of: _____
(Bidder)

I do certify the attached documentation is a true and accurate representation of my good faith efforts.

(Attach additional sheets if required)

Name	Telephone Number	Minority Category	Work Description	Dollar Value

Minority categories: (I) American Indian, (A) Asian American, (B) Black, African American, (F) Female, (H) Hispanic, (D) Socially and Economically Disadvantaged

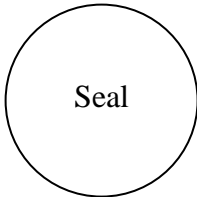
Documentation of the Bidder’s good faith efforts to meet the goals set forth in these provisions. Examples of documentation shall include the following evidence:

- a. Copies of solicitation for quotes to at least three (3) minority business firms from the source list provided for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contract, and location, date, and time when quotes must be received.
- b. Copies of quotes or responses received from each firm responding to the solicitation.
- c. A telephone log of follow-up calls to each firm sent a solicitation.
- d. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- e. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

- f. Copy of pre-bid roster.
- g. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- h. Letter detailing reasons for rejection of minority business due to lack of qualification.
- i. Letter documenting proposed assistance offered to minority businesses in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Date: _____ Name of Authorized Officer: _____



Signature: _____

Title: _____

State of _____, County of _____

Subscribed and sworn to before me this ____ day of _____ 20 ____

Notary Public _____

My commission expires _____

**THIS DOCUMENT MUST BE SUBMITTED WITH EACH
PAY REQUEST & FINAL PAYMENT**



**CITY OF ARCHDALE
NORTH CAROLINA
RANDOLPH COUNTY**

**Affidavit F
HUB
DOCUMENTATION
FOR CONTRACT
PAYMENTS**

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments to be made to HUB contractors on this project for the above-mentioned period.

Firm Name	*Minority Category	Payment Amount	Owner Use Only

Minority categories: (I) American Indian, (A) Asian American, (B) Black, African American, (F) Female, (H) Hispanic, (D) Socially and Economically Disadvantaged

Date: _____ Approved/Certified By: _____

Name

Signature

Title



AIA[®] Document A105[™] – 2017

Standard Short Form of Agreement Between Owner and Contractor

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

Sample

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 3 CONTRACT SUM
- 4 PAYMENTS
- 5 INSURANCE
- 6 GENERAL PROVISIONS
- 7 OWNER
- 8 CONTRACTOR
- 9 ARCHITECT
- 10 CHANGES IN THE WORK
- 11 TIME
- 12 PAYMENTS AND COMPLETION
- 13 PROTECTION OF PERSONS AND PROPERTY
- 14 CORRECTION OF WORK
- 15 MISCELLANEOUS PROVISIONS
- 16 TERMINATION OF THE CONTRACT
- 17 OTHER TERMS AND CONDITIONS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

- .1 this Agreement signed by the Owner and Contractor;
- .2 the drawings and specifications prepared by the Architect, dated _____, and enumerated as follows:

Drawings:
Number Title Date

Specifications:
Section Title Pages

.3 addenda prepared by the Architect as follows:

Number	Date	Pages
--------	------	-------

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

§ 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.

(Insert the date of commencement if other than the date of this Agreement.)

§ 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:

(Check the appropriate box and complete the necessary information.)

Not later than () calendar days from the date of commencement.

By the following date:

ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is: (\$)

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:

(Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value
---------------------	-------

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:

(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:
(Identify each allowance.)

Item	Price
------	-------

§ 3.5 Unit prices, if any, are as follows:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12, as follows:
(Insert below timing for payments and provisions for withholding retainage, if any.)

§ 4.2 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate below, or in the absence thereof, at the legal rate prevailing at the place of the Project.
(Insert rate of interest agreed upon, if any.)

%

ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance until the expiration of the period for correction of Work as set forth in Section 14.2, subject to the terms and conditions set forth in this Section 5.1:

§ 5.1.1 Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than (\$) each occurrence, (\$) general aggregate, and (\$) aggregate for products-completed operations hazard.

§ 5.1.2 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than (\$) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 5.1.3 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 5.1.1 and 5.1.2, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 5.1.4 Workers' Compensation at statutory limits.

§ 5.1.5 Employers' Liability with policy limits not less than (\$) each accident, (\$) each employee, and (\$) policy limit.

§ 5.1.6 The Contractor shall provide builder's risk insurance to cover the total value of the entire Project on a replacement cost basis.

§ 5.1.7 Other Insurance Provided by the Contractor

(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits
----------	--------

§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

ARTICLE 6 GENERAL PROVISIONS

§ 6.1 The Contract

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

§ 6.2 The Work

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

§ 6.3 Intent

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

§ 6.4 Ownership and Use of Architect's Drawings, Specifications and Other Documents

Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

§ 6.5 Electronic Notice

Written notice under this Agreement may be given by one party to the other by email as set forth below.

(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)

ARTICLE 7 OWNER

§ 7.1 Information and Services Required of the Owner

§ 7.1.1 If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

§ 7.1.2 Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

§ 7.1.3 Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

§ 7.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

§ 7.3 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts

§ 7.4.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

§ 7.4.2 The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

ARTICLE 8 CONTRACTOR

§ 8.1 Review of Contract Documents and Field Conditions by Contractor

§ 8.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect.

§ 8.2 Contractor's Construction Schedule

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work.

§ 8.3 Supervision and Construction Procedures

§ 8.3.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.

§ 8.3.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

§ 8.4 Labor and Materials

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

§ 8.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 8.5 Warranty

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

§ 8.6 Taxes

The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

§ 8.7 Permits, Fees and Notices

§ 8.7.1 The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

§ 8.7.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

§ 8.8 Submittals

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

§ 8.9 Use of Site

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

§ 8.10 Cutting and Patching

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 8.11 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

§ 8.12 Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts

they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

ARTICLE 9 ARCHITECT

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

ARTICLE 10 CHANGES IN THE WORK

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

ARTICLE 11 TIME

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

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ARTICLE 12 PAYMENTS AND COMPLETION

§ 12.1 Contract Sum

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 12.2 Applications for Payment

§ 12.2.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

§ 12.3 Certificates for Payment

The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is not made within such seven day period, the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

§ 12.4 Progress Payments

§ 12.4.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.

§ 12.4.2 The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

§ 12.4.3 Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.

§ 12.4.4 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

§ 12.5 Substantial Completion

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 12.5.2 When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect will make an inspection to determine whether the Work is substantially complete. When the Architect determines that the Work is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 12.6 Final Completion and Final Payment

§ 12.6.1 Upon receipt of a final Application for Payment, the Architect will inspect the Work. When the Architect finds the Work acceptable and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment.

§ 12.6.2 Final payment shall not become due until the Contractor submits to the Architect releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

§ 12.6.3 Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

ARTICLE 14 CORRECTION OF WORK

§ 14.1 The Contractor shall promptly correct Work rejected by the Architect as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

ARTICLE 15 MISCELLANEOUS PROVISIONS

§ 15.1 Assignment of Contract

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

§ 15.2 Tests and Inspections

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Architect requires additional testing, the Contractor shall perform those tests.

§ 15.2.3 The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 15.3 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

ARTICLE 16 TERMINATION OF THE CONTRACT

§ 16.1 Termination by the Contractor

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

§ 16.2 Termination by the Owner for Cause

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 is otherwise guilty of substantial breach of a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- .1 take possession of the site and of all materials thereon owned by the Contractor, and
- .2 finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 16.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 17 OTHER TERMS AND CONDITIONS

(Insert any other terms or conditions below.)

This Agreement entered into as of the day and year first written above.

(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)

OWNER *(Signature)*

(Printed name and title)

CONTRACTOR *(Signature)*

(Printed name and title)
LICENSE NO.:
JURISDICTION:

DIVISION 1. GENERAL REQUIREMENTS

0800 GENERAL CONDITIONS

1. The "General Conditions of the Contract for Construction", AIA Document A201, 2017 edition; Articles 1 thru 15 inclusive are hereby made a part of the contract documents to the same extent as if herein written in full.
2. Copies of this document may be purchases from the American Institute of Architects, 1735 New York Avenue, NW, Washington, DC 20066.
3. Where any article is supplemented under Section 0140, the AIA provisions of such article shall remain in effect and the supplemental provisions shall be considered as added hereto.
4. Where any article is amended, voided, or superseded under Section 0140, the AIA provisions of such article not so specifically amended, voided, or superseded shall remain in effect.

AIA[®] Document A201[™] – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503[™], Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining

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provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™-2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building

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information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the

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site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's

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capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes

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remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

- 3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

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§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the

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time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under

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Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the

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Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate

Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

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- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

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Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable

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by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The

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foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers

to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not

constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the

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endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 **Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 **Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The

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Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the

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Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- 1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- 2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- 3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- 4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or Suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section

15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

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§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly

consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

Sample



CITY OF ARCHDALE
 307 BALFOUR DRIVE
 P.O. BOX 14068
 ARCHDALE, NORTH CAROLINA 27263

PHONE: (336) 431-9141 FAX: (336) 431-2131

Certificate of North Carolina Sales & Use Tax Paid

Project: _____

Project Number: _____

Customer: _____

Period Covered by Report: _____

Contractor: _____

County Where Project Located: _____

Invoice Number	Invoice Date	Vendor's Name	Vendor's Address	Taxable Amount	State Tax Amount	County Tax Amount	Total Sales Tax	Name of County in NC to Which Sales or Use Tax Paid
Totals								

I hereby certify that the above listed vendors were paid sales tax upon purchases of building materials during the period covered by this construction estimate, and the property upon which such taxes were paid was or will be used in the performance of this contract. Additionally, I certify that the above figures do not include any taxes paid on scaffolding, concrete forms, fuel for the operation of machinery and equipment, tools, equipment, equipment repair parts, equipment rentals, blueprints or any other item or materials that are used to fulfill the contract but which do not become a part of the item being constructed. I certify that, to the best of my knowledge, the information here is true, correct, and complete. I recognize that this statement is subject to audit and that **receipts/invoices should be attached as documentation of sales tax paid.** I certify that I am authorized to sign this report.

Signature

Date

Print Name and Title

Sworn to and subscribed before me this _____ day of _____, 20_____

Notary Public

My Commission Expires: _____

00900 CONSTRUCTION EXPLANATION

- A. Construct New Equipment Shelter for City of Archdale Public Works civil work and construction of a utility/open shelter as indicated and shown on the drawings and specifications.

EXHIBIT "A"

01000 DRAWINGS ACCOMPANYING THESE SPECIFICATIONS

GENERAL CONSTRUCTION

PROJECT -

<u>SHEET:</u>	<u>TITLE:</u>	<u>DATE:</u>
AB-1	Appendix B – New Building	07/05/2023
C-1	Cover Sheet	05/02/2023
C-2	Site, Final Grading	05/02/2023
C-3	Erosion Control	05/02/2023
C-4	Wet Detention Pond	05/02/2023
C-5	Details	05/02/2023
NCG01	NCG01 Const. Gen. Permit Requirements	11/20/2020
S-1	Foundation Plan & Details	07/06/2023
A-1	Floor Plan	07/05/2023
A-2	Building Section & Elevations	07/05/2023
E1	Power Plan	07/05/2023
E-2	Lighting Plan	07/05/2023

Change Order Request Form

CITY OF ARCHDALE PUBLIC WORKS
NEW EQUIPMENT SHELTER

DATE: _____ PROPOSAL #: _____ CONTRACT: _____

CONTRACTOR: _____ CONTRACTOR #: _____

DESCRIPTION OF CHANGE: _____

Materials (Attach list with qty, item, unit \$, unit mh, total mh, OT mh, Total \$)

1. Total direct cost of materials \$ _____
2. Overhead and profit on Item 1 \$ _____ (___% max. Inc. small tools & consumables)
3. Sales tax \$ _____
4. Shipping and transportation \$ _____

Materials Subtotal \$ _____

Labor (include time sheets if requested)

5. Total man-hours: _____ @ _____ /hr. \$ _____
6. Overhead and profit on Item 5. \$ _____ (___% max. on straight labor cost, not premium portion). (O & P includes supervisor's time).
7. Payroll taxes and insurance @ _____ % \$ _____

Labor Subtotal \$ _____

Equipment Rental (includes quotes and pick-up/delivery tickets)

8. Equipment rental \$ _____
9. Overhead and profit on Item 8 (___% maximum) \$ _____

Equipment Rental Subtotal \$ _____

Subcontractors (includes quotes with material and equipment back up)

10. Subcontractors \$ _____
11. Overhead and profit on item 10 (___% maximum) \$ _____

Subcontractor Subtotal \$ _____

Subtotal of Proposal \$ _____

12. Bonds (___% of subtotal of proposal) \$ _____ \$ _____

TOTAL OF CHANGE PROPOSAL \$ _____

Time Extension Request _____ days _____ Schedule Activity # Affected

Contractor's signature: _____

Date: _____

Architect's signature: _____

Date: _____

Owner's signature: _____

Date: _____

Contractor's General Warranty

**CITY OF ARCHDALE PUBLIC WORKS
NEW EQUIPMENT SHELTER**

Date: _____
Project: _____
Contract: _____
Address: _____

The undersigned Contractor hereby warrants, in accordance with the applicable provisions and terms set forth in the Contract Documents, all materials and workmanship incorporated in the _____ contract of the CITY OF ARCHDALE, PUBLIC WORKS, 18 OLD SCHOOL ROAD, ARCHDALE, NC 27263, against any and all defects due to faulty materials or workmanship or negligence for a period of twelve (12) months, or such longer periods as set forth in the Contract Documents, from the effective date **of this warranty (_____) as defined by the date of substantial completion** . This warranty supercedes any and all dates listed in the enclosed subcontractor warranties thus honoring warranty work one year from the date of substantial completion listed here. This contractor further warrants all work incorporated in this project to remain leak proof and watertight at all points for a period of twenty-four (24) months from the effective date of this Warranty.

This Warranty shall be binding where defects occur due to normal usage conditions and does not cover willful or malicious damage, damage caused by acts of God or other casualties beyond the control of the Contractor.

This Warranty shall be in accordance to other warranties and guarantees set forth in the Contract Documents, and shall not act to constitute a waiver of additional protection of the Owner afforded, where applicable, by consumer protection and product liability provisions of law, and these stipulations shall not constitute waiver of any additional rights or remedies available to the Owner under the law.

Date of Substantial Completion: _____

(General Contractor)

By _____

Title _____

Address _____

Subscribed and sworn before me this
_____ day of _____, 20__

License # _____

Fed ID # _____
(Corporate Seal)

(Notary Public)

Roofing System Guarantee

CITY OF ARCHDALE NEW EQUIPMENT SHELTER

To: _____

Date _____

The undersigned General Contractor _____ having heretofore entered into a Contract with **City of Archdale** dated _____ for the construction of the _____ Toilets & Shelter Building for the **City of Archdale**, located at Creekside Park, 214 Park Drive, Archdale, North Carolina, according to Drawings and Specifications prepared by **Robbins Architecture, PA 210 N Main Street, Suite 130, Kernersville, NC**, and its Consulting Engineers, and in accordance with said Contract do hereby guarantee that all labor and material furnished and work performed by us as a part of the ROOFING, FLASHING, AND SHEET METAL WORK is free from defects and in conformance with said specifications and drawings for this portion of the Work.

We, the undersigned do certify that all Roofing Material used for said Work, hereinbefore described does meet the specification in its entirety.

We further agree to repair, at no expense to the Owner, any portion of said Work, including any additions incorporated into said Work as the result of Change Orders to the original Contract which may prove to be defective for a period of two years from the beginning of the guarantee period. We further agree that if a leak (or leaks) should develop within the guarantee period that we shall endeavor to repair such leak (or leaks) within a period of 24 hours after being informed by the Owner or his representative. If at the end of this time we have been unable to begin the repairs, the Owner will have the option of taking any step he feels necessary to make the repairs and we will reimburse the Owner in full for any expenses incurred in having the repairs made. Any such action shall not be a breach of the provisions of this Guarantee and shall in no way absolve the Contractor of the ultimate responsibilities for the affected areas.

