STATE OF DELAWARE
OMB/DIVISION OF FACILITIES MANAGEMENT
OMB/DFM CONTRACT # MJ0208000002

SPECIFICATIONS
FOR

New Sussex County Family Court Buildings

AT

100 East Market Street
Georgetown, DE 19947

FOR

Delaware Family Court

PREPARED
BY

TEVEBAUGH ARCHITECTURE
2 MILL RD, SUITE 210
WILMINGTON, DE

ISSUED FOR
BID PACK 0 – BID SET

FEBRUARY 04, 2022

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SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

Architect:
William J. Lenihan, AIA
Tevebaugh Associates, Inc.
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Wilmington, DE 19806
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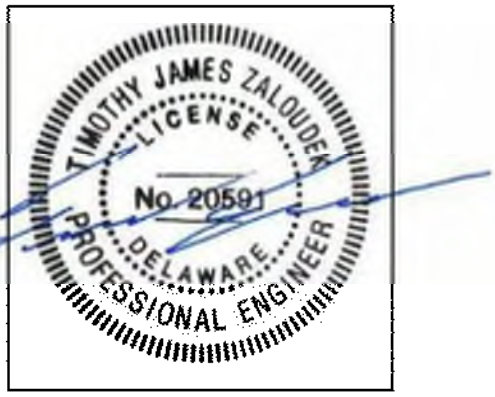
DE License S5-7202

Civil Engineer:
Kenneth James Taylor, Jr., P.E.
Duffield Associates
5400 Limestone Road
Wilmington, DE 19808
302-239-6634
DE License No. 21140

MEP Engineer:
Timothy J. Zaloudak, P.E.
WSP USA
7067 Columbia Gateway Drive, Suite 250
Columbia, Maryland 21046
410-579-8100
DE License 20591



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LIST OF DRAWING SHEETS

SUBMISSIONS:

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Sections issued for reference noted with an “O”.
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GENERAL				
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CS02	DRAWING LIST, NOTES, & ABBREVIATIONS	X		
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ADVERTISEMENT FOR BIDS

Sealed bids for **OMB/DFM Contract No. MJ0208000002 – New Sussex County Family Court Building – Bid Pack "0"**, will be received by the State of Delaware, Office of Management and Budget, Division of Facilities Management, at 540 S. DuPont Highway, Suite 1, Dover, Delaware 19901 until 10:00AM local time on March 24, 2022, at which time they will be publicly opened and read aloud in the Conference Room. Bidder bears the risk of late delivery. Any bids received after the stated time will be returned unopened.

Project involves excavation, ductbank and conduit installation, sidewalk removal/reinstallation, and misc. concrete for future utility relocation on the existing site located in Georgetown, Delaware.

A **MANDATORY** Pre-Bid Meeting will be held on Wednesday, March 09, 2022, at 11:00AM at Division of Facilities Management Sussex Maintenance Shop, 23708 Shortly Road, Georgetown, Delaware for the purpose of establishing the listing of subcontractors and to answer questions. Representatives of each party to any Joint Venture must attend this meeting. **ATTENDANCE OF THIS MEETING IS A PREREQUISITE FOR BIDDING ON THIS CONTRACT.**

Sealed bids shall be addressed to the Division of Facilities Management, 540 S. DuPont Highway, Suite 1, Dover, Delaware 19901. The outer envelope should clearly indicate: **"OMB/DFM CONTRACT NO. MJ0208000002 – NEW SUSSEX COUNTY FAMILY COURT BUILDING – BID PACK "0" - SEALED BID - DO NOT OPEN."**

Contract documents may be examined at the office of the construction manager, Wohlsen Construction Company, 501 Carr Road, Suite 101, Wilmington, Delaware 19809, on or after February 23, 2022. Documents may be viewed and downloaded at Wohlsen's Building Connected site on or after February 23, 2022. Interested bidders are to register as bidders with Wohlsen Construction by contacting David Vandegrift dvandegrift@wohlsen.com. Reference the contract number and Bid Package you are interested in bidding. Upon registering, the bidder will receive electronic access to the bidding documents via an email notice. It is the responsibility of each bidder to review and coordinate all project documents. This includes plans, specifications and addendums. Contract documents may be purchased after bidders register with Wohlsen Construction from RCI Printing and Graphics, 298 Churchmans Road, New Castle, De 19720; Phone: 302-328-5019.

Bidders will not be subject to discrimination on the basis of race, creed, color, sex, sexual orientation, gender identity or national origin in consideration of this award, and Minority Business Enterprises, Disadvantaged Business Enterprises, Women-Owned Business Enterprises and Veteran-Owned Business Enterprises will be afforded full opportunity to submit bids on this contract. Each bid must be accompanied by a bid security equivalent to ten percent of the bid amount and all additive alternates. The successful bidder must post a performance bond and payment bond in a sum equal to 100 percent of the contract price upon execution of the contract. The Owner reserves the right to reject any or all bids and to waive any informalities therein. The Owner may extend the time and place for the opening of the bids from that described in the advertisement, with not less than two calendar days notice by certified delivery, facsimile machine or other electronic means to those bidders receiving plans.

END OF ADVERTISEMENT FOR BIDS

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SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

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ARTICLE 1: GENERAL

1.1 DEFINITIONS

1.1.1 Whenever the following terms are used, their intent and meaning shall be interpreted as follows:

1.2 STATE: The State of Delaware.

1.3 AGENCY: Contracting State Agency as noted on cover sheet.

1.4 DESIGNATED OFFICIAL: The agent authorized to act for the Agency.

1.5 BIDDING DOCUMENTS: Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

1.6 CONTRACT DOCUMENTS: The Contract Documents consist of the, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the form of agreement between the Owner and the Contractor, Drawings (if any), Specifications (Project Manual), and all addenda.

1.7 AGREEMENT: The form of the Agreement shall be AIA Document A132, Standard Form of Agreement between Owner and Contractor where the basis of payment is a STIPULATED SUM. In the case of conflict between the instructions contained therein and the General Requirements herein, these General Requirements shall prevail.

1.8 GENERAL REQUIREMENTS (or CONDITIONS): General Requirements (or conditions) are instructions pertaining to the Bidding Documents and to contracts in general. They contain, in summary, requirements of laws of the State; policies of the Agency and instructions to bidders.

1.9 SPECIAL PROVISIONS: Special Provisions are specific conditions or requirements peculiar to the bidding documents and to the contract under consideration and are supplemental to the General Requirements. Should the Special Provisions conflict with the General Requirements, the Special Provisions shall prevail.

1.10 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.11 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.

1.12 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.

1.13 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

1.14 BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).

1.15 ALTERNATE BID (or ALTERNATE): An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents is accepted.

1.16 UNIT PRICE: An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

1.17 SURETY: The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.

1.18 BIDDER'S DEPOSIT: The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.

1.19 CONTRACT: The written agreement covering the furnishing and delivery of material or work to be performed.

1.20 CONTRACTOR: Any individual, firm or corporation with whom a contract is made by the Agency.

1.21 SUBCONTRACTOR: An individual, partnership or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.

1.22 CONTRACT BOND: The approved form of security furnished by the contractor and his surety as a guaranty of good faith on the part of the contractor to execute the work in accordance with the terms of the contract.

ARTICLE 2: BIDDER'S REPRESENTATIONS

2.1 PRE-BID MEETING

2.1.1 A pre-bid meeting for this project will be held at the time and place designated. Attendance at this meeting is a pre-requisite for submitting a Bid, unless this requirement is specifically waived elsewhere in the Bid Documents.

2.2 By submitting a Bid, the Bidder represents that:

2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.

2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder's his personal observations with the requirements of the proposed Contract Documents.

2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.

2.3 JOINT VENTURE REQUIREMENTS

2.3.1 For Public Works Contracts, each Joint Venturer shall be qualified and capable to complete the Work with their own forces.

2.3.2 Included with the Bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Venturers involved.

2.3.3 All required Bid Bonds, Performance Bonds, Material and Labor Payment Bonds must be executed by both Joint Venturers and be placed in both of their names.

2.3.4 All required insurance certificates shall name both Joint Venturers.

2.3.5 Both Joint Venturers shall sign the Bid Form.

2.3.6 Both Joint Venturers shall include their Federal E.I. Number with the Bid.

2.3.7 In the event of a mandatory Pre-bid Meeting, each Joint Venturer shall have a representative in attendance.

2.3.8 Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the State.

2.4 ASSIGNMENT OF ANTITRUST CLAIMS

2.4.1 As consideration for the award and execution by the Owner of this contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this contract.

ARTICLE 3: BIDDING DOCUMENTS

3.1 COPIES OF BID DOCUMENTS

3.1.1 The construction manager will manage sub-contractors and collect bidding documents. The construction manager will complete their review of the bidding documents, then supply documentation to the Architect for review.

3.1.2 Bidders may obtain complete sets of the Bidding Documents from the Construction Manager designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein.

3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. The issuing Agency nor the Architect assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Construction Manager immediately.

3.1.4 The Agency and Construction Manager may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Construction Manager.

3.2.2 Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Construction Manager at least seven days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.

3.2.3 The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specification compliance will be the responsibility of the Bidder.

3.2.4 Unless otherwise provided in the Contract Documents, the Contractor assigned, shall provide and pay for all permits, labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.

3.2.5 The Owner will bear the costs for all impact and user fees associated with the project.

3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.

3.3.2 Requests for substitutions shall be made in writing to the Construction Manager at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect’s decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.

3.3.3 If the Architect approves a substitution prior to the receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding.

3.3.4 The Construction Manager shall have no obligation to consider any substitutions after the Contract award.

3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by the Architect to have received a complete set of the Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 No Addenda will be issued later than 2 calendar days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of bids.

3.4.4 Each bidder shall ascertain prior to submitting his Bid that they have received all Addenda issued, and shall acknowledge their receipt in their Bid in the appropriate space. Not acknowledging an issued Addenda could be grounds for determining a bid to be non-responsive.

ARTICLE 4: BIDDING PROCEDURES

4.1 PREPARATION OF BIDS

4.1.1 Submit the bids on the Bid Forms included with the Bidding Documents.

4.1.2 Submit the original Bid Form for each bid. Bid Forms may be removed from the project manual for this purpose.

4.1.3 Execute all blanks on the Bid Form in a non-erasable medium (typewriter or manually in ink).

4.1.4 Where so indicated by the makeup on the Bid Form, express sums in both words and figures, in case of discrepancy between the two, the written amount shall govern.

4.1.5 Interlineations, alterations or erasures must be initialed by the signer of the Bid.

4.1.6 BID ALL REQUESTED ALTERNATES AND UNIT PRICES, IF ANY. If there is no change in the Base Bid for an Alternate, enter “No Change”. The Contractor is responsible for verifying that they have received all addenda issued during the bidding period. Work required by Addenda shall automatically become part of the Contract.

4.1.7 Make no additional stipulations on the Bid Form and do not qualify the Bid in any other manner.

4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.

4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.

4.1.10 In the construction of all Public Works projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.

4.1.11 Each bidder shall include a signed Affidavit for the Bidder certifying compliance with OMB Regulation 4104 - "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects." "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

4.2 BID SECURITY

4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the agency for the benefit of the agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the agency, or a security of the bidder assigned to the agency, for a sum equal to at least 10% of the bid plus all add alternates, or in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be the standard OMB form (attached).

4.2.2 The Agency has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.

4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within 20 days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.

4.3 SUBCONTRACTOR LIST

4.3.1 In accordance with Title 29, Chapter 69, Section 6962(d)(10)b of the Delaware Code, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE. The bidder must list **in each category** the full name and address (City & State) of the sub-contractor that the Bidder will be using to perform the work and provide material for that subcontractor category. Should the Bidder's listed subcontractor intend to provide any of their subcontractor category of work through a third-tier contractor, the Bidder shall list that third-tier contractor's full name and address (City & State). **If the Bidder intends to perform any category of work itself, it must list its full name and address.** For clarification, if the Bidder intends to perform the work themselves, the Bidder **may not** insert "not applicable", "N/A", "self" or anything other than its own full name and address (City & State). To do so shall cause the bid to be rejected. In addition, the failure to produce a completed subcontractor list with the bid submittal shall cause the bid to be rejected. If you have more than three (3) third-tier contractors to report in any subcontractor category, print out additional page(s) containing the appropriate category, complete the rest of your list of third-tier contractors for that category, notate the addition in parentheses as (CONTINUATION) next to the subcontractor category and an asterisk (*) next to any additional third-tier contractors, and submit it with your bid.

4.3.2 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and be able to document their capability to act as Subcontractor in that category in accordance with this law.

4.4 AFFIDAVIT OF CONTRACTOR QUALIFICATIONS

4.4.1 In accordance with Title 29, Chapter 69, Section 6962(d)(10)b.3 of the Delaware Code, each Bidder shall submit with their Bid the Affidavit of Contractor Qualifications certifying that the Bidder will abide by the contractor's qualifications outlined in the construction bid specifications for the duration of the contract term. After a contract has been awarded the successful bidder shall not substitute another subcontractor whose name was submitted on the Subcontractor Form except for the reasons in the statute and not without written consent from the awarding agency. Failure to utilize the subcontractors on the list will subject the successful bidder to penalties as outlined in the General Requirements Section 5.2 of the contract.

4.5 AFFIDAVIT OF CRAFT TRAINING COMPLIANCE

4.5.1 In accordance with Title 29, Chapter 69, Section 6962(c)(13) of the Delaware Code, contractors and subcontractors must provide craft training for journeyman and apprentice levels if **all** of the following apply:

A. A project meets the prevailing wage requirement under Title 29, Chapter 69, Section 6960 of the Delaware Code.
B. The contractor employs 10 or more total employees.
C. The project is not a federal highway project

Failure to provide required craft training on the project may subject the successful contractor and/or subcontractor(s) to penalties as outlined in Title 29, Chapter 69, Section 6962(c)(13) of the Delaware Code.

Bidders shall submit the Affidavit of Craft Training Compliance prior to contract execution.

4.6 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

4.6.1 During the performance of this contract, the contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

4.7 PREVAILING WAGE REQUIREMENT

4.7.1 Wage Provisions: For renovation and new construction projects whose costs exceed the thresholds contained in Delaware Code, Title 29, Section 6960, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

4.7.2 The employer shall pay all mechanics and labors employed directly upon the site of work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.

4.7.3 The scale of the wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work.

4.7.4 Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

4.8 SUBMISSION OF BIDS

4.8.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, project number, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.

4.8.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked “LATE BID” and returned.

4.8.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.

4.8.4 Oral, telephonic or telegraphic bids are invalid and will not receive consideration.

4.8.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.

4.9 MODIFICATION OR WITHDRAW OF BIDS

4.9.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for

consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.

4.9.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.

4.9.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a thirty (30) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 30 days after the date of the Bid opening.

ARTICLE 5: CONSIDERATION OF BIDS

5.1 OPENING/REJECTION OF BIDS

5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.

5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar day of the Bid opening.

5.2 COMPARISON OF BIDS

5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be based on the Base Bid plus desired Alternates. The Agency shall have the right to accept Alternates in any order or combination.

5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.

5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.

5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.

5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

5.3 DISQUALIFICATION OF BIDDERS

5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

A. The Bidder's financial, physical, personnel or other resources including Subcontracts;

B. The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication or admission of violations of the Prevailing Wage Laws in Delaware or any other state;

C. The Bidder's written safety plan;

D. Whether the Bidder is qualified legally to contract with the State;

E. Whether the Bidder supplied all necessary information concerning its responsibility; and,

F. Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the Invitation to Bid and is otherwise in conformity with State and/or Federal law.

5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of the determination shall be sent to the affected Bidder within five (5) working days of said determination.

5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.

5.3.3.1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.

5.3.3.2 Evidence of collusion among Bidders.

5.3.3.3 Unsatisfactory performance record as evidenced by past experience.

5.3.3.4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.

5.3.3.5 If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.

5.3.3.6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.

5.3.3.7 If any exceptions or qualifications of the Bid are noted on the Bid Form.

5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT

5.4.1 A formal Contract shall be executed with the successful Bidder within twenty (20) calendar days after the award of the Contract.

5.4.2 Per Section 6962(d)(13) a., Title 29, Delaware Code, "The contracting agency shall award any public works contract within thirty (30) days of the bid opening to the lowest responsive and responsible Bidder, unless the Agency elects to award on the basis of best value, in

which case the election to award on the basis of best value shall be stated in the Invitation To Bid."

5.4.3 Each Bid on any Public Works Contract must be deemed responsive by the Agency to be considered for award. A responsive Bid shall conform in all material respects to the requirements and criteria set forth in the Contract Documents and specifications.

5.4.4 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.

5.4.5 The successful Bidder shall execute a formal contract, submit the required Insurance Certificate, and furnish good and sufficient bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within twenty (20) days of official notice of contract award. The successful Bidder shall provide, at least two business days prior to contract execution, copies of the Employee Drug Testing Program for the Bidder and all listed Subcontractors. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the contract. Bonds shall remain in affect for period of one year after the date of substantial completion.

5.4.6 If the successful Bidder fails to execute the required Contract, Bond and all required information, as aforesaid, within twenty (20) calendar days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or readvertised, as the Agency may decide.

5.4.7 Each bidder shall supply with its bid its taxpayer identification number (i.e., federal employer identification number or social security number) and should the vendor be awarded a contract, such vendor shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.4.8 The Bid Security shall be returned to the successful Bidder upon the execution of the formal contract. The Bid Securities of unsuccessful bidders shall be returned within thirty (30) calendar days after the opening of the Bids.

ARTICLE 6: POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

6.1.1 Bidders to whom an award of a Contract is under consideration shall, if requested by the Agency, submit a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a statement has been previously required and submitted.

6.2 BUSINESS DESIGNATION FORM

6.2.1 Successful bidder shall be required to accurately complete an Office of Management and Budget Business Designation Form for Subcontractors.

6.3 Bidders to whom an award of a Contract has been made must produce their Delaware Business License before the Contract can be executed.

ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

7.1.1 The cost of furnishing the required Bonds, that are stipulated in the Bidding Documents, shall be included in the Bid.

7.1.2 If the Bidder is required by the Agency to secure a bond from other than the Bidder's usual sources, changes in cost will be adjusted as provide in the Contract Documents.

7.1.3 The Performance and Payment Bond forms used shall be the standard OMB forms (attached).

7.2 TIME OF DELIVERY AND FORM OF BONDS

7.2.1 The bonds shall be dated on or after the date of the Contract.

7.2.2 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

ARTICLE 8: FORM OF AGREEMENT BETWEEN AGENCY AND CONTRACTOR

8.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A132-2019, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum.

END OF SECTION

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SECTION 00 31 32

GEOTECHNICAL DATA

1.1 GEOTECHNICAL DATA

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions.

B. A geotechnical investigation report for Project, prepared by Duffield Associates LLC, dated May 07, 2021, titled “Geotechnical Evaluation” is available for viewing as appended to this Document.

C. Related Requirements:

1. Document 002113 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
2. Document 003119 "Existing Condition Information" for information about existing conditions that is made available to bidders.

D. Any available data concerning subsurface materials or conditions based on soundings, test pits or test borings, has been obtained by the Owner for its own use in designing this Project. The Test Borings logs contained within the Geotechnical Report are incorporated into the construction contract as a Contract Document.

END OF SECTION

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DUFFIELD ASSOCIATES
Soil, Water & the Environment

Duffield Associates, LLC
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Wilmington, DE 19808
Phone: 302.239.6634
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May 7, 2021

Mr. Jerry Platt, P.E.
Chief of Engineering and Operations
State of Delaware
Office of Management and Budget
Division of Facilities Management
540 S. DuPont Highway, Suite 1
Dover, DE 19901

RE: Duffield Associates, LLC Project No. 12598.GF
OMB/DFM Contract No. MJ0208000002
Geotechnical Evaluation
State of Delaware
Delaware Family Courts – Sussex County Expansion
Georgetown, Delaware

Dear Mr. Platt:

Duffield Associates, LLC (Duffield) has completed our geotechnical evaluation for the proposed new Delaware Family Courthouse and Parking Garage located in Georgetown, Sussex County, Delaware. The evaluation is summarized in the following report, which includes the data obtained in our field and laboratory programs, the subsurface conditions encountered, and our recommendations for the design and construction of the building foundations and slab-on-grade system. These services were performed in general accordance with Purchase Order No. 0000540234, dated February 16, 2021.

We appreciate this opportunity to be of service to you and will remain available to assist you and your team as design progresses and into the construction phase of the facility. Should you have any questions concerning this evaluation, please do not hesitate to contact us.

Very truly yours,

DUFFIELD ASSOCIATES, LLC

Ian Fairorth, P.E.
Geotechnical Engineer

Matthew B. Van Rensler, P.E.
Geotechnical & Field Services Division Director

CPF/IMF/MBV:cpt
12598GF.0521-DELAWARE FAMILY COURTHOUSE GEOTECH.RPT

Enclosure: Geotechnical Evaluation Report

Geotechnical Evaluation
State of Delaware
Delaware Family Courts – Sussex County Expansion
Georgetown, Delaware
Project No. 12598.GF

May 4, 2021






Civil
Water/Natural Resources
Geotechnical
Environmental
Construction Review
Coastal/Waterfront

DUFFIELD ASSOCIATES
Soil, Water & the Environment

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EXECUTIVE SUMMARY

The following report summarizes Duffield's geotechnical evaluation for the proposed Delaware Family Courthouse and Parking Garage located in Georgetown, Delaware. This report includes information regarding the field and laboratory testing programs, the subsurface conditions encountered, and recommendations for the design and construction of the proposed building foundations, and slab-on-grades. These services were performed in general accordance with Duffield's agreement with State of Delaware OMB/DFM, dated January 27, 2021, revised January 29, 2021.

The project site is located between South Race Street, East Market Street, Academy Street, and East Pine Street and is indicated on the Site Location Sketch enclosed with this report in Appendix A. Currently, the site consists of occupied offices and buildings, impervious cover (parking lots and drive lanes), as well as isolated grass-covered areas. The proposed construction will consist of an approximate 110,278 sf, three-story family courts building and a 162,414 sf, six level parking garage. Additionally, it is assumed finish floor elevation will match existing site grades (approximately 52 feet – NAVD88).

Between March 11 and March 22, 2021, fourteen (14) Standard Penetration Test (SPT) borings were performed at the site in the vicinity of proposed building area. Beneath a surficial layer of topsoil as well as asphalt, the subsurface conditions at the site generally appeared to consist of predominately granular sands with variable amounts of silt/clay in a loose to medium condition. Groundwater was observed between 7.5 to 12.5 ft.

Based on the field and laboratory testing of the subsurface conditions encountered, and information provided by the project team, Duffield provides the following comments and recommendations:

- The proposed three-story family courthouse could be supported on a conventional shallow foundation system and slab-on-grade. Foundations could be designed for a maximum allowable bearing pressure of 2,000 pounds per square foot (psf). Total foundation settlement is estimated to be on the order of 1 inch or less, and a differential settlement on the order of a ½ inch or less over a distance of 25 feet.
- Due to the large vertical loads anticipated from the parking structure, shallow groundwater table, and the relatively loose to medium dense sands observed, it is Duffield's opinion that a conventional shallow foundation system is not practical for the parking structure without ground improvement methods. Utilizing conventional shallow foundations, the total settlement will exceed the total and differential settlement tolerances provided.
- Duffield considered several alternatives for support of the proposed multi-level parking structure. While it is feasible that a driven pile system would be capable of transferring the garage column loads to a deeper sand strata, it is our opinion that the utilization of ground improvement techniques such as rammed aggregate piers (RAPs) is a practical and generally cost-effective design alternative.
- Prior to selection of the parking garage foundations, additional coordination with the civil design team is required to discuss subsurface utility installation and potential conflicts with the foundation layout.

A more complete summary of the field and laboratory testing programs and subsurface conditions is included in this report. Additionally, more detailed recommendations for the design and construction of the proposed foundations and slabs are also provided.

PROJECT SUMMARY

PROPOSED SITE DEVELOPMENT

As part of the site redevelopment, it is proposed to construct the following:

- A three-story family courts building with an overall footprint of approximately 46,475 square feet is proposed at the eastern corner of East Market Street and South Race Street in Georgetown, Delaware. The family courts building will be located in the vicinity of the existing Delaware Department of Justice building, as well as multiple law offices. No below-grade level (i.e., basement) is proposed. The building structural engineer, Baker, Ingram & Associates has indicated that maximum interior column and wall loads of 500 kips and 2 kips/ft are anticipated, respectively.
- An approximate 27,000 square foot, 415 space, six-level precast concrete parking structure is proposed along East Pine Street. The parking garage structural engineer, THA Consulting, Inc. (THA) has indicated maximum column loads on the order of 1,460 kips. Additionally, THA has indicated maximum allowable total and differential settlements of 1 inch and ¾ inch, respectively.

REFERENCES UTILIZED

- A letter from Baker, Ingram, & Associates to Tevebaugh Architecture outlining the proposed structural building information, dated March 5, 2020;
- A drawing titled, "New Family Court, Georgetown Sussex Court Schematic Layout," as prepared by Tevebaugh Architecture, sheet A1.02, dated July 29, 2020; and
- A drawing titled, "Sussex County Family Court," as prepared by Tevebaugh Architecture, dated January 19, 2021.

EXISTING SITE CONDITIONS

Currently, the site is in use with multiple structures, parking lots, city streets, and various vegetation (trees and shrubbery). In general, the site's topography is generally level with overall existing ground surface elevations on the order of 52 to 53 feet (NAVD88). It is assumed that a finished floor elevation of 52 feet is proposed for both the three-story building and parking garage. As a result, overall cuts and fills on the order of 2 feet or less are anticipated.

In order to construct the proposed building and garage, several existing city streets will be impacted. Specifically, Front Street will be abandoned as well as a portion of Strawberry Alley in the area of the project. As a result, multiple public and private site utilities that were identified including water, sewer, gas and electric (underground and overhead), were delineated by Miss Utility and Ground Penetrating Radar Systems, LLC (GPRS) as a subcontractor to Duffield, within the project site.

FIELD AND LABORATORY TESTING

STANDARD PENETRATION TEST BORINGS

Between March 11 and March 22, 2021 fourteen (14) Standard Penetration Test (SPT) borings were performed in general accordance with ASTM D 1586 in the vicinity of the proposed family courts building and parking structure. The test borings were terminated at varying depths ranging between approximately 30 to 85 feet below existing grade.

The test borings were performed by CGC Geoservices, LLC, a subcontractor to Duffield, utilizing a Diedrich D-50 truck-mounted drill rig with hollow-stem augers and mud-rotary techniques in areas accessible to the drill rigs and clear of delineated utilities.

At completion of the drilling, the boreholes were backfilled with soil cuttings and asphalt cold-patch where applicable. Additional settlement and softening of the soil replaced in the boreholes may occur, resulting in a depression or hole in the ground surface. Consequently, future maintenance and restoration of the site may be required.

The approximate sample locations are indicated on the enclosed Test Boring Location Sketch. Test boring logs, which describe the conditions observed during the field exploration program, are enclosed.

LABORATORY TESTING

Following the test boring program, the samples were returned to Duffield's office and laboratory testing was performed on the selected samples. The results of the laboratory testing are summarized below. No environmental testing or characterization was performed.