We further agree that, at the end of the first 12-month period and at the end of the 2-year guarantee period, we will, with a representative of the Owner, make a final inspection of the roofing and flashing and will, at no cost to the Owner, repair any leaks and other defects to the satisfaction of the Owner or his representative. This two (2) year warranty shall be extended one (1) day for each day there has been an established leak and the leak goes without being successfully corrected.

We further agree to repair, at no cost to the Owner, any Work which may affect in making the repairs herein contemplated.

Exclusions:

This guarantee does not cover damage on work which was physically inflicted by man or man-made causes, Acts of God and/or acts of nature and the like, structural movement, or wear through misuse or abuse.

This Contractor is not liable for consequential damages to the building or contents resulting from causes other than faults or defects in workmanship.

Any alterations or changes that are made to the roof, without the Roofing Subcontractor being notified prior to such changes or alterations and without the Subcontractor being given the opportunity to be employed to make such changes or alterations, shall render the Guarantee for that particular area of the roof null and void. Except that, if the Owner and Roofing Subcontractor cannot mutually agree on the required changes and alterations, including procedures and cost, the Owner may contract with another roofing subcontractor approved by the system manufacturer without affecting the conditions of the guarantee.

Guarantee Period Begins _____

(General Contractor)

(Roofing Contractor)

By _____

By _____

Title _____

Title _____

Address _____

Address _____

License # _____

License # _____

Fed ID # _____

Fed ID # _____

(Corporate Seal)

(Corporate Seal)

Subscribed and sworn before me this

_____ day of _____, 20__

(Notary Public)

Request for Information

Date: _____

RFI NUMBER: _____

CITY OF ARCHDALE
PUBLIC WORKS
18 OLD SCHOOL ROAD
ARCHDALE, NC 27263

To: ROBBINS ARCHITECTURE, PA
210 N Main Street, Suite 130
Kernersville, NC 27284
Gary@Robbinsarchitecture.com

In reference to the above listed project, we are hereby requesting a clarification, determination and/or information concerning the following:

Requested By: _____ Date of Request: _____

Title: _____ Date Reply Required: _____

In reply to your request, be advised: _____

Reply By: _____

Date of Reply: _____

Title: _____

Date Reply Returned: _____

Closeout Requirements

[Insert Date]

**CITY OF ARCHDALE
PUBLIC WORKS
18 OLD SCHOOL ROAD
ARCHDALE, NC 27263**

Contractor: [Insert Contractor] Substantial Completion Date: [Insert Substantial Completion Date]

The following documents must be completed and submitted by each prime contractor. Documents shall be submitted to the Architect in a single package with this (completed) checklist attached. The Architect must receive all documents before the Contractor's Final Application for Payment can be reviewed.

- _____ 1. Final Application for Payment (with Continuation Sheets & Tax Reports)
- _____ 2. Executed Certificate of substantial Completion with punch list attached.
- _____ 3. Contractor's Affidavit of Payment of Debts and Claims (fully executed – AIA Form G706)
- _____ 4. Contractor's Affidavit of Release of Liens (fully executed – AIA Form G 706A)
- _____ 5. Release of liens by subcontractors and/or vendors (fully executed – when required)
- _____ 6. Consent of Surety to Final Payment (AIA G707)
- _____ 7. Certificate of Occupancy from proper jurisdiction having authority
- _____ 8. Contractor's One-Year Warranty (notarized)
- _____ 9. Warranty summary sheet and original warranties for specific items (roof, etc.)
- _____ 10. Certification letter from Contractor stating that no asbestos containing materials were used.
- _____ 11. Final list of all subcontractors with names, addresses, and phone numbers
- _____ 12. Record Drawings and cover letter indicating that they have been reviewed and are as accurate and complete as possible.
- N/A 13. Certified Testing and Balancing Report for HVAC System with cover letter indicating it has been reviewed and approved by consulting Engineer.

Contractor's Signature

Date

Architect/Engineer's Signature

Date

City of Archdale Close-out Manager's Signature

Date

SECTION 001400 QUALITY REQUIREMENTSARTICLE 1:

THESE CONDITIONS ARE TO SUPPLEMENT, AMEND, VOID, OR SUPERSEDE THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION."

ARTICLE 2. SHOP DRAWINGS 4.13:

- A. THE MINIMUM NUMBER OF SHOP DRAWINGS OR SUBMITTAL DATA TO BE SUBMITTED IS THREE.

ARTICLE 3. CONTRACTORS INSURANCE 11.1:

- A. WORKMEN'S COMPENSATION SHALL BE SET TO LIMITS REQUIRED BY THE STATE OF NORTH CAROLINA.
- B. PUBLIC LIABILITY INSURANCE SHALL NOT BE LESS THAN \$300,000 FOR PERSONAL INJURY, INCLUDING DEATH, TO ANY ONE PERSON AND NOT LESS THAN \$1,000,000 FOR SEVERAL PERSONS.
- C. PROPERTY DAMAGE INSURANCE SHALL NOT BE LESS THAN \$300,000 FOR ONE ACCIDENT AND NOT LESS THAN \$1,000,000 FOR TWO OR MORE ACCIDENTS.
- D. BUILDER'S RISK, NOTED UNDER PARAGRAPH 11.3.1 OF THE GENERAL CONDITIONS, SHALL BE PURCHASED BY THE CONTRACTOR.
- E. WRITTEN NOTICE AS REQUIRED UNDER PARAGRAPH 11.1.4 SHALL BE MADE BY REGISTERED MAIL.

ARTICLE 4. CO-OPERATION:

- A. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF THE SCHEDULES.
- C. ALL CONTRACTORS AND ALL SUB-CONTRACTORS SHALL COORDINATE THEIR WORK WITH ALL ADJACENT WORK AND SHALL COOPERATE WITH ALL OTHER TRADES TO FACILITATE GENERAL PROGRESS OF THE WORK.
- D. EACH TRADE SHALL AFFORD ALL THE OTHER TRADES EVERY REASONABLE OPPORTUNITY FOR INSTALLATION OF THEIR WORK AND FOR STORAGE OF THEIR MATERIALS.
- E. AS WORK PROGRESSES, GENERAL CONTRACTOR SHALL LAY OUT EXACT LOCATION OF NEW WORK AS A GUIDE TO ALL TRADES.

ARTICLE 4. PROJECT LITTER:

THE CONTRACTOR SHALL KEEP ALL PROJECT LITTER IN CONTAINERS. PROJECT LITTER SHALL BE REMOVED FROM THE SITE ON A DAILY BASIS.

ARTICLE 5. TEMPORARY TOILET:

- A. GENERAL CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE SANITARY TEMPORARY TOILETS, LOCATED WHERE DIRECTED FOR ACCOMMODATIONS OF ALL PERSONS ENGAGED ON THE WORK.
- B. TEMPORARY TOILET SHALL BE ENCLOSED, WEATHERPROOF AND KEPT IN SANITARY AND APPROVED CONDITION AT ALL TIMES.
- C. EXISTING FACILITY TOILETS SHALL NOT BE USED

ARTICLE 6. TEMPORARY LIGHT AND POWER:

- A. THE GENERAL CONTRACTOR SHALL:
 - 1. MAKE ALL NECESSARY ARRANGEMENTS WITH CITY OF ARCHDALE FOR TEMPORARY SERVICE ON SITE AND SHALL PAY ALL EXPENSES IN CONNECTION THEREWITH.
 - 2. FURNISH ALL TEMPORARY LIGHT AND POWER COMPLETE WITH ALL WIRING, LAMPS, MAINTENANCE AND PAY FOR CURRENT AS REQUIRED FOR THE COMPLETION OF THIS PROJECT.

ARTICLE 7. SPECIFICATION EXPLANATION:

- A. THESE SPECIFICATIONS ARE OF THE ABBREVIATED OR "STREAMLINED" TYPE AND INCLUDE INCOMPLETE SENTENCES. OMISSIONS OF WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL", "IN CONFORMITY THEREWITH", "SHALL BE", "AS NOTED ON THE DRAWINGS", "ACCORDING TO THE PLANS", "A" "THE", AND "ALL" ARE INTENTIONAL. OMITTED WORDS OR PHRASES SHALL BE SUPPLIED BY INFERENCE IN THE SAME MANNER AS THEY ARE WHEN A "NOTE" APPEARS ON THE DRAWINGS.
- B. ALL REFERENCES TO KNOWN STANDARD SPECIFICATIONS SHALL MEAN AND INTEND THE LATEST EDITION OF SUCH SPECIFICATIONS.

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.
- D. Shop Drawings shall comply with the requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and locations of splices.

1.3 INFORMATIONAL SUBMITTALS

- A. Material certificates.
- B. Material test reports.
- C. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- C. Perform work of this section in accordance with ACI 301 and ACI 318.

1.5 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.6 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1.
 - 1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301 – Specifications for Structural Concrete.
 - 2. ACI 117 – Specification for Tolerances for Concrete.

2.2 FORM-FACING MATERIALS

- A. Form Materials: Material that will provide smooth, stain-free final appearance. New plywood forms will not be permitted. Reuse of plywood which has been used for form material previously is permitted.
- B. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
- C. Form Ties: Cone snap type that will leave no metal within 1-1/2” inches of concrete surface.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed billet-steel bars (unfinished unless noted otherwise).
- B. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064, flat sheet. Mesh size and wire gage as indicated on drawings.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire (annealed and min. 16 gage), plastic, or precast concrete according to CRSI's "Manual of

Standard Practice." All bar supports shall be sized and shaped for adequate support of reinforcement during concrete placement.

2.4 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150, Type I.
 - a. Acquire all cement for the entire project from the same source.
2. Fly Ash: ASTM C 618, Class F or C.

B. Normal-Weight Aggregates: ASTM C 33, graded.

1. Acquire all normal-weight aggregates for entire project from the same source.
2. Fine Aggregate shall be free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330

D. Air-Entraining Admixture: ASTM C 260.

E. Calcined Pozzolan: ASTM C 618, Class N.

F. Silica Fume: ASTM C 1240, proportioned in accordance with ACI 211.1

G. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

H. Water: ASTM C 94 Clean, potable and not detrimental to concrete.

2.5 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A, 10 mil.

1. Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent.
2. Manufacturer approved for installation in contact with soil or granular fill under concrete slabs.
3. Single ply polyethylene is prohibited.
4. Include manufacturer's recommended adhesive or pressure-sensitive tape, adhesives, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

5. Permeance less than or equal to 0.026 perms as tested by ASTM standards.

2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, non-dissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, non-dissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- H. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- I. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Non-Shrink Grout: ASTM C 1107; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
- C. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with minimum 1 inch diameter holes for conduit or rebars to pass through at 6 inches on center; ribbed steel stakes for setting.

2.8 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

- B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.

2.9 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Normal-Weight Concrete:
 - 1. Minimum Compressive Strength: As indicated on drawings, at 28 days.
 - 2. Maximum Aggregate Size: 1 inch.
 - 3. Maximum W/C Ratio: 0.50.
 - 4. Slump Limit: 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
 - 5. Air Content (exterior exposed slabs): 6 percent, plus or minus 2 percent at point of delivery.
 - 6. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

2.10 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."
- B. Welding of reinforcement is not permitted.
- C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and/or ASTM C 1116, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Design and fabricate forms for easy removal without damage to concrete.
- C. Form coatings shall be applied away from reinforcing steel. Reinforcing steel that comes into contact with form coatings shall be thoroughly cleaned as recommended by form coating manufacturers.
- D. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- E. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEM INSTALLATION

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 VAPOR-RETARDER INSTALLATION

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches minimum (or as recommended by manufacturer) and seal with manufacturer's recommended tape.
 - 2. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete. Seal joints, seams, and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.

3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- C. Accommodate placement of formed openings.

- D. Place support, and secure reinforcement against displacement. Do not deviate from required position.
- E. Conform to ACI 318 for concrete cover over reinforcement.
- F. Install Welded Wire Reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- G. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth as indicated on the drawings:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 3/16 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 3/16-inch wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Seal joints with appropriate sealant after concrete cures.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.6 CONCRETE PLACEMENT

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 24 hours prior to commencement of placement operations.
- D. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed and that these items will not be disturbed during concrete placement.
- E. Install joint devices in accordance with manufacturer's instructions.

- F. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- G. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- H. Place concrete continuously between predetermined expansion, control, and construction joints.
- I. Do not interrupt successive placement; do not permit cold joints to occur.
- J. Place floor slabs in saw cut pattern indicated.
- K. Saw cut joints with 24 hours after placing. Use 3/16 inch thick plate, cut into slab as indicated on drawings.
- L. Where necessary, screed floors level, maintaining surface flatness FF/FI-25/20 per ACI 117.
- M. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- N. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
 - 1. Use latex bonding agent only for non-load bearing applications.

3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform

color and texture. Do not apply cement grout other than that created by the rubbing process.

2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix 1 part portland cement and 1 part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Thick Floor Coverings: “Wood Float” finish as described in ACI 302.1R; thick floor coverings

3.9 CONCRETE PROTECTING AND CURING

- A. General: Comply with requirements of ACI 308R. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven

days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
3. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.10 CONCRETE SURFACE REPAIRS

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed Form Finish: Rub down or chip off

3.11 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

3.12 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by the contractor when defective concrete is identified.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of the Architect for each individual area.

END OF SECTION 033000

SECTION 099123 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following substrates:
 - 1. Steel and iron building main frame components and anchor bolts.
- B. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.2 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following]:
 - 1. Sherwin-Williams Company.
 - 2. Duron, Inc.
 - 3. Glidden Professional
- B. Products: Subject to compliance with requirements, **[provide product] [provide one of the products] [available products that may be incorporated into the Work include, but are not limited to products]** listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- B. Colors: **[As selected by Architect from manufacturer's full range]**.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. conditions and compatibility with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 PAINTING SCHEDULE

- A. Steel Substrates:
 - 1. Prime Coat: Anchor Bolts. Existing primed steel by building manufacturer
 - 2. Finish Coat: Latex, exterior, matching topcoat.

END OF SECTION 099123

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Structural-steel framing.
 - 2. Metal roof panels.
 - 3. Accessories.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at [**Project site**]

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of metal building system component.
- B. Shop Drawings: Indicate components by others. Include full building plan, elevations, sections, details and attachments to other work.
- C. Delegated-Design Submittal: For metal building systems.
 - 1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:
 - 1. Name and location of Project.
 - 2. Order number.
 - 3. Name of manufacturer.
 - 4. Name of Contractor.
 - 5. Building dimensions including width, length, height, and roof slope.
 - 6. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
 - 7. Governing building code and year of edition.

8. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
9. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
10. Building-Use Category: Indicate category of building use and its effect on load importance factors.

- C. Material test reports.
- D. Source quality-control reports.
- E. Field quality-control reports.
- F. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer.
 1. Accreditation: Manufacturer's facility accredited according to the International Accreditation Service's AC472, "Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems."
 2. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in jurisdiction where Project is located.
- B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
- C. Welding Qualifications: Qualify procedures and personnel according to the following:
 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 2. AWS D1.3, "Structural Welding Code - Sheet Steel."

1.7 WARRANTY

- A. Special Warranty on Metal Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Finish Warranty Period: [10] years from date of Substantial Completion.

- B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.
 - 1. Warranty Period: [10] > years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following or approved equal:
 - 1. Arco Building Systems
 - 2. Ceco Building Systems
 - 3. Chief Buildings; Chief Industries, Inc.
 - 4. American Buildings, Nucor Corporation Brand
 - 5. PEMB-USA

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal building system.
- B. Structural Performance: Metal building systems shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to procedures in MBMA's "Metal Building Systems Manual."
 - 1. Design Loads: Design to withstand dead load, applicable snow load, and design loads due to pressure and suction of wind calculated in accordance with the 2015 IBC with 2018 North Carolina Amendments Code.
 - 2. Deflection and Drift Limits: Design metal building system assemblies to withstand serviceability design loads without exceeding deflections and drift limits recommended in AISC Steel Design Guide No. 3 "Serviceability Design Considerations for Steel Buildings."
- C. Seismic Performance: Metal building system shall withstand the effects of earthquake motions determined according to [ASCE/SEI 7]
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- E. Structural Performance for Metal Roof Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

- F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646[**or ASTM E 331**] at the following test-pressure difference:

2.3 STRUCTURAL-STEEL FRAMING

- A. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings."
- B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
- C. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.
- D. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafters and rake beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.
1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
 - a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.
 2. Frame Configuration: [**Single gable**].
 3. Exterior Column: [**Tapered**].
 4. Rafter: [**Tapered**].
- E. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.
- F. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.

2.4 METAL ROOF PANELS

- A. Standing-Seam, [**Vertical-Rib**], Metal Roof Panels: Formed with interlocking ribs at panel edges and [**intermediate stiffening ribs symmetrically spaced**] between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, [**0.024-inch ((0.61-mm))**] nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - a. Exterior Finish: [**Two-coat fluoropolymer**].

- b. Color: [As selected by Architect from manufacturer's full range].
 2. Clips: [One-piece fixed] to accommodate thermal movement.
 3. Joint Type: [Panels snapped together].
 4. Panel Coverage: [24 inches (610 mm)] Panel Height:[3 inches (76 mm)].
- B. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
 1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- C. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
- D. Flashing and Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match adjacent metal panels.
- E. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
 1. Gutter Supports: Fabricated from same material and finish as gutters.
 2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- F. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

2.5 FABRICATION

- A. General: Design components and field connections required for erection to permit easy assembly.
 1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
 2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.
- B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

- C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.
- D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll forming or break forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.
- E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
 - 1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

2.6 SOURCE QUALITY CONTROL

- A. Special Inspection: Owner will engage a qualified special inspector to perform source quality control inspections and to submit reports.
 - 1. Accredited Manufacturers: Special inspections will not be required if fabrication is performed by an IAS AC472-accredited manufacturer approved by authorities having jurisdiction to perform such Work without special inspection.
- B. Product will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system according to manufacturer's written instructions and drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.

3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
1. Level and plumb individual members of structure.
 2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
- F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.
1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt type and joint type specified.
 - a. Joint Type: Snug tightened or pretensioned as required by manufacturer.
- G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.
1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
 2. Locate and space wall girts to suit openings such as doors and windows.
 3. Provide supplemental framing at entire perimeter of openings, including doors, windows, ventilators, and other penetrations of roof and walls.
- H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
1. Tighten rod and cable bracing to avoid sag.
 2. Locate interior end-bay bracing only where indicated.
- I. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
1. Install ridge[**and hip**] caps as metal roof panel work proceeds.
 2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint, at location and spacing and with fasteners recommended by manufacturer.

1. Install clips to supports with self-drilling or self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so that clip, metal roof panel, and factory-applied sealant are completely engaged.
5. Rigidly fasten eave end of metal roof panels and allow ridge end free movement for thermal expansion and contraction. Predrill panels for fasteners.
6. Provide metal closures at [peaks] [rake edges] [rake walls] [and] each side of ridge [and hip] caps.

3.3 ACCESSORY INSTALLATION

- A. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- B. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- C. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.
1. Provide elbows at base of downspouts to direct water away from building.

3.4 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform field quality control special inspections and to submit reports.
- B. Product will be considered defective if it does not pass tests and inspections.

END OF SECTION 133419

SECTION 0260500 - COMMON WORK RESULTS FOR ELECTRICAL**PART 1-GENERAL**

1.1 SUMMARY

- A. Basic Electrical Requirements specifically applicable to Division 26 Sections, in addition to Division 1, General Requirements. The following are included in this section to expand the requirements specified in Division 1.
1. General requirements.
 2. Coordination drawings.
 3. Submittals.
 4. Record documents.
 5. Maintenance manuals/Warranties.
 6. Materials.
 7. Substitutions.
 8. Rough-ins.
 9. Electrical installations.
 10. Cutting and patching.
 11. Instruction.
- B. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional Requirements and information necessary to complete the Work of this Section may be found in other documents.

1.2 GENERAL REQUIREMENTS

- A. Work under Division 26 shall include providing all materials, labor, equipment, and services necessary for the proper completion of all electrical work as shown on the entire set of drawings and specifications. This shall also include, but not be limited to the furnishing, handling, installation, and final connection of all required components.

Drawings shall not be scaled. Refer to architectural and structural drawings for building construction and dimensions and to finish schedules on architectural drawings for material, finish, and construction method of walls, floor, and ceiling in order to insure proper rough-in and installation of work.

- B. The entire set (architectural, civil, mechanical, etc..) of specifications and drawings are complimentary and are to be taken together for a complete interpretation of the work. Unless otherwise modified by specific notation, it shall be understood that the indication and/or description of any item, in the drawings and/or specifications, carries with it the instruction to furnish and install the item and related accessories, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

No exclusions from or limitations in the symbols, diagrams, and language used in the drawings or specifications shall be interpreted as meaning that the appurtenances or

accessories necessary to complete any required system, item, or work are excluded or omitted.

The work shall be installed in accordance with the diagrammatic intent expressed on the drawings. Details are intended for the purpose of establishing general feasibility. They do not supersede field coordination for the intended work.

The use of words in the singular shall not be considered as limited where other indications denote that more than one item is referred to. The use of descriptions of one area shall not be considered as limiting the description to that area.

- C. Work shall conform to State and local codes, laws, ordinances, rulings where applicable. Interpretation of the aforementioned is left to the local AHJ. It is expected that the contractor be familiar with the interpretations of the local AHJ. Where the drawings and specifications conflict with the aforementioned, the more stringent shall govern. The following minimum codes and standards apply where applicable (latest editions of):
1. ANSI American National Standards Institute.
 2. ASTM American Society of Testing Materials.
 3. CBM Certified Ballast Manufacturers Assoc.
 4. EIA Electronic Industries Assoc.
 5. IEEE Institute of Electrical and Electronic Engineers.
 6. IPCEA Insulated Power Cable Engineers Association.
 7. NEMA National Electrical Manufacturers Assoc.
 8. NETA National Electrical Testing Association.
 9. NFPA 70 National Electrical Code (NEC)
 10. NFPA 101 Life Safety Code.
 11. NCDol North Carolina Department of Insurance.
 12. NCSBC North Carolina State Building Code.
 13. OSHA Occupational Safety and Health Act.
- D. The electrical contractor's work is dependent on the proper execution of the work of other trades. If the contractor deems that such other work is unsuitable for his proper execution, then the contractor shall notify the Architect/Engineer in writing. Should the contractor proceed without such notification, then it shall be regarded that the work of other trades was acceptable and the contractor shall be responsible for said work. The contractor shall have an informed representative at every scheduled project meeting.
- E. The contractor shall visit the site prior to bid and shall verify every aspect of the proposed work and existing field conditions which might affect the completion of the electrical work. Failure or neglect to thoroughly investigate the contract documents and/or the site shall not be sufficient cause for additional compensation to the contractor.

1.3 COORDINATION DRAWINGS

- A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

- B. Prepare 1/8” scale drawings as outlined in Division 1, Project Modification Procedures showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Submit drawings in a timely manner without additional cost to the Architect/Engineer. Obtain permission of the Architect/Engineer before proceeding.

1.4 SUBMITTALS

- A. Refer to procedures outlined in Division 1, Section 013300 Submittal Procedures. Furnish submittals in a timely manner. Provide one extra copy in addition to the number required in Section 013300 which will be retained by the Engineer. Submittals which have not been reviewed by all contractors and/or which describe materials or equipment which have not been approved by the Engineer as a substitute shall not be accepted. “Reviewed” means the contractor has actually looked at each page of the submittal and has made marks or corrections to make the submittal reflect the diagrammatic intent of the drawings and/or specifications.
- B. Submittals shall be grouped per Section and bound in a “Report Cover” binder with steel fasteners and eyelets. The binder shall be large enough to accommodate all enclosed materials. Where more than one Section is included, they shall be separated by “tab dividers”. Submittals shall include product data, manufacturer’s drawings, and field installation drawings as required for a complete description of all items of equipment being submitted.
- C. Submittals shall be on separate sheets for each product type, assembled in a logical order, with manufacturer’s name, details, products, and accessories clearly indicated.

1.5 RECORD DOCUMENTS

- A. Prepare record documents (As-builts) in accordance with Division 1, Section 017700 Closeout Procedures. In addition to those requirements, indicate equipment locations, installed raceways 2” and larger, panel circuitry, fuse sizes, and approved substitutions.

1.6 MAINTENANCE MANUALS/WARRANTIES

- A. Prepare maintenance manuals in accordance with Division 1, Section 017839 Project Record Documents. Include all warranties, guarantees, etc. Obtain written receipt of said materials from Owner.
- B. Manuals shall be grouped in a 3-ring binder with clear plastic pockets for securing and protecting the name of the project on both the binding and the front of the binder. The binder shall be large enough to accommodate all enclosed materials with a minimum of 25% spare ring space. Submittals shall include product data, manufacturer’s drawings,

and field installation drawings as required for a complete description of all items of equipment.

- C. Equipment/devices shall be on separate sheets for each product type, assembled in a logical order, with manufacturer's name, details, products, and accessories clearly indicated. In addition, include: normal operating characteristics and limitations, performance curves (eg. isofootcandle curve for 2x4 troffer), nomenclature and catalog numbers of replacement parts, and manufacturers' published troubleshooting guides (eg. HID lighting fixtures-when HPS lamps cycle on and off, they have reached the end of their useful life. Replace the lamps to preserve operating life of the ballast).
- D. Contractor shall warrant the electrical system in accordance with Division 1, Section 017700 Closeout Procedures to be free from defects in materials and workmanship for a period of one year after date of final payment. This warranty shall apply to all electrical materials and equipment regardless of any manufacturer's warranties which may expire at an earlier date. Any malfunctions or previously undiscovered noncompliance with the plans and specifications, during the warranty period, shall be repaired and/or replaced at no cost to the Owner.
- E. At completion of work, furnish to the Owner all certificates of inspection or approval from the authorities having jurisdiction if said certificates are required by law or regulation.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide materials and equipment in accordance with the Drawings. Electrical components that are listed and labeled as defined in the NEC, Article 100, by third party agencies currently accredited by the NCBC (North Carolina Building Code Council).
- B. Materials and equipment shall be new and without blemish or defect. Materials and equipment shall bear the manufacturer's name, model number, rating, and other such information as applicable. Products manufactured by affiliates, divisions, or subsidiaries of the specified manufacturer shall not be accepted unless specifically approved prior to bid as indicated in paragraph 2.2A below.

2.2 SUBSTITUTIONS

- A. Materials and equipment that have been selected and are referenced by name, model number, etc. are selected to establish quality and are not intended to limit competition. However, substitutions must be presented in accordance with Division 1, Section 016000 Product Requirements and must be presented to the Engineer 10 days prior to bid for approval. The decision of the Engineer as to the approval of any substitute item is final. All bidders will be notified by addendum of any approved substitutions.

- B. Approval of substitutions as equivalents does not relieve the contractor and/or vendor of the substitute item of the responsibility of providing materials and equipment that will perform as the original basis of design. The contractor shall be completely responsible for any changes which result from the use of any item other than those named as basis of design including, but not limited to, changes in electrical service, dimensional requirements, additional materials and/or equipment that may be required, etc. The contractor shall reimburse the Architect/Engineer at his standard hourly rates for any additional design time and/or drawing and specification changes that may result from the use of a substitute item.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Perform installation in accordance with Division 1, Section 011000 Summary of Work.
- B. Coordinate the installation with work of other trades. Verify all dimensions by field measurements. Arrange for openings, chases, installation of supports, etc. in a timely manner. Where mounting heights are not specified, install to allow maximum headroom.
- C. Install materials and equipment plumb, level, parallel, and perpendicular to other building components. Install materials and equipment so as to facilitate maintenance of equipment components without interference to work of other trades.
- D. Provide access panels where materials or equipment are concealed behind finished surfaces.
- E. Give right-of-way priority to systems required to be installed at a specified slope.

3.2 CUTTING and PATCHING

- A. Use experienced installers to restore finishes to original condition. Use specified materials and methods to match original finishes.
- B. Patch all (new and existing) holes containing electrical conduits or cables to meet or exceed ratings of floors and walls. Be aware that UL rated penetrations have limits on size of holes and number of conduits or cables. Refer to approved manuals such as the 3M manual for approved penetration sealing. Use only approved methods and materials. As a suggestion, only new holes cut to the correct size should be used for penetrations.

3.3 INSTRUCTION

- A. Contractor shall conduct a maintenance and operational instruction session for the Owner in accordance with Division 1, Section 017700 Closeout Procedures. Where technical or complex equipment was supplied, provide factory-trained personnel for startup and training sessions. Sessions shall last a minimum of 2-hours and shall be scheduled and held at the convenience of the Owner and within one month of date of substantial completion.

3.4 INSPECTION SCHEDULING

- A. The Electrical Contractor shall be responsible for notifying the AHJ to schedule required inspections.

END OF SECTION

SECTION 0260519 - LOW VOLTAGE CONDUCTORS AND CABLES

PART 1-GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. References.
 - 2. Submittals.
 - 3. Qualifications.
 - 4. Regulatory Requirements.
 - 5. Project Conditions.
 - 6. Building Wire and Cable.
 - 7. Wiring Connectors.
 - 8. Examination.
 - 9. Preparation.
 - 10. Installation.
 - 11. Field Quality Control.

- B. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional Requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 REFERENCES

- A. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

- A. Submit under provisions of Division 1, Section 013300 Submittal Procedures.

- B. Product Data: Provide for wire type.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.5 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70 National Electrical Code.

- B. Furnish products listed and classified by testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

1.6 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Conductor sizes are based on copper.
- C. Aluminum conductor shall not be substituted for copper conductor.
- D. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions. Include wire and cable lengths within 10 feet (3 m) of length shown.
- E. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

PART 2 PRODUCTS

2.1 BUILDING WIRE AND CABLE

- A. Manufacturers:
 - 1. American Insulated Wire Corp.
 - 2. Senator Wire and Cable Co.
 - 3. Southwire.
 - 4. Substitutions: Submit in accordance with Division 1, Section 16000 Product Requirements.
- B. Description: Single conductor, insulated, copper wire. Insulation rated for 600 volts. Insulation Type THW, THHN/THWN, or XHHW. Contractor shall use solid for branch circuits 10 AWG and smaller and stranded for 8 AWG and larger. Control and fire alarm wires shall be 14 AWG stranded copper.

2.2 WIRING CONNECTORS

- A. Spring Wire Connectors:
 - 1. Ideal "Wirenuts".
 - 2. 3M Company "Scotchlock".
 - 3. Thomas & Betts "Piggy".
 - 4. Substitutions: Submit in accordance with Division 1, Section 16000 Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that interior of building has been protected from weather.

- B. Verify that mechanical work likely to damage wire has been completed.

3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.
- B. Verify that ends of conduit are smooth and that raceway system is complete before installing wire.