Table No. 1 – Laboratory Testing Summary

LOCATION	SAMPLE NO.	DEPTH (FT)	MOISTURE CONTENT (%) (ASTM D2216)	PERCENT PASSING NO. 200 SIEVE (%) (ASTM D1140)	ATTERBERG LIMITS (ASTM D 4318)
TB-1	S-6	13.0-15.0	25.5	7.2	--
	S-10	33.0-35.0	19.4	3.3	--
	S-13	48.0-50.0	18.6	3.5	--
TB-2	S-6	13.0-15.0.0	31.1	9.2	--
TB-3	S-4	6.0-8.0	15.1	16.8	--
	S-7	18.0-20.0	28.6	9.8	--
	S-13	48.0-50.0	16.2	5.4	--
TB-4	S-6	13.0-15.0	23.4	9.7	--
	S-8	23.0-25.0	30.3	11.3	--
TB-5	S-2	2.0-4.0	15.3	55.9	Liquid Limit: 18 Plasticity Index: 4
	S-8	23.0-25.0	29.8	12.1	--
	S-10	33.0-35.0	27.6	16.5	--
	S-13	48.0-50.0	18.4	8.3	--
TB-6	S-2	2.0-4.0	18.3	60.7	--
TB-7	S-7	18.0-20.0	25.1	7.9	--
	S-14	53.0-55.0	22.6	7.5	--
	S-17	68.0-70.0	15.6	7.1	--
TB-8	S-6	13.0-15.0	22.8	11.2	--
	S-9	28.0-30.0	30.3	16.4	--
TB-9	S-5	8.0-10.0	20.1	16.9	--
	S-8	23.0-25.0	28.5	11.5	--
TB-10	S-2	2.0-4.0	29.0	12.9	--
	S-8	23.0-25.0	21.2	9.5	--
	S-18	73.0-75.0	19.4	9.7	--
TB-11	S-4	6.0-8.0	31.8	10.9	--
TB-12	S-7	18.0-20.0	24.0	11.3	--
	S-13	48.0-50.0	15.2	6.8	--
TB-13	S-3	4.0-6.0	12.5	55.7	Liquid Limit: 33 Plasticity Index: 19
	S-7	18.0-20.0	22.0	16.0	--
TB-14	S-7	18.0-20.0	25.9	11.9	--
	S-9	28.0-30.0	21.7	9.5	--

SUBSURFACE CONDITIONS

GENERALIZED SITE GEOLOGY

Based on Delaware Geological Survey (DGS) mapping, the project site is located in the Coastal Plain and likely underlain by the Lynch Heights Formation. The Lynch Heights Formation can be described as light-gray to brown to light-yellowish brown, medium to fine sand with discontinuous beds of coarse sand, gravel, silt, fine to very fine sand, and organic-rich clayey silt to silty sand. The upper part of the unit commonly consists of fine, well-sorted sand. Small-scale cross-bedding within the sands is common. Some of the interbedded clayey silts and silty sands are burrowed. Beds of shell are rarely encountered. Sands are quartzose and slightly feldspathic, and typically micaceous where very fine to fine grained. Overall thickness ranges up to 50 feet.

STRATIGRAPHIC CONDITIONS

Beneath a layer of surficial cover (topsoil, asphalt, and gravel) and minor fill materials, the subsurface conditions observed at the site can generally be described as predominately granular fine to medium sands with trace to little amounts of clay in a loose to medium condition (Stratum B and D). A relatively thin layer of low plasticity, medium stiff to stiff clay was observed at shallow depths during the drilling program. Two test borings (TB-7 and TB-10) were terminated in an approximately 10.0-25.0 foot thick layer of predominately medium dense to dense sands and gravel.

Based on observations during the field program, review of historic aerial imagery, and discussions with the project team, it is Duffield's understanding the site has a history of previous development. It is possible that debris, abandoned structures and utilities may be encountered during construction.

For discussion purposes, the subsurface conditions can be further described as follows:

Table No. 2 – Generalized Subsurface Stratigraphy

SUBSURFACE STRATUM	APPROXIMATE THICKNESS (FEET)	GENERALIZED DESCRIPTION[1]
A1	0.2 – 0.5	Surficial Cover: topsoil, bituminous concrete, gravel) (approximately 4 inches) [2]
A2[3]	1.2 – 2.7	Fill: Black, brown fine to coarse sand with debris (brick fragments, and gravel)
B	30.0 – 60.0	Light gray, light brown fine to medium SAND, trace to little clay USCS: SP-SC, SC, SP (loose to medium dense)
C[3]	2.0-8.0	Light brown, orange CLAY and fine SAND USCS: CL, CL-ML (medium stiff to stiff consistency)
D	6.0-8.0	Light brown fine to medium SAND, trace clay USCS: SP-SC, SW-SC (loose to medium dense)
E[4]	10.0 – 25.0	Orange, light gray, light brown medium to coarse SAND, trace gravel, trace fine sand, trace clay USCS: SP-SC (medium dense to dense)

Notes:	1. The soil descriptions utilized herein and on the test boring logs are defined in the attached General Notes. 2. Use of estimated of topsoil thicknesses observed during test boring performance are not recommended for construction estimating purposes. 3. Stratum A2 observed in test borings TB-1, TB-2, TB-4, TB-6, TB-8, TB-9, TB-12 and TB-13. 4. Stratum C only observed in test borings TB-1 through TB-7, and borings TB-13 and TB-14. 5. Stratum E only observed in test borings TB-7 and TB-10.

GROUNDWATER

During the test boring program, groundwater was observed in all test borings, ranging from approximately 7.5 to 13.5 feet below the existing ground surface, corresponding to an elevation range of approximately 45 to 39 feet, respectively. Groundwater mapping provided by the Delaware Geologic Survey indicates that groundwater is typically observed between 9 and 16 feet below existing grade during "normal" conditions and 6 to 9 feet during "wet" conditions, which appears consistent with observations during the field program.

DISCUSSION OF ANALYSIS

SITE PREPARATION

Prior to construction of the new building and garage, site preparation is anticipated to include the demolition of multiple existing buildings, removal and relocation of both overhead and underground utilities, stripping of topsoil, pavement, and other structures within the vicinity of the proposed building and garage. It is recommended that the existing structures be removed in their entirety including foundations, slab on grade and basement walls (if present). Additionally, it is recommended that existing pavement sections be removed in their entirety.

It is possible that abandoned utilities may be encountered during construction. The presence of utilities beneath a structure could result in crushing of pipes and/or undermining of a proposed structure. Any abandoned utilities should be removed from the proposed building area. Alternatively, existing pipes could be grouted "full" throughout its length and left in place. The resulting excavations made during removal of existing structures and utilities should be backfilled with structural fill placed and compacted as recommended herein.

MISCELLANEOUS FILL

The miscellaneous fill and debris observed throughout the site during the test boring field program was likely placed during initial site construction and subsequent demolition phases. Due to the site's previous development, it is possible that other below grade structures such as the foundation systems from previously demolished buildings may be encountered.

If significant miscellaneous fill and debris is encountered, it is recommended that the fill materials be sampled and analyzed by an environmental testing laboratory to evaluate how the fill material excavated during building construction can properly be disposed of off-site. Depending on the results, the fill materials may be considered as a regulated solid waste by the Delaware Department of Natural Resources and Environmental Control.

Miscellaneous fill is typically not considered suitable for support of shallow foundations due to its variable texture, consistency and the uncontrolled manner in which they are typically placed. As a result, it is Duffield's opinion that existing fill soils are not considered suitable for supporting a conventional shallow spread footing foundation and concrete slab on grade systems. Several foundation options are presented below and detailed foundation design recommendations are provided in the following sections.

DISCUSSION OF FOUNDATION OPTIONS

Based on the field and laboratory testing of the subsurface conditions encountered, and the provided building loading of the proposed building and parking garage, several foundation systems were reviewed for support for each structure as discussed further herein.

Proposed Three-Story Courthouse Building

The building structural engineer, Baker, Ingram & Associates has indicated maximum interior column and wall loads of 500 kips and 2 kips/ft. are anticipated, respectively. Analysis indicated that the building foundations bearing on the natural granular site soils, or on compacted structural fill, could be sized for a maximum allowable bearing pressure of

2,000 pounds per square foot. This analysis has assumed a shallow foundation system with a minimum width of 3 feet for isolated footings and 2 feet for continuous footing, and a minimum burial depth of 18 inches for interior footing and a minimum of 24 inches for exterior footings.

Proposed Parking Garage

The parking garage structural engineer, THA Consulting, Inc. has indicated that the anticipated maximum column loads on the order of 1,460 kips and maximum allowable total and differential settlements of 1 inch and ¾ inch, respectively. Given the anticipated large vertical loads imposed by the garage structure it is our opinion that a shallow foundation system is likely to experience settlements greater than the allowable tolerances indicated by the design team. While it is feasible that a driven pile system would be capable of transferring the garage column loads to a deeper sand strata, it is our opinion that the utilization of ground improvement is a practical and generally cost-effective design alternative.

A practical method to reduce total and differential settlement is the performance of a ground improvement program to "improve" and densify the loose to medium dense sandy soils observed to depths of up to 60 feet below the existing ground surface, which reduces the potential for settlement due to the building loads. A ground improvement system which provides localized densification beneath the parking garage foundations could be considered in order to reduce post construction settlement of the parking garage superstructure.

Rammed Aggregate Piers (RAP) are proprietary ground improvement systems that provide localized improvement of the modulus of the surficial soils and as a result, generally reduce the anticipated magnitude of structural settlement. While RAP systems vary among contractors, typically an open shaft is augered into the ground using conventional drilling equipment. Then layers of aggregate are introduced into the shaft in thin lifts and a specialized tamper compacts or "rams" each layer of aggregate. The ramming action densifies the aggregate vertically and forces the aggregate laterally into the shaft sidewalls. This results in displacement (and densification or stiffening) of the soils immediately surround the pier. In some cases, grout is added to the impact process to improve the RAP stiffness and reduce settlement.

RAP systems typically allow for standard construction practices following the improvement program and the construction of a stabilization layer to transition from the improved subgrade to the new structure foundations. Some specialty contractors also have the ability to insert a ground improvement mandrel that significantly reduces that amount of generated spoils and is often utilized when a stable open hole cannot be maintained due to collapsing soils and/or shallow groundwater conditions.

Depending on the diameter and spacing of the RAP elements, a shallow foundation system constructed over an "improved subgrade" typically could be designed for allowable bearing capacities on the order of 3,000 to 4,000 psf with total and post construction differential settlements on the order of 1 inch and ½ inch, respectively. It is recommended that RAPs are utilized across the entire garage footprint and are installed in a radial pattern with closer RAP element spacing located under garage columns. The design of RAPs or other propriety

ground improvement systems are typically performed by the specialty contractor utilizing the loading information provided by the structural engineer.

It is understood that a utility 'corridor' is proposed to traverse the garage footprint. The ground improvement contractor will need to have the location and dimensions of the proposed utility corridor in order to avoid conflicts with proposed RAP elements.

It is Duffield's opinion that a driven pile system would be capable of transferring the garage loads to the deeper and denser sand strata. Although the installation of deep foundations would effectively transfer the heavy anticipated garage column loads, a driven pile system may not be practical due to site specific constraints (i.e., proximity to adjacent occupied buildings and residential houses, presence of existing utilities, etc.). Therefore, a deep foundation system is not discussed further.

SITE PAVEMENTS

Based on the subsurface conditions encountered at the site, it appears that the pavement subgrade soils will consist of a combination of variable compacted structural fill or natural site soils. The natural predominately granular soils correspond to American Association of State Highway and Transportation Officials (AASHTO) classifications A-1 and A-2 which are classified as "excellent" to "good" subgrade soils by AASHTO. The natural, shallow fine-grained soils observed within isolated areas during the geotechnical evaluation correspond to classifications A-4 and A-6, which are classified as "fair to poor".

Either a flexible (i.e., bituminous cement concrete, BCC) or rigid (i.e., portland cement concrete, PCC) pavement could be designed for the proposed pavements. Rigid pavements typically have a greater initial cost, but generally have a longer service life than flexible pavements. Typically, a PCC pavement consists of portland cement concrete over graded aggregate base course. PCC may be practical for loading dock areas. Recommendations for the design and construction of both bituminous concrete and portland cement concrete pavement are included in the "Design Recommendations" section of this report.

DESIGN RECOMMENDATIONS

1. FOUNDATION SUPPORT

Several foundation support alternatives are presented herein. Depending on the type of foundation system selected for support of the proposed structure and the Owner's risk tolerance, various options could be considered for support of the building foundations and slabs following the placement of structural fill to achieve finished grade in the building area. Foundation alternatives are discussed below.

2. COURTHOUSE BUILDING

- It is Duffield's opinion that existing natural site soils are generally considered suitable for supporting the proposed three-story courthouse on shallow spread footing foundation and slab-on-grade systems following subgrade preparation and review, as discussed further herein. Structural fill, placed, compacted and reviewed, as recommended in this report, is also considered suitable for supporting shallow foundations.
- It is recommended that the proposed foundations for the building be designed for a maximum net allowable bearing pressure of 2,000 pounds per square foot.
- Based on the results of the analysis performed as part of this evaluation, it is estimated that maximum total foundation settlement for the proposed structures should be on the order of 1 inch or less, with a post-construction differential settlement on the order of ½ inch over a distance of 25 feet. Due to the granular sand stratigraphy, most of the estimated settlement should occur relatively quickly following the application of loads.

3. PARKING GARAGE SUPPORTED BY GROUND IMPROVEMENT SYSTEM

- The rammed aggregate pier (RAP) ground improvement system should be designed and installed in accordance with the specialty contractor's recommendations.
- The RAP ground improvement system should be designed to extend through the loose density sands and terminate within denser sands generally observed at depths up to 60 feet below the existing ground surface. As a result, it is recommended that a performance specification is utilized with a minimum ground improvement depth of approximately 60 feet.
- The RAP foundation system design (including length, spacing, and diameter) should be based on the actual design loads and foundation configuration. An evaluation of all foundation components and installation procedures should be made by a representative of the geotechnical engineer to assure that the supporting capabilities of the rammed aggregate piers are compatible with the design criteria.
- After construction of the RAPs, conventional spread footings may be utilized for foundation support with an allowable bearing capacity equal to or potentially greater than 3,000 psf depending on the RAP system utilized. The RAP foundation system should be designed such that total structural settlement is 1 inch or less, with a post-construction differential settlement of ½ inch or less over a distance of 50 feet.

4. FOUNDATION BURIAL DEPTH AND SIZE

The base of all footings in areas exposed to frost should be placed at least 24 inches below final exterior grade. Interior foundations in insulated areas should be placed at least 18 inches below the proposed finished floor elevation. All continuous wall footings should be at least 2 feet wide, and all isolated column footings should be at least 3 feet wide, regardless of bearing pressure. If a winter construction schedule is proposed for the foundations, provisions for the protection of shallow foundations from frost heave during construction should be included in the contract specifications.

5. SLAB-ON-GRADE

Ground-supported floor slabs should be designed as free-floating and should not be connected to the other structural elements (e.g., walls, framing, etc.) of the buildings. Isolation joints should be utilized at the interface of proposed ground-supported floor slabs and structural elements to accommodate potential differential settlement. A free-draining subbase, consisting of at least 4 inches of granular material, such as AASHTO SP-57 stone, should be provided beneath all floor slabs. A minimum 10 mil polyethylene or equivalent vapor barrier should be provided beneath conditioned space floor slabs. Subgrade conditions should be modeled for design utilizing a subgrade modulus, K_S of 100 pci, for the onsite soils not improved by a ground improvement program placed as structural fill provided subgrade preparation is performed as recommended in this report.

6. PAVEMENT DESIGN

It is recommended that all pavement areas are proofrolled as detailed in the Construction Recommendations of this report. Visual review and proofrolling of the exposed pavement subgrade will provide the opportunity to observe yielding near surficial subgrade conditions that may cause abrupt changes in pavement subgrade support. The following typical pavement sections are based on the subsurface conditions encountered and assumed traffic loading. It is recommended that Duffield review and comment on the applicability of these pavement sections once anticipated traffic loading/counts are available.

Table No. 3 – Recommended Pavement Sections

BITUMINOUS CONCRETE PAVING – ENTRANCE/ACCESS ROADS	
RECOMMENDED COMPACTED THICKNESS	**MATERIALS**
2 inches	Bituminous Concrete Surface Course DelDOT Superpave Type C (PG 64-22, 160 Gyrations)
4 inches	Bituminous Concrete Surface Course DelDOT Superpave Type B (PG 64-22, 160 Gyrations)
8 inches	Graded Aggregate Base Course, DelDOT Type B
14 inches	Total Section Thickness

BITUMINOUS CONCRETE PAVING – PASSENGER VEHICLES	
RECOMMENDED COMPACTED THICKNESS	**MATERIALS**
1.5 inches	Bituminous Concrete Surface Course DelDOT Superpave Type C (PG 64-22, 160 Gyrations)
2.5 inches	Bituminous Concrete Surface Course DelDOT Superpave Type B (PG 64-22, 160 Gyrations)
8 inches	Graded Aggregate Base Course, DelDOT Type B
12 inches	Total Section Thickness

As an alternate to the above heavy duty flexible pavement design, a rigid pavement section may be considered for use in heavy truck traffic areas. A rigid pavement section should be used in certain areas where repeat high loads or concentrated loads will be applied to the pavement. These areas generally include dumpster pads, loading dock areas, and "landing gear" areas for trailers. A typical rigid concrete pavement section is as follows:

PORTLAND CEMENT CONCRETE PAVING – LOADING DOCK AREAS	
RECOMMENDED THICKNESS	**MATERIALS**
8 inches	DelDOT Class A Portland Cement Concrete with WWF 6x6-W2.9
6 inches	Graded Aggregate Base Course, DelDOT Type B
14 inches	Total Section Thickness

Joints in concrete pavements should be water tight to prevent ponding of water within the subbase stone. Watertight joints should consist of elastic sealant, hot mix polymer or latex modified asphalt sealant. The sealant should be placed following thorough cleaning of the joint. Cleaning can usually be achieved by the use of compressed air; however, the use of a wire brush may be required to achieve a joint free of soil and other foreign matter.

All pavement materials and construction should be in accordance with the most recent version of Delaware Department of Transportation's (DelDOT's) "Standard Specifications for Construction and Materials, August 2016," most recent revision.

The recommended minimum pavement sections are not intended to accommodate construction traffic. Heavy construction traffic should not be allowed on partial pavement sections or on light-duty pavement since such traffic can damage the pavement. The paving contractor is advised that they must control construction traffic to limit disturbance of previously approved subgrade, stone base course, or completed asphalt. Some patching and repair may be necessary prior to placement of the final wearing surface layer of asphalt due to construction traffic.

7. UTILITIES

Multiple public and private site utilities that were identified including water, sewer, gas and electric (underground and overhead), were delineated by Miss Utility and Ground Penetrating Radar Systems, LLC (GPRS) as a subcontractor to Duffield, within the project site. The presence of utilities beneath a structure could result in crushing of pipes and/or undermining of the proposed building or damage to the utility during the performance of a ground improvement program. Therefore, it is recommended that, if possible, utilities be removed and relocated outside of the proposed building area. The resulting excavations should be backfilled with structural fill, placed and compacted in accordance with the recommendations of this report. Alternatively, existing pipes could be abandoned, left in-place, and grouted "full" throughout its length.

It is understood that several new utilities are proposed to traverse the parking garage footprint approximately parallel with Front Street and connecting in E. Pine Street. Coordination is required for all excavations made subsequent to RAP installations so that excavations do not encroach on the piers. Typically, new utilities should not be located within a 1:1 (horizontal to vertical) zone as projected starting approximately 3 feet laterally from a proposed foundation. Alternatively, it may be feasible to install sheeting and shoring in order to create a utility corridor prior to the installation of an RAP ground improvement system.

8. SEISMIC DESIGN PARAMETERS

Based on the subsurface conditions encountered during the field exploration at the site and the review of regional geologic maps, a "D" site classification is recommended for the analysis of seismic conditions, as defined by 1613.3.2 of the 2018 International Building Code and Chapter 20 of the American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures (ASCE/SEI 7-16).

9. SOIL PARAMETERS

The following soil parameters are recommended for lateral earth loads and braced excavation design:

Table No. 4 – Recommended Lateral Earth Parameters

RECOMMENDED PARAMETER	STRATUM B & D SANDS	IMPORTED DELDOT SELECT FILL (< 25% PASSING NO. 200 SIEVE)
Moist Unit Weight (pcf)	120	130
Cohesion (psf)	0	0
Angle of Internal Friction	32	34
At Rest Earth Coefficient, K_O	0.5	0.44
Active Earth Pressure Coefficient, K_A	0.33	0.28
Passive Earth Pressure Coefficient, K_P	3.0	3.5
Coefficient of Sliding Friction	0.35	0.42

10. RETAINING WALL DESIGN

Backfill pressures on "unyielding" retaining walls restrained from rotation at the top should be analyzed using the "at rest" earth pressure coefficient, K_o. The "active" and "passive" earth pressure coefficients, K_A and K_P, respectively, should be utilized for the design of "yielding" retaining walls such as cantilevered walls. All retaining walls (including below grade portions of the building) should be provided with granular backfill materials and a drainage system and/or weep holes to relieve hydrostatic pressures on the walls.

11. GROUNDWATER

Groundwater was observed at depths of approximately 7.5 to 13.5 feet below the existing ground surface corresponding to an elevation range of approximately 45 to 39 feet, respectively. While it is not expected that groundwater will be encountered at typical shallow foundation depths due to the proposed finished floor elevations, it is possible that localized perched water conditions may be encountered due to the shallow fine-grained soils encountered, or that stormwater could accumulate in open excavations or low areas during construction.

Additionally, if a ground improvement method utilizing stone columns such as rammed aggregate piers or vibro-replacement stone columns is selected for support of the parking garage, groundwater may be present during excavation and installation.

12. CONTROL JOINTS

Masonry walls should be provided with frequent control joints placed at architecturally convenient locations (e.g., windows and doorways) to provide a "preferred" location for differential settlement to occur to reduce the potential for cracking of the walls.

13. SITE GRADING

Site grading should be designed to provide positive drainage away from the proposed construction area. Positive site drainage should be maintained throughout the construction activities. Final site grading should provide drainage aware from all structures.

14. ASSUMPTIONS

The recommendations of this report were made based on the structural loading and allowable settlement information provided for the proposed three-story family court building and five-story parking garage. The project team should compare the final loading and grading conditions to those used in this analysis. If design loading and grading conditions vary from those used herein, Duffield should be contacted. Additionally, Duffield requests the opportunity to review the completed design drawings and technical specifications for consistency with the intent of this report.

CONSTRUCTION RECOMMENDATIONS

1. PROOFROLLING AND SUBGRADE PREPARATION

At the start of construction, the proposed building and parking structure areas should be stripped of all miscellaneous debris, concrete obstructions, stone, and organic materials observed beneath the site pavements. Following rough grading or installation of rammed aggregate piers, it is recommended that the exposed subgrade be proofrolled. The proofroll should be performed using a minimum three passes of a 10-ton vibratory roller in the presence of a qualified soils technician working under the supervision of a geotechnical engineer. The purpose of the proofrolling is to densify the exposed subgrade and to identify yielding subgrade conditions. The proofroll should be performed with a minimum of three passes (one pass equals up and back).

Yielding subgrade conditions encountered within the proposed building or parking garage should be undercut to firm subgrade conditions and backfilled in accordance with the recommendations of this report. Provisions for the undercutting and subsequent replacement of these materials should be anticipated by the construction contract documents and project budget estimates. The subgrade review should also confirm the consistency and texture of the exposed soils with the conditions encountered by this evaluation, as described herein.

2. FOUNDATION AND SLAB SUBGRADE REVIEW

All foundations should be placed on firm, dry, non-frozen subgrade consisting of natural site soils of medium density of greater, compacted structural fill, or an improved subgrade. Foundation excavations should be reviewed by a qualified technician working under the supervision of a geotechnical engineer who is familiar with the recommendations of this report. Subgrade review should be performed prior to the placement of structural fill, reinforcing steel or concrete, and should verify the presence of medium dense or greater sands. If these conditions are not encountered at the proposed foundation depth as anticipated, additional excavation should be performed until they are uniformly encountered across the base of the foundation excavation or, if acceptable to the project geotechnical engineer, densified in place. Foundation undercut areas should be backfilled with structural fill as recommended herein, or, if acceptable to the project's structural engineer, the base of foundation elevation could be lowered to the suitable subgrade soils.

3. GROUND IMPROVEMENT PROGRAM REVIEW

The RAP ground improvement program should be reviewed on a full-time basis by a qualified soils technician working under the supervision of a geotechnical engineer. At least one (1) onsite modulus test should be performed to confirm the amount of compression that an individual RAP element will experience at the maximum theoretical RAP element top of pier stress. The location of the RAP modulus test should be selected jointly by the specialty contractor and the Geotechnical Engineer of Record. Loading of the test pier should be conducted up to approximately 150% of the maximum theoretical stress to which the RAP elements will be subjected. At 100% of the maximum theoretical RAP element stress, settlement of the footing supported by the RAP element should not exceed one inch. Typically review of RAP installation includes observation of the depth of the RAP elements,

average lift thickness, documentation of the aggregate utilized and other installation procedures.

4. RE-USE OF ON-SITE SOILS AS STRUCTURAL FILL

On-site soils free of organic material, topsoil, miscellaneous fill, debris, and rock fragments in excess of 3 inches in their largest dimension may be suitable as structural fill.

The shallow soils observed in the test borings predominately consist of coarse-grained materials with varying amounts of fine-grained soils. It is likely that the existing site materials will have moisture contents above the range at which specified compaction requirements can be achieved.

As a result, it should be anticipated that aeration and drying of the excavated soil would likely be necessary to utilize this soil as structural fill. Drying of coarse-grained soils will only be feasible during the warm, dry season of the year and may require extended drying times and discing effort to adequately dry the soils to a moisture content that is acceptable for compaction.

If sufficient quantities of suitable on-site soils are not available for structural fill, imported borrow consisting of predominately granular soils conforming to the requirements of Delaware Department of Transportation Standard Specifications Borrow Type C (Backfill) should be utilized. AASHTO SP-57 stone could also be utilized as structural fill at locations, as recommended by the project engineer, and should be considered for localized, relatively deep fills such as foundation undercuts or utility trenches and as a base beneath the building slabs.

5. COMPACTION REQUIREMENTS

Structural fill should be placed in loose lifts with a maximum thickness of 8 inches. Each lift of fill placed within the proposed building areas (defined as the area extending at least 5 feet beyond the foundation element perimeters) should be compacted to at least 95% of the maximum dry density and placed with a moisture content within 2% of the optimum moisture content, as determined by the Modified Proctor test (ASTM D 1557).

Structural fill for site pavements and for utility trenches located outside of the proposed buildings should be compacted to at least 90% of the maximum dry density and placed with a moisture content within 2% of the optimum moisture content, as determined by the Modified Proctor test. Fill placed in proposed landscaped areas should be compacted to at least 85% of the maximum dry density, as determined by the Modified Proctor test. The placement and compaction of structural fill should be monitored on a full-time basis by a qualified technician working under the supervision of a geotechnical engineer.

6. EXCAVATION SAFETY

All foundation and utility excavation should be performed in accordance with OSHA guidelines. Typically, fine-grained material can be characterized by OSHA Part 1926 Excavation Standards as Type B soils, and the coarse-grained materials can be characterized by OSHA CFR Part 1926 Excavation Standards as Type C soils. Should it be required, all

temporary sheeting and shoring should be designed by a qualified engineer, registered in the State of Delaware.