3.3 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Use stranded conductor for feeders and branch circuits unless noted otherwise.
- C. Conductors shall be continuous from outlet to outlet.
- D. Power and lighting circuits 10 AWG and smaller shall have solid copper conductors. Conductor size 8 AWG and larger shall have Class B stranded copper conductors.
- E. Use conductor not smaller than 14 AWG stranded for control and fire alarm circuits.
- F. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 50 feet to the nearest outlet. Use 10 AWG conductors for 20 ampere, 227 volt branch circuits longer than 125 feet to the nearest outlet.
- G. All wire and cable shall be run in raceway. Pull all conductors into raceway at the same time. In special cases, type "MC" and type "NM" cable is permitted without raceway, provided the State Construction Office has approved the application..
- H. Use suitable wire pulling lubricant for building wire 4 AWG and larger.
- I. Neatly train and lace wiring inside boxes, equipment, and panel boards.
- J. Clean conductor surfaces before installing lugs and connectors.
- K. Make splices, taps, and terminations only in approved outlet or junction boxes and troughs and gutters and to carry full ampacity of conductors with no perceptible temperature rise.
- L. Fill terminations in equipment located outdoors with antioxidant compound before installing conductor.
- M. Do not use split bolt connectors. Do not use permanent type crimp connectors for branch circuit connections. Use two- or four-bolt connectors for copper conductor splices and

taps, 8 AWG and larger. Tape uninsulated conductors and connector with electrical gum rubber and friction tape to 150 percent of insulation rating of conductor.

- N. Use pressure wire connectors with insulating covers for solid copper conductor splices and taps, 10 AWG and smaller.
- O. Color code the secondary service, feeder, and branch circuit conductors as follows:

<u>Phase</u>	<u>120/208Y</u>	<u>277/480Y</u>
A	Black	Brown
B	Red	Orange
C	Blue	Yellow
Neutral	White	Gray
Ground	Green	Green

Use factory applied color for conductors 10 AWG and smaller. Use color-coded tape for conductors 8 AWG and larger.

3.4 FIELD QUALITY CONTROL

- A. Perform field inspection and testing under provisions of Division 1, Section 014000 Quality Requirements.
- B. Inspect wire for physical damage and proper connection.
- C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

END OF SECTION

SECTION 0260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data for each type of product indicated.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 MANUFACTURERS

- A. Industry standard.

2.3 GROUNDING MATERIALS

- A. Conductors: Solid for No. 8 AWG and smaller; stranded for No. 6 AWG and larger unless otherwise indicated.
 - 1. Insulated Conductors: **Copper** wire or cable insulated for 600 V unless otherwise required by applicable code or authorities having jurisdiction.
 - 2. Bare, Solid-Copper Conductors: Comply with ASTM B 3.
 - 3. Bare, Stranded-Copper Conductors: Comply with ASTM B 8.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- D. Ground Rods: Copper-clad steel, sectional type; 3/4 inch by 10 feet (19 mm by 3 m).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Underground Grounding Conductors: Install bare copper conductor, [No. 2/0] <Insert size> AWG minimum. Bury at least 24 inches (600 mm) below grade.
- B. Pipe and Equipment Grounding-Conductor Terminations: Bolted.
- C. Underground Connections: Welded.
- D. Connections to Structural Steel: Bolted.
- E. Install grounding conductors routed along shortest and straightest paths possible unless otherwise indicated or required by code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- F. Install ground rods driven into ground until tops are 2 inches (50 mm) below final grade or 4 inches (100 mm) above finished floor slab unless otherwise indicated.
- G. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape.
- H. Make connections without exposing steel or damaging coating if any.
- I. Install bonding straps and jumpers in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
- J. Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
- K. Bond to equipment mounted on vibration isolation hangers and supports so vibration is not transmitted to rigidly mounted equipment.
- L. Grounding and Bonding for Piping:
 - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding-conductor conduit or sleeve to conductor at each end.
 - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- M. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells.

1. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
2. Perform tests by fall-of-potential method according to IEEE 81.
3. Report measured ground resistances that exceed 25 ohms.
4. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 0260529 - HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals:

1. Product Data for steel slotted support systems.
2. Shop Drawings signed and sealed by a qualified professional engineer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents. The rated strength of supports are to be adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of [five] <Insert number> times the applied force.

B. Comply with NFPA 70.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

B. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch diameter holes at a maximum of 8 inches o.c., in at least one surface.

C. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

D. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings.

E. Mounting, Anchoring, and Attachment Components:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
2. Mechanical-Expansion Anchors: Insert-wedge type, [**zinc-coated**] [**stainless**] steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Separate dissimilar metals and metal products from contact with wood or cementitious materials by painting each metal surface in area of contact with a bituminous coating or by other permanent separation.
- C. Raceway Support Methods: In addition to methods described in NECA 1, conduit (raceways) may be supported by openings through structure members, as permitted in NFPA 70.
- D. Multiple Raceways or Cables: Install on trapeze-type supports fabricated with steel slotted channel.
- E. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- F. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 1. To Wood: Fasten with lag screws or through bolts.
 2. To New Concrete: Bolt to concrete inserts.
 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. To Steel: threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts and Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 .

6. To Light Steel: Sheet metal screws.
 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount on slotted-channel racks attached to substrate.
- G. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.2 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit, so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Anchor equipment to concrete base.
1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

END OF SECTION 260529

SECTION 0260533 - RACEWAYS AND BOXES

PART 1-GENERAL

1.1 SUMMARY

- A. Section includes:
1. References.
 2. Design Requirements.
 3. Submittals.
 4. Project Record Documents.
 5. Regulatory Requirements.
 6. Delivery, Storage, and Handling.
 7. Project Conditions.
 8. Conduit Requirements.
 9. Metal Conduit.
 10. Flexible Metal Conduit.
 11. Liquidtight Flexible Metal Conduit.
 12. Electrical Metallic Tubing.
 13. Installation.
- B. Related Documents: The Contract Documents, as defined in Section 01100 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 REFERENCES

- A. Minimum Product Standards are as follows:
1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
 2. ANSI C80.3 - Electrical Metallic Tubing and Fittings, Zinc Coated.
 3. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

1.3 DESIGN REQUIREMENTS

- A. Conduit Size: NFPA 70 (National Electrical Code latest edition), unless noted otherwise.

1.4 SUBMITTALS

- A. Submit under provisions of Division 1, Section 01300 Submittal Procedures.
- B. Product Data: Provide for rigid steel conduit, flexible metal conduit, liquidtight flexible metal conduit, electrical metallic tubing, rigid nonmetallic conduit, fittings, and conduit bodies.

1.5 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Division 1, Section 017839 Project Related Documents.

1.6 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70 (National Electrical Code latest edition).
- B. Furnish products listed and classified by testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle Products to site under provisions of Division 1, Section 016000 Product Requirements.
- B. Accept conduit on site. Inspect for damage.
- C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

1.8 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

PART 2 PRODUCTS

2.1 CONDUIT REQUIREMENTS

- A. Minimum Size: 1/2 inch (13 mm) unless otherwise specified.
- B. Above Ground Raceways:
 - 1. Conduit shall be sized in accordance with the latest edition of the NEC unless shown otherwise, with minimum conduit size being 1/2 inch. Flexible metal and watertite ("Sealtite") conduit in size 1/2 inch and larger are acceptable for motor, appliance and fixture connections provided green wire is installed and NEC is followed.
 - 2. Conduit, exposed and concealed, shall be neatly installed parallel to, or at right angles to beams walls, and floors of building.

3. EMT may be utilized as permitted by the NEC, with following restrictions. EMT shall not be installed:
 - a. Where tubing, couplings, elbows and fittings would be in direct contact with the earth.
 - b. Underground (in/below slab-on-grade or in earth).
 - c. Any location outdoors where the tubing, etc., would be exposed to the elements.
 - d. Where exposed to severe corrosive influence.
 - e. Where exposed to severe physical damage.
4. The raceway system shall not be relied upon for grounding continuity. Install a separate green-insulated equipment grounding conductor in each new branch circuit added.
5. The use of "LB's" shall be limited where possible.
6. PVC schedule 40 shall not be used exposed or concealed.

2.2 METAL CONDUIT

A. Manufacturers:

1. Allied Tube and Conduit.
2. Omega Tube and Conduit.
3. Western Tube and Conduit.
4. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.

B. Rigid Steel Conduit: ANSI C80.1.

C. Rigid Aluminum Conduit: ANSI C80.5.

D. Intermediate Metal Conduit (IMC): Rigid steel conduit.

E. Fittings and Conduit Bodies: ANSI/NEMA FB 1; material to match conduit.

F. Terminations:

1. IMC and GRC shall terminate with either a double lock nut/bushing set or in a threaded hub.
2. Where concentric, eccentric, or oversized knockouts are encountered, a grounding-type insulated bushing shall be provided.
3. EMT terminations shall be made utilizing steel-plated hexagonal compression connectors. No pot metal, set screw or indented type fittings shall be utilized.
4. EMT terminations shall be "concrete tight" where buried in masonry or concrete. EMT fittings, where installed in damp locations, shall be of the "rain tight" type.

G. Conduit Couplings:

1. Where conduits of any type pass over a building expansion joint, a standard "expansion joint fitting", compatible with the type raceway being used, shall be provided.

2. Conduit couplings, for IMC, GRC and PVC shall be in accordance with the NEC.
3. EMT couplings shall be of the plated-steel hexagonal compression type. No pot metal, set screw or indented type couplings shall be utilized.
4. EMT couplings shall be 'concrete tight" when buried in masonry or concrete. EMT fittings where installed in damp locations, shall be of the "rain tight" type.

2.3 FLEXIBLE METAL CONDUIT

A. Manufacturers:

1. AFC Cable Systems.
2. Greenfield.
3. Southwire.
4. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.

B. Description: Interlocked aluminum construction.

C. Fittings: ANSI/NEMA FB 1.

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Manufacturers:

1. AFC Cable Systems.
2. Greenfield.
3. Southwire.
4. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.

B. Description: Interlocked aluminum construction with PVC jacket.

C. Fittings: ANSI/NEMA FB 1.

2.5 ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:

1. Allied Tube and Conduit.
2. Omega Tube and Conduit.
3. Western Tube and Conduit.
4. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.

B. Description: ANSI C80.3; galvanized tubing.

- C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; stamped steel, compression type. See "Metal Conduit" requirements above.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install conduit in accordance with NECA "Standard of Installation."
- B. Arrange supports to prevent misalignment during wiring installation. Support conduits within 6" of outlet boxes and minimum 4' on center.
- C. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- D. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.
- E. Fasten conduit supports to building structure and surfaces per NFPA 70 (NEC).
- F. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- G. Do not attach conduit to ceiling support wires or to HVAC equipment and supports. Do not support other items, cables, or conduits from conduit.
- H. Arrange conduit to maintain headroom and present neat appearance.
- I. Route all exposed and concealed conduits parallel and perpendicular to walls.
- J. Label all conduits with permanent marking pen as to purpose or circuit(s) served.
- K. Route conduit in and under slab from point-to-point.
- L. Maintain adequate clearance between conduit and piping.
- M. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F.
- N. Cut conduit square using saw or pipecutter; de-burr cut ends.
- O. Bring conduit to shoulder of fittings; fasten securely.
- P. Use conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.

- Q. Install no more than equivalent of three 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.
- R. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- S. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic, control, and expansion joints. Provide suitable sealants inside pipes to prevent moisture migration where conduit crosses thermal zones. Coordinate supports to allow conduit to expand and contract.
- T. Provide suitable pull string in each empty conduit except sleeves and nipples.
- U. Use suitable caps to protect installed conduit against entrance of dirt and moisture.
- V. Ground and bond conduit under provisions of NFPA 70 (NEC).
- W. Paint all exposed conduits and boxes to match adjacent surfaces.

3.2 INTERFACE WITH OTHER PRODUCTS

PART 4 BOXES

4.1 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch (13 mm) male fixture studs where required.
 - 2. Concrete Ceiling Boxes: Concrete type.
- B. Cast Boxes: NEMA FB 1, Type FD cast ferroalloy. Provide gasketed cover by box manufacturer. Provide threaded hubs.

4.2 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

PART 5 EXECUTION

5.1 INSTALLATION

- A. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.
- B. Install electrical boxes to maintain headroom and to present neat mechanical appearance.
- C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches (150 mm) from ceiling access panel or from removable recessed luminaire.
- E. Install boxes to preserve fire resistance rating of partitions and other elements, using materials and methods under the provisions of Division 21.
- F. Align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices with each other.
- G. Use flush mounting outlet boxes in finished areas.**
- H. Do not install flush mounting boxes back-to-back in walls; provide minimum 6 inch (150 mm) separation. Provide minimum 24 inches (600 mm) separation in acoustic rated walls.
- I. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness such that box or plaster ring surface finishes flush with wall surface.
- J. Use stamped steel bridges to fasten flush mounting outlet box between studs and to prevent box from being “pushed in” by the sheetrock installation.
- K. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- L. Use adjustable steel channel fasteners for hung ceiling outlet box.
- M. Do not fasten boxes to ceiling support wires or to HVAC ductwork and supports.
- N. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches (300 mm) of box.
- O. Use gang box where more than one device is mounted together. Do not use sectional box.

- P. Use 4” sq. box with plaster ring for single or double device outlets. Size plaster ring 1/8” larger than wall thickness. Reason: Mounting screws keep box 1/8” away from sheetrock surface. Coordinate box installation with masonry and general contractors. Mounting surface is to finish flush with wall surface. It will be allowed for mounting surface to finish a maximum of 1/16" recessed, but not extended, from wall surface.
- Q. Use cast outlet box in exterior locations exposed to the weather and wet locations.
- R. Large Pull Boxes: Boxes larger than 100 cubic inches (1 600 cubic centimeters) in volume or 12 inches (300 mm) in any dimension.
 - 1. Interior Dry Locations: Use hinged enclosure.
 - 2. Other Locations: Use surface-mounted cast metal box.
- S. Seal around all conduit and box penetrations, using materials and methods described in other specification sections. In Artifact Storage Room seal behind all penetrations with a plastic moisture-proof material. The inside surfaces of this room are the vapor barrier for this space. Maintain vapor barrier.

5.2 INTERFACE WITH OTHER PRODUCTS

- A. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- B. Coordinate heights of device outlet boxes with drawings and Section 262726 Wiring Devices.
- C. Coordinate mounting heights and locations of outlets mounted above counters, benches and backsplashes with millwork.
- D. Position outlet boxes to locate luminaires as shown on reflected ceiling plan.

5.3 ADJUSTING

- A. Adjust flush-mounting outlets to make front flush with finished wall material.
- B. Install knockout closures in unused box openings.

END OF SECTION

SECTION 0262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA PB 1.
- C. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

2.2 GENERAL REQUIREMENTS FOR PANELBOARDS

- A. Seismic-Restraint Loading: Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 260548.16 "Seismic Controls for Electrical Systems."
- B. Enclosures: Surface -mounted cabinets; NEMA 250, Type 1.
- C. Service Equipment Label: Nationally Recognized Testing Laboratory (NRTL) labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.
- D. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- E. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices; listed and labeled for series-connected short-circuit rating by an NRTL.
- F. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.3 DISTRIBUTION PANELBOARDS

- A. [<Double click here to find, evaluate, and insert list of manufacturers and products.>](#)

- B. Panelboards: NEMA PB 1, power and feeder distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
- D. Mains: Circuit breaker.
- E. Branch Overcurrent Protective Devices: Plug-in circuit breakers.

2.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Shall be Sq. D, G.E., Siemens, or Cutler Hammer.
- B. Panelboards: NEMA PB 1, power and feeder distribution type.
- C. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.
- D. Mains: Circuit breaker.
- E. Branch Overcurrent Protective Devices: Plug-in circuit breakers.

2.5 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker: Comply with UL 489, with series-connected rating or interrupting capacity to meet available fault currents.
 - 1. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
 - 2. Ground-Fault Circuit-Interrupter Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
- B. Fused Switch: NEMA KS 1, Type HID; clips to accommodate specified fuses; lockable handle.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Receive, inspect, handle, store, and install panelboards and accessories according to NEMA PB 1.1.
- B. Comply with mounting and anchoring requirements specified in Section 260548.16 "Seismic Controls for Electrical Systems."
- C. Mount top of trim 72 inches above finished floor unless otherwise indicated.
- D. Stub four empty 3/4-inch conduits from panelboard into accessible or designated ceiling space; stub four empty conduits into space below floor.

- E. Arrange conductors into groups; bundle and wrap with wire ties.
- F. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing.

END OF SECTION 262416

SECTION 0262726 - WIRING DEVICES

PART 1-GENERAL

1.1 SUMMARY

A. Section Includes:

1. References.
2. Submittals.
3. Qualifications.
4. Regulatory Requirements.
5. Products.
6. Wall Switches.
7. Wall Plates.
8. Examination.
9. Preparation.
10. Installation.
11. Interface with other Products.
12. Field Quality Control.
13. Adjusting.

- B. Related Documents:** The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.2 REFERENCES

- A. NEMA WD 1 - General Purpose Wiring Devices.**
- B. NEMA WD 6 - Wiring Device Configurations.**

1.3 SUBMITTALS

- A. Submit under provisions of Division 1, Section 013300 Submittal Procedures.**
- B. Product Data:** Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.4 QUALIFICATIONS

- A. Manufacturer:** Company specializing in manufacturing products specified in this Section with minimum five years documented experience.

1.5 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.1 Products

- A. Provide materials in accordance with Division 1, Section 016000 Product Requirements.
- B. Wiring devices shall be 20-amp minimum and shall be of the grounding type, with hex-head green grounding screw, to be connected to the green ground conductor. Self-grounding type is not acceptable.

2.2 WALL SWITCHES

- A. Industrial-Institutional, heavy duty, specification grade, 20 amp toggle switch. Green ground screw, large head binding screws to accept #10 wire, color coded base, silver cadmium oxide contacts, nickel plated steel bridge, chemical-resistant nylon toggle.
- B. Single Pole Switch:
 - 1. Hubbell. Model 1221I.
 - 2. Arrow Hart. Model 1991I.
 - 3. Eagle Electric. Model 2221I.
- C. Equivalents or substitutions: Submit in accordance with Division 16, Section 16010 Basic Electrical Requirements. In addition, submit (1) sample of each device to the Engineer. Samples will not be returned.

2.3 WALL PLATES

- A. Decorative Wall Plate: Match color and material of existing wall plates.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify conditions under provisions of Division 1, Sections 016000 Product Requirements and 017700 Closeout Procedures.
- B. Verify outlet boxes are installed at proper height and that box surface finishes flush with wall surface a maximum of 1/16" recessed in wall surface.
- C. Verify wall openings are neatly cut and will be completely covered by wall plates.

- D. Verify that interior finish work is complete so that devices will not become soiled with construction materials.
- E. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface. Note: This should be done prior to installation of sheetrock. Select plaster ring 1/8" larger than wall thickness. Reason: Plaster ring screw heads push ring away from sheetrock surface by about 1/8".
- B. Clean debris from outlet boxes.

3.3 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install devices plumb and level.
- C. Install switches with OFF position down and 46" AFF to center of switch.
- D. Connect wiring device grounding terminal to branch circuit equipment grounding conductor.
- E. Install decorative plates on switch, receptacle, and blank outlets in finished areas.
- F. Connect wiring devices by wrapping conductor around screw terminal.
- G. Use jumbo size plates for outlets installed in masonry walls only.
- H. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

3.4 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations of outlet boxes with Architect to obtain mounting heights specified and indicated on Drawings.

3.5 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Verify that device strap mates with box or plaster ring and that device protrudes from device wall plate. Device shall not be secured to wall by device wall plate.

- C. Operate each wall switch with circuit energized and verify proper operation.

3.6 ADJUSTING

- A. Adjust devices and wall plates to be flush, level, and vertically and horizontally aligned.
- B. Adjust wall plate screws so that wall plate is not warped.

END OF SECTION

SECTION 0262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 FUSIBLE AND NONFUSIBLE SWITCHES

- A. Fusible Switches, 600 A and Smaller: UL 98 and NEMA KS 1, Type GD, that accommodate specified fuses, and with lockable handle interlocked with cover in closed position.
 - 1. Manufacturers: Sq.D, Siemens, Cutler Hammer, or approved equal
- B. Nonfusible Switches, 600 A and Smaller: UL 98 and NEMA KS 1, [Type GD] [Type HD], with lockable handle interlocked with cover in closed position.
 - 1. Manufacturers: Sq.D, Siemens, Cutler Hammer, or approved equal
- C. Shunt-Trip Switches: Comply with UL 50, and UL 98, with 200-kA interrupting and short-circuit current rating when fitted with Class J fuses.
 - 1. Manufacturers: Sq.D, Siemens, Cutler Hammer, or approved equal

2.3 MOLDED-CASE CIRCUIT BREAKERS

- 1. Manufacturers: Sq.D, Siemens, Cutler Hammer, or approved equal
- B. ption: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - 2. Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with field-adjustable instantaneous trip settings.
 - 3. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller and let-through ratings less than NEMA FU 1, RK-5.

4. GFCI Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.
5. GFEP Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.

C. Features and Accessories:

1. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
2. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

2.5 SUPPORT AND ANCHORAGE COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly, and provide finish suitable for the environment in which installed.

1. Channel Dimensions: Selected for structural loading.

B. Raceway and Cable Supports: As described in NECA 1.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and fittings.

D. Mounting, Anchoring, and Attachment Components:

1. Powder-Actuated Fasteners: Threaded-steel stud.
2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated, for use in hardened portland cement concrete.
3. Concrete Inserts: Steel or malleable-iron, slotted-support-system units similar to MSS Type 18; complying with MFMA-3 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, high strength; complying with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.
8. Bushings for Floor-Mounted Equipment Anchors: Neoprene units designed for seismically rated rigid equipment mountings and matched to type and size of anchor bolts and studs used.
9. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for seismically rated rigid equipment mountings and matched to type and size of attachment devices used.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- B. Install electrical equipment to allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
- C. Install electrical equipment to provide for ease of disconnecting the equipment with minimum interference to other installations.
- D. Install electrical equipment to allow right of way for piping and conduit installed at required slope.
- E. Install electrical equipment to ensure that connecting raceways, cables, wireways, cable trays, and busways are clear of obstructions and of the working and access space of other equipment.
- F. Install required supporting devices in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- G. Install fuses in fusible devices.
- H. Comply with NECA 1.

3.2 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections, and prepare test reports:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

END OF SECTION 262816

SECTION 0264313 - TRANSIENT-VOLTAGE SUPPRESSION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Comply with IEEE C62.41.2, and test devices according to IEEE C62.45.
- C. Comply with UL 1449.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SERVICE ENTRANCE SUPPRESSORS

- A. Manufacturers: ABB, Leviton, Bussman, or approved equal.
- B. Surge Protective Devices (SPD): Field mounted, complying with UL 1449 Type 1.
 - 1. Comply with IEEE C62.41, Category C, 200-kA short-circuit current rating.
 - 2. Non-modular type with the following features and accessories:
 - a. Integral disconnect switch.
 - b. LED indicator lights for power and protection status.
- C. Protection modes and UL 1449 voltage protection rating (VPR) for grounded wye circuits with 480Y/277 V, three-phase, four-wire circuits shall be as follows:
 - 1. Line to Neutral: 1200 V for 480Y/277 V.
 - 2. Line to Ground: 1800 V for 480Y/277 V.
 - 3. Line to Line: 2000 V for 480Y/277 V.
- D. Protection modes and UL 1449 V_{pk} for 240/120 V, single-phase, three-wire circuits shall be as follows:
 - 1. Line to Neutral: 600 V.
 - 2. Line to Ground: 1000 V.
 - 3. Line to Line: 1000 V.

2.3 PANELBOARD SUPPRESSORS

- A. Manufacturers: ABB, Leviton, Bussman, or approved equal.
- B. SPDs: Field-mounted, complying with UL 1449 Type 1.
 - 1. Comply with IEEE C62.41, Category C, 200-kA short-circuit current rating.
 - 2. Non-modular type with the following features and accessories:
 - a. Integral disconnect switch.
 - b. LED indicator lights for power and protection status.
- C. Protection modes and UL 1449 V_{pk} for grounded wye circuits with 480Y/277 V, three-phase, four-wire circuits shall be as follows:
 - 1. Line to Neutral: 1200 V for 480Y/277 V.
 - 2. Line to Ground: 1800 V for 480Y/277 V.
 - 3. Neutral to Ground: 1000 V for 480Y/277 V.
 - 4. Line to Line: 2000 V for 480Y/277 V.
- D. Protection modes and UL 1449 V_{pk} for 240/120-V, single-phase, three-wire circuits shall be as follows:
 - 1. Line to Neutral: 600 V.
 - 2. Line to Ground: 1000 V.
 - 3. Neutral to Ground: 600 V.
 - 4. Line to Line: 1000 V.

2.4 ENCLOSURES

- A. Indoor Enclosures: NEMA 250, Type 1 .
- B. Outdoor Enclosures: NEMA 250, Type 3R .

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Do not energize or connect service entrance equipment or panelboards to their sources until transient-voltage surge-suppression devices are installed and connected.

END OF SECTION 264313

SECTION 0265100 - INTERIOR LIGHTING

PART 1-GENERAL

1.1 SUMMARY

A. Section Includes:

1. References.
2. Submittals.
3. Project Record Documents.
4. Operation and Maintenance Data.
5. Qualifications.
6. Regulatory Requirements.
7. Luminaires.
8. Ballasts.
9. Fluorescent Lamp Emergency Power Supply.
10. Lamps.
11. Examination.
12. Installation.
13. Field Quality Control.
14. Adjusting.
15. Cleaning.

- B. Related Documents:** The Contract Documents, as defined in Section 011000-Summary of Work, apply to the Work of this Section. Additional Requirements and information necessary to complete the Work of this Section may be found in other Documents.

1.2 REFERENCES

- A. ANSI C78.379 - Electric Lamps - Incandescent and High- Intensity Discharge Reflector Lamps - Classification of Beam Patterns.**
- B. ANSI C82.41 - Transient Immunity.**
- C. ANSI C82.4 - Ballasts for High-Intensity Discharge.**
- D. NFPA 70 - National Electrical Code.**
- E. NFPA 101 - Life Safety Code.**

1.3 SUBMITTALS

- A. Submit under provisions of Division 1, Section 013300 Submittal Procedures.**
- 1. Shop Drawings:** Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

- 2. Product Data: Provide dimensions, ratings, and performance data.

1.4 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Division 1, Section 017839.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 017839.
 - 1. Maintenance Data: Include replacement parts list.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.7 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Conform to requirements of NFPA 101.
- C. Furnish products listed and classified by testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.1 LUMINAIRES

- A. Furnish products as specified in schedule on Drawings.
- B. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.
- C. Install ballasts, and specified accessories at factory.

2.2 BALLASTS

- A. Manufacturers:
 - 1. Advance.
 - 2. Magnetek.
 - 3. ESI.
 - 4. OSRAM Sylvania.
 - 5. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.

- B. T8 Fluorescent Ballast Description: ANSI C82.11 and ANSI C62.41 electronic ballast. Frequency > 20k Hz. Current Crest Factor < 1.7, THD as indicated. Provide ballast suitable for lamps specified. Flicker index < 5%. Match luminaire voltage. CSA Certified (where applicable) and CBM Certified (where applicable). Ballasts shall tolerate sustained open circuit and short circuit output conditions without damage to ballasts. Ballasts shall tolerate operation in ambient temperatures up to 105 degrees F. UL listed as Class P for use indoor or Type 1 outdoor locations. Ballasts shall comply with limits of FCC Part 18, Subpart C Limits for Non-Consumer Equipment for EMI and RFI. Ballast shall have Power Factor greater than .90 (>.98 for models <10% THD), BF > .85, and THD < 20% (< 10% where indicated). Ballasts shall be fully encapsulated. Sound rated: A. Manufacturer's written warranty against defects in material or workmanship, including replacement (ballast only), for five years from date of manufacture.

2.4 LAMPS

- A. Fluorescent Lamp Manufacturers:
 - 1. General Electric.
 - 2. Philips.
 - 3. OSRAM Sylvania.
 - 4. Substitutions: Submit in accordance with Division 1, Section 016000 Product Requirements.
- B. Provide lamp type specified for luminaire. All lamp types shall be of same manufacturer. Match lamps with ballast.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrate and supporting grids for luminaires.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install suspended luminaires using pendants supported from swivel hangers. Provide pendant length required to suspend luminaire at indicated height.
- C. Support recessed luminaires 2 x 2 foot size and larger independent of ceiling framing.
- D. Locate recessed ceiling luminaires as indicated on reflected ceiling plan.
- E. Install surface mounted luminaires and exit signs plumb and adjust to align with building lines and with each other. Avoid door swings. Secure to prohibit movement.

- G. Install recessed luminaires to permit removal from below.
- I. Install clips to secure recessed grid-supported luminaires in place.
- J. Install accessories furnished with each luminaire.
- K. Connect luminaires, emergency lighting units and exit signs to branch circuit outlets provided under Section 260519 using flexible conduit as indicated.
- L. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- M. Bond products and metal accessories to branch circuit equipment grounding conductor.
- N. Install specified lamps in each luminaire, emergency lighting unit and exit sign.
- O. Fire-rated Ceilings: Where recessed luminaires are located in fire-rated ceilings, the luminaires shall be listed for recessed use and tested for compatibility for use inside an enclosure. In addition, the contractor shall coordinate with the ceiling installer to build a suitable enclosure, using materials approved by the local authority, over the luminaries to maintain the ceiling fire-rating. An enclosure six inches wider on all sides and twelve inches taller than the luminaire should be large enough to provide adequate air circulation around the luminaire. If obstructions are encountered, the dimensions of the enclosure may be altered to achieve the same air volume. If insulation is present between the luminaire and the enclosure, the dimensions cannot be less than three inches on the sides and one inch over the top. Refer to NEC 410-66.

3.3 FIELD QUALITY CONTROL

- A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.4 ADJUSTING

- A. Aim and adjust luminaires as directed.
- B. Adjust exit sign directional arrows as indicated.
- C. Relamp luminaires that have failed lamps at Substantial Completion.

3.5 CLEANING

- A. Clean Work under provisions of Division 1, Section 017419 Construction Waste Management and Disposal

- B. Clean electrical parts and enclosures to remove conductive and deleterious materials.
- D. Clean photometric control surfaces as recommended by manufacturer.
- E. Clean finishes and touch up damage.

END OF SECTION

DIVISION 31 00 00 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the Contract Documents apply to the work of this Section.
- B. Refer to Section 01 21 00 and the Bid Form for information concerning required allowances and unit prices.
- C. Refer to Section 31 10 00 Site Clearing and 32 92 00 Turf and Grasses.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Excavation, filling, backfilling, and grading indicated and necessary for proper completion of the work.
 - 2. Preparing of subgrade for building slabs, walks, and pavements.
 - 3. Drainage/porous fill course for support of building slabs.
 - 4. Excavating and backfilling of trenches.
 - 5. Excavating and backfilling for underground mechanical and electrical utilities and buried mechanical and electrical appurtenances.