7. PROTECTION OF SUBGRADE SOILS

If foundation excavations are left open, precipitation may result in the collection of water within the excavation. Provisions for removal of water by drainage or sumping are recommended. Subgrade soils disturbed by precipitation and construction traffic should be either scarified and re-compacted, or undercut and replaced with structural fill as previously recommended in this report.

Subgrade disturbance could be reduced by maintaining positive surface drainage, by establishing and maintaining a sump throughout the construction period, and by limiting construction traffic on the exposed subgrade soils. Where construction traffic is required over the subgrade soils, construction of a temporary haul road, consisting of at least 8 inches of crushed stone over a woven geotextile fabric (e.g., ACF HSP-2 or equivalent) should be considered. A thicker stone section will likely be required for prolonged heavy use by trucks. Additional stone can be added later as needed.

8. GROUNDWATER CONTROL

Groundwater was observed in the test borings at depths of approximately 7.5 to 13.5 feet below the existing ground surface. While groundwater is not anticipated to be encountered during foundation excavation, depending on the depth of the proposed utility corridor, it is possible that groundwater could be encountered. It is recommended that groundwater levels be maintained a minimum of 2 feet below the base of excavations. Multiple sump wells or a well point system may be considered appropriate for the proposed construction dewatering. Groundwater controls should be installed and maintained by a qualified contractor experienced in the installation and maintenance of these systems. This condition should be addressed in the contract documents. The actual method of groundwater control selected by the contractor should be established prior to excavation

If “perched” groundwater is encountered during excavations for the foundations or utilities, localized sumping may be required. It is recommended that wherever groundwater is encountered during shallow foundation or utility excavations, the resulting excavation should be over excavated by at least 4 inches and replaced with AASHTO SP-57 stone to protect the exposed subgrade soils and to facilitate sumping. The actual method of groundwater control selected by the contractor should be established prior to foundation excavation.

9. VIBRATION MONITORING

Existing buildings and residential properties are located adjacent to the proposed construction. The installation of RAPs and construction of the proposed family courthouse and garage may cause some vibrations in the vicinity of these nearby structures. It is recommended that a baseline condition assessment of nearby structures is performed prior to the start of RAP installation. We recommend that the contractor be required to perform vibration monitoring during installation of the RAPs to verify that vibration levels are below those considered detrimental to the adjacent structures. While it is considered unlikely, if

generally accepted vibration limits are exceeded, the contractor should modify their operation to reduce the vibration levels during RAP installation.

10. SUBSURFACE DATA

All contractors interested in bidding on phases of this work, which involve subsurface conditions, should be given full access to this report so that they can develop their own interpretations of the available data.

11. CONSTRUCTION REVIEW

It is recommended that the project budget include provisions for the cost for independent construction monitoring of the earthwork and foundation construction by a qualified engineering firm retained by the Owner, to review conformance of construction with the recommendations of the project geotechnical evaluation, as well as the project plans and specifications.

QUALIFICATIONS

The recommendations of this report have been prepared according to generally accepted soil and foundation engineering practice, and are based on the conditions encountered by the test borings and infiltration tests performed at the site. Although soil quality has been inferred from the interpolation of the sampling data, you should explicitly note that subsurface conditions beyond the test borings are, in fact, unknown. Should any conditions encountered during construction differ from those described in this report, this office should be notified immediately in order to review, and possibly modify these recommendations. This report applies solely to the size, type, and location of the structures described herein. In the event that changes are proposed, this report will not be considered valid unless the changes have been reviewed and the recommendations of this report modified and re-approved in writing by Duffield Associates, LLC.

ENCLOSURES

SITE LOCATION SKETCH

TEST BORING LOCATION SKETCH

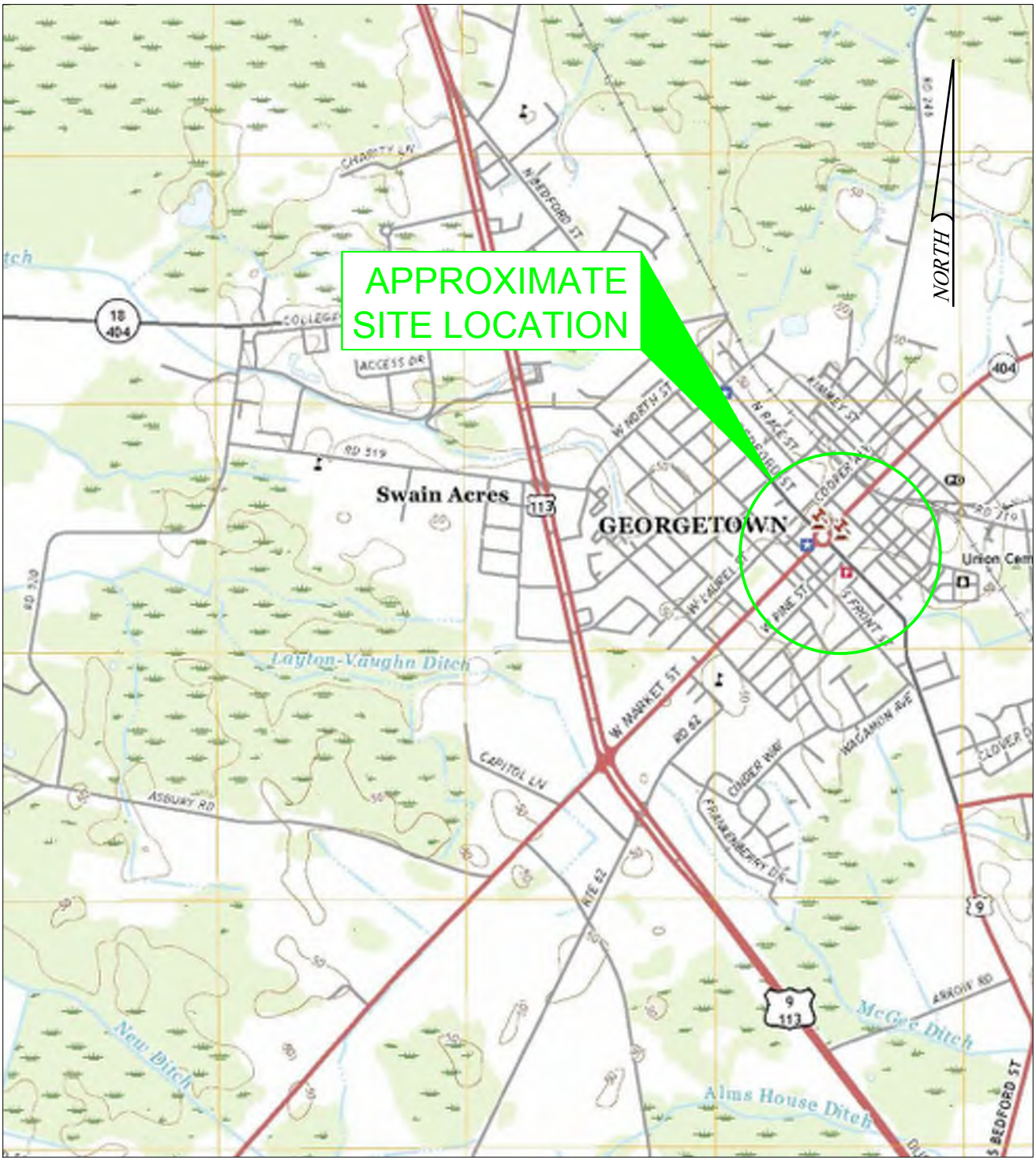
TEST BORING LOGS (14)

GENERAL NOTES

DUFFIELD ASSOCIATES
Soil, Water & the Environment

SITE LOCATION SKETCH

NOT FOR BID



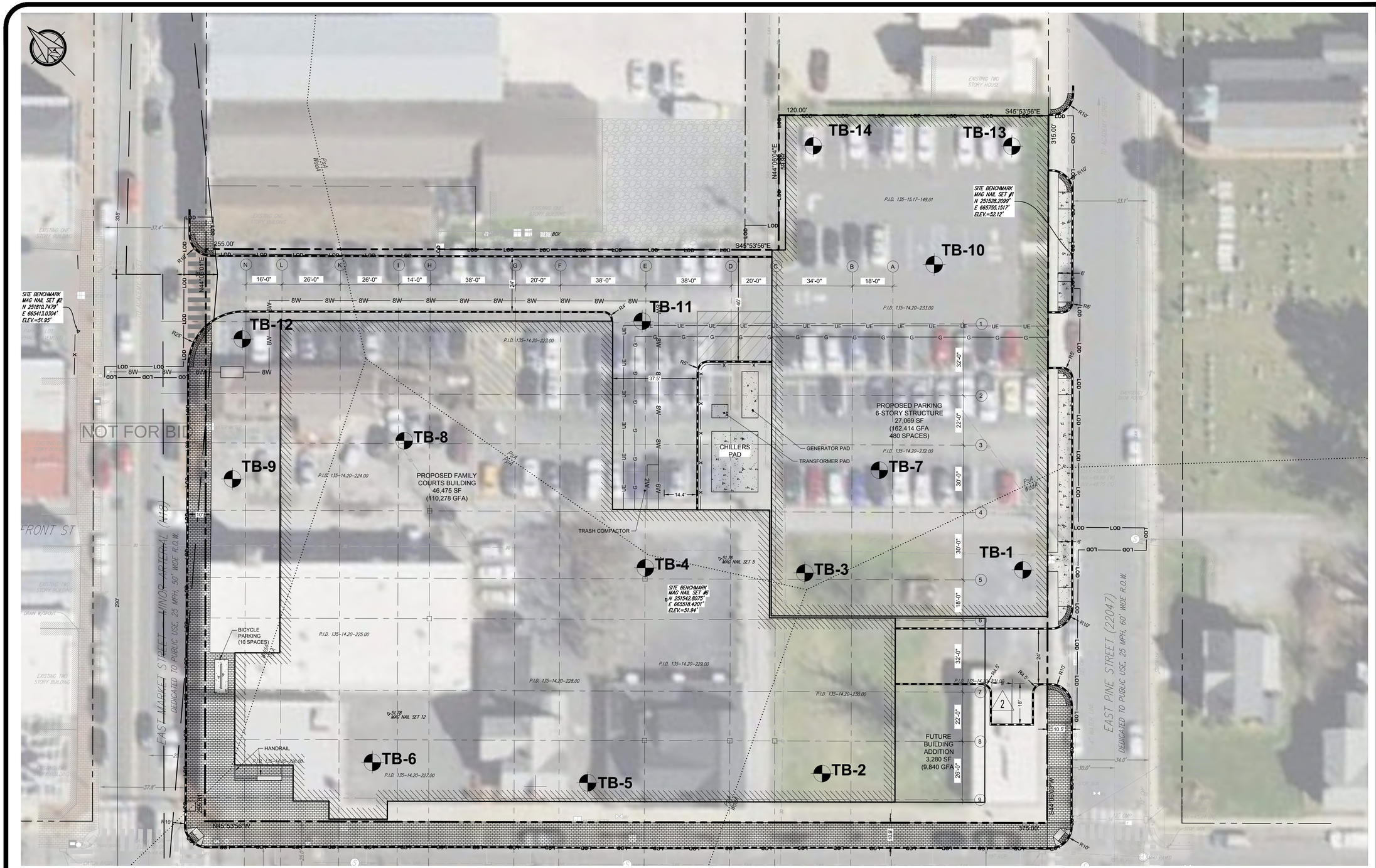
DATE: 1 APRIL 2021	SITE LOCATION SKETCH	**DESIGNED BY:** CPF	DUFFIELD ASSOCIATES Soil, Water & the Environment
SCALE: 1' = 2000'	**DELAWARE FAMILY COURTS** **SUSSEX COUNTY EXPANSION**	**DRAWN BY:** CPF	5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.239.6634 FAX 302.239.8485
PROJECT. NO. 12598.GF		**CHECKED BY:** IMF	OFFICES IN DELAWARE, MARYLAND PENNSYLVANIA AND NEW JERSEY
SHEET: FIGURE 1	**GEORGETOWN ~ SUSSEX COUNTY ~ DELAWARE**	**FILE:** 12598GF-SITE	E-MAIL: DUFFIELD@DUFFNET.COM

NOT FOR BID

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING LOCATION SKETCH

NOT FOR BID



KEY:

TB-1 APPROXIMATE LOCATION OF TEST BORING

NOTE:

THIS DRAWING WAS ADAPTED FROM DUFFIELD ASSOCIATES DRAWING C-201 ENTITLED, "CONSTRUCTION IMPROVEMENT PLANS - SITE PLAN," DATED 3/22/2021

NOT FOR BID

DUFFIELD ASSOCIATES
Soil, Water & the Environment
5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL: 302.239.6634
FAX: 302.239.8485
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WEB: HTTP://DUFFNET.COM
E-MAIL: DUFFIELD@DUFFNET.COM

CHECKED BY: JMF
DESIGNED BY: CPF
DRAWN BY: CPF
FILE NAME: 1st Boring Location Sketch

No.	REVISION	CHKD BY	DATE
-	-		

OWNER/ DEVELOPER: STATE OF DELAWARE
540 S DUPONT HIGHWAY STE 1
DOVER, DE 19901
PHONE: (302) 857-3648
FAX: (302) 739-3073

TEST BORING LOCATION SKETCH

SUSSEX COUNTY FAMILY COURTS

100 EAST MARKET STREET

GEORGETOWN HUNDRED ~ SUSSEX COUNTY ~ DELAWARE

DATE: MAY 4, 2021
SCALE: 1" = 20'
PROJECT NO. 12598.GF
SHEET: Figure 1

TEST BORING LOGS (14)

DUFFIELD ASSOCIATES
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TEST BORING TB-1

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 11, 2021
Date Completed : March 11, 2021
Logged by : CPF
Weather : Clear, 60s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	USCS	DESCRIPTION	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve
0	0.3		FILL: Existing Stone, Gravel Parking Lot (±4")					
	2.0		FILL: Brown, fine-medium SAND, little clay (brick fragments, crushed stone) (moist)	S-1	6-7	0.8		
			Light brown, orange fine SAND and CLAY (moist)	S-2	6-5-5-5	2.0		
5		SC		S-3	4-10-16-16	0.8		
			Light gray, brown fine SAND, little clay (moist)	S-4	13-15-12-10	2.0		
	8.0							
			Light brown, orange fine to medium SAND, trace clay (moist)	S-5	2-3-3-4	1.5		
10								
			Light brown, orange fine to medium SAND, trace clay (wet)	S-6	3-4-4-5	2.0	25.5	7.2
15								
		SP-SC		S-7	3-4-7-9	2.0		
20								
			Light gray fine to medium SAND, trace clay (wet)	S-8	2-3-4-5	1.0		
25								
				S-9	4-4-5-6	1.0		
30								
	31.5							
			Light gray fine to medium SAND, trace clay (wet)	S-10	6-7-8-11	1.0	19.4	3.3
35		SP						
			Light gray fine to medium SAND, trace coarse sand, trace clay (wet)	S-11	3-3-4-6	1.3		
40								

WATER LEVEL

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 12.5 feet b.e.g.s.
3. Water level through augers at ± 9.9 feet b.e.g.s. with augers at ± 20.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings and hole plug upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-1

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 11, 2021
Date Completed : March 11, 2021
Logged by : CPF
Weather : Clear, 60s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
45			SP	NO RECOVERY (trap dislodged from spoon)	X	S-12	6-5-6-6	0.0			
				Light gray fine to medium SAND, trace clay (wet)	X	S-13	5-7-9-12	1.0	18.6	3.5	
50	50.0										
55											
60											
65											
70											
75											
80											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 12.5 feet b.e.g.s.
3. Water level through augers at ± 9.9 feet b.e.g.s. with augers at ± 20.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings and hole plug upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-2

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 11, 2021
Date Completed : March 11, 2021
Logged by : CPF
Weather : Clear, 60s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	USCS	DESCRIPTION	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve
0	0.3		TOPSOIL ±4"					
	2.0		FILL: Brown SILT, little fine sand, trace organics (trace brick fragments beneath topsoil) (moist)	S-1	2-2-4-4	1.3		
		CL	Light brown CLAY, little to some fine sand (moist)	S-2	2-2-1-4	1.3		
	4.0							
5		SP-SC	Gray, light brown fine SAND, little clay (moist)	S-3	3-6-8-14	2.0		
			Light brown fine to medium SAND, trace clay (moist)	S-4	15-17-13-13	2.0		
	8.0							
10			Light gray fine to medium SAND, trace to little clay (moist)	S-5	2-2-2-3	1.3		
			Light gray fine to medium SAND, trace clay (wet)	S-6	2-2-2-2	2.0	31.1	9.2
15								
20		SP-SC	Light gray fine to medium SAND, little clay	S-7	2-2-3-3	1.5		
25				S-8	2-2-3-4	1.3		
				S-9	3-3-3-4	1.3		
30	30.0							
35								
40								

WATER LEVEL

NOTES:
1. Test boring terminated at ± 30.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 12.0 feet b.e.g.s.
3. Water level through augers at ± 13.4 feet b.e.g.s. with augers at ± 20.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-3

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 12, 2021
Date Completed : March 12, 2021
Logged by : CPF
Weather : Overcast, 60s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.3			TOPSOIL ±4"							
				FILL: Brown SILT, little fine sand, trace organics		S-1	2-2-3-4	1.0			
	2.0			Light brown fine SAND, some clay (moist)		S-2	4-1-2-5	1.8			
5			SC			S-3	7-11-11-12	1.5			
				Light brown, light gray fine to medium SAND, little clay (moist)		S-4	13-12-12-12	2.0	15.1	16.8	
	8.0			Light brown, orange fine to medium SAND, trace clay (wet)		S-5	4-3-3-4	2.0			▼
10											
				Light gray fine to medium SAND, trace clay (wet)		S-6	3-5-4-7	2.0			▼
15											
				Light gray, light brown fine to medium SAND, trace clay (wet)		S-7	3-3-4-6	1.5	28.6	9.8	
20											
			SP-SC			S-8	3-3-3-5	2.0			
25											
						S-9	2-4-4-5	2.0			
30				Light gray fine to medium SAND, trace to little clay (wet)							
						S-10	3-4-3-5	1.8			
35											
						S-11	4-4-6-8	1.5			
40											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 9.0 feet b.e.g.s.
3. Water level through augers at ± 13.2 feet b.e.g.s. with augers at ± 20.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-3

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 12, 2021
Date Completed : March 12, 2021
Logged by : CPF
Weather : Overcast, 60s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
45			SP-SC			S-12	5-5-6-8	2.0			
				Light gray fine to medium SAND, trace clay (wet)		S-13	8-9-10-13	2.0	16.2	5.4	
50	50.0										
55											
60											
65											
70											
75											
80											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 9.0 feet b.e.g.s.
3. Water level through augers at ± 13.2 feet b.e.g.s. with augers at ± 20.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-4

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 12, 2021
Date Completed : March 12, 2021
Logged by : CPF
Weather : Clear, 60s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.3			ASPHALT ±4"							
				FILL: Black, dark brown, brown fine SAND, little clay (moist)		S-1	4-4-5-6	1.5			
	3.0		CL	Light brown, brown CLAY, some to little fine sand (moist)		S-2	4-3	0.8			
	4.0					S-3	4-6-8-13	2.0			
5			SP-SC	Light gray, light brown fine SAND, little clay (moist)		S-4	19-21-16-13	2.0			
	8.0										
				Light gray, light brown fine SAND, trace clay (moist)		S-5	2-4-5-5	1.5			▼
10											
											▼
				Light gray, light brown fine to medium SAND, trace clay (wet)		S-6	5-5-4-5	2.0	23.4	9.7	
15											
			SP-SC			S-7	3-3-3-3				
20											
				Light gray fine to medium SAND, little clay (wet)		S-8	3-2-3-2	2.0	30.3	11.3	
25											
				Light gray fine SAND, little clay (wet)		S-9	2-1-3-6	2.0			
30	30.0										
35											
40											

NOTES:
1. Test boring terminated at ± 30.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 13 feet b.e.g.s.
3. Water level through augers at ±10.2 feet b.e.g.s. with augers at ± 15.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-5

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 16, 2021
Date Completed : March 16, 2021
Logged by : CPF
Weather : Overcast, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.3			ASPHALT (±2")							
			SP-SC	Light brown, brown fine SAND, trace clay (moist)		S-1	2-2	1.0			
	2.0			Light brown, orange CLAY And fine SAND (moist)		S-2	2-3-3-5	1.8	15.3	55.9	
			CL								
5				Light brown, light gray CLAY, little fine SAND (moist)		S-3	5-8-12-13	1.5			
	6.0		SP-SC	Light brown, light gray fine SAND, trace clay (moist)		S-4	16-20-22-21	1.5			▼
	8.0					S-5	6-6-5-4	1.5			▼
10											
			SP-SC	Light gray fine to medium SAND, trace clay (wet)		S-6	2-3-4-6	2.0			
15											
						S-7	2-3-3-3	2.0			
20											
	21.5										
				Light gray fine to medium SAND, little clay (wet)		S-8	2-1-2-3	2.0	29.8	12.1	
25											
			SC	NO RECOVERY (trap broke)		S-9	1-1-1-2	0.0			
30											
				Light gray fine SAND, little clay (wet)		S-10	1-1-1-2	2.0	27.6	16.5	
35											
	36.5										
			SP-SC	Light brown, light gray fine to medium SAND, trace clay (wet)		S-11	6-6-5-7	1.0			
40											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 7.5 feet b.e.g.s.
3. Water level through augers at ± 9.4 feet b.e.g.s. with augers at ± 15.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-5

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 16, 2021
Date Completed : March 16, 2021
Logged by : CPF
Weather : Overcast, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
45			SP-SC	Light gray fine to medium SAND, trace clay (wet)		S-12	7-8-8-9	1.3			
50	50.0					S-13	8-8-9-11	2.0	18.4	8.3	
55											
60											
65											
70											
75											
80											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 7.5 feet b.e.g.s.
3. Water level through augers at ± 9.4 feet b.e.g.s. with augers at ± 15.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-6

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 12, 2021
Date Completed : March 12, 2021
Logged by : IMF
Weather : Clear, 70s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.3			ASPHALT ±4"							
	2.0			FILL: (±12") Brown fine SAND, little clay (trace broken brick fragments) (moist)		S-1	2-3	0.8			
			CL	Light brown, gray CLAY and fine SAND (moist)		S-2	2-1-3-5	2.0	18.3	60.7	
5						S-3	6-7-8-11	1.5			
	6.0		SP-SC	Light gray, light brown fine to medium SAND, little clay (moist)		S-4	11-11-12-11	2.0			
	8.0			Light brown, orange, light gray fine to medium SAND, trace clay (wet)		S-5	2-3-4-5	1.5			▼
10											▼
						S-6	1-2-2-2	2.0			
15											
			SP-SC	Light gray fine to medium SAND, trace clay (wet)		S-7	2-3-2-4	2.0			
20											
						S-8	2-1-4-5	2.0			
25											
				Light gray fine to medium SAND, trace clay (wet)		S-9	3-3-4-6	1.5			
30	30.0										
35											
40											

NOTES:
1. Test boring terminated at ± 30.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 9.0 feet b.e.g.s.
3. Water level through augers at ± 10.0 feet b.e.g.s. with augers at ± 15.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 20.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-7

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 15, 2021
Date Completed : March 15, 2021
Logged by : CPF
Weather : Clear, 30s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	USCS	DESCRIPTION	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve
0	0.3		ASPHALT (±3")					
			FILL: Light brown fine SAND, trace clay (moist)	S-1	3-4	0.9		
2.0		CL	Light brown CLAY, little to trace fine sand (moist)	S-2	4-3-3-3	2.0		
4.0		SP-SC	Light brown, light gray fine to medium SAND, trace clay (moist)	S-3	6-10-16-16	2.0		
5			Light brown fine to medium SAND, trace clay (moist)	S-4	16-15-13-12	1.8		
8.0				S-5	2-1-4-4	1.3		
10			Gray fine to medium SAND, trace to little clay (wet)					
				S-6	2-3-4-8	2.0		
15								
			Gray fine to medium SAND, trace clay (wet)	S-7	3-3-6-7	1.8	25.1	7.9
20								
		SP-SC		S-8	4-3-4-6	1.6		
25								
			Light brown, light gray fine to medium SAND, trace to little clay (wet)	S-9	5-5-8-12	1.3		
30								
				S-10	5-6-9-11	1.3		
35								
			Light brown, light gray, orange fine to medium SAND, trace to little clay (wet)	S-11	3-4-5-6	1.0		
40								

WATER LEVEL

NOTES:
1. Test boring terminated at ± 75.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 11.5 feet b.e.g.s.
3. Water level through augers at ± 12.9 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-7

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 15, 2021
Date Completed : March 15, 2021
Logged by : CPF
Weather : Clear, 30s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
				Light brown, light gray fine to medium SAND, trace to little clay (wet)		S-12	4-3-5-5	1.3			
45											
				Light brown, light gray fine to medium SAND, trace to little clay (wet)		S-13	4-7-8-9	1.3			
50			SP-SC								
				Light gray fine to medium SAND, trace clay (wet)		S-14	4-4-6-8	1.3	22.6	7.5	
55											
				Light gray fine to medium SAND, trace clay (wet)		S-15	4-5-7-9	1.4			
60											
	61.5										
				Light gray, light brown fine to coarse SAND, trace clay (wet)		S-16	10-10-14-14	1.4			
65											
			SW-SC	Light gray, light brown fine to medium SAND, trace coarse sand, trace gravel, trace clay (wet)		S-17	11-9-11-13	1.0	15.6	7.1	
70											
				Light gray, light brown fine to coarse SAND, some gravel, trace clay		S-18	12-13-18-23	1.4			
75	75.0										
80											

NOTES:
1. Test boring terminated at ± 75.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 11.5 feet b.e.g.s.
3. Water level through augers at ± 12.9 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-8

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 19, 2021
Date Completed : March 19, 2021
Logged by : CPF
Weather : Overcast, 30s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	USCS	DESCRIPTION	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve
0	0.2		ASPHALT (±2")					
			FILL: Black, dark brown fine SAND, trace clay (moist) (brick fragments)	S-1	13-9	1.0		
2.0				S-2	7-7-7-10	2.0		
5		SP-SC	Light gray, light brown fine SAND, trace clay (moist)	S-3	6-11-13-20	2.0		
				S-4	13-32-28-24	2.0		
8.0								
			Light brown fine to medium SAND, trace to little clay (moist)	S-5	6-7-7-7	1.7		
10								
			Light brown, light gray fine to medium SAND, little clay (wet)	S-6	3-4-4-7	2.0	22.8	11.2
15		SP-SC						
				S-7	3-4-5-3	2.0		
20			Light gray fine to medium SAND, trace clay (wet)					
				S-8	3-3-4-6	2.0		
25								
28.0								
			Light brown fine SAND, little clay (wet)	S-9	2-1-2-3	2.0	30.3	16.4
30		SC						
				S-10	2-1-2-4	2.0		
35								
37.5								
		SP-SC	Light gray fine to medium SAND, trace clay (wet)	S-11	5-6-5-5	1.0		
40								

WATER LEVEL

NOTES:
1. Test boring terminated at ± 40.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 10.0 feet b.e.g.s.
3. Water level through augers at ± 10.4 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Faint smell of oil observed during drilling at ± 15.0 feet b.e.g.s. and until boring complete.
6. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
7. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-9