1.3 SUBMITTALS

- A. NCDOT approved Job Mix for stone.
- B. Imported fill (if required): Submit location of borrow pit and a sample of the soil for approval to the Owner's Geotechnical Engineer a minimum of fourteen (14) working days prior to use
- C. Geotextile Fabric

1.4 DEFINITIONS

- A. Excavation: Removal of all material (except for rock) encountered to design subgrade elevations indicated for cut areas and to subsoil elevations in fill areas. Excavation also includes subsequent respreading, moisture conditioning, compaction, and grading of satisfactory materials removed.
- B. Unauthorized Excavation: Removal of materials beyond the limits indicated in the definition of "Excavation" without specific direction of Architect.
- C. Additional Excavation: Removal, disposal and replacement of materials beyond the limits indicated in the definition of "Excavation" at the direction of the Architect. Refer to Part 3 of this Section for requirements of Additional Excavation.
- D. Subgrade: The undisturbed earth (in cut) or the compacted soil layer (in fill) immediately below granular subbase, drainage fill, or topsoil materials.
- E. Subsoil: The undisturbed earth immediately below the existing topsoil layer.

- F. Building Pad: The area extending 10 feet beyond the exterior limits of the building/column footings and down to undisturbed soils at a one horizontal to one vertical slope.
- G. Structures: The area extending a minimum of ten (10) feet beyond the edge of foundations, slabs, curbs, underground tanks, piping or other man-made stationary features occurring above or below ground surface.
- H. Pavements: The area extending 10 feet beyond the exterior limits of paved areas and down to undisturbed soils at a one horizontal to one vertical slope. The area extending 3 feet beyond the exterior limits of walks and down to undisturbed soils at a one horizontal to one vertical slope
- I. Subbase Material: Artificially graded mixture of crushed gravel or crushed stone meeting NCDOT specifications. Material type is indicated on the drawings.
- J. Drainage/Porous Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel meeting the requirements of NCDOT No. 57 Stone.
- K. Rock: Hard bed rock, boulders or similar material requiring the use of rock drills and/or explosives for removal. The criteria for classification of general excavation as rock is any material which cannot be dislodged by a Caterpillar D-8 Tractor, or equivalent, equipped with a single tooth hydraulically operated power ripper. The criteria for trench rock shall be that a Caterpillar 345 Backhoe, or equivalent, with a proper width bucket cannot remove the material.

1.5 ADDITIONAL WORK

- A. Paragraph 4.3.4 of General Conditions refers to certain conditions that may require additional excavation work. This paragraph is further defined herein and, where there are conflicts, is superseded by this section.
- B. Claims for concealed, unknown, or unanticipated subsurface conditions are limited to those circumstances where:
 - 1. Additional excavation work is required below the contract limits indicated to provide acceptable bearing for building pad, structures or pavements.
 - 2. Additional excavation work is required to raise, lower, or revise the footings, foundations or other parts of the building to provide acceptable bearing.
 - 3. Additional excavation work below the utility trench design elevations, for utilities outside the limits of the building, as required to provide acceptable bearing for the utility.
 - 4. Rock is encountered between existing grade and design subgrade.
- C. The risks of concealed, unknown, or unanticipated subsurface conditions (except for rock) from existing ground surface to the design subgrade elevations in cut areas and to subsoil elevations in fill areas shall be included in the Contract Amount and shall not be considered as grounds for additional costs to the Contract. The risks of concealed, unknown, or unanticipated subsurface conditions below the elevations stated above shall be considered as Additional Excavation.
- D. During construction, if concealed, unknown, or unanticipated subsurface conditions are encountered which require that footings, foundations or other parts of the building be raised, lowered or revised to provide acceptable bearing for the building or if, outside the building limits, additional depth of utility trench excavation below the design subgrade or subsoil elevations is required, immediately notify the Architect upon discovery of such condition prior to disturbing the material encountered.
- E. Payment for additional Work

1. Additional excavation shall be counted toward the unit price allowances established in the Bid Form. *The Owner reserves the right to negotiate said unit price allowances prior to the Award of Contract.*
2. Lowering of footings shall be paid for at a negotiated amount. The additional excavation involved shall be counted toward the unit price allowance.
3. Rock removal, if required, shall be counted toward the unit price allowances established in the Bid Form. All rock removal required to complete work other than trenching shall be paid for at the unit price for mass rock removal. Rock payment lines are limited to the following:
 - a) Two feet outside of concrete work for which forms are required, except footings.
 - b) One foot outside perimeter of footings, two feet below bottom of footings.
 - c) In pipe trenches, 6 inches below invert elevation of pipe and 2 feet wider than outside diameter of pipe, but not less than 3 feet minimum trench width.
 - d) Outside dimensions of concrete work where no forms are required.
 - e) Under slabs on grade, 6 inches below bottom of concrete slab.
4. No payment will be made for unauthorized excavation.
5. The expense of surveying quantities of rock removal and additional excavation shall be included in the unit price allowances.

1.6 EARTHWORK BALANCE ADJUSTMENTS

- A. No adjustments of grades will be allowed in order to accommodate shortfall or surplus of material that may occur. The Contractor will be allowed to waste or obtain excess material and/or fill material required to complete grading operations on site at locations agreed to by the Owner. **No additional payment will be made for wasting excess material, or the provision of fill material on-site required to provide final grades indicated on the Construction Plans.**

1.7 QUALITY ASSURANCE

- A. Codes and Standards: Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
- B. Environmental Compliance:
 1. Comply with the requirements of the latest edition of the North Carolina Erosion and Sediment Control Manual for erosion control during earthwork operations.
- C. Testing and Inspection Service: Owner will employ and pay for an independent Geotechnical testing and inspection laboratory to perform soil testing and inspection service during earthwork operations. Cooperate with Owner's Geotechnical Engineer as required for testing and inspection of work. These services do not relieve the responsibility for compliance with Contract Document requirements.

1.8 PROJECT CONDITIONS

- A. Bidders and interested parties (prior to receipt of bids) are encouraged to conduct their own soil and subsurface investigations, examinations, tests, and exploratory borings to determine the nature of

the soil conditions underlying the project site. Contact the Owner's office to make an appointment to enter the site for the purpose of conducting your own investigation prior to bid.

- B. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.
 - 1. Notify Architect not less than 48 hours in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without receiving Architect's written permission.
 - 3. Existing utilities across or along the line of work are indicated only in an approximate location. Locate all underground lines and structures. Call "NC One Call" at 1-800-632-4949 prior to construction. If utilities are marked that are not shown on the plans, locate utility vertically and horizontally and provide information to architect. Repair and correct any damage to underground lines and structures.

1.9 SAFETY

- A. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.
 - 1. Operate warning lights as recommended by authorities having jurisdiction and governing regulations and standards.
 - 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups CL, GC, SC, GW, GP, GM, SM, SW, and SP.
- B. Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups CH, OL, OH, MH, ML and PT.
- C. Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 4 inches in any dimension (2 inches for material used in trench backfill), debris, waste, frozen materials, vegetation and other deleterious matter.
- D. Imported material for structural fill shall comply with ASTM D2487 soil classification groups CL, ML, SC, SM, SP, SW, GC, GM, GP, or GW.

2.2 ACCESSORIES

- A. Non-woven Geotextile Fabric (for drainage): Mirafi 140N, or equivalent.
- B. Woven Geotextile Fabric (for reinforcement): AAMCO 2002, or equivalent.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 31 10 00 "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls during earthwork operations.

3.2 DEWATERING

- A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.
 - 1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrade and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
 - 2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use utility trench excavations as temporary drainage ditches.
- B. Should any springs or running water be encountered in the excavation, notify the Architect and provide discharge by trenches (or other acceptable means) and drain to an appropriate point of disposal. Provide temporary drainage facilities to minimize the flow of rainwater onto adjacent property. Repair any damage to property or to subgrade as a result of construction and/or dewatering (or lack thereof) operations at no additional cost to the Contract. If permanent provision must be made for disposal of water other than as indicated, the Contract price shall be adjusted.

3.3 EXPLOSIVES

- A. Blasting may be done only if authorized by the Owner and local authorities having jurisdiction. When explosives are used, experienced powdermen or persons who are licensed or otherwise authorized to use explosives shall execute the work. Explosives shall be stored, handled, and used in accordance with local regulations and with the "Manual of Accident Prevention in Construction" of the Associated General Contractor of America, Inc. Correct any damage to foundations or other work caused by use of explosives. Meeting the requirements of the blasting permit, if issued, is a Contract responsibility.

3.4 EXCAVATION

- A. Excavation consists of removal, placement and disposal of material encountered when establishing required subgrade or finish grade elevations.
 - 1. Excavation includes removal and disposal of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

- B. Rock Excavation: If Rock is encountered the Owner's Geotechnical Engineer will verify that the material qualifies for classification as rock excavation.
1. If rock is encountered in grading, remove to depths as follows:
 - a) Under surfaced areas, to 6" under the respective subgrade for such areas.
 - b) Under grass and planted areas - 12" minimum.
 - c) Under footings – Two feet below bottom of footing, One foot outside of perimeter of footing.
 - d) Under trenches – 6" below bottom of trench.
 2. Contractor shall employ a surveyor licensed in the state of North Carolina to calculate the quantity of material removed as Rock Excavation. The quantity of rock calculated shall not exceed the volume determined by the payment limits. The Owner's Project Representative shall review the quantity calculated within 48 hours of receiving the survey notes.

3.5 EXCAVATION FOR BUILDING PAD AND STRUCTURES

- A. Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction and for review.
- B. Excavations for footings and foundations: Do not disturb bottoms of excavation. Excavate by hand to elevations required just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
 1. Where rock is encountered, carry excavation to required elevations and backfill with crushed stone prior to installation of footing.
- C. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Structures: Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot plus a sufficient distance to permit placing and removal of concrete formwork, installation of services, other construction and for review. Do not disturb bottom of excavations intended for bearing surface.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Cut surface under pavements to comply with cross-sections, elevations and grades as indicated.

3.7 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches of clearance on both sides of pipe or conduit.
- B. Excavate trenches to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
 1. Where rock is encountered, carry excavation to required elevations and backfill with NCDOT #57 crushed stone prior to installation of pipe.
 2. For pipes or conduit less than 6 inches in nominal size, and for flat-bottomed, multiple-duct conduit units, do not excavate beyond indicated depths. Hand-excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

3. For pipes and equipment 6 inches or larger in nominal size, shape bottom of trench to fit bottom of pipe for 90 degrees (bottom 1/4 of the circumference). Fill depressions with tamped sand backfill. At each pipe joint, dig bell holes to relieve pipe bell of loads ensure continuous bearing of pipe barrel on bearing surface.

3.8 EXCAVATION STABILITY

- A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction.
- B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- C. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.

3.9 SUBGRADE INSPECTION

- A. Notify Architect when mass, trench and footing excavations have reached required subgrade. The Architect will arrange for an inspection of conditions by the Owner's Geotechnical Engineer. *Alternative procedures for arranging this review may be implemented at the Owner's written option.*
- B. If the Owner's Geotechnical Engineer determines that the subgrade bearing conditions are unacceptable, the Architect will authorize additional excavation until suitable bearing conditions are encountered.
- C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 1. Completely proof-roll subgrade in one direction ,repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph (5 km/h).
 2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons (13.6 tonnes).
 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- D. Under supervision of the Owner's Geotechnical Engineer, proof-roll subgrade in cut areas below the building pad and pavement(s) with a loaded dump truck or other approved pneumatic tired vehicle. Should any unstable sub-soil be encountered below pavement or structures, break up the top eight inches of ground surface, pulverize, moisture-condition to optimum moisture content, and compact to percentage of maximum density as stated in Percentage of Maximum Density Requirements. Perform this work at no additional cost and/or time to the Contract.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.10 ADDITIONAL EXCAVATION

- A. Protect the subgrade during construction. During wet conditions, the subgrade soils may become saturated and soften, possibly resulting in damage to the subgrade if disturbed by equipment. Correct subgrade damaged in this manner. **No additional payment will be made to correct subgrade damaged in this manner.**

3.11 UNAUTHORIZED EXCAVATION

- A. Correct Unauthorized Excavation as follows:
 - 1. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to Architect.
 - 2. Elsewhere, backfill and compact unauthorized excavations as indicated for authorized excavations of same classification unless otherwise directed by Architect.

3.12 STORAGE OF EXCAVATED MATERIALS

- A. Temporarily stockpile excavated materials acceptable for use as backfill and fill. Place, grade, and shape stockpiles for proper drainage. Cover to prevent windblown dust.
 - 1. Stockpile excavated materials away from edge of excavations. Do not store within the drip line of trees to remain.

3.13 BACKFILL AND FILL

- A. Backfill excavations as promptly as work permits, but not until completion of the following:
 - 1. Acceptance by local authority having jurisdiction of construction below finished grade, including perimeter insulation.
 - 2. Review, approval, and recording of the locations of underground utilities.
 - 3. Removal of concrete formwork.
 - 4. Removal of shoring and bracing (including backfilling of voids with satisfactory materials).
 - 5. Removal of trash and debris from excavation.
 - 6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow or ice.
- C. Ground Surface Preparation: Remove vegetation, debris, obstructions, and deleterious materials from ground surface prior to placement of fills.
- D. Bench sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material. Plow, scarify, bench or break up sloped surfaces flatter than 1 vertical to 4 horizontal so fill material will bond with existing material.
- E. Place soil material in layers to required subgrade elevations, for each area classification listed below, using materials indicated in Part 2 of this Section.
 - 1. Under grassed areas, use satisfactory excavated or borrow material.
 - 2. Under walks, curbs, and pavements, use satisfactory excavated or borrow material.

3. Under building slabs, use satisfactory excavated or borrow materials and drainage/porous fill material as indicated.

3.14 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and that are carried below bottom of such footings or that pass under wall footings. Place concrete to level of bottom of adjacent footing.
- D. Provide 4-inch- (102-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (762 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (102 mm) of concrete before backfilling or placing roadway subbase.
- E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (305 mm) over the utility pipe or conduit.
 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- F. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches (305 mm) over the utility pipe or conduit.
- G. Backfill voids with satisfactory soil while installing and removing shoring and bracing.
- H. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- I. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.
- J. Indicate that all underground lines outside the building footprint, except lawn irrigation lines, shall be required to have a warning tape installed directly above utilities between 6 inches (152 mm) to 24 inches (610 mm) below finished grade.
- K. Do not backfill trenches until any required testing and inspections have been completed and Architect authorizes backfilling. Backfill carefully to avoid damage or displacement of pipe systems.
- L. Under piping and conduit and equipment, use crushed stone where required over rock bearing surface and for correction of unauthorized excavation. Shape excavation bottom to fit bottom 90 degrees of cylinder.
- M. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

3.15 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
- B. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations. Maintain the moisture content of the structural fill materials to within 2% of the optimum moisture content until permanently covered.
- C. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to required density.
 - 1. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.
 - 2. Work wet materials as directed by the Owner's Geotechnical Engineer. Base bids on working material daily for a maximum of five days of acceptable weather.
 - 3. No additional payment will be made for these operations.

3.16 COMPACTION OF SOIL BACKFILL AND FILLS

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- C. Control soil and fill compaction, providing minimum percentage of density indicated for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Architect if soil density tests indicate inadequate compaction.
- D. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density at a moisture content within 2% of optimum in accordance with ASTM D1557:
 - 1. Under structures, building pad and pavements, compact each layer of backfill or fill material at 95 percent maximum density. This includes ground under future expansion areas.
 - 2. Under grass or unpaved areas, compact each layer of backfill or fill material at 90 percent maximum density.
- E. Seal all fill areas at the end of each working day, utilizing a smooth drum roller.