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 19, 2021
Date Completed : March 19, 2021
Logged by : CPF
Weather : Overcast, 30s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	USCS	DESCRIPTION	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve
0	0.2	SP	ASPHALT (±2")					
	1.0		FILL: Brown fine SAND, trace clay (brick fragments) (moist)	S-1	4-5	1.0		
			Brown fine SAND, some to little clay (moist)	S-2	5-4-4-4	1.5		
5		SC	Light gray, light brown fine SAND, little clay (moist)	S-3	4-8-8-11	1.5		
				S-4	24-22-20-26	2.0		
			Light gray, light brown fine SAND, little clay (moist)	S-5	6-7-8-9	1.5	20.1	16.9
10	11.5							
				S-6	3-2-3-3	2.0		
15			Light gray fine to medium SAND, trace clay (wet)					
				S-7	3-3-3-5	1.0		
20		SP-SC						
			Light brown, light gray fine SAND, little clay (wet)	S-8	3-2-3-5	2.0	28.5	11.5
25								
				S-9	1-2-3-4	2.0		
30	30.0							
35								
40								

WATER LEVEL

NOTES:
1. Test boring terminated at ± 75.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 12.0 feet b.e.g.s.
3. Water level through augers at ± 10.4 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-10

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 17, 2021
Date Completed : March 17, 2021
Logged by : CPF
Weather : Foggy, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.4			ASPHALT (±4-5")							
				Light yellow, brown fine to medium SAND, little clay (moist)		S-1	14-20	1.0			
			SC	Light yellow, brown fine to medium SAND, little clay (moist-wet)		S-2	6-6-5-11	1.6	29.0	12.9	
5				Orange, gray fine SAND, some clay (moist)		S-3	5-11-8-8	2.0			
	6.0		SP-SC	Gray, orange fine to medium SAND, little clay (moist)		S-4	17-14-24-20	2.0			
	8.0			Yellow medium SAND, little clay, little fine sand (wet)		S-5	4-4-4-5	2.0			
10											▼
				Gray fine to medium SAND, little clay (wet)		S-6	5-3-2-3	2.0			
15											
			SP-SC	Gray fine to coarse SAND, little clay, little gravel (wet)		S-7	3-4-4-3	1.2			
20											
				Gray fine to coarse SAND, little gravel, trace clay (wet)		S-8	4-3-5-5	1.2	21.2	9.5	
25											
				Gray fine to medium SAND, little clay (wet)		S-9	4-4-5-6	1.8			
30											
	31.5		SC	Gray fine to coarse SAND, some clay, trace gravel (wet)		S-10	5-8-8-7	1.2			
35											
	36.5		SP-SC	Gray fine to coarse SAND, little clay, trace gravel (wet)		S-11	7-6-7-7	1.4			
40											

NOTES:
1. Test boring terminated at ± 85.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 13.0 feet b.e.g.s.
3. Water level through augers at ± 11.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-10

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 17, 2021
Date Completed : March 17, 2021
Logged by : CPF
Weather : Foggy, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
45			SP-SC	Gray fine to coarse SAND, little clay, trace gravel (wet)	X	S-12	5-5-6-9	1.2			
50				Gray fine to coarse SAND, little clay, trace gravel (wet)	X	S-13	6-7-5-6	1.4			
	51.5										
55			SC	Gray fine to coarse SAND, some clay, trace gravel (wet)	X	S-14	8-10-12-13	1.7			
	56.5										
60				Gray, yellow fine to coarse SAND, little clay (wet)	X	S-15	8-7-7-10	1.2			
65				Gray, yellow, brown fine to coarse SAND, little clay (wet)	X	S-16	8-5-16-14	1.3			
70			SP-SC	Orange, gray medium to coarse SAND, some gravel, little fine sand, little clay (wet)	X	S-17	13-9-8-11	1.2			
75				Orange, gray medium to coarse SAND, little gravel, little fine sand, trace clay (wet)	X	S-18	10-9-12-14	1.5	19.4	9.7	
80				Orange, gray medium to coarse SAND, little gravel, little fine sand, little clay (wet)	X	S-19	11-10-10-14	1.5			

NOTES:
1. Test boring terminated at ± 85.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 13.0 feet b.e.g.s.
3. Water level through augers at ± 11.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-10

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 17, 2021
Date Completed : March 17, 2021
Logged by : CPF
Weather : Foggy, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
80											
85	85.0		SP-SC	Orange, gray medium to coarse SAND, little gravel, little fine sand, little clay (wet)		S-20	7-5-7-13	1.2			
90											
95											
100											
105											
110											
115											
120											

NOTES:
1. Test boring terminated at ± 85.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 13.0 feet b.e.g.s.
3. Water level through augers at ± 11.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-11

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 19, 2021
Date Completed : March 19, 2021
Logged by : CPF
Weather : Partly Cloudy, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.5			ASPHALT (±6")							
	1.2			CONCRETE (±8")							
				Brown, dark brown fine SAND, trace clay (moist)		S-2		1.5			
5			SP-SC	Gray fine SAND, little clay (moist)		S-3	10-8-6-13	2.0			
				Gray fine SAND, trace clay (moist)		S-4	16-30-28-28	2.0	31.8	10.9	
	8.0			Gray fine to medium SAND, trace clay (moist)		S-5	7-9-7-5	1.8			
10											▼
				Gray fine to medium SAND (wet) (dark silvery stained soil, pungent oil smell)		S-6	2-3-4-6	2.0			
15											
			SP-SC	Light gray fine to medium SAND, trace clay (wet) (very pungent oil smell)		S-7	3-4-3-5	2.0			
20											
				Light brown, light gray fine to medium SAND, trace clay (wet)		S-8	2-4-3-4	1.0			
25											
				Light brown, light gray fine to medium SAND, little clay (wet)		S-9	1-1-1-2	1.0			
30	30.0										
35											
40											

NOTES:
1. Test boring terminated at ± 30.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 11.0 feet b.e.g.s.
3. Water level through augers at ± 12.4" feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Faint smell of oil observed during drilling at ± 15.0 feet b.e.g.s. and until boring complete. Odor increased at ± 18.0-20.0 feet b.e.g.s.
6. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
7. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-12

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 22, 2021
Date Completed : March 22, 2021
Logged by : CPF
Weather : Clear, 50s
Driller/Agency : Jason, Chris/CGC Geoservices, LLC

Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.5			ASPHALT (±6")							
	1.2			CONCRETE (±8")		S-1	2-1	0.8			
	2.0			FILL: Brown, dark brown fine SAND, trace clay (moist) (brick fragments)		S-2	2-2-2-3	1.8			
5			SP-SC	Gray, brown, orange fine SAND, little clay (moist)		S-3	2-6-7-11	1.8			
				Brown, gray, orange fine to medium SAND, trace clay (moist)		S-4	15-16-25-25	1.5			
	8.0			Light brown, light gray fine to medium SAND, trace clay (moist)		S-5	5-6-6-5	1.5			
10											▼
				Light brown, light gray, orange fine to medium SAND, trace clay (wet)		S-6	1-2-4-4	2.0			▼
15											
				Light brown, light gray fine to medium SAND, little clay (wet)		S-7	2-2-3-5	2.0	24.0	11.3	
20											
			SP-SC			S-8	2-2-3-3	1.7			
25											
						S-9	1-1-3-3	2.0			
30											
				Light brown, light gray fine SAND, trace clay (wet)		S-10	1-1-3-4	2.0			
35											
						S-11	1-1-3-6	2.0			
40											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 11.5 feet b.e.g.s.
3. Water level through augers at ± 12.2 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-12

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 22, 2021
Date Completed : March 22, 2021
Logged by : CPF
Weather : Clear, 50s
Driller/Agency : Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
45			SP-SC			S-12	6-7-9-9	1.0			
				Light gray, light brown fine to medium SAND, trace clay (wet)		S-13	4-7-9-10	2.0	15.2	6.8	
50	50.0										
55											
60											
65											
70											
75											
80											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 11.5 feet b.e.g.s.
3. Water level through augers at ± 12.2 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-13

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 16, 2021
Date Completed : March 16, 2021
Logged by : CPF
Weather : Overcast, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.3		ASPHALT (±3")							
		SP-SC	Light brown, brown, black fine SAND, little clay (moist)		S-1	11-12	1.0			
	2.0		Light brown CLAY, little fine SAND (moist)		S-2	3-7-3-5	1.5			
5		CL	Light gray, light brown CLAY and fine SAND (moist)		S-3	2-3-5-11	1.5	12.5	55.7	
			Light brown, orange, light gray CLAY, little fine sand (moist)		S-4	9-11-16-25	2.0			
	8.0				S-5	6-6-8-5	1.8			▼
10			Light gray fine to medium SAND, trace to little clay (wet)							▼
		SC			S-6	2-2-3-5	2.0			
15										
			Light gray, orange, light brown fine to medium SAND, little clay (wet)		S-7	3-2-2-3	1.0	22.0	16.0	
20										
	21.5									
			Light gray, light brown fine to medium SAND, trace clay, trace coarse sand (wet)		S-8	4-4-5-6	1.3			
25		SP-SC								
			Light gray fine to medium SAND, trace clay (wet)		S-9	3-3-4-3	2.0			
30	30.0									
35										
40										

NOTES:
1. Test boring terminated at ± 30.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 11.0 feet b.e.g.s.
3. Water level through augers at ± 9.9 feet b.e.g.s. with augers at ± 13.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-14

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 15, 2021
Date Completed : March 15, 2021
Logged by : CPF
Weather : Clear, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
0	0.3			ASPHALT (±3")							
			SP-SC	Light brown fine SAND, trace clay (moist)		S-1	4-3	1.3			
	2.0			Light brown, orange CLAY, little fine sand (moist)		S-2	4-4-2-6	1.5			
5			CL			S-3	2-10-5-5	2.0			
				Light gray, light brown CLAY and to some fine SAND (moist)		S-4	7-8-10-23	2.0			
	8.0			Light gray, light brown fine SAND, little clay (moist) (wet)		S-5	13-10-10-10	2.0			▼
10											
						S-6	4-2-3-5	2.0			▼
15											
				Light gray, light brown fine SAND, little clay (wet)		S-7	2-2-3-3	1.5	25.9	11.9	
20											
			SP-SC	Light gray, light brown fine SAND, little clay, trace coarse sand (wet)		S-8	2-4-5-7	2.0			
25											
				Light gray, light brown fine to medium SAND, trace clay (wet)		S-9	4-6-6-6	1.5	21.7	9.5	
30											
						S-10	5-5-6-7	1.5			
35											
				Light gray, light brown fine to medium SAND, trace clay (wet)		S-11	8-9-7-9	1.0			
40											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 12.0 feet b.e.g.s.
3. Water level through augers at ± 14.9 feet b.e.g.s. with augers at ± 18.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

DUFFIELD ASSOCIATES
Soil, Water & the Environment

TEST BORING TB-14

Geotechnical Evaluation
Delaware Family Courts
Sussex County Expansion
Georgetown, Delaware
12598.GF

Date Started : March 15, 2021
Date Completed : March 15, 2021
Logged by : CPF
Weather : Clear, 40s
Driller/Agency : Matt Lyons, Jason, Chris/CGC Geoservices, LLC
Drilling Equipment : Diedrich D50
Drilling Methods : Hollow Stem Augers

Sample Condition: Auger Cuttings; Remolded
Water Levels: During Drilling; Wet on Spoon

Depth in feet	Layer Depth feet	GRAPHIC	USCS	DESCRIPTION	SAMPLES	Sample Number	Blows per 6 inches	Recovery (ft)	Moisture Content (%)	Percent Passing 200 Sieve	WATER LEVEL
40											
45			SP-SC	Light brown fine to medium SAND, trace clay (wet)		S-12	7-7-7-9	1.0			
50	50.0					S-13	5-7-11-9	1.3			
55											
60											
65											
70											
75											
80											

NOTES:
1. Test boring terminated at ± 50.0 feet below existing ground surface (b.e.g.s.).
2. Wet-on-spoon conditions observed at ± 12.0 feet b.e.g.s.
3. Water level through augers at ± 14.9 feet b.e.g.s. with augers at ± 18.0 feet b.e.g.s.
4. Drillers utilized mud rotary techniques beginning at ± 15.0 feet b.e.g.s.
5. Borehole backfilled with soil cuttings, hole plug, and cold patch asphalt upon completion.
6. Soil descriptions performed in general accordance with ASTM D2488, the Practice for Description and Identification of Soils (Visual-Manual Procedure).

GENERAL NOTES

NOT FOR BID

GENERAL NOTES

DUFFIELD ASSOCIATES uses the following definitions and terminology to classify and correlate the field and laboratory samples.

VISUAL UNIFIED CLASSIFICATIONS: The soil samples are described by color, major constituent, modifiers (by percentage), and density (or consistency). Coarse Grained or Granular Soils have more than 50% of their dry weight retained on a No. 200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a No. 200 sieve; they are described as: clays or clayey silts if they are cohesive and silts if they are noncohesive. In addition to gradation, granular soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their strength or consistency and their plasticity.

The Unified Soil Classification symbols are:

COARSE GRAINED SOILS

GW - Well graded gravels
GP - Poorly graded gravels
GM - Silty gravels
GC - Clayey gravels
SW - Well graded sands
SP - Poorly graded sands
SM - Silty sands
SC - Clayey sands

FINE GRAINED SOILS

ML - Silts of low plasticity
CL - Clays of low to medium plasticity
OL - Organic silt clays of low plasticity
MH - Silts of high plasticity
CH - Clays of high plasticity
OH - Organic silt clays of high plasticity
PT - Peat and highly organic soils

SIZE DESCRIPTION

F - Fine
M - Medium
C - Coarse
G - Gravel

MODIFIERS (PERCENTAGE)

Tr -	Trace	1 - 10%
Ltl -	Little	11 - 20%
Some		21 - 35%
& -	And	36 - 50%

COLOR

Or - Orange
Yel - Yellow
Br - Brown
Blk - Black
Gr - Gray
R - Red
Vc - Varicolored
Dk - Dark
Lt - Light

DENSITY: COARSE GRAINED SOILS

Very loose	4 blows/ft or less
Loose	5 to 10 blows/ft
Medium	11 to 30 blows/ft
Dense	31 to 50 blows/ft
Very Dense	51 blows/ft or more

CONSISTENCY: FINE GRAINED SOILS

Very soft	2 blows/ft or less
Soft	3 to 4 blows/ft
Medium	5 to 8 blows/ft
Stiff	9 to 15 blows/ft
Very stiff	16 to 30 blows/ft
Hard	31 blows/ft or more

NOTE: The Standard Penetration Test "N" value is the number of blows per foot of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon sampler, except where otherwise noted.

SECTION 00 40 00

PROCUREMENT FORMS AND SUPPLEMENTS

1.1 ADMINISTRATIVE FORMS

A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements.

B. Copies of AIA standard forms may be obtained from the American Institute of Architects; http://www.aia.org/contractdocs/purchase/index.htm; docspurchases@aia.org; (800) 942-7732.

C. 00 41 00 Bid Forms:

1. 00 41 13 Bid Form, included in the Project Manual, and includes the following:
   - i Allowances
   - ii Alternates
   - iii Unit Prices
   - iv Sub-Contractor List
   - v Non-Collusion Statement
   - vi Affidavit of Employee Drug Testing Program

D. 00 43 00 Procurement Forms:

1. 00 43 13 Bid Bond Form, included in the Project Manual.
2. 00 43 21 Allowance Authorization Form, included in the Project Manual

END OF SECTION

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A100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002-BID PAC 0 - Contract 01

BID FORM

For Bids Due: (DATE) **To:** (OWNER)

Name of Bidder: _____
Taxpayer ID No.: _____
(Other License Nos.): _____

Phone No.: ( ) ____ - ____ **Fax No.: ( ) ____ - ____**

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____
($)

ALLOWANCE Ten Thousand Dollars ($10,000.00) included in above bid.

BID FORM

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

		ADD	DEDUCT
BID PACK 00			
UNIT PRICE No. 1:	Price per cubic yard of Rock and/or existing foundation excavation and replacement with satisfactory soil	$ _____	$ _____
UNIT PRICE No. 2:	Price per square ft of additional Mill and Overlay, 2” thickness.	$ _____	$ _____

		ADD	DEDUCT
UNIT PRICE No. 3:	Price per square ft of additional Asphalt paving.	$ _____	$ _____
UNIT PRICE No. 4:	Price per cubic yard of removal of unsatisfactory soil and replacement with satisfactory soil.	$ _____	$ _____
UNIT PRICE No. 5:	Price per cubic yard of removal of unsatisfactory soil and replacement with crushed stone.	$ _____	$ _____
UNIT PRICE No. 6:	Price per linear ft of additional ductbank per Detail 9/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 7:	Price per linear ft of additional ductbank per Detail 10/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 8:	Price per linear ft of additional ductbank per Detail 11/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 9:	Price per linear ft of additional ductbank per Detail 12/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No.10	Price per square foot of additional top soil And seeding per specifications	$_____	$_____
UNIT PRICE No.11	Price per square foot of additional concrete Sidewalk per specifications	$_____	$_____

100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002-BID PAC 0 - Contract 01

BID FORM

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for thirty (30) days from the date of opening of bids (60 days for School Districts and Department of Education), and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address:_____
_____
_____
_____

Witness: _____ **By:** _____
(Authorized Signature)

(SEAL)

_____
(Title)

Date: _____

ATTACHMENTS

Sub-Contractor List
Non-Collusion Statement
Affidavit of Employee Drug Testing Program
Affidavit of Contractor Qualifications
Bid Security
(Others as Required by Project Manuals)

100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002-BID PAC 0 - Contract 01

BID FORM

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 69, Section 6962(d)(10)b of the Delaware Code, the following subcontractor listing must accompany any bid submittal. The bidder must list **in each category** the full name and address (City & State) of the sub-contractor that the bidder will be using to perform the work and provide material for that subcontractor category. Should the bidder's listed subcontractor intend to provide any of their subcontractor category of work through a third-tier contractor, the bidder shall list that third-tier contractor's full name and address (City & State). **If the bidder intends to perform any category of work itself, it must list its full name and address.** For clarification, if the bidder intends to perform the work themselves, the bidder **may not** insert "not applicable", "N/A", "self" or anything other than its own full name and address (City & State). To do so shall cause the bid to be rejected. In addition, the failure to produce a completed subcontractor list with the bid submittal shall cause the bid to be rejected. If you have more than three (3) third-tier contractors to report in any subcontractor category, print out additional page(s) containing the appropriate category, complete the rest of your list of third-tier contractors for that category, notate the addition in parentheses as (CONTINUATION) next to the subcontractor category and an asterisk (*) next to any additional third-tier contractors, and submit it with your bid.

Subcontractor Category	Subcontractor	Address (City & State)	Subcontractors tax-payer ID # or Delaware Business license#
1.			
A.			
B.			
C.			
2.			
A.			
B.			
C.			

3. _____ _____ _____

A. _____ _____ _____

B. _____ _____ _____

C. _____ _____ _____

4. _____ _____ _____

A. _____ _____ _____

B. _____ _____ _____

C. _____ _____ _____

5. _____ _____ _____

A. _____ _____ _____

B. _____ _____ _____

C. _____ _____ _____

100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002-BID PAC 0 - Contract 01

BID FORM

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date *(to the Office of Management and Budget, Division of Facilities Management)*.

All the terms and conditions of *(#MJ0208000002-BID PAC 0 - Contract 01)* have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002-BID PAC 0 - Contract 01

BID FORM

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite, including subcontractors, that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002-BID PAC 0 - Contract 01

BID FORM

AFFIDAVIT
OF
CONTRACTOR QUALIFICATIONS

We hereby certify that we will abide by the contractor's qualifications outlined in the construction bid specifications for the duration of the contract term.

In accordance with Title 29, Chapter 69, Section 6962(d)(10)b.3 of the Delaware Code, after a contract has been awarded the successful bidder shall not substitute another subcontractor whose name was submitted on the Subcontractor Form except for the reasons in the statute and not without written consent from the awarding agency. Failure to utilize the subcontractors on the list will subject the successful bidder to penalties as outlined in the General Requirements Section 5.2 of the contract.

Contractor Name: _____

Contractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____ _____of _____ in the County of _____ _____and State of _____as **Principal**, and _____ _____ of _____ in the County of _____ and State of _____ as **Surety**, legally authorized to do business in the State of Delaware ("**State**"), are held and firmly unto the **State** in the sum of _____ _____ Dollars ($_____), or _____ percent not to exceed _____ Dollars ($_____) of amount of bid on Contract No. **MJ0208000002**, to be paid to the **State** for the use and benefit of the Office of Management and Budget for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bonded **Principal** who has submitted to the Office of Management and Budget a certain proposal to enter into this contract for the furnishing of certain material and/or services within the **State**, shall be awarded this Contract, and if said **Principal** shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the Office of Management and Budget this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____ seal and dated this _____day of _____ in the year of our Lord two thousand and _____ (20___).

SEALED, AND DELIVERED IN THE
Presence of

_____
Name of Bidder (Organization)

Corporate Seal

By: _____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness:_____ By: _____

_____
Title

END OF SECTION

SECTION 00 50 00

CONTRACTING FORMS AND SUPPLEMENTS

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:

1. 00 52 13 AIA Document A132-2019, "Standard Form of Agreement between Owner and Contractor", sample copy included in the Project Manual.
2. 00 54 13 The Supplement to the Agreement between Owner and Contractor for this Project are included in the Project Manual.
3. 00 72 13 The General Conditions for Project are AIA Document A232, "General Conditions of the Contract for Construction", sample copy included in the Project Manual.
4. 00 73 13 The Supplementary General Conditions for Project are included in the Project Manual.
5. Owner's document(s) bound following this Document.

B. Copies of AIA standard forms may be obtained from the American Institute of Architects; http://www.aia.org/contractdocs/purchase/index.htm; docspurchases@aia.org; (800) 942-7732.

END OF SECTION

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STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR A132-2019

The contract to be utilized on this project shall be the “Standard Form of Agreement Between Owner and Contractor” AIA Document A132-2019, including AIA Document A132 – 2019 Exhibit A, as well as Supplements to A132-2019 and Exhibit A and the State of Delaware’s General Requirements.

END OF SECTION

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AIA® Document A132™ – 2019

Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

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)

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

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

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

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

The Owner and Contractor agree as follows.

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

This document is intended to be used in conjunction with AIA Documents A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

AIA Document A232™–2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

TABLE OF ARTICLES

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EXHIBIT A INSURANCE AND BONDS
EXHIBIT B DETERMINATION OF THE COST OF THE WORK

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

☐ The date of this Agreement.

☐ A date set forth in a notice to proceed issued by the Owner.

☑ Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion of the Project or Portions Thereof

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the date of Substantial Completion of the Work of all of the Contractors for the Project will be:
(Insert the date of Substantial Completion of the Work of all Contractors for the Project.)

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of all of the Contractors for the Project are to be completed prior to Substantial Completion of the entire Work of all of the Contractors for the Project, the Contractors shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.4 When the Work of this Contract, or any Portion Thereof, is Substantially Complete

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract:
(Check one of the following boxes and complete the necessary information.)

☐ Not later than _____ (__) calendar days from the date of commencement of the Work.

☐ By the following date: _____

§ 3.4.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of this Contract are to be substantially complete prior to when the entire Work of this Contract shall be substantially complete, the Contractor shall substantially complete such portions by the following dates:

Portion of Work	Date to be substantially complete

§ 3.4.3 If the Contractor fails to substantially complete the Work of this Contract, or portions thereof, as provided in this Section 3.4, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

☐ Stipulated Sum, in accordance with Section 4.2 below

☐ Cost of the Work plus the Contractor's Fee, in accordance with Section 4.3 below

☐ Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3, or 4.4 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Contract Sum shall be _____ ($ __), subject to additions and deductions as provided in the Contract Documents.

§ 4.2.2 Alternates

§ 4.2.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.2.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.2.4 Unit prices, if any:
(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)

§ 4.3 Cost of the Work Plus Contractor's Fee without a Guaranteed Maximum Price

§ 4.3.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

§ 4.3.3 The method of adjustment of the Contractor's Fee for changes in the Work:

§ 4.3.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

§ 4.3.5 Rental rates for Contractor-owned equipment shall not exceed _____ percent (__ %) of the standard rental rate paid at the place of the Project.

§ 4.3.6 Unit prices, if any:
(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)

§ 4.3.7 The Contractor shall prepare and submit to the Construction Manager, within 14 days of executing this Agreement, a written Control Estimate for the Owner's review and approval. The Control Estimate shall include the items in Section B.1 of Exhibit B, Determination of the Cost of the Work.

§ 4.4 Cost of the Work Plus Contractor's Fee with a Guaranteed Maximum Price

§ 4.4.1 The Cost of the Work is as defined in Exhibit B, Determination of the Cost of the Work.

§ 4.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

§ 4.4.3 The method of adjustment of the Contractor's Fee for changes in the Work:

§ 4.4.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

§ 4.4.5 Rental rates for Contractor-owned equipment shall not exceed _____ percent (__ %) of the standard rental rate paid at the place of the Project.

§ 4.4.6 Unit Prices, if any:
(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)

§ 4.4.7 Guaranteed Maximum Price

§ 4.4.7.1 The Contract Sum is guaranteed by the Contractor not to exceed _____ ($ __), subject to additions and deductions by Change Order as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

§ 4.4.7.2 Alternates

§ 4.4.7.2.1 Alternates, if any, included in the Guaranteed Maximum Price:

Item	Price

§ 4.4.7.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.4.7.3 Allowances, if any, included in the Guaranteed Maximum Price:
(Identify each allowance.)

Item	Price

§ 4.4.7.4 Assumptions, if any, upon which the Guaranteed Maximum Price is based:
(Identify each assumption.)

§ 4.4.8 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes, or equipment, all of which, if required, shall be incorporated by Change Order.

§ 4.4.9 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 4.4.7.4. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 4.4.7.4 and the revised Contract Documents.

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)

§ 4.6 Other:
(Insert provisions for bonus, cost savings or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and Certificates for Payment issued by the Construction Manager and Architect, the Owner shall make progress payments on account of the Contract Sum, to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the _____ day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the _____ day of the _____ month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment of the amount certified shall be made by the Owner not later than _____ (__) days after the Construction Manager receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 In accordance with AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.4.3.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.4.3.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.5 Progress Payments Where the Contract Sum is Based on the Cost of the Work without a Guaranteed Maximum Price

§ 5.1.5.1 With each Application for Payment, the Contractor shall submit the cost control information required in Exhibit B, Determination of the Cost of the Work, along with payrolls, petty cash accounts, receipted invoices, or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor, plus payrolls for the period covered by the present Application for Payment, less that portion of the payments attributable to the Contractor's Fee.

§ 5.1.5.2 Applications for Payment shall show the Cost of the Work actually incurred by the Contractor through the end of the period covered by the Application for Payment and for which the Contractor has made or intends to make actual payment prior to the next Application for Payment.

§ 5.1.5.3 In accordance with AIA Document A232-2019 and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.5.3.1 The amount of each progress payment shall first include:

.1 The Cost of the Work as described in Exhibit B, Determination of the Cost of the Work;

.2 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and

.3 The Contractor's Fee computed upon the Cost of the Work described in the preceding Section 5.1.5.3.1.1 at the rate stated in Section 4.3.2; or if the Contractor's Fee is stated as a fixed sum in Section 4.3.2 an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work included in Section 5.1.5.3.1.1 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

§ 5.1.5.3.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019;

.5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.5.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and

.6 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.5.4 The Owner, Construction Manager and Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.5.5 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor, and such action shall not be deemed to be a representation that (1) the Construction Manager and Architect have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Article 5 or other supporting data; (2) that the Construction Manager and Architect have made exhaustive or continuous on-site inspections; or (3) that the Construction Manager and Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.5.6 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.5.7 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

§ 5.1.6 Progress Payments Where the Contract Sum is Based on the Cost of the Work with a Guaranteed Maximum Price

§ 5.1.6.1 With each Application for Payment, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner, Construction Manager or Architect to demonstrate that payments already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

§ 5.1.6.2 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Guaranteed Maximum Price among: (1) the various portions of the Work; (2) any contingency for costs that are included in the Guaranteed Maximum Price but not otherwise allocated to another line item or included in a Change Order, and (3) the Contractor's Fee.

§ 5.1.6.2.1 The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.6.2.2 The allocation of the Guaranteed Maximum Price under this Section 5.1.6.2 shall not constitute a separate guaranteed maximum price for the Cost of the Work of each individual line item in the schedule of values.

§ 5.1.6.2.3 When the Contractor allocates costs from a contingency to another line item in the schedule of values, the Contractor shall submit supporting documentation to the Architect and Construction Manager.

§ 5.1.6.3 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by the Contractor on account of that portion of the Work and for which the Contractor has made payment or intends to make payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

§ 5.1.6.4 In accordance with AIA Document A232-2019, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.4.1 The amount of each progress payment shall first include:

.1 That portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the most recent schedule of values;

.2 That portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction or, if approved in writing in advance by the Owner, suitably stored off the site at a location agreed upon in writing;

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified; and

.4 The Contractor's Fee, computed upon the Cost of the Work described in the preceding Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 at the rate stated in Section 4.4.2 or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work included in Sections 5.1.6.4.1.1 and 5.1.6.4.1.2 bears to a reasonable estimate of the probable Cost of the Work upon its completion.

§ 5.1.6.4.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019;

.5 The shortfall, if any, indicated by the Contractor in the documentation required by Section 5.1.6.1 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and

.6 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.6.5 The Owner and the Contractor shall agree upon a mutually acceptable procedure for review and approval of payments to Subcontractors and the percentage of retainage held on Subcontracts, and the Contractor shall execute subcontracts in accordance with those agreements.

§ 5.1.6.6 In taking action on the Contractor's Applications for Payment, the Construction Manager and Architect shall be entitled to rely on the accuracy and completeness of the information furnished by the Contractor and such action shall not be deemed to be a representation that (1) the Construction Manager or Architect have made a detailed examination, audit, or arithmetic verification of the documentation submitted in accordance with Section 5.1.6.1 or other supporting data; (2) that the Construction Manager or Architect have made exhaustive or continuous on-site inspections; or (3) that the Construction Manager or Architect have made examinations to ascertain how or for what purposes the Contractor has used amounts previously paid on account of the Contract. Such examinations, audits, and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

§ 5.1.6.7 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.6.8 If final completion of the Work is materially delayed through no fault of the Contractor, then the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A232-2019.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to when the entire Work of this Contract is substantially complete, including modifications for completion of portions of the Work as provided in Section 3.4.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, when the Work of this Contract is substantially complete, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted when the Work of this Contract is substantially complete shall not include retainage as follows:
(Insert any other conditions for release of retainage when the Work of this Contract is substantially complete, or upon Substantial Completion of the Work of all Contractors on the Project or portions thereof.)

§ 5.2 Final Payment

§ 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum

§ 5.2.1.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

§ 5.2.1.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

§ 5.2.2 Final Payment Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 5.2.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment;

.2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit B, Determination of the Cost of the Work and a final Application for Payment; and

.3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect in accordance with Exhibit B, Determination of the Cost of the Work.

§ 5.2.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

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

_____ % _____

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232–2019, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. *(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A232–2019, the method of binding dispute resolution shall be as follows: *(Check the appropriate box.)*

☐ Arbitration pursuant to Article 15 of AIA Document A232–2019.

☐ Litigation in a court of competent jurisdiction.

☐ Other: *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

§ 7.1.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019.

§ 7.2 Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 7.2.1 Termination

§ 7.2.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019.

§ 7.2.1.2 Termination by the Owner for Cause

§ 7.2.1.2.1 If the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232–2019, the Owner shall then only pay the Contractor an amount as follows:

.1 Take the Cost of the Work incurred by the Contractor to the date of termination;

.2 Add the Contractor's Fee, computed upon the Cost of the Work to the date of termination at the rate stated in Section 4.3.2 or 4.4.2, as applicable, or, if the Contractor's Fee is stated as a fixed sum in that Section, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion;

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract the costs and damages incurred, or to be incurred, by the Owner under Article 14 of AIA Document A232–2019.

§ 7.2.1.2.2 When the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, if the Owner terminates the Contract for cause as provided in Article 14 of AIA Document A232-2019, the amount, if any, to be paid to the Contractor under Article 14 of AIA Document A232-2019 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.1.2.1.

§ 7.2.1.2.3 The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 7.2.1.2.1.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 7, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders. All Subcontracts, purchase orders and rental agreements entered into by the Contractor will contain provisions allowing for assignment to the Owner as described above.

§ 7.2.1.3 Termination by the Owner for Convenience

If the Owner terminates the Contract for convenience in accordance with Article 14 of AIA Document A232–2019, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of or method for determining the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.3 Suspension

The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2019; in such case, the Contract Sum and Contract Time shall be increased as provided in Article 14 of AIA Document A232–2019, except that the term "profit" shall be understood to mean the Contractor's Fee as described in Section 4.3.2 or 4.4.2, as applicable, of this Agreement.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A132™–2019, Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A232–2019, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format 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.)

§ 8.7 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor's Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

§ 8.8 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

.2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds Exhibit

.3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

☐ AIA Document A132™–2019, Exhibit B, Determination of the Cost of the Work

☐ AIA Document E235™–2019, Sustainable Projects Exhibit, Construction Manager as Adviser Edition, dated as indicated below:
(Insert the date of the E235-2019 incorporated into this Agreement.)

☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232–2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

Init.
/

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SUPPLEMENT TO AGREEMENT BETWEEN OWNER AND CONTRACTOR A132-2019

The following supplements modify the "Standard Form of Agreement Between Owner and Contractor, Construction Manager as Advisor Edition" AIA Document A132-2019. Where a portion of the Standard Form of Agreement is modified or deleted by the following, the unaltered portions of the Standard Form of Agreement shall remain in effect.

ARTICLE 3: DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

3.1 Delete paragraph 3.1 in its entirety and replace with the following:

"The date of Commencement of the Work shall be a date set forth in a notice to proceed issued by the Owner."

3.3.1 In the space provided, insert "As defined in Article 9.8 of AIA Document A232-2019 and amended by the Owner's 'Supplementary General Conditions A232-2019'"

ARTICLE 4: CONTRACT SUM

4.1 Delete paragraph 4.1 in its entirety and replace with the following:

"The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be a Stipulated Sum, in accordance with Section 4.2 below.

4.3 Delete paragraph 4.3 in its entirety.

4.4 Delete paragraph 4.4 in its entirety.

ARTICLE 5: PAYMENTS

5.1 PROGRESS PAYMENTS

5.1.3 Delete paragraph 5.1.3 in its entirety and replace with the following:

"Provided that a valid Application for Payment is received by the Architect that meets all requirements of the Contract, payment shall be made by the Owner not later than 30 days after the Owner receives the valid Application for Payment."

5.1.5 Delete paragraph 5.1.5 in its entirety.

5.1.6 Delete paragraph 5.1.6 in its entirety.

5.2.2 Delete paragraph 5.2.2 in its entirety.

5.3 Insert the interest rate of "1% per month not to exceed 12% per annum."

ARTICLE 6: DISPUTE RESOLUTION

6.2 BINDING DISPUTE RESOLUTION

Check the box “Other” – and add the following sentence:

"Any remedies available in law or in equity."

ARTICLE 7: TERMINATION or SUSPENSION

7.1.1.1 Delete paragraph 7.1.1.1 in its entirety.

7.2 Delete paragraph 7.2 in its entirety.

ARTICLE 8: MISCELLANEOUS PROVISIONS

8.4 Delete paragraph 8.4 in its entirety and replace with the following:

“The Contractor’s representative shall not be changed without ten days written notice to the Owner.”

8.7 Delete paragraph 8.7 in its entirety.

ARTICLE 9: ENUMERATION OF CONTRACT DOCUMENTS

9.1.9 Insert “Supplement to Agreement Between Owner and Contractor A132-2019”

9.1.9 Insert “Supplementary General Conditions A232-2019”

END OF SECTION

SECTION 00 60 00

PROJECT FORMS

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:

1. AIA Document A132-2019, "Standard Form of Agreement between Owner and Contractor", sample copy included in the Project Manual.
2. The Supplementary Conditions to the Agreement for Project are included in the Project Manual.
3. The General Conditions for Project are AIA Document A232, "General Conditions of the Contract for Construction", are incorporated by reference.
4. The Supplementary General Conditions for Project are included in the Project Manual.
5. Owner's document(s) bound following this Document.

1.2 ADMINISTRATIVE FORMS

A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements.

B. Copies of AIA standard forms may be obtained from the American Institute of Architects; http://www.aia.org/contractdocs/purchase/index.htm; docspurchases@aia.org; (800) 942-7732.

C. 00 61 00 Bond Forms:

1. 00 61 13 .13 Performance Bond is included in the project manual.
2. 00 61 13 .16 Payment Bond is included in the project manual.

D. Construction Forms:

1. 00 81 14 "Employee Drug Testing Report Form", is included in the Project Manual.
1. 00 82 00 "CAD Release Form" is included in the Project Manual.
2. 01 74 19 Waste Management Progress Report is included at the back of the "Construction Waste Management and Disposal" specification section in this project manual.

F. 00 62 00 Certificates and Other Forms:

1. 00 62 11 Submittal Cover Sheet is included in the project manual.

2. 00 62 76 Payment Application: AIA Document G732, "Application and Certificate for Payment and Continuation Sheet.", sample copies are included in the Project Manual.

G. 00 63 00 Clarification and Modification Forms:

1. 00 63 13 Request for Interpretation Form is included in the project manual.
2. 00 63 25 Substitution Request Form (During Construction) is included in the project manual.
3. 00 63 33 Supplemental Instruction Form: AIA Document G710/G714, “Architect’s Supplemental Instructions” and “Construction Change Directive”, sample copies are included in the Project Manual.
4. 00 63 63 Change Order Form: AIA Document G731, "Change Order.", sample copy is included in the Project Manual.

H. 00 65 00 Closeout Forms:

1. 00 65 16 Certificate of Substantial Completion Form: AIA Document G734, “Certificate of Substantial Completion”, sample copy is included in the Project Manual.
2. 00 65 19 .13 Form of Contractor's Affidavit: AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims.", sample copy is included in the Project Manual.
3. 00 65 19 .16 Form of Affidavit of Release of Liens: AIA Document G706A, "Contractor's Affidavit of Payment of Release of Liens.", sample copy is included in the Project Manual.
4. 00 65 19 .19 Form of Consent of Surety: AIA Document G707, "Consent of Surety to Final Payment.", sample copy is included in the Project Manual.

END OF SECTION

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

PERFORMANCE BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal ("**Principal**"), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the Office of Management and Budget ("**Owner**"), in the amount of _____ ($_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. _____ dated the _____ day of _____, 20__ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse **Owner** sufficient funds to pay the costs of completing the Contract that **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, hereby stipulates and agrees, if requested to do so by **Owner**, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause **Principal** fails or neglects to so fully perform and complete such work.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and

all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

_____ By: _____(SEAL)
Name: Name:
Title:

(Corporate Seal)

SURETY

Name: _____

Witness or Attest: Address: _____

_____ By: _____(SEAL)
Name: Name:
Title:

(Corporate Seal)

END OF SECTION

STATE OF DELAWARE
OFFICE OF MANAGEMENT AND BUDGET

PAYMENT BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal ("**Principal**"), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the Office of Management and Budget ("**Owner**"), in the amount of _____ ($_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this _____ day of_____, 20__.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. _____dated the _____ day of _____, 20__ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him, her, them or any of them, for all such materials, labor and service for which **Principal** is liable, shall make good and reimburse **Owner** sufficient funds to pay such costs in the completion of the Contract as **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees,

subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omission or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

_____ By: _____(SEAL)
Name: Name:
Title:

(Corporate Seal)

SURETY

Name: _____

Witness or Attest: Address: _____

_____ By: _____(SEAL)
Name: Name:
Title:

(Corporate Seal)

END OF SECTION

SUBMITTAL COVER SHEET

TEVEBAUGH
ARCHITECTURE

CONTRACTOR

Submittal No.	
Spec Section	
Paragraph	
Description	

Project

New Sussex County
Family Court Building
100 East Market Street
Georgetown, DE. 19947

Owner

State of Delaware
OMB
Division of Facilities Management

Architect

Tevebaugh Architecture
2 Mill Road, Suite 210
Wilmington, DE 19806

TEVEBAUGH

Architect's review is for conformance with project design concepts. The contractor is responsible for confirming and correlating all quantities and dimensions relating to fabrication process, techniques of construction, and coordination of the work of all trades.

Review neither extends nor alters any contractual obligations of the Architect or Contractor.

- ☐ Reviewed
- ☐ Reviewed with Notations
- ☐ Revise & Resubmit
- ☐ Rejected

By: Date:

Comments:

CONSULTANT

Comments:

NOT FOR BID

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AIA® Document G732™ – 2019

Application and Certificate for Payment, Construction Manager as Adviser Edition

TO OWNER:	**PROJECT:**	**APPLICATION NO:**	**DISTRIBUTION TO:**
			OWNER ☐
		PERIOD TO:	CONSTRUCTION MANAGER ☐
FROM CONTRACTOR:	**VIA CONSTRUCTION MANAGER:**	**CONTRACT DATE:**	ARCHITECT ☐
		PROJECT NOS: / /	CONTRACTOR ☐
			FIELD ☐
CONTRACT FOR:	**VIA ARCHITECT:**		OTHER ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM ..... $

2. NET CHANGES IN THE WORK ..... $

3. CONTRACT SUM TO DATE *(Line 1 ± 2)* ..... $

4. TOTAL COMPLETED AND STORED TO DATE *(Column G on G703)* ..... $

5. RETAINAGE:

a. _____ % of Completed Work
(Column D + E on G703) $

b. _____ % of Stored Material
(Column F on G703) $

Total Retainage *(Lines 5a + 5b, or Total in Column I on G703)* ..... $

6. TOTAL EARNED LESS RETAINAGE ..... $
(Line 4 minus Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT .....
(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE ..... $

9. BALANCE TO FINISH, INCLUDING RETAINAGE

(Line 3 minus Line 6) $

SUMMARY OF CHANGES IN THE WORK	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this month, including Construction Change Directives	$	$
TOTALS	$	$
NET CHANGES IN THE WORK	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:
County of:
Subscribed and sworn to before me this day of
Notary Public:
My Commission expires:

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on evaluations of the Work and the data comprising this application, the Construction Manager and Architect certify to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

CONSTRUCTION MANAGER:

By: _____ Date: _____

ARCHITECT: *(NOTE: If multiple contractors are responsible for performating portions of the Project, the Architect's Certification is not required.)*

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

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AIA® Document G703™ – 1992

Continuation Sheet

AIA Document G702™, Application and Certification for Payment; G702™CMa–1992, Application and Certificate for Payment; or G732™–2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Subcontractor's signed certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
			WORK COMPLETED						
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	FROM PREVIOUS APPLICATION *(D + E)*	THIS PERIOD	MATERIALS PRESENTLY STORED *(Not in D or E)*	TOTAL COMPLETED AND STORED TO DATE *(D + E + F)*	% *(G ÷ C)*	BALANCE TO FINISH *(C − G)*	RETAINAGE *(If variable rate)*
	GRAND TOTAL								

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TEVEBAUGH
ARCHITECTURE

REQUEST FOR INFORMATION

PROJECT: New Sussex County Family Court Building
NUMBER: TEVEBAUGH #20004.2

RFI NUMBER: _____
DATE: _____

SUBJECT: _____
REFERENCE: _____

REQUEST:

By: _____ Date Reply Requested: _____

REPLY:

By: _____ Date: _____

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SECTION 00 63 25

SUBSTITUTION REQUEST FORM

To: Tevebaugh Associates, Inc.

Two Mill Road, Suite 210

Wilmington, DE 19806

Project _____

Prime Contract _____

Contractor Company Name _____

The following product is submitted in lieu of the specified product(s) for the above-referenced project:

Specification Section or Drawing_____

Paragraph or Detail_____

Specified Item _____

Substituted Manufacturer_____

Substituted Product Name _____

Substituted product manufacturer's contact information

Company Address _____

_____

_____

Company Telephone _____

Technical Contact _____

Technical Email _____

Local Rep Name _____

Local Rep Telephone _____

Local Rep Email _____

Reason for not giving priority to specified items:

_____

_____

_____

The attached data includes descriptions, specifications, drawings, photographs, performance, and test data adequate for the evaluation of the proposed substitution request. The applicable portions of the data have been highlighted, and non-applicable information has been redacted or clearly omitted from the documentation. The documentation has been provided in a line-by-line comparison to the basis of design product performance criteria established by the drawings and specifications.

The undersigned prime contractor certifies that the following statements are correct, unless specifically clarified in writing, via the substitution request form in this section:

1. The proposed substitution has been reviewed and coordinated with the Contract Documents.

2. The proposed substitution does not affect dimensions required by the drawings or specifications

3. The proposed substitution does not affect the work of other prime contractors

4. The undersigned will be responsible for changes to the design, including architectural and engineering design, detailing, or construction costs associated with the proposed substitution.

5. The proposed substitution will have no adverse effect on the construction schedule, or specified warranty requirements.

6. Maintenance and service parts are readily available to local suppliers servicing the site location at the time of bid.

7. The function, appearance, and quality of the proposed substitution is better than or equal to the specified item.

Attachments (Provide description of attachments next to applicable heading)

Drawings

_____

_____

Specifications

_____

_____

Technical Data

_____

_____

Submitted by:

_____	_____
(Signature of Prime Contractor's Representative)	(Prime Contract)
_____	_____
(Printed Name of Prime Contractor's Representative)	(Date)

Drawings affected by proposed substitution: (☐ No effect / or describe below)

Description of changes to the contract documents as a result of proposed substitution:

(☐ No effect / or describe below)

List of applicable building codes that apply to the implementation of proposed substitution for this project: (☐ No effect / or describe below)

Effects that this substation has on other prime contracts: (☐ No effect / or describe below)

List any differences between basis of design and proposed substitution:

(☐ No difference / or describe below)

END OF SECTION

AIA® Document G731™ – 2019

Change Order, Construction Manager as Adviser Edition

PROJECT: *(name and address):*

CONTRACT INFORMATION:
Contract For:
Date:

CHANGE ORDER INFORMATION:
Change Order Number:
Date:

OWNER: *(name and address):*

ARCHITECT: *(name and address):*

CONSTRUCTION MANAGER: *(name and address):*

CONTRACTOR: *(name and address):*

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

The original (Contract Sum) (Guaranteed Maximum Price) was	$
Net change by previously authorized Change Orders	$
The (Contract Sum) (Guaranteed Maximum Price) prior to this Change Order was	$
The (Contract Sum) (Guaranteed Maximum Price) will be (increased) (decreased) (unchanged) by this Change Order in the amount of	$
The new Contract Sum including this Change Order will be	$

The Contract Time will be (increased) (decreased) (unchanged) by ( ) days.
The Contractor's Work shall be substantially complete on

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONSTRUCTION MANAGER, CONTRACTOR, AND OWNER.

ARCHITECT *(Firm name)*	**CONSTRUCTION MANAGER** *(Firm name)*
SIGNATURE	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**
DATE:	**DATE:**
CONTRACTOR *(Firm name)*	**OWNER** *(Firm name)*
SIGNATURE	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**
DATE:	**DATE:**

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AIA® Document G710™ – 2017

Architect's Supplemental Instructions

PROJECT: *(name and address)*	**CONTRACT INFORMATION:** Contract For: Date:	**ASI INFORMATION:** ASI Number: Date:
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*

The Contractor shall carry out the Work in accordance with the following supplemental instructions without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.
(Insert a detailed description of the Architect's supplemental instructions and, if applicable, attach or reference specific exhibits.)

ISSUED BY THE ARCHITECT:

ARCHITECT *(Firm name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE

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AIA® Document G733™ – 2019

Construction Change Directive, Construction Manager as Adviser Edition

PROJECT: *(name and address)*:

CONTRACT INFORMATION:
Contract For:
Date:

CERTIFICATE INFORMATION:
Certificate Number:
Date:

OWNER: *(name and address)*:

ARCHITECT: *(name and address)*:

CONSTRUCTION MANAGER: *(name and address)*:

CONTRACTOR: *(name and address)*

The Contractor is hereby directed to make the following change(s) in this Contract:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits.)

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:

- ☐ Lump Sum (increase) (decrease) of $
- ☐ Unit Price of $ per
- ☐ Cost, as defined below, plus the following fee:
  (Insert a definition of, or method for determining, cost)
- ☐ as follows:

2. The Contract Time is proposed to (be adjusted) (remain unchanged). The proposed adjustment, if any, is (an increase of days) (a decrease of days).

Signature by the Contractor indicates the Contractor's agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this Construction Change Directive.
CONTRACTOR *(Firm name)*
SIGNATURE
PRINTED NAME AND TITLE
DATE:

NOTE: The Owner, Construction Manager, Architect, and Contractor should execute a Change Order to supersede this Construction Change Directive to the extent they agree upon adjustments to the Contract Sum, Contract Time, or Guaranteed Maximum price for the change(s) described herein.

When signed by the Owner, Construction Manager and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

OWNER *(Firm name)*	**CONSTRUCTION MANAGER** *(Firm name)*	**ARCHITECT** *(Firm name)*
SIGNATURE	**SIGNATURE**	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**	**PRINTED NAME AND TITLE**
DATE	**DATE**	**DATE**

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AIA® Document G731™ – 2019

Change Order, Construction Manager as Adviser Edition

PROJECT: *(name and address):*

CONTRACT INFORMATION:
Contract For:
Date:

CHANGE ORDER INFORMATION:
Change Order Number:
Date:

OWNER: *(name and address):*

ARCHITECT: *(name and address):*

CONSTRUCTION MANAGER: *(name and address):*

CONTRACTOR: *(name and address):*

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

The original (Contract Sum) (Guaranteed Maximum Price) was	$
Net change by previously authorized Change Orders	$
The (Contract Sum) (Guaranteed Maximum Price) prior to this Change Order was	$
The (Contract Sum) (Guaranteed Maximum Price) will be (increased) (decreased) (unchanged) by this Change Order in the amount of	$
The new Contract Sum including this Change Order will be	$

The Contract Time will be (increased) (decreased) (unchanged) by ( ) days.
The Contractor's Work shall be substantially complete on

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONSTRUCTION MANAGER, CONTRACTOR, AND OWNER.

ARCHITECT *(Firm name)*	**CONSTRUCTION MANAGER** *(Firm name)*
SIGNATURE	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**
DATE:	**DATE:**
CONTRACTOR *(Firm name)*	**OWNER** *(Firm name)*
SIGNATURE	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**
DATE:	**DATE:**

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SECTION 00 63 73

ALLOWANCE AUTHORIZATION FORM

Project: NEW SUSSEX COUNTY FAMILY COURT BUILDING

Architect: Tevebaugh Architecture Project No. MJ0208000002

Contractor: _____

AAA No.: _____ Initiation Date: _____

The Allowance is allocated as follows:

There are no current allowances for this project.

Total original Contract Allowance was:	$_____
Amount of Contract Allowance Access previously authorized:	$_____
Adjusted Contract Allowance prior to this authorization is:	$_____
The amount of available Allowance will Decrease by this Access Authorization:	$_____
The remaining Contract Allowance, after this Access Authorization will be:	$_____

Recommended by:
Architect

By (Signature): _____

Date: _____

Accepted by:
Contractor

By (Signature): _____

Date: _____

Approved by:
Owner

By (Signature): _____

Date: _____

END OF SECTION

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AIA® Document G734™ – 2019

Certificate of Substantial Completion, Construction Manager as Adviser Edition

PROJECT: *(name and address)*:	**CONTRACT INFORMATION:** Contract For: Date:	**CERTIFICATE INFORMATION:** Certificate Number: Date:
OWNER: *(name and address)*:	**ARCHITECT:** *(name and address)*:	**CONSTRUCTION MANAGER:** *(name and address)*:

CONTRACTOR(S):
(Enter names and addresses for all Contractors)

The Work identified below has been reviewed and found, to the Construction Manager's and Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work of all of the Contractors, 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. The date of Substantial Completion of the Project, or portion thereof designated below, is the date established by this Certificate
(Identify the Work of all of the Contractors, or portion thereof, that is substantially complete.)

For all Contractors, the date of Substantial Completion of the Project, or portion thereof, is:
(Insert the date of Substantial Completion for all Contractors of the Work described above.)

CONSTRUCTION MANAGER *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**
ARCHITECT *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**

WARRANTIES
The date of Substantial Completion of the Project, or portion designated above, is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:
(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED
A list of items to be completed or corrected by each of the Contractors, including a cost estimate, is attached hereto or transmitted as agreed upon by the parties, and identified as follows:
(Attach a list of items to be completed or corrected by each of the Contractors and provide an identification of each list.)

The failure to include any items on such list does not alter the responsibility of a Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached lists will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. Each Contractor will complete or correct the Work on the appropriate list of items attached hereto within ( ) days from the above date of Substantial Completion.

As of the date of Substantial Completion, the Owner shall be responsible for security, maintenance, heat, utilities, damage to the Work, and insurance, except as noted below:
(Identify any responsibilities that are assigned to the Contractors.)

(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

CONTRACTOR *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**
OWNER *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**

AIA® Document G706™ – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

CONTRACT FOR:

TO OWNER: *(Name and address)*

CONTRACT DATED:

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707™, Consent of Surety to Final Payment, may be used for this purpose.
   Indicate attachment: ☐ Yes ☐ No

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof
3. Contractor's Affidavit of Release of Liens (AIA Document G706A™)

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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AIA® Document G706A™ – 1994

Contractor's Affidavit of Release of Liens

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

CONTRACT FOR:

TO OWNER: *(Name and address)*

CONTRACT DATED:

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

STATE OF:

COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: *(Name and address)*

BY:

_____
(Signature of authorized representative)

_____
(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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AIA® Document G707™ – 1994

Consent of Surety to Final Payment

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

CONTRACT FOR:

CONTRACT DATED:

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

TO OWNER: *(Name and address)*

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

, SURETY,

on bond of
(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to
(Insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

_____
(Surety)

_____
(Signature of authorized representative)

Attest:
(Seal)

_____
(Printed name and title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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GENERAL CONDITIONS

TO THE

CONTRACT

The General Conditions of this Contract are as stated in the American Institute of Architects Document AIA A232 (2019 Edition) entitled General Conditions of the Contract for Construction as revised by the Supplementary General Conditions and is part of this project manual as if herein written in full.

END OF SECTION

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AIA® Document A232™ – 2019

General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

for the following PROJECT:
(Name, and location or address)

THE CONSTRUCTION MANAGER:
(Name, legal status, and 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.

This document is intended to be used in conjunction with AIA Documents A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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Init.
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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents. The 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 the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their 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 other Contractors, and by the Owner's own forces and Separate Contractors.

§ 1.1.5 Contractors. Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

§ 1.1.6 Separate Contractors. Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

§ 1.1.7 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.

§ 1.1.8 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.

§ 1.1.9 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.

§ 1.1.10 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 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 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 Construction Manager and the Architect do 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. Unless otherwise provided under the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit.