3.17 GRADING

- A. General: Rough grading of areas within the Project, including cut and fill sections and adjacent transition areas, shall be reasonably smooth, compacted and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from either blade-grader or motor patrol except as otherwise indicated. The finished subgrade surface from the grassed areas generally shall be not more than 0.2 feet above or below the final grade or approved cross section, with due allowance for topsoil.
- B. The tolerance for areas within 10 feet of building perimeter, walks and all areas to be paved shall not exceed 0.10 feet above or below the established subgrade. Finish all ditches, swales and gutters to drain readily. Unless otherwise indicated, evenly slope the subgrade to provide drainage away from building walls in all directions at a grade not less than ¼ inch per foot. Provide rounding at top and bottom of cut and fill slopes and at other breaks in grade.
- C. Protection of Graded Areas: Protect newly graded areas and areas of cut, fill and design/subgrade elevations from the actions of the elements and from deterioration as a result of construction operations and weather conditions (frost, rains, snow, sleet, hail, etc.). Repair any settlement or washing that occurs prior to or after acceptance of the work. Fill to required subgrade levels any areas where settlement occurs. Protect trees to remain, and, at all areas of the Site where construction operations are in progress, provide protection for the safety of occupants of the existing facilities.
- D. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- E. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
 - 2. Walks: Plus or minus 1 inch (25 mm).
 - 3. Pavements: Plus or minus 1/2 inch (13 mm).
- F. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.18 PAVEMENT SUBBASE COURSE:

- A. General: Place subbase material, in layers of indicated thickness, over subgrade surface to support a pavement base course.
- B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
- C. Shoulders: Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least at 12" width of shoulder simultaneously with compacting and rolling each layer of subbase course.
- D. Placing: Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

- E. When a compacted subbase course is 6” thick or less, place material in a single layer. When more than 6” thick, place material in equal layers, except no single layer more than 6” or less than 3” in thickness when compacted.
- F. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
- G. On prepared subgrade, place subbase and base course under pavements and walks as follows:
 - 1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 - 2. Place base course material over subbase course under hot-mix asphalt pavement.
 - 3. Shape subbase and base course to required crown elevations and cross-slope grades.
 - 4. Place subbase and base course 6 inches (152 mm) or less in compacted thickness in a single layer.
 - 5. Place subbase and base course that exceeds 6 inches (152 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (152 mm) thick or less than 3 inches (76 mm) thick.
 - 6. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
- H. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 12 inches (305 mm) wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.19 BUILDING SLAB DRAINAGE COURSE

- A. General: Place drainage/porous fill material, over subgrade surface to support concrete building slabs and sidewalks areas indicated.
- B. Place drainage course on subgrades free of mud, frost, snow, or ice.
- C. Placing: Place drainage/porous fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.
- D. When a compacted drainage course is indicated to be 6 inches thick or less, place material in a single layer. When indicated to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

3.20 FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.
 - 1. If in the opinion of the Architect, based on testing service reports and inspection, subgrade or fills have been placed that are below required density, perform additional compaction and testing until required density is obtained.
- B. The Owner will engage, and pay for, the services of a Geotechnical Engineer whose function shall be to afford complete engineering control by testing of the conditions of all footing subgrades, the

placement of all structural fills under structures, building pad and pavement areas, and all compaction where required, and to observe the proof rolling of the building pad and pavement areas.

- C. The Owner's Geotechnical Engineer will be present as deemed necessary during all phases of the Work requiring filling, compaction operations or testing. The Geotechnical Engineer will provide the Architect with written certification that fill and compaction was completed with accepted materials in accordance with the Documents, and give a professional opinion regarding shrinkage or settlement of fill and safe load bearing capacity of fill.
- D. Site Preparation and Proof-rolling: The Owner's Geotechnical Engineer will determine if any additional excavation or in-place densification is necessary to prepare a subgrade for fill placement for slab or pavement support.
- E. Fill Placement and Compaction: The Owner's Geotechnical Engineer will witness all fill operations and take sufficient in-place density tests to verify that the indicated degree of fill compaction is achieved. The Owner's Geotechnical Engineer will observe and approve borrow materials used and shall determine if their existing moisture contents are suitable/acceptable.
- F. Footing Excavation Review: The Owner's Geotechnical Engineer will review the footing excavations for the building foundations. He will verify that the design bearing pressures are available and that no loose or soft areas exist beneath the bearing surfaces of the footing excavations.
- G. The Owner's Geotechnical Engineer will submit two (2) copies each of his reports, recommendations and/or opinions to the Architect/Engineer and the Owner. Pertinent information will be provided to the Contractor as required.

3.21 EROSION CONTROL:

- A. Provide erosion control methods in accordance with requirements of authorities having jurisdiction, the North Carolina Erosion and Sediment Control Planning and Design Manual, and as indicated in the Contract Documents.

3.22 PROTECTION

- A. Repair and reestablish grades in settled, eroded, and rutted areas to indicated tolerances.
- B. Reconditioning Compacted Areas: Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, reshape, and compact to required density prior to further construction.
- C. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.
- D. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

END OF SECTION 31 00 00

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protection of existing trees.
 - 2. Clearing and grubbing.
 - 3. Removal of trees and other vegetation.
 - 4. Topsoil stripping.

1.3 DEFINITIONS

- A. Remove: Remove and legally dispose of items indicated. Removal includes digging out and off-site disposing of stumps and roots.
- B. Tree Protection Zone: The area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.
- C. Topsoil: Friable, clay loam surface soil, found in varying depths.

1.4 MATERIALS OWNERSHIP

- A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees, plantings and other improvements adjoining the construction that might be misconstrued as damage caused by the Work.

1.6 PROJECT CONDITIONS

- A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
 - 1. Protect existing improvements on adjoining properties and on Owner's property.

2. Restore existing improvements damaged by clearing operations to their original condition.
- C. The conditions existing at the time of inspection for bidding purposes will be maintained by the Owner to the extent practical. However, minor variations may occur due to natural occurrences prior to the start of clearing work.
- D. Do not commence site-clearing operations until erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 TREE PROTECTION FENCING

- A. Tree protection fencing shall conform to standard and specification 3.38-2 (plastic fence) of the North Carolina Erosion and Sediment Control Planning and Design Manual.

PART 3 – EXECUTION

3.1 PROTECTION OF EXISTING TREES AND VEGETATION

- A. Omitted.
- B. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
- C. Provide protection for roots over 1-1/2 inch diameter that are cut during construction operations. Coat cut faces with emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.
- D. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to Architect.

3.2 SITE CLEARING

- A. General: Remove trees, shrubs, grass and other vegetation as required to permit installation of the Work. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of the Work.
- B. Clearing and Grubbing: Clear site of trees, shrubs and other vegetation within the clearing limits indicated.
 1. Completely remove stumps, roots, and other debris.
 2. Use only hand methods for grubbing inside drip line of trees indicated to remain.
 3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact to a density equal to adjacent original ground.

- C. Selective Clearing: Clear areas designated as “Selective Clearing” of all ground covers, underbrush and trees less than 6-inches in diameter at breast height. Coordinate extent of material removed with Architect.
 - 1. Remove trees that appear to be dying or weakening for any reason and at any point during construction up to and including Substantial Completion at the Architect’s direction.

3.3 TOPSOIL STRIPPING

- A. Remove heavy growths of grass from areas before stripping.
- B. Strip topsoil to whatever depths are encountered, but to a minimum of at least 4 inches.
- C. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other material.
 - 1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
- D. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
- E. Temporarily stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.
 - 1. Do not stockpile topsoil within tree protection zones.
 - 2. Stockpile surplus topsoil to allow for respreading deeper topsoil.
- F. Dispose of unsuitable or excess topsoil in a legal manner off-site.

3.4 DISPOSAL OF WASTE MATERIALS

- A. Burning on Owner's Property: Burning shall not be allowed on this site.
- B. Removal from Owner's Property: Remove waste materials generated by clearing operations from Owner's property and dispose of in a legal manner off-site.
 - 1. Remove waste materials and debris from the site in a manner to prevent spillage. Pavements and the area adjacent to the site shall remain free from mud, dirt and debris at all times.
 - 2. Clean up debris resulting from site clearing operations continuously with the progress of the work.

END OF SECTION 31 10 00

SECTION 31 31 16 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

- A. This Section includes soil treatment for termite control.

1.3 SUBMITTALS

- A. Product data and application instructions.
- B. Certification that products used comply with U.S. Environmental Protection Agency (EPA) regulations for termiticides.

1.4 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for preparing substrate and application.
- B. Engage a professional pest control operator who is licensed according to regulations of governing authorities to apply soil treatment solution.
- C. Use only termiticides that bear a federal registration number of the EPA and are approved by the North Carolina Department of Agriculture, Structural Pest Control Division. Termiticides shall be non- injurious to plants.

1.5 JOB CONDITIONS

- A. Restrictions: Do not apply soil treatment solution until excavating, filling, and grading operations are completed, except as otherwise required in construction operations.
- B. To ensure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.

1.6 WARRANTY

- A. Warranty: Furnish written warranty, executed by Applicator and Contractor, certifying that applied soil termiticide treatment will prevent infestation of subterranean termites. If subterranean termite activity is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
- B. Warranty Period: 5 years from date of Substantial Completion. Also, include a renewable warranty for the Owner's future consideration.

- C. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT SOLUTION:

- A. Use an emulsible concentrate insecticide for dilution with water, specially formulated to prevent infestation by termites. Fuel oil will not be permitted as a diluent. Provide a working solution of one of the following chemical elements and concentrations:
1. Termidor 80 WG
 2. Premise 75
- B. Other solutions may be used as recommended by Applicator and if acceptable to Guilford County Schools. Use only soil treatment solutions that are not injurious to planting.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Surface Preparation: Remove foreign matter that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placing compacted fill under slabs if recommended by toxicant manufacturer.
- B. Mixing: Mix emulsible concentrate termiticide into solution on-site with confirmation by Owner's testing Laboratory.
- C. Application Rates: Apply soil treatment solution as follows:
1. Under slab-on-grade structures, treat soil before concrete slabs are placed, using the following application rates:
 - a) Apply 4 gallons of chemical solution per 10 linear feet (5.1 L of chemical solution per meter) to soil in critical areas under slab, including entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers.
 - b) Apply 1 gallon of chemical solution per 10 sq. ft. (4.1 L of chemical solution per sq. m) as an overall treatment under slab and attached slab areas where fill is soil or unwashed gravel. Apply 1-1/2 gallon of chemical solution per 10 sq. ft. (6.1 L of chemical solution per sq. m) to areas where fill is washed gravel or other coarse absorbent material.
 - c) Apply 4 gallons of chemical solution per 10 linear feet (5.1 L of chemical solution per meter) of trench for each 12 inches (305 mm) of depth from grade to footing, along outside edge of building. Dig a trench 6 to 8 inches (152 to 203 mm) wide along outside of foundation to a depth of not less than 12 inches (305 mm). Punch holes to top of footing at not more than 12 inches (305 mm) o.c. and apply chemical solution. Mix chemical solution with the soil as it is being replaced in the trench.

- d) Apply 4 gallons of chemical solution per 10 linear feet (5.1 L of chemical solution per meter) of trench, for each 12 inches (305 mm) of depth from grade to footing, along outside of foundation walls, including part beneath entrance platform porches, etc.
 - e) Apply 4 gallons of chemical solution per 10 linear feet (5.1 L of chemical solution per meter) along the inside and outside of foundation walls of porches.
 - f) Apply 1 gallon of chemical solution per 10 sq. ft. (4.1 L of chemical solution per sq. m) of soil surface as an overall treatment only where attached concrete platform and porches are on fill or ground.
- 2. At hollow masonry foundations or grade beams, treat voids at rate of 2 gallons per 10 linear feet 2.6 L per meter, poured directly into the hollow spaces.
 - 3. At expansion joints, control joints, and areas where slabs will be penetrated, apply at rate of 4 gallons per 10 linear feet (5.1 L per linear m) of penetration.
- D. Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs after areas are covered by other construction.
 - E. Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.
 - F. Allow not less than 12 hours drying time after application before beginning concrete placement or other construction activities.
 - G. Contractor shall contact Guilford County School Maintenance Department seven days prior to applying soil treatment for witnessing of soil treatment.
 - H. Termite treatment of occupied spaces by Guilford County Schools being renovated shall not be treated during school hours.
 - I. Upon application, the contractor shall request soil samples test by the North Carolina Department of Agriculture Structural Pest Control Division (919) 733-6100. The pesticide recovery levels must meet the minimum requirement of the North Carolina Department of Agricultural Structural Pest Control Division prior to proceeding with construction. The contractor shall be responsible for all cost associated with the reapplication of the pesticide if the minimum pesticide recovery levels are not met.
 - J.

3.2 RE-TREATMENT AND REPAIR

- A. If subterranean termite activity is discovered during the warranty period, the contractor shall re-treat the soil and repair or replace damage caused by termite infestation, without cost to the Owner and to the satisfaction of the architect.
- B. The contractor shall be responsible for all cost associated with re-treatment including but not limited to providing access to the soil and repairing the resulting damage.

END OF SECTION 31 31 16

SECTION 32 12 00 - ASPHALT PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Hot-mix asphalt paving over prepared subbase.
 - 2. Hot –mix asphalt patching.

1.3 SUBMITTALS

- A. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- B. Material Certificates: Certificates signed by manufacturers certifying that each material complies with requirements.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed hot-mix asphalt paving similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Asphalt paving materials and installation shall conform to the requirements of the latest edition of the North Carolina Department of Transportation’s (NCDOT) Standard Specifications for Roads and Structures.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if substrate is wet or excessively damp or if the following conditions are not met:
 - 1. Prime Coat: Minimum ambient temperature away from artificial heat is 40 deg F (4 deg C) or above for plant mix, 50 deg F (10 deg C) or above for surface treatment, and when the temperature has not been below 35 deg F (1 deg C) for 12 hours immediately prior to application. Do not apply prime coats on a frozen surface or when the weather is foggy or rainy.
 - 2. Tack Coats: Minimum ambient temperature away from artificial heat is 35 deg F (1 deg C) or above and when the temperature has not been below 35 deg F (1 deg C) for 12 hours immediately prior to application. Do not apply tack coats on a frozen surface or when the weather is foggy or rainy.

3. Asphalt Base Course: Minimum air and surface temperature of 35 deg F (1 deg C) and rising at time of placement.
4. Asphalt Surface Course: Minimum air and surface temperature of 40 deg F (4 deg C) and rising at time of placement.

1.6 TESTING AND INSPECTION

- A. The Owner's testing agency will observe the asphalt placement in the parking lots.

PART 2 - PRODUCTS

2.1 ASPHALT-AGGREGATE MIXTURE

- A. General: Provide plant-mixed, hot-laid asphalt-aggregate mixture complying with the requirements of the NCDOT Standard Specifications for Roads and Structures and as recommended by local paving authorities to suit project conditions.

2.2 ASPHALT MATERIALS

- A. Tack Coat: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- B. Prime Coat: Asphalt emulsion prime conforming to NCDOT requirements.

2.3 AUXILIARY MATERIALS

- A. Paving Geotextile: Nonwoven polypropylene, specifically designed for paving applications, resistant to chemical attack, rot, and mildew.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Notify Architect in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

3.2 MAINTENANCE AND PROTECTION OF TRAFFIC

- A. Utilize flagmen, barricades, warning signs and warning lights as required by the Manual on Uniform Traffic Control Devices (MUTCD).

3.3 PATCHING AND REPAIRS

- A. Patching: Saw cut perimeter of patch and excavate existing pavement section to sound base. Recompact new subgrade. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically.
 - 1. Tack coat faces of excavation and allow to cure before paving.
 - 2. Fill excavation with dense-graded, hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.
- B. Leveling Course: Install and compact leveling course consisting of dense-graded, hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch (25 mm) in existing pavements.
 - 1. Install leveling wedges in compacted lifts not exceeding 3 inches (75 mm) thick.
- C. Crack and Joint Filling: Remove existing filler material from cracks or joints to a depth of 1/4 inch (6 mm). Refill with asphalt joint-filling material to restore watertight condition. Remove excess filler that has accumulated near cracks or joints.
- D. Tack Coat: Apply uniformly to existing surfaces of previously constructed asphalt or Portland cement concrete paving and to surfaces abutting or projecting into new, hot-mix asphalt pavement. Apply at a uniform rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m) of surface.
 - 1. Allow tack coat to cure undisturbed before paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillage and clean affected surfaces.