§ 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 The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

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

§ 2.3.6 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.

§ 2.3.7 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.

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

§ 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 review by the Construction Manager and prior approval of the Architect, and the Construction Manager or 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 Construction Manager's and Architect's and their respective consultants' 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 Construction Manager or Architect in their 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 2.3.5, 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 Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's 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 Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and 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, the Construction Manager, and the 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. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager 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 the Project 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, in consultation with the Construction Manager, 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, Construction Manager, 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 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 Construction Manager or 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 or portions thereof 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 Owner, assisted by the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay 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, Construction Manager, and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, 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, in consultation with the Construction Manager, 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, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either 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, Construction Manager, 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, through the Construction Manager, of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager 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, Construction Manager, 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, and the Construction Manager's use in developing the Project schedule, 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. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 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 Construction Manager's and Architect's approval. The Architect and Construction Manager'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 Construction Manager and 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 participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.

§ 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 Construction Manager, Architect, and Owner, and delivered to the Construction Manager 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.

§ 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 and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. Informational submittals upon which the Construction Manager and Architect are 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 Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, 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 reviewed and 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 Construction Manager and 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 Construction Manager and 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, the Architect, and the Construction Manager 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. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

§ 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 Construction Manager and Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

§ 3.13.1 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.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 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, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such

construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, 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, or Construction Manager with the Owner's approval, 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, Construction Manager, 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, Construction Manager, 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, Architect, or Construction Manager. 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 through the Construction Manager.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and 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 AND CONSTRUCTION MANAGER

§ 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 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

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

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and 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. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager known deviations from the Contract Documents and defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and 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, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications. The Owner shall communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager 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 Construction Manager 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 other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's

consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.10 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.11 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. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.12 Review of the Contractor's submittals by the Construction Manager and Architect 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 Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and 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.

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.14 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.15 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.17 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 Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

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

§ 4.2.19 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 so rendered in good faith.

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

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request 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 other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 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 Construction Manager, for review by the Owner, Construction Manager 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 Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager 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, Construction Manager 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, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager 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, Construction Manager 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, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager 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 with Own Forces and to Award Other Contracts

§ 6.1.1 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 the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 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's own forces, Separate Contractors, Construction Manager and other 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's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and 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 or other Contractors' 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 Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, 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 delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

§ 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, Separate Contractors, or other Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner, Separate Contractors, and other Contractors 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, other 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 Construction Manager, with notice to 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, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager 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

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

.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 Construction Manager and signed by the Owner, Construction Manager 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 Construction Manager 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 Construction Manager 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 Construction Manager and 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 Construction Manager 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 Construction Manager and 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 Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The 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 Construction Manager and 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 Construction Manager shall 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 Construction Manager 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 Construction Manager 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, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (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, based on the recommendation of the Construction Manager, 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 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 Construction Manager, 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 Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its

accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or 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 fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager 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, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien 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 Construction Manager and 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 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager 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 Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.2.1 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1)

issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager 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 Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

§ 9.4.3 The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager'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, or Contractors are, entitled to payment in the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation 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, or Contractors are, entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 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 Construction Manager or Architect.

§ 9.4.6 The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or 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 Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or 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 or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the 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 or other 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 or Construction Manager withholds certification for payment under Section 9.5.1, 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 Construction Manager, and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project 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 Construction Manager and 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 Construction Manager 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 Owner, Construction Manager and Architect 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, Construction Manager 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 Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's 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 Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, Construction Manager 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 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 notify the Construction Manager, and the Contractor and Construction Manager shall jointly 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 list, the Architect, assisted by the Construction Manager, 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 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, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, 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 and Construction Manager shall jointly 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 after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, 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 completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their 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 Construction Manager's and Architect's final Certificate for Payment or Project 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 through the Construction Manager (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 Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and 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 through the Construction Manager 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. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or

Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 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;

.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; and

.4 construction or operations by the Owner, Separate Contractors, or other Contractors.

§ 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, 10.2.1.3 and 10.2.1.4 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, 10.2.1.3 and 10.2.1.4. 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, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any 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, Construction Manager 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

§ 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, Construction Manager 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, Construction Manager 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, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager 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, Construction Manager, Architect, their 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 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, Construction Manager and Construction Manager's consultants, and the 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 directly to the Owner, and separately to the Construction Manager, 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 both the Contractor and the Construction Manager, separately and 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 directly to the Contractor, and separately to the Construction Manager, 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 Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) 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 Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, 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, Architect, and Construction Manager 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 Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, 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 Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their 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 Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or 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 Construction Manager or 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 Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the 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, Construction Manager 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, Separate Contractors, or other 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, Construction Manager, 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 Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and 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 Construction Manager, 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 Construction Manager and 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 Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and 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 Construction Manager's and 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 Construction Manager for transmittal to the Architect.

§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or 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 Construction Manager has not certified or 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, 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, Construction Manager 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 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, Construction Manager and 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, after consultation with the Construction Manager, 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 Construction Manager's and 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, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, 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 the 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 this 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 Construction Manager and 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, the Construction Manager, 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.

§ 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 of 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.

SUPPLEMENTARY GENERAL CONDITIONS A232-2019

The following supplements modify the "General Conditions of the Contract for Construction, Construction Manager as Advisor Edition." AIA Document A232-2019. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
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13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT
15. CLAIMS AND DISPUTES

ARTICLE 1: GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

Delete the last sentence in its entirety and replace with the following:

"The Contract Documents also include Advertisement for Bid, Instructions to Bidder, sample forms, the Bid Form, the Contractor's completed Bid and the Award Letter."

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following Paragraphs:

1.2.4 In the case of an inconsistency between the Drawings and the Specifications, or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect's interpretation.

1.2.5 The word "PROVIDE" as used in the Contract Documents shall mean "FURNISH AND INSTALL" and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the Work.

1.2.6 The word "PRODUCT" as used in the Contract Documents means all materials, systems and equipment.

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Delete Paragraph 1.5.1 in its entirety and replace with the following:

"All pre-design studies, drawings, specifications and other documents, including those in electronic form, prepared by the Architect under this Agreement are, and shall remain, the property of the Owner whether the Project for which they are made is executed or not. As for the Project for which the Architect is hired, the Architect still remain liable for any claim relating to the design that arises from the Project.

However, such documents may be used by the Owner to construct one or more like projects without the approval of, or additional compensation to, the Architect. The Contractor, Subcontractors, Sub-subcontractors and Material or Equipment Suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or Material and Equipment Supplier on other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and Architect's consultants.

The Architect shall not be liable for injury or damage resulting from the re-use of drawings and specifications if the Architect is not involved in the re-use Project."

1.6 NOTICE

1.6.1 Insert the following sentence at the end of the paragraph:

"Electronic mail, also known as email, is an acceptable form of electronic transmission of notices under this Agreement."

ARTICLE 2: OWNER

2.1 General

2.1.2 Delete Paragraph 2.1.2 in its entirety.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 Delete the second sentence in this paragraph and replace with the following: “The Contractor shall have no obligation to commence the Work until the Owner issues a Purchase Order for the Project.”

2.2.2 Delete the last three sentences in this paragraph.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.4 Delete the third sentence in Paragraph 3.2.4.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following Paragraphs:

3.3.2.1 The Contractor shall immediately remove from the Work, whenever requested to do so by the Owner, any person who is considered by the Owner or Architect to be incompetent or disposed to be disorderly, or who for any reason is not satisfactory to the Owner, and that person shall not again be employed on the Work without the consent of the Owner or the Architect.

3.3.4 The Contractor must provide suitable storage facilities at the Site, or an alternative site as approved by the Owner, for the proper protection and safe storage of their materials. Consult the Owner and the Architect before storing any materials.

3.3.5 When any room is used as a shop, storeroom, office, etc., by the Contractor or Subcontractor(s) during the construction of the Work, the Contractor making use of these areas will be held responsible for any repairs, patching or cleaning arising from such use.

3.4 LABOR AND MATERIALS

3.4.1.1 Add a new section 3.4.1.1:

“The Contractor, at their expense shall bear the costs to accurately identify the location of all underground utilities in the area of their excavation and shall bear all cost for any repairs required, out of failure to accurately identify said utilities.”

Add the Following Paragraphs:

3.4.4 Before starting the Work, each Contractor shall carefully examine all preparatory Work that has been executed to receive their Work. Check carefully, by whatever means are required, to insure that its Work and adjacent, related Work, will finish to proper contours,

planes and levels. Promptly notify the General Contractor/Construction Manager of any defects or imperfections in preparatory Work which will in any way affect satisfactory completion of its Work. Absence of such notification will be construed as an acceptance of preparatory Work and later claims of defects will not be recognized.

3.4.5 Under no circumstances shall the Contractor's Work proceed prior to preparatory Work having been completely cured, dried and/or otherwise made satisfactory to receive this Work. Responsibility for timely installation of all materials rests solely with the Contractor responsible for that Work, who shall maintain coordination at all times.

3.5 WARRANTY

Add the following Paragraphs:

3.5.3 The Contractor will warrant all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two years after Substantial Completion of the project in accordance with Section 9.8.4 of this Agreement, and will maintain all items in condition that conforms with the Contract Documents during the period of warranty.

3.5.4 Non-conforming work during the period of warranty will be corrected by the Contractor at its expense upon demand of the Owner, it being required that the Work conforms to the Contract Documents at the expiration of the warranty period.

3.5.5 In addition to the General Warranty there are other warranties required for certain items for different periods of time than the two years as above and are particularly so stated in that part of the specifications referring to same. The said warranties will commence at the same time as the General Warranty.

3.5.6 If the Contractor fails to remedy any failure, defect or damage within a reasonable time after receipt of notice, the Owner will have the right to replace, repair, or otherwise remedy the failure, defect or damage at the Contractor's expense.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Paragraphs:

3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all appurtenances that will be concealed once construction is complete, etc., including all invert elevations.

3.11.2 At the completion of the project, the Contractor shall obtain a set of reproducible drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions.

3.11.3 The Contractor shall provide two (2) prints of the as-built conditions, along with the reproducible drawings themselves, to the Owner and one (1) set to the Architect. In addition, attach one complete set to each of the Operating and Maintenance Instructions/Manuals.

3.15 CLEANING UP

3.15.2 Strike sentence in its entirety and replace with the following:

"If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall withhold the amount that reflects the cost of the cleanup from any moneys owed the Contractor. If the cost of cleanup exceeds the moneys owed to the Contractor, the Owner shall be entitled to reimbursement from the Contractor for the amount exceeding what is withheld.

3.17 In the second sentence of 3.17, insert "indemnify and" between "shall" and "hold".

ARTICLE 4: ARCHITECT AND CONSTRUCTION MANAGER

4.2 Administration of the Contract

Delete the first sentence of Paragraph 4.2.11 and replace with the following:

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples for the purpose of checking for conformance with the Contract Documents.

Delete the second sentence of Paragraph 4.2.11 and replace with the following:

The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work in the activities of the Owner, Contractor or separate Contractors, while allowing sufficient time in the Owner's professional judgment to permit adequate review.

Add the following to Paragraph 4.2.17:

There will be no full-time Project representative provided by the Owner or Architect on site for this Project.

Add to Paragraph 4.2.20 "and in compliance with all applicable codes, regulations and ordinances." to the end of the sentence.

ARTICLE 5: SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Delete Paragraph 5.2.3 in its entirety and replace with the following:

5.2.3 If the Owner, Architect or Construction Manager has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Architect or Construction Manager has no reasonable objection, subject to the statutory requirements of 29 Delaware Code § 6962(d)(10)b.3 and 4.

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 Delete "and waiver of subrogation" from the last sentence.

6.1.3 Delete Paragraph 6.1.3 in its entirety and replace with the following:

"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 Constructor who executes each separate Owner-Contractor Agreement."

6.2 MUTUAL RESPONSIBILITY

6.2.3 In the second sentence, strike the word "shall" and insert the word "may".

ARTICLE 7: CHANGES IN THE WORK

(SEE ARTICLE 7: CHANGES IN WORK IN THE GENERAL REQUIREMENTS)

ARTICLE 8: TIME

8.2 PROGRESS AND COMPLETION

Add the following Paragraphs:

8.2.1.1 Refer to Specification Section SUMMARY OF WORK for Contract time requirements.

8.2.4 If the Work falls behind the Progress Schedule as submitted by the Contractor, the Contractor shall employ additional labor and/or equipment necessary to bring the Work into compliance with the Progress Schedule at no additional cost to the Owner.

8.3 DELAYS AND EXTENSION OF TIME

8.3.1 Strike "binding dispute resolution" and insert "remedies at law or in equity".

Add the following Paragraph:

8.3.2.1 The Contractor shall update the status of the suspension, delay, or interruption of the Work with each Application for Payment. (The Contractor shall report the termination of such cause immediately upon the termination thereof.) Failure to comply with this procedure shall constitute a waiver for any claim for adjustment of time or price based upon said cause.

Delete Paragraph 8.3.3 in its entirety and replace with the following:

8.3.3 Except in the case of a suspension of the Work directed by the Owner, an extension of time under the provisions of Paragraph 8.3.1 shall be the Contractor's sole remedy in the progress of the Work and there shall be no payment or compensation to the Contractor for any expense or damage resulting from the delay.

Add the following Paragraph:

8.3.4 By permitting the Contractor to work after the expired time for completion of the project, the Owner does not waive its rights under the Contract.

8.3.5 The parties agree that Paragraph 8.3.3 of the Supplementary General Conditions does not apply to the Construction Manager in the event of a delay caused by a party other than the Construction Manager.

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.2 Strike Section 9.1.2 in its entirety.

9.2 SCHEDULE OF VALUES

Add the following Paragraphs:

9.2.1 The Schedule of Values shall be submitted using AIA Document G732, Continuation Sheet to G703.

9.3 APPLICATIONS FOR PAYMENT

Add the following Paragraph:

9.3.1.3 Application for Payment shall be submitted on AIA Document G732 “Application and Certificate for Payment”, supported by AIA Document G703 “Continuation Sheet”. Said Applications shall be fully executed and notarized.

Add the following Paragraphs:

9.3.4 Until Closeout Documents have been received and outstanding items completed the Owner will pay 95% (ninety-five percent) of the amount due the Contractor on account of progress payments.

9.3.5 The Contractor shall provide a current and updated Progress Schedule to the Architect with each Application for Payment. Failure to provide Schedule will be just cause for rejection of Application for Payment.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Add the following to 9.5.1:

.8 failure to provide a current Progress Schedule;
.9 a lien or attachment is filed;
.10 failure to comply with mandatory requirements for maintaining Record Documents.

9.6 PROGRESS PAYMENTS

Delete Paragraph 9.6.1 in its entirety and replace with the following:

9.6.1 After the Architect and the Construction Manager have approved and issued a Certificate for Payment, payment shall be made by the Owner within 30 days after Owner’s receipt of the Certificate for Payment.

9.6.8 Strike “Provided the Owner has fulfilled its payment obligations under the Contract Documents, the” and replace with “The”.

9.7 FAILURE OF PAYMENT

In first sentence, strike the first reference to “seven” and insert “thirty (30)”. Also strike “binding dispute resolution” and insert “remedies at law or in equity”.

9.8 SUBSTANTIAL COMPLETION

9.8.5 In the second sentence, strike “shall” and insert “may”.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following Paragraphs:

10.1.2 Each Contractor shall develop a safety program in accordance with the Occupational Safety and Health Act of 1970. A copy of said plan shall be furnished to the Owner and Architect prior to the commencement of that Contractor's Work.

10.1.3 Each Contractor shall appoint a Safety Representative. Safety Representatives shall be someone who is on site on a full-time basis. If deemed necessary by the Owner or Architect, Contractor Safety meetings will be scheduled. The attendance of all Safety Representatives will be required. Minutes will be recorded of said meetings by the Contractor and will be distributed to all parties as well as posted in all job offices/trailers etc.

10.2 SAFETY OF PERSONS AND PROPERTY

Add the following Paragraph:

10.2.4.1 As required in the Hazardous Chemical Act of June 1984, all vendors supplying any material that may be defined as hazardous must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a caution warning on the label relating to a potential physical or health hazard, if it is known to be present in the workplace, and if employees may be exposed under normal conditions or in foreseeable emergency situations. Material Safety Data Sheets shall be provided directly to the Owner or its designee, along with the shipping slips that include those products.

10.3 HAZARDOUS MATERIALS

Delete Paragraph 10.3.3 in its entirety.

Delete Paragraphs 10.3.6 in its entirety.

ARTICLE 11: INSURANCE AND BONDS

11.1 CONTRACTOR'S INSURANCE AND BONDS

11.1.1 Strike "Owner," at the beginning of the third sentence.

11.1.2 Add the following sentence at the end of the paragraph: "The bonds will conform to those forms approved by the Office of Management and Budget."

11.2 OWNER'S INSURANCE

Delete Paragraph 11.2 in its entirety and replace with the following:

11.2 The Owner will not provide Builder's All Risk Insurance for the Project. The Construction Manager will provide Builder's All Risk Insurance for the Project. The Contractor and all Subcontractors shall provide coverage for materials, fixtures and/or equipment being used in the construction or renovation of a building or structure should those items sustain physical loss or damage from a covered cause.

11.3 WAIVERS OF SUBROGATION

Delete Paragraph 11.3 and its subparagraphs in their entirety. Substitute the following:
The Construction Manager and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, consultants and employees, each of the other; (2) the Architect and Architect's consultants; (3) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (4) 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 policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Article 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. For clarity, the Owner does not waive any of its subrogation rights.

11.4 LOSS OF USE, BUSINESS INTERRUPTION, AND DELAY IN COMPLETION INSURANCE

Delete Paragraph 11.4 in its entirety.

11.5 ADJUSTMENT AND SETTLEMENT OF INSURED LOSS
Delete Paragraph 11.5 in its entirety. Substitute the following:
A loss insured under the property insurance required by the Agreement shall be adjusted by the Construction Manager and made payable to the Construction Manager. The Construction Manager shall pay the Architect and Contractor their just shares of insurance proceeds received by the Construction Manager, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner. Prior to settlement of an insured loss, the Construction Manager 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 Construction Manager shall settle the loss and the Contractor shall be bound by the settlement and allocation. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Construction Manager may proceed to settle the insured loss, and any dispute between the Construction Manager and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant remedies at law and in equity. For clarity, the Owner shall be listed as an Additional Insured to protect the Owner's property interest on the Project under the Builder's Risk Insurance.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.2.1 In the first sentence, strike "within one year after the date of Substantial Completion of the Work or designated portion thereof" and replace with "within two years after the date of Substantial Completion of the Project in accordance with Section 9.8.4 of this Agreement or designated portion thereof".

12.2.2.1 In the third sentence of the paragraph, strike "one year period" and replace it with "two year period".

Add the following Paragraph:

12.2.2.1.1 At any time during the progress of the Work, or in any case where the nature of the defects will be such that it is not expedient to have corrected, the Owner, at its option, will have

the right to deduct such sum, or sums, of money from the amount of the Contract as it considers justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

12.2.2.2 Strike “one” and insert “two”.

12.2.2.3 Strike “one” and insert “two”.

12.2.5 In second sentence, strike “one” and insert “two”.

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1 Strike the second sentence in its entirety.

13.5 INTEREST

13.5 Strike 13.5 in its entirety and replace with the following:
"Payments are due 30 days after receipt of a valid Application for Payment. After that 30 day period, interest may be charged at the rate of 1% per month not to exceed 12% per annum."

Add the following Paragraph:

13.6 CONFLICTS WITH FEDERAL STATUTES OR REGULATIONS

13.6.1 If any provision, specifications or requirement of the Contract Documents conflict or is inconsistent with any statute, law or regulation of the government of the United State of America, the Contractor shall notify the Architect and Owner immediately upon discovery.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Paragraph 14.4.3 in its entirety and replace with the following:

14.4.3 In case of such termination for the Owner’s convenience, the Contractor shall be entitled to receive payment for Work executed, and cost incurred by reason of such termination along with reasonable overhead.

ARTICLE 15: CLAIMS AND DISPUTES

15.1.2 TIME LIMITS ON CLAIMS.

15.1.2 Strike “in accordance with the requirements of the binding dispute resolution method selected in the Agreement and” from the first sentence.
Strike the second sentence in its entirety.

15.1.4 CONTINUING CONTRACT PERFORMANCE

15.1.4.2 Strike in its entirety.

15.1.7 CLAIMS FOR CONSEQUENTIAL DAMAGES

Delete Paragraph 15.1.7 and its subparagraphs in their entirety.

15.2 INITIAL DECISION

15.2.1 Delete “and binding dispute resolution”

15.2.5 Delete in its entirety and replace with the following:

15.2.5 The Architect will approve or reject Claims by written decision, which shall state the reasons therefore and shall notify the parties of any change in the Contract Sum or Contract Time or both. The approval or rejection of a Claim by the Architect shall be subject to mediation and other remedies at law or in equity.

Delete Paragraph 15.2.6 and its subparagraphs in their entirety.

15.3 MEDIATION

15.3.1 Strike “binding dispute resolution” and insert “any or all remedies at law or in equity”.

15.3.2 In the first sentence, delete “administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedure in effect on the date of the Agreement,”. Also strike “binding dispute resolution” and insert “remedies at law and in equity”.

15.3.3 Strike in its entirety.

15.4 ARBITRATION

Delete Paragraph 15.4 and its subparagraphs in their entirety.

END OF SECTION

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STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 761-8200

Mailing Address:
4425 North Market Street
3rd Floor
Wilmington, DE 19802

Located at:
4425 North Market Street
3rd Floor
Wilmington, DE 19802

PREVAILING WAGES FOR **BUILDING CONSTRUCTION** EFFECTIVE MARCH 15, 2021

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	24.65	30.36	44.19
BOILERMAKERS	73.81	37.45	55.05
BRICKLAYERS	60.24	60.24	60.24
CARPENTERS	57.31	57.31	45.55
CEMENT FINISHERS	77.86	55.37	23.90
ELECTRICAL LINE WORKERS	49.03	42.04	32.05
ELECTRICIANS	74.70	74.70	74.70
ELEVATOR CONSTRUCTORS	102.70	69.54	89.08
GLAZIERS	78.55	78.55	61.09
INSULATORS	61.48	61.48	61.48
IRON WORKERS	70.81	70.81	70.81
LABORERS	50.55	50.55	50.55
MILLWRIGHTS	78.38	78.38	63.08
PAINTERS	55.26	55.26	55.26
PILEDRIVERS	81.12	42.44	34.32
PLASTERERS	32.18	32.18	23.85
PLUMBERS/PIPEFITTERS/STEAMFITTERS	73.05	56.98	64.01
POWER EQUIPMENT OPERATORS	75.29	75.29	75.29
ROOFERS-COMPOSITION	26.72	26.84	26.03
ROOFERS-SHINGLE/SLATE/TILE	19.83	23.58	18.55
SHEET METAL WORKERS	77.53	77.53	77.53
SOFT FLOOR LAYERS	55.81	55.81	55.81
SPRINKLER FITTERS	63.67	63.67	63.67
TERRAZZO/MARBLE/TILE FNRS	68.10	68.10	67.57
TERRAZZO/MARBLE/TILE STRS	75.52	75.52	74.93
TRUCK DRIVERS	34.57	29.58	23.03

CERTIFIED: 11/09/2021 BY: _____
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 761-8200.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: MJ0208000002 Sussex County Family Courthouse and Parking Garage , Sussex County

PREVAILING WAGE DEBARMENT LIST

The following contractors have been debarred for violations of the prevailing wage law 29Del.C. §6960 or other applicable State statutes.

Therefore, no public construction contract in this State shall be bid on, awarded to, or received by contractors and individuals on this list for a period of (3) three years from the date of the judgment or as deemed by a court of competent jurisdiction.

Contractor	Address	Date of Debarment
Mullen Brothers, Inc. and Daniel Mullen, individually	3375 Garnett Road, Boothwyn, PA 19060	Indefinite/ Civil Contempt
State Contractors Corporation, and Jose Oscar Rivera, individually	13004 Hathaway Drive Silver Spring, MD 20906	Indefinite/ 19 Del.C. 2374(f)
Green Granite and Jason Green, individually	604 Heatherbrooke Court Avondale, PA 19311	Indefinite/ Civil Contempt
Pro Image Landscaping, Inc. and Owner(s) individually	23 Commerce Street Wilmington, DE 19801 and/or 2 Cameo Road Claymont, DE 19703	Indefinite/19 Del.C. §108 & 10 Del.C. 542(c)
Liberty Mechanical, LLC and Owner(s), individually	2032 Duncan Road Wilmington, DE 19801	Indefinite/ 19 Del.C. 2374(f)
Integrated Mechanical and Fire Systems Inc. and Allison Sheldon, individually	4601 Governor Printz Boulevard Wilmington, DE 19809	Indefinite/19 Del.C. §108 & 10 Del.C. 542(c)

Updated: January 22, 2019

SECTION 00 81 13

GENERAL REQUIREMENTS

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13. MISCELLANEOUS PROVISIONS

14. TERMINATION OR SUSPENSION OF THE CONTRACT

ARTICLE 1: GENERAL

1.1 CONTRACT DOCUMENTS

1.1.1 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 to an extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.1.2 Work including material purchases shall not begin until the Contractor is in receipt of a bonafide State of Delaware Purchase Order. Any work performed or material purchases prior to the issuance of the Purchase Order is done at the Contractor's own risk and cost.

1.2 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

1.2.1 For Public Works Projects financed in whole or in part by state appropriation the Contractor agrees that during the performance of this contract:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

ARTICLE 2: OWNER

(NO ADDITIONAL GENERAL REQUIREMENTS – SEE SUPPLEMENTARY GENERAL CONDITIONS)

ARTICLE 3: CONTRACTOR

3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the work, furnish to the Owner a complete schedule of values on the various items comprising the work.

3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the work will not be delayed by failure of materials to arrive on time.

3.3 Before commencing any work or construction, the General Contractor is to consult with the Owner as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.

3.4 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, unless the Contract Documents give other specific instructions.

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

3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.

3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.

3.8 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The Contractor shall promptly notify the Owner if the Drawings and Specifications are observed to be at variance therewith.

3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.

3.10 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.

3.11 STATE LICENSE AND TAX REQUIREMENTS

3.11.1 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the Delaware Department of Finance within ten (10) days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of total value of such contract or contracts together with the names and addresses of the contracting parties."

3.12 The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.

3.13 During the contract Work, the Contractor and each Subcontractor, shall implement an Employee Drug Testing Program in accordance with OMB Regulation 4104 - "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects". "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT

4.1 CONTRACT SURETY

4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.

4.1.3 Contents of Performance Bonds – The bond shall be in the form approved by the Office of Management and Budget. The bond shall be conditioned upon the faithful compliance and performance by the successful bidder of each and every term and condition of the contract and the proposal, plans, specifications, and bid documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid documents and the specifications, including the payment in full to every person furnishing materiel or performing labor in the performance of the Contract, of all sums of money due the person for such labor and materiel. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the State and the agency from all costs, damages and expenses growing out of or by reason of the Contract in accordance with the Contract.)

4.1.4 Invoking a Performance Bond – The agency may, when it considers that the interest of the State so require, cause judgement to be confessed upon the bond.

4.1.5 Within twenty (20) days after the date of notice of award of contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate.

4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand that the proof parties signing the bonds are duly authorized to do so.

4.2 FAILURE TO COMPLY WITH CONTRACT

4.2.1 If any firm entering into a contract with the State, or Agency that neglects or refuses to perform or fails to comply with the terms thereof, the Agency which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with this Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

Nothing herein shall preclude the Agency from pursuing additional remedies as otherwise provided by law.

4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY

4.3.1 In addition to the bond requirements stated in the Bid Documents, each successful Bidder shall purchase adequate insurance for the performance of the Contract and, by submission of a Bid, agrees to indemnify and save harmless and to defend all legal or equitable actions brought against the State, any Agency, officer and/or employee of the State, for and from all claims of liability which is or may be the result of the successful Bidder's actions during the performance of the Contract.

4.3.2 The purchase or nonpurchase of such insurance or the involvement of the successful Bidder in any legal or equitable defense of any action brought against the successful Bidder based upon work performed pursuant to the Contract will not waive any defense which the State, its agencies and their respective officers, employees and agents might otherwise have against such claims, specifically including the defense of sovereign immunity, where applicable, and by the terms of this section, the State and all agencies, officers and employees thereof shall not be financially responsible for the consequences of work performed, pursuant to said contract.

4.4 RIGHT TO AUDIT RECORDS

4.4.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

4.4.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

ARTICLE 5: SUBCONTRACTORS

5.1 SUBCONTRACTING REQUIREMENTS

5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:

1. A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.

2. A Bid will not be accepted nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:

   A. It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;

B. That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and

C. That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.

5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

A. Is unqualified to perform the work required;

B. Has failed to execute a timely reasonable Subcontract;

C. Has defaulted in the performance on the portion of the work covered by the Subcontract; or

D. Is no longer engaged in such business.

5.1.5 Should a Bidder be awarded a contract, such successful Bidder shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.1.6 The Contractor may employ additional Subcontractors on the jobsite only after submitting a copy of the Subcontractor's Employee Drug Testing Program to the Owner for approval. A Contractor or Subcontractor shall not commence work until the Owner has concluded its review and determined that the submitted Employee Drug Testing Program complies with OMB Regulation 4104.

5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount*). The Agency may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an

application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the contractor shall be reverted to the State.

*one (1) percent of contract amount not to exceed $10,000

5.3 ASBESTOS ABATEMENT

5.3.1 The selection of any Contractor to perform asbestos abatement for State-funded projects shall be approved by the Office of Management and Budget, Division of Facilities Management pursuant to Chapter 78 of Title 16.

5.4 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED

5.4.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.

5.5 CONTRACT PERFORMANCE

5.5.1 Any firm entering into a Public Works Contract that neglects or refuses to perform or fails to comply with its terms, the Agency may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

6.1 The Owner reserves the right to simultaneously perform other 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 or other Projects at the same site.

6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities, and shall connect and coordinate their activities with other forces as required by the Contract Documents.

ARTICLE 7: CHANGES IN THE WORK

7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract completion date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Professional, as the duly authorized agent, the Contractor and the Owner.

7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.

7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the ‘DPE’ wages required and the “invoice price” of the materials/equipment needed.

7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes prevailing wage rates plus a maximum multiplier of 1.35 times DPE. For example, if the prevailing wage rate is $50/hour, the DPE would be $67.50/hour (50 x 1.35).

7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.

7.3.3 In addition to the above, the General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces. For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven and one half percent (7.5%) on the subcontractors work. These mark-ups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc. No markup is permitted on the work of the subcontractors subcontractor. No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the change order.

ARTICLE 8: TIME

8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.

8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.

8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility.

8.4 SUSPENSION AND DEBARMENT

8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a public works contract or complete a public works project within the time schedule established by the Agency in the Invitation To Bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."

8.4.2 "Upon such failure for any of the above stated reasons, the Agency that contracted for the public works project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition.

The Agency shall have the burden of proving, by a preponderance of the evidence, that the Contractor failed to perform or complete the public works project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record."

8.5 RETAINAGE

8.5.1 Per Section 6962(d)(5) a.3, Title 29, Delaware Code: The Agency may at the beginning of each public works project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may forfeit, at its discretion, all or part of the Contractor's retainage.

8.5.2 This forfeiture of retainage also applies to the timely completion of the punch-list. A punch-list will only be prepared upon the mutual agreement of the Owner, Architect and Contractor. Once the punch-list is prepared, all three parties will by mutual agreement, establish a schedule for its completion. Should completion of the punch-list be delayed beyond the established date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 APPLICATION FOR PAYMENT

9.1.1 Applications for payment shall be made upon AIA Document G732. There will be a five percent (5%) retainage on all Contractor's monthly invoices until completion of the project. This retainage may become payable upon receipt of all required closeout documentation, provided all other requirements of the Contract Documents have been met.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 Section 6516, Title 29 of the Delaware Code annualized interest is not to exceed 12% per annum beginning thirty (30) days after the "presentment" (as opposed to the date) of the invoice.

9.2 PARTIAL PAYMENTS

9.2.1 Any public works Contract executed by any Agency may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the contract.

9.2.2 When approved by the agency, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been produced or furnished for incorporation as a permanent part of the work yet to be completed, provided acceptable provisions have been made for storage.

9.2.2.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Agency, receipted bills from all Contractors, Subcontractors, and material, men, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

9.3 SUBSTANTIAL COMPLETION

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the project has been substantially completed.

9.3.2 If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

9.4 FINAL PAYMENT

9.4.1 Final payment, including the five percent (5%) retainage if determined appropriate, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):

9.4.1.1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid,

9.4.1.2 An acceptable RELEASE OF LIENS,

9.4.1.3 Copies of all applicable warranties,

9.4.1.4 As-built drawings,

9.4.1.5 Operations and Maintenance Manuals,

9.4.1.6 Instruction Manuals,

9.4.1.7 Consent of Surety to final payment.

9.4.1.8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws ordinances, rules regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

10.2 The Contractor shall notify the Owner in the event any existing hazardous material such as lead, PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval.

10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous, must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.

10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS) provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

ARTICLE 11: INSURANCE AND BONDS

11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.

11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein, and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.

11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.

11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control

damaged in any way by the Contractor or their Subcontractors during the entire construction period on this project.

11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, shall not be provided by the Contractor under this contract. The CM shall insure the building and all of its contents and all this new work under this contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.

11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.

11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

11.7.1 Contractor's Contractual Liability Insurance

Minimum coverage to be:

Bodily Injury	$500,000	for each person
	$1,000,000	for each occurrence
	$1,000,000	aggregate
Property Damage	$500,000	for each occurrence
	$1,000,000	aggregate

11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	$500,000	for each person
	$1,000,000	for each occurrence
	$1,000,000	aggregate
Property Damage	$500,000	for each occurrence
	$500,000	aggregate

11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	$1,000,000	for each person
	$1,000,000	for each occurrence
Property Damage	$500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

11.7.5 Workmen's Compensation (including Employer's Liability):

11.7.5.1 Minimum Limit on employer's liability to be as required by law.

11.7.5.2 Minimum Limit for all employees working at one site.

11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates.

11.7.7 Social Security Liability

11.7.7.1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.

11.7.7.2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.

11.7.7.3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.1 The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of two years from the date of Substantial Completion, or by terms of an applicable special warranty required by the Contract Documents. The provisions of this Article apply to work done by Subcontractors as well as to Work done by direct employees of the Contractor.

12.2 At any time during the progress of the work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the contract as they consider justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 CUTTING AND PATCHING

13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.

13.2 DIMENSIONS

13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the project site. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.

13.3 LABORATORY TESTS

13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.

13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.

13.4 ARCHAEOLOGICAL EVIDENCE

13.4.1 Whenever, in the course of construction, any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the authorities and CM of the State Historic Preservation Office and suspend work in the immediate area for a reasonable time to permit those authorities, or persons designated by them, to examine the area and ensure the proper removal of the archaeological evidence for suitable preservation by the Division of Historical and Cultural Affairs.

13.5 GLASS REPLACEMENT AND CLEANING

13.5.1 The General Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the General Contractor shall have all glass cleaned and polished.

13.6 WARRANTY

13.6.1 For a period of two (2) years from the date of substantial completion, as evidenced by the date of final acceptance of the work, the contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship performed by the contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The contractor shall remedy, at his own expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

ARTICLE 14: TERMINATION OF CONTRACT

14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery thereon owned by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.

14.2 “If the continuation of this Agreement is contingent upon the appropriation of adequate state, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon

the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement."

END OF SECTION

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EMPLOYEE DRUG TESTING REPORT FORM
Period Ending:_____

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds maintain testing data that includes but is not limited to the data elements below.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address:_____
_____
_____

Number of employees who worked on the jobsite during the report period:_____

Number of employees subject to random testing during the report period:_____

Number of Negative Results _____ Number of Positive Results_____

Action taken on employee(s) in response to a failed or positive random test:
_____
_____
_____

Date: _____

This form is not required to be submitted to the Owner. Included as a reference to show information required to be maintained by the Contractor. The Owner shall have the right to periodically audit all Contractor and Subcontractor test results at the Contractor's or Subcontractor's offices (or by other means to make the data available for inspection by the Owner).

EMPLOYEE DRUG TESTING
REPORT OF POSITIVE RESULTS

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds to notify the Owner in writing of a positive random drug test.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____
_____
_____

Name of employee with positive test result: _____

Last 4 digits of employee SSN: _____

Date test results received: _____

Action taken on employee in response to a positive test result:
_____
_____
_____

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

This form shall be sent by mail to the Owner within 24 hours of receipt of test results.

Enclose this test results form in a sealed envelope with the notation "Drug Testing Form – DO NOT OPEN" on the face thereof and place in a separate mailing envelope.

END OF SECTION

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100 E. MARKET ST. GEORGETOWN, DE. 19947
NEW SUSSEX COUNTY FAMILY COURT BUILDING
#MJ0208000002

AFFIDAVIT OF CRAFT TRAINING COMPLIANCE

We, the contractor, hereby certify that we and all applicable subcontractors will abide by the contractor and subcontractor craft training requirements outlined below for the duration of the contract. Craft training must be provided by a contractor and/or subcontractor for each craft on a project for which there are Delaware Department of Labor approved and registered training programs. A list of crafts for which there are approved and registered training programs is maintained by the Delaware Department of Labor and can be found at https://det.delawareworks.com/apprenticeship/documents/Apprenticeship Occupation List for 29Del6962 Compliance.pdf
If you have questions regarding craft training programs, please submit them in writing to the Delaware Department of Labor at: apprenticeship@delaware.gov. The Craft Training Compliance Affidavit must be submitted prior to contract execution.

In accordance with Title 29, Chapter 69, Section 6962(c)(13) of the Delaware Code, contractors and subcontractors must provide craft training for journeyman and apprentice levels if **all** of the following apply:

A. A project meets the prevailing wage requirement under Title 29, Chapter 69, Section 6960 of the Delaware Code.
B. The contractor employs 10 or more total employees.
C. The project is not a federal highway project

Failure to provide required craft training on the project may subject the successful contractor and/or subcontractor(s) to penalties as outlined in Title 29, Chapter 69, Section 6962(c)(13) of the Delaware Code.

Craft(s)

_____

Contractor Name: _____

Contractor Address: _____

_____

_____

Contractor Program Registration Number(s) _____
On this line also indicate whether DE, Other State (identify) or US Registration Number

Or

❑ **Craft Training requirements are not applicable because:** _____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____
_____.

THIS PAGE MUST BE SIGNED AND NOTARIZED TO BE CONSIDERED.

END OF SECTION

CGL
A Hunt Company

158 West 27th St.
10th Fl.
New York, NY 10001
T: 212 563 9154

TEVEBAUGH
ARCHITECTURE

Two Mill Road, Suite 210
Wilmington, DE 19806
302.984.1400

Document Transfer Agreement

The undersigned receiving entity ("Recipient") owning, occupying, performing work, furnishing materials or providing services in connection with the above Project agrees to the following terms and conditions, which shall govern the undersigned's access to, receipt and use of Digital Files prepared by CGL its consultants, and sub-consultants ("Transferor"):

A. Digital files furnished to Recipient in regard to the Project ("DIGITAL FILES"), including but not limited to Computer Aided Design (CAD) or Building Information Model (BIM) files may be used by Recipient for informational and reference purposes solely in connection with the Recipient's ownership of, occupancy of or performance of its independent contractual obligations with respect to the Project, pursuant to this Document Transfer Agreement (the "Agreement") and subject to the limitations set forth herein. The requested electronic file(s) (the "Digital Files") shall remain the property of Transferor or its consultants as applicable.

B. Transferor makes no warranties or guarantees that the Files transferred represent or reflect the complete scope of work and/or as-built conditions of the Project.

C. Transferor assumes no responsibility for files that remain a work in progress or files released in electronic format. Such data is being provided as an accommodation to the Recipient only and may be labelled "For Reference Only – Not for Construction".

D. The Recipient receiving the Files and users thereof acknowledge much of the Files represent work in progress. DIGITAL FILES, in the form of Autodesk Revit Building Information Model (BIM) files, will be formatted prior to transfer to Recipient in a manner so as to display certain information in pre-defined views ("PRE-DEFINED VIEWS") in the Project Browser. From and after the completion of Construction Documents, Recipient may rely on information displayed in the "PRE-DEFINED VIEWS" in the DIGITAL FILES but only to the extent such information is visible and identical to the two-dimensional copy of the hard copy of completed Construction Documents. In all cases, the two-dimensional hard copy of the Construction Documents shall control in the event of any discrepancy between the two-dimensional Construction documents and the Digital Files. As such, the Recipient accepts full responsibility for verifying the accuracy and completeness of the Digital Files and shall to the fullest extent permitted by law, defend, indemnify and hold Transferor, its subsidiaries, its officers, employees, consultants and agents harmless from any claims or damages arising from any use of the Digital Files by the Recipient or any third party who receives the Digital Files from the Recipient, including any use on this or other projects. Such claims include without limitation, any claims which may arise due to deletions, omissions or variations of data due to mechanical or technical failure in connection with the transmission of the DIGITAL FILES or design changes which were not incorporated in the DIGITAL FILES.

E. The Digital Files should not be relied upon to reflect the present conditions of the site, and Recipient is cautioned to obtain an updated review of the Digital Files by an appropriately licensed professional.

F. The Digital Files shall not be utilized for any other purpose other than that for which they were originally intended without the express written consent of Transferor. The use of Digital Files to alter or revise the scope of work is not permitted unless authorized by change orders.

G. Should any Digital Files transferred electronically contain any electronic copies of permits or professional seals, these Digital Files must be returned immediately to Transferor and all copies thereof destroyed.

H. No retransmission of the Files in any form to any third party is permitted unless authorized in writing by Transferor. No such retransmission shall be authorized unless and until the Recipient executes an agreement containing all the terms and conditions of this Agreement.

I. The undersigned has read and understands the terms and conditions set forth above, and in exchange for Transferor providing the requested Digital Files and e-copies, the undersigned hereby agrees to be bound by the terms and conditions set forth herein.

J. The above requested Digital Files will only be released upon receipt by Transferor of an original of this Agreement signed by a duly authorized representative of the company requesting the files. Transferor reserves the right to deny any request for copies of electronic files. By signing this Agreement, Recipient confirms that it has read, understood and agrees to the terms contained herein. The individual signing this document on behalf of the Recipient represents that s/he is duly authorized to bind the Recipient to the terms hereof. This Agreement once executed and returned to Transferor, shall govern all future transfers of DIGITAL FILES, and need not be re-executed prior to each such transfer. Recipient further agrees that, before Recipient forwards DIGITAL FILES to third parties for their use in connection with the Project, Recipient shall first obligate each such third party to execute a copy of this Document Transfer Agreement, and shall deliver a duplicate original of such executed Agreement to Transferor

We hearby agree to the conditions outlined above.

_____ (Recipient)	**CGL**	**Tevebaugh Architecture**
By:_____	Lisa Tsang	Bill Lenihan
Name:_____	Vice President	President
Title:_____		
Date:_____		

SECTION 01 10 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The project involves excavation, ductbank and conduit installation, sidewalk removal/reinstall, and misc. concrete for future utility relocation on the existing site located in Georgetown, Delaware.

1. Project Location: The Southeast corner of East Market Street & South Race Street
2. Owner: State of Delaware. Office of Management and Budget, Division of Facilities Management, 540 S. DuPont Highway, Suite 1, Dover, DE 19901

B. Contract Documents, dated February 04, 2022 were prepared for the Project by Tevebaugh Architecture: Two Mill Road, Suite #210, Wilmington, DE 19806

C. The Work will be constructed under a single prime contract.

1.3 WORK UNDER OTHER CONTRACTS

A. Separate Contract: The Owner may have utility companies doing certain areas of work relating to this fit-out. Those operations may be conducted simultaneously with work under this Contract.

B. Cooperate fully with separate contractors so that work under those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.4 WORK SEQUENCE

A. The Work will be conducted in one phase.

1.5 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractor shall have use of designated areas of the premises for construction operations, including use of designated areas of the site.

B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: There is no owner occupancy.
2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.6 OWNER-FURNISHED PRODUCTS

A. The Owner will furnish furniture and equipment through other contracts as shown on floor plans. The Work includes providing support systems to receive Owner's equipment, and mechanical and electrical connections.

1.7 MISCELLANEOUS PROVISIONS

1. Start and stop times each day for construction to be as specified by the Owner in specification Section 01 14 00 “Work Restrictions”.
2. Contractor to protect areas noted on drawings including all areas noted as Existing to Remain or Not In Contract that they must pass through.

PART 2 - PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 12 00
CONTRACT SUMMARY

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Description of Contracts

B. General Coordination and distribution of work between Contractors

C. Refer to other Sections and Drawings for further descriptions of work and coordination

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.3 SUMMARY

A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.

B. Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.

C. Related Requirements:

1. Section 011000 "Summary" for the Work covered by the Contract Documents, restrictions on use of Project site, coordination with occupants, and work restrictions.

1.4 CONSTRUCTION MANAGER

A. Construction Manager shall be responsible for coordination between the Contractors noted herein.

B. Construction Managers MEP Project Coordinator shall provide for coordination with Site Utility Contractor.

C. Scheduling: The Construction Manager shall coordinate the scheduling activities of the multiple contractors, shall prepare an overall project schedule, and will monitor and update Project schedule periodically, utilizing construction schedules provided by each of the Contractors. c]

1. Prepare a combined contractors' construction schedule for entire Project. Base schedule on preliminary construction schedule. Secure time commitments for performing critical construction activities from contractors. Show activities of each contract on a separate sheet. Prepare a simplified summary sheet indicating combined construction activities of contracts.

    1) Submit schedules for approval.
    2) Distribute copies of approved monthly schedules to contractors.

D. Coordination activities of the Construction Manager include the following:

1. Provide overall coordination of the Work.
2. Coordinate shared access to workspaces.
3. Provide overall coordination of temporary facilities and controls.
4. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
5. Coordinate construction and operations of the Work with work performed by each Contract and Owner's construction forces and separate contracts.
6. Prepare coordination drawings in collaboration with each contractor to coordinate work by more than one contract.
7. Coordinate sequencing and scheduling of the Work. Include the following:
   a. Initial Coordination Meeting: At earliest possible date, arrange and conduct a meeting with contractors for sequencing and coordinating the Work; negotiate reasonable adjustments to schedules.
8. Provide photographic documentation of the progress of the work.
9. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
10. The Civil Engineer will provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
11. The Civil Engineer will locate existing permanent benchmarks, control points, and similar reference points, and establish permanent benchmarks on Project site.
12. Provide field surveys of in-progress construction and site work progress.
13. Coordinate completion of interrelated punch list items.
14. Coordinate preparation of Project record documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
15. Collect record Specification Sections from contractors, collate Sections into numeric order, and submit complete set.
16. Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form one combined record.

1.5 GENERAL REQUIREMENTS OF CONTRACTS

A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.

B. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 "Temporary Facilities and Controls," each contractor is responsible for the following:

1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Its own field office, complete with necessary furniture, utilities, and telephone service in accordance with the site logistics plan.
4. Its own storage and fabrication sheds in accordance with the site logistics plan.
5. Temporary enclosures for its own construction activities.
6. Staging and scaffolding for its own construction activities.
7. General hoisting facilities for its own construction activities, up to 2 tons (2000 kg).

8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
9. Progress cleaning of work areas affected by its operations on a daily basis.
10. Secure lockup of its own tools, materials, and equipment.
11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

C. Temporary Heating, Cooling, and Ventilation: Each individual Subcontractor is responsible for temporary heating, cooling, and ventilation for their purposes for the utility relocation work.

D. Temporary Utilities: Comply with the following:

1. Sewer Service: Contractor will pay for portable toilets
2. Water Service: The Owner will NOT provide temporary water. All contractors are to provide water for all needed uses.
3. Electric Power Service: The Owner will NOT provide electric. All contractors are to provide generators for all temporary power needed.

1.6 DESCRIPTION OF BID PACKAGES & CONTRACTS

A. The work of this project shall be performed under separate Contracts as defined in this section.

B. General Information That Applies to And Shall Be Included In All Scopes of Work

1. Each Contractor is responsible for performing the work listed in the Summary of Work for his contract. Contractor is also responsible for knowing the work that has been assigned to preceding contracts. No additional compensation or extension of time will be allowed a Contractor due to his misunderstanding of the work assigned to his Contract or to other contracts which may affect his work. The Contractor is responsible, however, for all items which are covered in the Specifications and Drawings relating to their Contract if not specifically mentioned in the Summary of Work.
2. Contractors are reminded that there are limited storage areas available on site. Off-site storage will be the responsibility of each individual Contractor.
3. Office or storage trailer permits will be the responsibility of each individual Contractor. On site Contractor's field offices, if required, will be located as directed by the Construction Manager.
4. Contractor shall prepare and submit a detailed project schedule within 10 days after receipt of Notice to Proceed and to begin its submittal process. Certain construction sequences and priorities must take place in order to meet the target dates. Concentrated work periods will occur, and each Contractor is responsible to staff the project as directed by the Construction Manager. All Contractor will cooperate with the Construction Manager in planning and meeting the required sequences of work and Project Schedule as periodically updated by the Construction Manager.

C. SAFETY INFORMATION

1. All contractors must comply with attached Wohlsen Safety Plan, OSHA and any subcontractor specific safety requirements. Contractor is to submit their specific site safety plan also.

D. The following is a list of the Contracts to be bid for this project under Bid Package # 0 documents:

1. Contract 01……..Site Utility Relocations

PART 2 – SEPARATE CONTRACT DESCRIPTIONS

2. CONTRACT No. 01 – Site Utility Relocations

1.0

A. The work of this Contract includes, but is not limited to, the Work detailed by the following Specification Sections and as shown or implied and indicated on the Drawings and as described in the narrative Description of Contract below. The work is not restricted by division of Drawings or Specification. Unless otherwise specifically noted, all work to be performed shall consist of providing all labor, materials, equipment and whatever is necessary to complete the work in accordance with the Specifications and applicable Codes.

B. Specification Sections:

Division 00 – Procurement and Contracting Requirements
All sections

Division 01 – General Requirements
All sections

Division 02 – Existing Conditions
All sections

Division 03- Concrete
All Sections

Division 26 – Electrical
All sections

Division 31 – Earthwork
All sections

Division 32 – Exterior Improvements
All sections

3. Narrative Description of Contract No. 01 – Site Utility Relocations

Provide all Demolition and replacement work as follows:

Scope of Work includes but is not limited to:

1. Provide supervision and mobilization costs.
2. Provide surveying / layout.
3. Provide dewatering. Include costs for surface and perched water dewatering, and for the duration of work to complete all utility trenches.
4. Provide temp signage / barriers & barricades / striping including crosswalks / jersey barriers as required for this work.
5. Provide all selective site demolition and replacement, including but not limited to: sidewalks, concrete swales and aprons, curbs, asphalt and associated saw cutting.
6. Provide rough grading.
7. Provide all subgrade compaction.
8. Provide fine grading of site.
9. Provide all excavation and backfill as required.
10. Provide trenching, excavation, backfill and conduits and supports for all installations.
11. Provide all site cuts and fills.

12. Export/import fill of suitable soils, as required. Contractor shall haul and remove all excess soils from site in a legal manner.
13. Provide all sediment and erosion controls needed to perform this work.
14. Provide all concrete curbs.
15. Provide all concrete sidewalks.
16. Provide all ADA ramps and detectable warning surfaces.
17. Provide all exterior concrete pads for utilities as shown.
18. Provide all asphalt paving.
19. Provide asphalt patching at utility crossings.
20. Provide all stone base beneath site concrete and asphalt.
21. Provide patching or replacement of all line striping.
22. Provide all traffic control / maintenance of traffic.
23. This is not a secure site. All contractors are responsible for all concealing, locking and/or removing any materials daily. Wohlsen or the State of Delaware will NOT be responsible for any lost tools, material or equipment.
24. A site visit and site examination is strongly encouraged, but not mandatory, in the preparation of this bid.
25. This contractor shall coordinate the termination and disconnections of all utilities prior to commencing with the work.
26. This contractor to provide adequate protection and barricades and fencing as required to protect public property and persons outside of the site.
27. Provide an allowance of $10,000 for unforeseen conditions
28. Comply with required preinstall/preconstruction meeting.
29. Provide and coordinate third party utility relocation services.
30. Provide access to adjacent occupied properties at all times, including steel plating if needed.
31. Provide bollards as required, filled with concrete, and painted

ALTERNATES

1. NONE

UNIT PRICES

UNIT PRICE No. 1: Price per cubic yard of Rock and/or existing foundation excavation and replacement with satisfactory soil.

UNIT PRICE No. 2: Price per square ft of additional Mill and Overlay, 1 ½" thickness.

UNIT PRICE No. 3: Price per square ft of additional Asphalt paving

UNIT PRICE No. 4: Price per cubic yard of removal of unsatisfactory soil and replacement with satisfactory soil.

UNIT PRICE No. 5: Price per cubic yard of removal of unsatisfactory soil and replacement with crushed stone

UNIT PRICE No. 6: Price per linear ft of additional ductbank per Detail 9/E3. (Provide excavation, conduits, Backfilling, compaction and patching.

UNIT PRICE No. 7: Price per linear ft of additional ductbank per Detail 10/E3. (Provide excavation, conduits, Backfilling, compaction and patching.

UNIT PRICE No. 8: Price per linear ft of additional ductbank per Detail 11/E3. (Provide excavation, conduits, Backfilling, compaction and patching.

UNIT PRICE No. 9: Price per linear ft of additional ductbank per Detail 12/E3. (Provide excavation, conduits, Backfilling, compaction and patching.

UNIT PRICE No.10 Price per square foot of additional topsoil and seeding per specifications.

UNIT PRICE No.11 Price per square foot of additional concrete sidewalk per specifications.

END OF SECTION

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractor shall have use of designated areas of the premises for construction operations, including use of designated areas of the site.

B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: There is no owner occupancy.
2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to emergency vehicles at all times. Do not block adjacent driveways and entrances except as expressly noted on the plans as acceptable to block during construction. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.3 OCCUPANCY REQUIREMENTS

A. Partial Owner Occupancy: Partial owner occupancy is not anticipated for this project.

1.4 RESTRICTIONS

A. Work Hours: No work-between the hours of 6:00 PM and 7:00 AM shall be permitted without first obtaining written permission of the owner (DFM), then if approved by owner, written permission of the Town to be obtained.

LEGAL HOLIDAYS

A. The Contractor will not be permitted to work on Sundays or days which are legal holidays in the State of Delaware, except in cases of emergency, and only with the written permission of the owner (DFM), then if approved by owner, written permission of the Town to be obtained.