3.4 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- C. Prime Coat: For asphalt sections less than 4" thick, apply uniformly over surface of compacted-aggregate base at a rate of 0.15 to 0.50 gal./sq. yd. (0.7 to 2.3 L/sq. m). Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 24 hours minimum.
 - 1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use just enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
 - 2. Protect primed substrate from damage until ready to receive paving.

3.5 OMITTED.

3.6 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt mix on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness, when compacted.
 - 1. Place hot-mix asphalt base course in number of lifts and thickness indicated.
 - 2. Spread mix at minimum temperature of 225 deg F (107 deg C).
- B. Place paving in consecutive strips not less than 10 feet (3 m) wide, except where infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete asphalt base course for a section before placing intermediate or surface courses.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.7 JOINTS

- A. Construct joints between old and new pavement, or between successive days work, to ensure continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat.
 - 2. Offset longitudinal joints in successive courses a minimum of 6 inches (150 mm).
 - 3. Offset transverse joints in successive courses a minimum of 24 inches (600 mm).
 - 4. Construct transverse joints as required by the NCDOT Standard Specifications for Roads and Structures.
 - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

3.8 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).
- B. Breakdown Rolling: Accomplish breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Repair surfaces by loosening displaced material, filling with hot-mix asphalt, and rerolling to required elevations.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling, while hot-mix asphalt is still hot enough to achieve indicated density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 95 percent of reference laboratory density according to ASTM D 1559.

- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm. Surface course average density shall be 95 percent of reference laboratory density.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method. Edges adjacent to curbs and curb and gutter sections shall be flush with the edge of concrete.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials. Remove paving course over area affected and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.9 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/4 inch (6 mm).
 - 2. Surface Course: Plus 1/4 inch (6 mm), no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch (6 mm).
 - 2. Surface Course: 3/16 inch (3 mm).
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).
- C. Check surface areas at intervals as directed by Architect.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing agency to perform field inspections and tests and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from requirements.
- B. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with requirements.
- C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with requirements.

END OF SECTION 32 12 00

SECTION 32 92 00 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Fine grading and preparing lawn areas (including courtyards)
 - 2. Topsoil Placement
 - 3. Soil amendments
 - 4. Fertilizers
 - 5. Seeding
 - 6. Sodding
 - 7. Lawn Restoration

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Lawns: All areas disturbed by construction and not otherwise covered by paving, buildings or other structures.

1.4 SUBMITTALS

- A. Certification by product manufacturer that the following products supplied comply with requirements:
 - 1. Grass Seed
 - a) Certification of grass seed from seed vendor for each grass-seed mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Do not except seed containing “prohibited” noxious weed seed.
 - b) North Carolina Crop Improvement Association Certification label for each bag of seed.
- B. Installers qualifications
 - 1. Provide a list, with references, of the past three projects of a similar magnitude.
- C. Topsoil Amendment Plan.
 - 1. Provide copy of topsoil testing report.
 - 2. List of amendments proposed for topsoil, including application rates.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer, who has successfully completed lawn establishment projects similar in size and complexity to this project. The installer's primary business (defined as a minimum of 60% of total billings) shall be establishment of lawns.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.
- B. Sod: Harvest, deliver, store and handle sod according to the requirements of the American Sod Producers Association (ASPA) "Specifications for Turfgrass Sod Materials and Transplanting/Installing".

1.7 COORDINATION AND SCHEDULING

- A. Planting Season: Sow lawn seed during normal planting seasons for type of lawn work required.
 - 1. Late Winter/ Early Spring Planting Season:
 - a) Coastal: Dec. 1- Apr. 15
 - b) Piedmont: Jan. 1- May 1
 - c) Mountains:
 - (1) Above 2500 ft. Feb. 15-May 15
 - (2) Below 2500 ft. Feb. 1- May 1
 - 2. Fall Planting Season:
 - a) Coastal: Aug. 15- Dec. 30
 - b) Piedmont: Aug. 15-Dec. 30
 - c) Mountains: Aug. 15- Dec. 15
 - 3. Summer Planting Season:
 - a) Coastal: Apr. 15-Aug. 15
 - b) Piedmont: May 1- Aug. 15
 - c) Mountains: May 15- Aug. 15
- B. Weather Limitations: Proceed with planting only when existing and forecast weather conditions are suitable for work.
- C. Lawn Seeding Schedule
 - 1. Refer to the drawings for early seeding requirements for specified lawn areas.

1.8 LIMITS OF SEEDING

- A. Spread topsoil and seed all lawn areas.

1.9 LIMITS OF LAWN RENOVATION

- A. All existing lawn areas disturbed by construction activities.

1.10 PAYMENT PROCEDURES FOR LAWNS AND GRASSES

- A. Establish a line item in the Schedule of Values for Lawn Maintenance. This line item shall represent a minimum of thirty percent (30%) of the total value of the seeding for the project.
- B. Lawn maintenance will be paid on a monthly basis, following the satisfactory maintenance of the lawns.

PART 2 – PRODUCTS

2.1 FERTILIZER

- A. Fertilizer needs should be determined by soil testing. Soil testing is provided free of charge by the North Carolina Department of Agriculture soil testing laboratory. When soil testing is not available follow guidelines on the individual specification sheet for the seeding mix chosen.
- B. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- C. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- D. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in topsoil analysis reports from a qualified soil-testing agency.
 - 2. Minimum Composition: No less than 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

2.2 SEED

- A. Grass Seed: All grass seed must be fresh, clean, and dry.
- B. Seed Species are as shown on drawing.
- C. All seed shall be Blue Tag certified by the North Carolina Crop Improvement Association. Tags must be attached to each bag delivered on site.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Peat Mulch: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.
- C. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 percent of dry weight.
- D. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

2.4 EROSION-CONTROL MATERIALS

- A. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb/sq. yd. (0.5 kg/sq. m), with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and for conditions affecting performance of the Work. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Protect adjacent and adjoining areas from hydroseed overspraying.

3.3 TOPSOIL PLACEMENT FOR LAWNS

- A. Limit subgrade preparation to areas that will be planted in the immediate future.
- B. Loosen subgrade to a minimum depth of 4 inches. Remove stones, sticks and roots larger than 2 inches in any dimension from subgrade. Completely remove trash and other extraneous debris from subgrade.
- C. Sift topsoil to remove stones and other objects larger than 1" in any dimension. Maximum object size for topsoil shall be achieved by sifting not by hand removal or raking following placement of topsoil.
- D. Spread topsoil to a minimum depth of six inches (6").

3.4 SEEDING LAWNS

- A. Sow seed with a spreader or a seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h). Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other.
- B. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
- C. Sow seed at the following rates:
 - 1. Seeding Rate: Base seeding rates on the guidelines of the individual specification sheet for the chosen seeding mix.
- D. Rake seed lightly into top 1/4 inch of topsoil, roll lightly, and water with fine spray.
- E. Protect seeded areas 3:1 slope/grade or steeper against erosion by providing erosion-control blankets installed and stapled according to manufacturer's recommendations.
- F. Protect seeded areas less than 3:1 slope/grade against erosion by spreading straw mulch after completion of seeding operations. Spread uniformly at a minimum rate of 2 tons per acre (45 kg per 100 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into topsoil by suitable mechanical equipment.

3.5 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from sidewalks and paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

END OF SECTION 32 92 00

SECTION 33 40 00 - STORM DRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY:

- A. This Section includes the roof drainage collection system, the storm sewerage system piping and appurtenances from a point 5 feet outside the building to the point of disposal, including storm systems in the water quality pond.

1.3 SUBMITTALS

- A. Product data for:
 - 1. Concrete pipe
 - 2. Corrugated aluminum pipe
 - 3. Polyethylene pipe
 - 4. Ductile iron pipe
 - 5. Frames and covers.
 - 6. Grates
- B. Certification, signed by material producer and contractor, that standard precast and cast in place concrete storm drainage manholes and Drop Inlets comply with NCDOT Standards and Specifications for Road and Structures/ the City of Archdale Standard Details/ or as specified on drawings.
- C. NCDOT approved job mix for bedding stone.
- D. Shop drawings for:
 - 1. Non-standard precast or cast-in-place concrete storm drainage manholes and Drop Inlets.
 - 2. Trench drain system.
 - 3. Cleanouts
 - 4. Underdrains
 - 5. Stormwater Management Basin Outlet structures, including: Riser pipe, outfall pipe, riser anchoring, anti-seep collars, trash rack and anti-vortex device.
- E. Record drawings of installed storm drainage system.

1.4 QUALITY ASSURANCE

- A. Environmental Compliance: Comply with applicable portions of local environmental agency regulations pertaining to storm sewerage systems.
- B. Utility Compliance: Comply with state and local regulations and standards pertaining to storm sewerage systems.
- C. All materials shall be new and free of defects (i.e. pipe shall not have chipped spigots or bells).

1.5 PROJECT CONDITIONS

- A. Site Information: Perform site surveys, research public utility records, and verify existing utility locations. Verify that storm sewerage system piping may be installed in compliance with original design and referenced standards.
- B. Locate existing structures and piping to be closed and abandoned.
- C. Existing Utilities: Do not interrupt existing storm sewer serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary storm sewer services.
 - 1. Notify Architect not less than 48 hours in advance of proposed storm sewer interruptions.
 - 2. Do not proceed with storm sewer interruptions without receiving Architect's written permission.
- D. Existing utilities across or along the line of work are indicated only in an approximate location. Locate all underground lines and structures. Call "NC One Call" at 1-800-632-4949 prior to construction. If utilities are marked that are not shown on the plans, locate utility vertically and horizontally and provide information to architect.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate with interior building storm drainage piping.
- B. Coordinate with other utility work.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials used for construction of the storm sewerage system shall comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Road and Structures/ the local municipality/ or as specified on drawings.

2.2 PIPE AND FITTINGS

- A. Provide pipe and pipe fitting materials compatible with each other. Pipe materials are indicated on the drawings.
- B. Reinforced Concrete Pipe (RCP): Shall conform to the requirements of ASTM C76/AASHTO M170, Class III, unless otherwise indicated.
- C. O-Ring Gasket Reinforced Concrete Pipe: Shall conform to the requirements of ASTM C76/AASHTO M170, Class III, unless otherwise indicated. Joints shall conform to the requirements of ASTM C443/AASHTO M198.
- D. Corrugated Polyethylene Pipe (P.E.): Shall have a smooth lined interior and meet the requirements of ASTM F405 or AASHTO M252 for 10" diameter and smaller, and ASTM F667 or AASHTO M294 for 12" diameter and larger.
- E. PVC Storm Sewer Pipe: Shall conform to the requirements of ASTM D3034, a maximum SDR of 21, with bell and spigot ends for gasketed joints with ASTM F 477 elastomeric seals.
 - a) Connections to the building downspouts shall be made with Schedule 40 PVC.
- F. Ductile Iron Storm Sewer Pipe: Shall conform to the requirements of AWWA C151, Class 52. Flanged joints shall conform to the requirements of AWWA C115.

- G. Corrugated Aluminum Pipe: Shall conform to the requirements of ASTM B 745/B 745M-15.

2.3 MANHOLES

- A. Precast Concrete Manholes: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- B. Cast-in-Place Manholes: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- C. Manhole Steps and Safety Slabs: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- D. Manhole Frames and Covers: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.

2.4 CLEANOUTS

- A. Cast-iron ferrule and countersunk brass cleanout plug, with round cast-iron access frame and heavy-duty, secured, scoriated cast-iron cover.

2.5 DROP INLETS

- A. Precast Concrete Drop Inlets: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- B. Cast-in-Place Drop Inlets: Comply with the requirements of the latest edition of North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- C. Drop Inlet Steps, Safety Slabs and Inlet Shaping: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- D. Drop Inlet Frames and Grates: Comply with the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures.
- E. Plastic Drain Basins: As shown on plans or an approved equivalent.

2.6 OMITTED

2.7 CONCRETE AND REINFORCEMENT

- A. Concrete: Conform to the requirements of NCDOT 3000 psi. concrete.
- B. Reinforcement: Steel conforming to the following:
 - 1. Fabric: ASTM A 185 welded wire fabric, plain.
 - 2. Reinforcement Bars: ASTM A 615, Grade 60, deformed.

2.8 UNDERDRAINS

- A. Underdrains and combination underdrains: Conform to the requirements of the latest edition of the North Carolina Department of Transportation's Standard Specification for Roads and Structures for the type of underdrain, unless otherwise indicated.
 - 1. PVC underdrains shall conform to the requirements of ASTM F758, Type PS 28 or ASTM F949.
 - 2. PE corrugated underdrain pipe shall conform to AASHTO M252.

- B. Provide a filter fabric “sock” wrapping for all underdrain pipe.

2.9 END WALLS AND END SECTIONS

- A. End walls: Conform to the requirements of the latest edition of the North Carolina Department of Transportation’s Standard Specification for Roads and Structures.
- B. End sections: Conform to the requirements of the latest edition of the North Carolina Department of Transportation’s Standard Specification for Roads and Structures.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install the storm sewerage system in accordance with the latest edition of the North Carolina Department of Transportation’s Standard Specification for Road and Structures/ the local municipality/ or as specified on drawings.

3.2 PREPARATION OF FOUNDATION FOR BURIED STORM SEWERAGE SYSTEMS

- A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.
- B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill with clean sand or pea gravel to indicated level.
- C. Install pipe bedding conforming to the requirements of the latest edition of the North Carolina Department of Transportation’s Standard Specification for Roads and Structures.

3.3 PIPE INSTALLATION

- A. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- B. Use proper size increasers, reducers, and couplings, where different size or material of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.
- C. Extend storm sewerage system piping to connect to building storm drains, of sizes and in locations indicated.
- D. Join and install concrete pipe and fittings per NCDOT specifications/ the local municipality/ or as specified on drawings.
- E. Join and install PE pipe and fittings per manufacturer’s recommendations.
- F. Join different types of pipe with standard manufactured couplings and fittings intended for that purpose.

3.4 MANHOLES

- A. General: Install manholes complete with accessories as indicated. Form continuous concrete or split pipe section channel and benches between inlets and outlet. Set tops of frames and covers flush with finish grade, unless otherwise indicated.
- B. Place precast concrete manhole sections as indicated, and install in accordance with ASTM C 891.
- C. Construct cast-in-place manholes as indicated.

- D. Apply bituminous mastic coating at joints of sections.

3.5 CLEANOUTS

- A. Install cleanouts and extension from sewer pipe to cleanout at grade as indicated. Set cleanout frame and cover in concrete block 12 by 12 by 6 inches deep, except where location is in concrete paving. Set top of cleanout flush with finish grade.

3.6 DROP INLETS

- A. Construct drop inlets to sizes and shapes indicated.
- B. Set frames and grates to elevations indicated.

3.7 OMITTED

3.8 FIELD QUALITY CONTROL

- A. Cleaning: Clear interior of piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
 - 1. In large, accessible piping, brushes and brooms may be used for cleaning.
 - 2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.
 - 3. Flush piping between manholes and drop inlets to remove collected debris. Flush pipes through an approved erosion and sediment control measure.
- B. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.
 - 1. Make inspections after pipe between manholes and manhole locations has been installed and approximately 2 feet of backfill is in place, and again at completion of project.
 - 2. If inspection indicates poor alignment, debris, displaced pipe, infiltration, or other defects correct such defects and reinspect.

3.9 RECORD DRAWINGS

- A. Contractor shall furnish to architect surveyed as-built drawings of the actual locations and inverts of all storm sewer structures and piping which shall be furnished by a surveyor licensed in the state of North Carolina and employed by the Contractor.

END OF SECTION 33 40 00

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