B. If the Contractor desires to work upon any such legal holidays, he or she shall notify the owner (DFM) and the Town in writing at least two (2) days in advance of such holiday stating that he or she desires to work and the location of the proposed work.

C. The owner (DFM) and Town reserves the right to deny or approve the Contractor's request. Any requests would be addressed to the owner (DFM) and Town Manager.

1.5 CONTRACTOR ACCESS, STORAGE, AND STAGING

A. Access, storage and staging shall remain within the property boundaries until arrangements are made with the neighboring property owners.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for allowances.

1.3 DEFINITIONS

A. Allowance: An amount set aside in a construction contract for work that is not fully defined.

1. Allowances described in this Section are part of the Work only if an “Allowance Authorization Form” is submitted and approved.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the allowance into Project.

B. Notification: When an allowance is needed to be used in accordance with the schedule following, the “Allowance Authorization Form” must be filled out by the Contractor and submitted to the Construction Manager and the Architect. If the usage of the allowance is approved, the Owner and Architect shall sign-off on the form and return a copy to the Contractor.

C. Execute accepted allowance work under the same conditions as other work of the Contract.

D. Schedule: A schedule of allowances is included at the end of this Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Unforeseen Conditions

1. This allowance is for additional unforeseen work that may be required to complete the work in the contract documents but is not known at the time of the completion of the contract documents due to concealed existing conditions. The value of this allowance, ten thousand dollars ($10,000.00), is included in the bid form as part of the contract amount.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit Price: An amount proposed by bidders and stated on the Bid Form for a given unit of work defined in the Bidding Requirements that may be added to or deducted from the Contract amount based on actual quantities installed. Changes can be to either add additional work or delete work.

B. The cost or credit for each unit price is the net price to be added to or deducted from the Contract Sum to adjust for the actual quantity installed and includes all overhead, profit, supervision and miscellaneous costs. No other adjustments are made to the Contract Sum.

C. *Rock excavation*: is defined as the excavation of all hard, compacted, or cemented materials that require blasting or the use of ripping and excavating equipment larger than defined for common excavation. The excavation and removal of isolated boulders or rock fragments larger than 1 cubic yard encountered in materials otherwise conforming to the definition of common excavation shall be classified as rock excavation. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material.

D. *Common excavation* is defined as the excavation of all materials that can be excavated, transported, and unloaded using heavy ripping equipment and wheel tractor-scrapers with pusher tractors, or that can be excavated and dumped into place or loaded onto hauling equipment by excavators equipped with attachments (shovel, bucket, backhoe, dragline, or clam shell) appropriate to the material type, character, and nature of the materials.

E. *Heavy ripping equipment* is defined as a rear-mounted, heavy duty, single-tooth, ripping attachment mounted on a track type tractor having a power rating of at least 250 flywheel horsepower.

F. *Unsatisfactory soil material* as defined by ASTM D2487 in conjunction with the performance criteria established by the contract documents, including, but not limited the structural drawings and civil drawings and specifications.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the unit price into Project.

1. Include as part of each unit price, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of unit price.

B. Execute unit prices under the same conditions as other work of the Contract.

C. Schedule: A Schedule of Unit Prices is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

		ADD	**DEDUCT**
UNIT PRICE No. 1:	Price per cubic yard of Rock and/or existing foundation excavation and replacement with satisfactory soil	$ _____	$ _____
UNIT PRICE No. 2:	Price per square ft of additional Mill and Overlay, 2” thickness.	$ _____	$ _____

		ADD	DEDUCT
UNIT PRICE No. 3:	Price per square ft of additional Asphalt paving.	$ _____	$ _____
UNIT PRICE No. 4:	Price per cubic yard of removal of unsatisfactory soil and replacement with satisfactory soil.	$ _____	$ _____
UNIT PRICE No. 5:	Price per cubic yard of removal of unsatisfactory soil and replacement with crushed stone.	$ _____	$ _____
UNIT PRICE No. 6:	Price per linear ft of additional ductbank per Detail 9/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 7:	Price per linear ft of additional ductbank per Detail 10/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 8:	Price per linear ft of additional ductbank per Detail 11/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 9:	Price per linear ft of additional ductbank per Detail 12/E3. (Provide excavation, conduits, Backfilling, compaction and patching.	$ _____	$ _____
UNIT PRICE No. 10	Price per square foot of additional topsoil And seeding per specifications	$ _____	$ _____
UNIT PRICE No.11	Price per square foot of additional Concrete sidewalk per specifications	$ _____	$ _____

END OF SECTION

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SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Substitutions.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Identify product, fabrication, and installation method to be replaced. Include affected Specification Section number and title and Drawing numbers and titles. Indicate specific Drawing detail, where applicable.

1. Submit PDF electronic files of each request for consideration. No pre-bid substitution requests will be permitted.
2. Substitution Request Form: Use CSI Form 13.1A.
3. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product, fabrication, and installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements

indicated. Indicate deviations, if any, from the Work specified. Indicate modifications to Work in place required to accommodate substitution.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with specified requirements.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES or other organization acceptable to authority having jurisdiction.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
n. Draft Change Order documenting substitution acceptance prepared on form specified in Section 01 26 00 "Contract Modification Procedures."

4. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.
   c. Architect will consider only one request for substitution for each product. If substitution request is not accepted, provide specified product.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions for Consideration: Architect will consider Contractor's request for substitution when the following conditions are satisfied. When any condition for consideration is not satisfied, Architect will return request without action, except to record noncompliance with these requirements:

1. Requested substitution is consistent with the Contract Documents and will produce indicated results.
2. Requested substitution provides sustainable design characteristics that specified product provided.
3. Substitution request is fully documented and properly submitted.
4. Requested substitution will not adversely affect Contractor's construction schedule.
5. Requested substitution has received necessary approvals of authorities having jurisdiction.
6. Requested substitution is compatible with other portions of the Work.
7. Requested substitution has been coordinated with other portions of the Work.
8. Requested substitution provides specified warranty.
9. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions will not be considered:

1. When indicated or implied on Shop Drawing or Product Data submittals, without separate written request.
2. When acceptance will require Contract Documents revision.
3. When request is not from Contractor.

C. Substitutions for Cause: Submit requests for substitution required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

1. Submit requests immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
2. Additional Conditions for Consideration:

a. Specified product, through no fault of Contractor, is not available or cannot be delivered in time to meet Project schedule. Failure of Contractor to

order specified product in time to meet schedule is not a condition necessitating substitution.

b. Specified product, through no fault of Contractor, cannot comply with changed Project conditions.

D. Substitutions for Convenience: Architect will consider requests for substitution if received prior to bid in accordance with the Instruction to Bidders specification section 00 21 13. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Minor changes in the Work.
2. Proposal requests.
3. Administrative Change Orders.
4. Change Orders.
5. Construction Change Directives.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included in Project Manual.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests are not instructions either to stop work in progress or to execute the proposed change.
2. Within 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G731.

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive Form: AIA Document G733 or other Architect accepted form.
2. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Applications for Payment.

1.2 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with continuation sheets.
b. Submittal schedule.
c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. The construction manager will manage sub-contractors and collect documents required within this specification. The construction manager will complete their review of the payment documents, then supply documentation to the Architect and Owner for review.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703 or other Architect accepted form with separate columns to indicate the following for each item listed:

   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

      1) Labor.
      2) Materials.
      3) Equipment.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Site Mobilization: Provide a separate line item in the schedule of values for site mobilization including initial installation of temporary facilities and utilities.
9. Insurance and Bonds: Provide a separate line item in the schedule of values for Insurance and bonds, when required.
10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

11. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Construction Manager.

C. Application for Payment Forms: Use AIA Document G732 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute each copy of application by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed, only if they are stored in a bonded warehouse or on site. Materials or equipment stored off-site not in a bonded warehouse shall not be included in the Application for Payment.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide proof that the warehouse where the materials are being stored is bonded.
4. Provide summary documentation for stored materials indicating the following:

a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.

b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
d. Photographic documentation.

F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Construction Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Submit one duplicate set of PDF electronic files for each Application for Payment.
2. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. As-built Drawings: At the end of project, submit the final set of as-built drawings for review and approval before final release of retainage.

I. Initial Application for Payment: Submittals that must precede submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Schedule of unit prices.
6. Submittal schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.

J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Interpretation (RFIs).
4. Project Web site.
5. Project meetings.

1.2 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Submittals: Make initial submittals within 15 days of starting construction operations and before first Application for Payment. Update list and resubmit when information changes and when new information becomes available.

1. Submit PDF electronic files of each list.
2. Submittal Schedule.

B. Subcontract List: Submit list of individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

a. Name, address, and telephone number of entity performing subcontract or supplying products.
b. Number and title of related Specification Section(s) covered by subcontract.
c. Drawing number and detail references, as appropriate, covered by subcontract.

C. Key Personnel Names: Submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names,

addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, on Project Web site, and by each temporary telephone. Keep list current at all times.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner if coordination of Owner's Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work.

1. Administrative activities include, but are not limited to, the following:

a. Preparation of Contractor's construction schedule.
b. Preparation of the schedule of values.
c. Installation and removal of temporary facilities and controls.
d. Delivery and processing of submittals.
e. Progress meetings.
f. Preinstallation conferences.
g. Project closeout activities.
h. Startup and adjustment of systems.

1.5 COORDINATION DRAWINGS

A. Before materials are purchased, fabricated or work is begun, prepare coordination drawings for all floors and areas, including buried systems and services, showing the size and location of Contractor’s equipment and systems size, location and routing. Coordination drawings to be no less than ¼ inch scale and generated from a computer

CAD program compatible with AutoCAD Release 2013. Base architectural and MEP drawings will be available from the Architect and/or Engineer in .DWG format. Electronic backgrounds in .DWG format will be distributed to Contractor after award of contract and receipt by professional release forms. At Contractor's option, .RVT files from the architectural and structural models can be provided for the benefit of preparing a 3D Revit coordination model in lieu of 2D Revit coordination drawings.

B. Take basic coordination drawings prepared for the HVAC scope of work and add (draft) each subsequent trade, in locations decided upon at coordination meetings. Add items to the coordination drawings only after all present at the coordination meetings agree to their location. Sequencing of drawing additions to be as follows: HVAC>Plumbing>Electrical>Fire Protection.

C. Documents will be used as a guide, with the final approved coordination drawings governing installation sequence. Adjustments will be made as required at coordination meetings. All drawings will be prepared in accordance with all applicable rules, regulations, and governing authorities.

D. Once reviewed and approved by each trade subcontractor, coordinate the final reproducible Systems Coordination Drawings, illustrating the work of all trades. The reproducible drawings will be via shop drawings submittal procedures with sufficient time to review and resolve coordination items so as not to affect the critical path of construction operations. The Architect will review the coordination model and/or drawings for conformance with the design intent.

E. Coordination of Installed Work:

1. In case of interferences with work of other trades or scheduling problems during any portions of actual construction, decide which work will be relocated or adjusted. These minor adjustments will be made at no additional cost to the Owner. The Architect and Engineer may direct minor architectural location changes during installation of the Work. All adjustments will be made at no additional cost to the Owner.
2. Contractor is responsible for coordinating the work of subcontractors and subcontractors' work in conjunction with Owner's own forces. This may involve minor adjustments or modifications in the work to accommodate the work of other trades.
3. Commencement of any work in any section indicates that previous work has been inspected and meets Contractor's full satisfaction.
4. It is Contractor's responsibility to ensure that all work is completed prior to commencement of the following work.
5. Contractor is required to schedule and coordinate his activities with the subcontractors and the Owner's separate prime contractors to ensure proper fit of the various elements of the work in common.
6. Schedule: Contractor is responsible for establishing the schedule of coordination drawings so as not to affect the critical path of construction operations.

F. General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination

is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Include the following information, as applicable:

    a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
    c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    d. Indicate space requirements for normal operations, routine maintenance, and for anticipated replacement of components during the life of the installation.
    e. Show location and size of access doors and clearances required for access to concealed dampers, valves, and other controls.
    f. Indicate required installation sequences.
    g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

G. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing and bracing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for other Work.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:

a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
c. Fire-rated enclosures around ductwork.

7. Electrical Work: Show the following:

a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger and cable trays.
b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm device locations.
c. Motion detector, occupancy sensor, daylight sensor, and other electrical system control device locations.
d. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
e. Location of pull boxes and junction boxes, dimensioned from column center lines.

8. Fire-Protection System: Show the following:

a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

9. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.

H. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Submittal Format: Submit or post coordination drawing files using Portable Data File (PDF) format.
2. BIM File Incorporation (Optional): Develop and incorporate coordination drawing files into Building Information Model established for Project.

a. Perform three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.

3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

b. Digital Data Software Program: Drawings are available in AutoCAD Version 2010.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. General: Immediately on discovery of the need for interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

a. Requests for approval of submittals.

b. Requests for approval of substitutions.
c. Requests for approval of Contractor's means and methods.
d. Requests for information already indicated in the Contract Documents.
e. Requests for adjustments in the Contract Time or the Contract Sum.
f. Requests for interpretation of Architect's actions on submittals.
g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 26 00 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within **10** days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log bi-weekly. Software log with not less than the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Indicate resulting Minor Change in the Work, Construction Change Directive, and Proposal Request in RFI log.

1.7 PROJECT WEB SITE

A. Use Owner's or Architect's Project Web site for purposes of hosting and managing project communication and documentation until Final Completion. Project Web site will include the following functions:

1. Project directory.
2. Project correspondence.
3. Meeting minutes.
4. Contract modifications forms and logs.
5. RFI forms and logs.
6. Task and issue management.
7. Photo documentation.

8. Schedule and calendar management.
9. Submittals forms and logs.
10. Payment application forms.
11. Drawing and specification document hosting, viewing, and updating.
12. Online document collaboration.
13. Reminder and tracking functions.
14. Archiving functions.

B. On completion of Project, provide one complete archive copy of Project Web site files to Owner and to Architect in a digital storage format acceptable to Architect.

C. Project Web Site Software Package:

1. Procore Technologies Inc.

1.8 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Coordinate meeting times with Architect's regularly scheduled site visits.
3. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
4. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than **15** days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, and Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.

f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment.
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Sustainable design requirements.
m. Preparation of record documents.
n. Use of the premises.
o. Work restrictions.
p. Working hours.
q. Owner's occupancy requirements.
r. Responsibility for temporary facilities and controls.
s. Procedures for moisture and mold control.
t. Procedures for disruptions and shutdowns.
u. Construction waste management and recycling.
v. Parking availability.
w. Office, work, and storage areas.
x. Equipment deliveries and priorities.
y. First aid.
z. Security.
aa. Progress cleaning.
bb. Commissioning activities.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Sustainability Coordination Conference: Architect will schedule and conduct a sustainability coordination conference before starting construction, at a time convenient to Owner, Architect, and Contractor.

1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Architect, and their consultants; Contractor and its superintendent and sustainability coordinator; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect meeting requirements for sustainability certification, including the following:

a. Sustainability Project Checklist.
b. General requirements for sustainability-related procurement and documentation.
c. Project closeout requirements and sustainability certification procedures.
d. Role of sustainability coordinator.
e. Construction waste management.
f. Construction operations and sustainability requirements and restrictions.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, and Owner's Commissioning Authority of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Sustainable design requirements.
    i. Review of mockups.
    j. Possible conflicts.
    k. Compatibility requirements.
    l. Time schedules.
    m. Weather limitations.
    n. Manufacturer's written instructions.
    o. Warranty requirements.
    p. Compatibility of materials.
    q. Acceptability of substrates.
    r. Temporary facilities and controls.
    s. Space and access limitations.
    t. Regulations of authorities having jurisdiction.
    u. Testing and inspecting requirements.
    v. Installation procedures.
    w. Coordination with other work.
    x. Required performance results.
    y. Protection of adjacent work.
    z. Protection of construction and personnel.
    aa. Startup and adjusting procedures.
    bb. Commissioning activities.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

E. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, and Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

    a. Preparation of record documents.
    b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    c. Submittal of written warranties.
    d. Requirements for completing sustainable design documentation.
    e. Requirements for preparing operations and maintenance data.
    f. Requirements for delivery of material samples, attic stock, and spare parts.
    g. Requirements for demonstration and training.
    h. Preparation of Contractor's punch list.
    i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    j. Submittal procedures.
    k. Coordination of Owner's work.
    l. Owner's partial occupancy requirements.
    m. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

F. Progress Meetings: Conduct progress meetings at two-week intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule

revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Resolution of BIM component conflicts (BIM will be optional).
4) Status of submittals.
5) Status of sustainable design documentation.
6) Deliveries.
7) Off-site fabrication.
8) Access.
9) Site utilization.
10) Temporary facilities and controls.
11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) Status of RFIs.
16) Status of proposal requests.
17) Pending changes.
18) Status of Change Orders.
19) Pending claims and disputes.
20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

G. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time
b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Resolution of BIM component conflicts (BIM is optional).
4) Status of submittals.
5) Deliveries.
6) Off-site fabrication.
7) Access.
8) Site utilization.
9) Temporary facilities and controls.
10) Work hours.
11) Hazards and risks.
12) Progress cleaning.
13) Quality and work standards.
14) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Construction reports.
5. Material location reports.
6. Site condition reports.
7. Special reports.

B. Related Requirements:

1. Section 01 33 00 "Submittal Procedures" for submitting schedules and reports.
2. Section 01 40 00 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Baseline: The complete schedule that has been set prior to the beginning of the project. The project baseline is to be saved and restricted from being changed after the project has begun. The schedule baseline is to be saved in such a manner that it can be displayed for comparison to the current live schedule.

C. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

D. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

E. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

F. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time belongs to Owner.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.

B. Startup construction schedule.

1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.

F. Construction Schedule Updating Reports: Submit with Applications for Payment.

G. Construction Reports: Submit at weekly intervals.

H. Material Location Reports: Submit at weekly intervals.

I. Site Condition Reports: Submit at time of discovery of differing conditions.

J. Special Reports: Submit at time of unusual event.

K. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Review delivery dates for Owner-furnished products.
4. Review schedule for work of Owner's separate contracts.
5. Review submittal requirements and procedures.
6. Review time required for review of submittals and resubmittals.
7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review time required for Project closeout and Owner startup procedures.

9. Review and finalize list of construction activities to be included in schedule.
10. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice of Award to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary of Work." Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 01 100 0 "Summary of Work." Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:
   a. Coordination with existing construction.
   b. Limitations of continued occupancies.
   c. Uninterruptible services.
   d. Partial occupancy before Substantial Completion.
   e. Use of premises restrictions.
   f. Provisions for future construction.
   g. Seasonal variations.
   h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Subcontract awards.
   b. Submittals.
   c. Purchases.
   d. Mockups.
   e. Fabrication.
   f. Sample testing.
   g. Deliveries.
   h. Installation.
   i. Tests and inspections.
   j. Adjusting.
   k. Curing.
   l. Building flush-out.
   m. Startup and placement into final use and operation.

8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
   a. Structural completion.
   b. Temporary enclosure and space conditioning.

c. Permanent space enclosure.
d. Completion of mechanical installation.
e. Completion of electrical installation.
f. Substantial Completion.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

1. See Section 01 29 00 "Payment Procedures" for cost reporting and payment procedures.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Use Microsoft Project or Primavera by Oracle, for Windows operating system.

2.2 STARTUP CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice of Award.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice of Award. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice of Award. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's construction schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice of Award.

a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

    a. Preparation and processing of submittals.
    b. Mobilization and demobilization.
    c. Purchase of materials.
    d. Delivery.
    e. Fabrication.
    f. Utility interruptions.
    g. Installation.
    h. Work by Owner that may affect or be affected by Contractor's activities.
    i. Testing.
    j. Punch list and final completion.
    k. Activities occurring following final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

    a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.

    a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
    b. Total cost assigned to activities shall equal the total Contract Sum.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

    a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
    b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.5 REPORTS

A. Construction Reports: Prepare construction reports recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.6 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel,

evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

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SECTION 01 32 16

CONSTRUCTION SCHEDULE

1. PRE-BID CONSTRUCTION SCHEDULE

   A. Time is a critical element of this Project. By entering a bid, the Contractor agrees to adhere to the intermediate Milestone Dates and Dates of Substantial and Final Completion established herein. The Contractor also understands that all work must be performed in an orderly and closely coordinated sequence in order to achieve the specified Milestones and Completion Dates, and the Contractor hereby agrees to perform his work in conformance with the Pre-Bid Construction Schedule established herein, or with the then current and approved Project Construction Schedule as amended from time to time by the Construction Manager.

   B. The Pre-Bid Construction Schedule includes allowances for time lost due to adverse and abnormal weather conditions, other than floods, hurricanes, tornadoes, lightening and other like acts of God. The Contractor understands and agrees that it shall not be entitled to any extensions of the Contract Time or adjustment to the Contract Sum, except as allowed in the General Conditions of the Contract for Construction. The Contractor further acknowledges that the Work may be required to be performed during the winter season, that conditions during this season may be adverse and abnormal, but that such conditions will not be the basis for an extension of the Contract Time or adjustment to the Contract Sum.

2. SCHEDULING OF THE WORK AFTER AWARD OF CONTRACT

   A. After award of Contract, or issuance of a Notice to Proceed, the Contractor will meet with the Construction Manager to review the Pre-Bid Construction Schedule, and the overall project plan for construction. Following the above review, the Contractor will meet with each subcontractor and supplier to view the detailed plans for performing his Work. Following these meetings and within fourteen (14) days after award of the Contract or issuance of a Notice to Proceed, the Contractor shall prepare and submit for the Construction Manager’s approval a Work Schedule providing for the expeditious, timely and practical execution of the Work. The Contractor’s Work Schedule shall include activity descriptions and durations for shop drawings, fabrication, delivery and installation. If the Construction Manager so requests, the Contractor shall provide adequate explanation regarding crew sizes, production rates and similar data used to arrive at the durations and sequences.

   B. The Construction Manager shall review the Contractor’s Work Schedule, coordinate it with the separate work by other contractors, the Owner and the Construction Manager, and after coordination, shall incorporate it into the approved Project Construction Schedule. The approved Project Construction

Schedule shall be issued to the Contractor and the Contractor shall perform his Work in conformity therewith.

C. The Contractor shall submit proposed schedule revisions and obtain the written approval of the Construction Manager therefore before deviating from the Project Construction Schedule.

D. The Construction Manager will incorporate approved schedule revisions into the Project Construction Schedule and shall otherwise update and revise the Project Construction Schedule as the Construction Manager, at his sole discretion, deems necessary.

3. ADHERENCE TO THE SCHEDULE

A. The Contractor shall start each part of its Work on the date designated for start in the approved Project Construction Schedule unless advised by the Construction Manager. The Contractor shall carry the Work forward expeditiously with adequate forces, equipment and materials, and shall complete each part of his work on or before the date designated in the approved Project Construction Schedule.

B. If the Construction Manager determines that the Contractor is behind schedule, the Construction Manager shall have the right to require that the Contractor take steps, at the Contractor's expense, to accelerate its Work. Such steps shall include increases in manpower, equipment and materials and/or overtime as the Construction Manager may deem necessary. If the Contractor fails to comply with the Construction Manager's instructions relating to improved rate of progress, the Contractor may be held in default under the appropriate provisions of the General Conditions of the Contract.

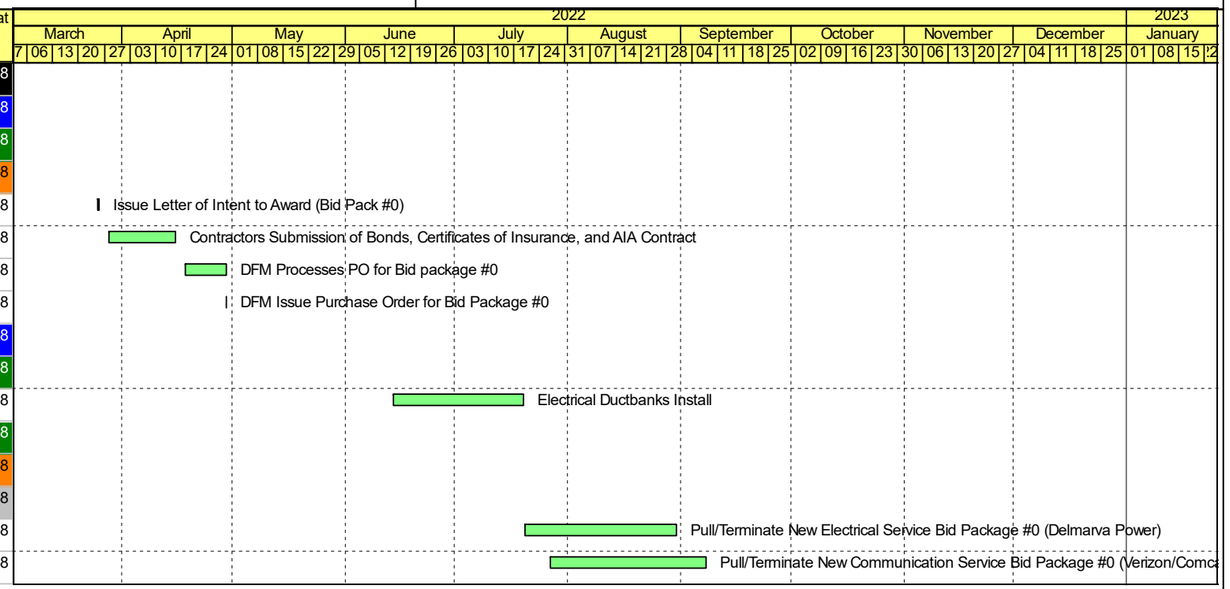
C. Each Contractor shall, if directed by the Construction Manager, provide the Construction Manager a 2-4 week look ahead of anticipated manpower showing the number of men, classification, and anticipated work.

4. PROJECT MILESTONE SCHEDULE

A. See Project Milestone Schedule attached.

END OF SECTION

Activity ID	Activity Name	OD	RD	Start	Finish	Total Float
DE Family Court - Sussex County Baseline 02/04/22 (Bid Pack 0)		116	116	25-Mar-22	07-Sep-22	18
PRE-CONSTRUCTION		26	26	25-Mar-22	29-Apr-22	48
STATE PROCURMENT		26	26	25-Mar-22	29-Apr-22	48
BID PACKAGE #0		26	26	25-Mar-22	29-Apr-22	48
A2905	Issue Letter of Intent to Award (Bid Pack #0)	1	1	25-Mar-22	25-Mar-22	18
A2785	Contractors Submission of Bonds, Certificates of Insurance, and AIA Contract	15	15	28-Mar-22	15-Apr-22	18
A2920	DFM Processes PO for Bid package #0	10	10	18-Apr-22	29-Apr-22	18
A2800	DFM Issue Purchase Order for Bid Package #0	1	1	29-Apr-22	29-Apr-22	48
CONSTRUCTION		60	60	14-Jun-22	07-Sep-22	18
ELECTRICAL REROUTING		25	25	14-Jun-22	19-Jul-22	18
A2155	Electrical Ductbanks Install	25	25	14-Jun-22	19-Jul-22	18
SITEWORK		35	35	20-Jul-22	07-Sep-22	18
SITE UTILITIES		35	35	20-Jul-22	07-Sep-22	18
Bid Package #0		35	35	20-Jul-22	07-Sep-22	18
A2200	Pull/Terminate New Electrical Service Bid Package #0 (Delmarva Power)	30	30	20-Jul-22	30-Aug-22	18
A2205	Pull/Terminate New Communication Service Bid Package #0 (Verizon/Comcast)	30	30	27-Jul-22	07-Sep-22	18



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SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final completion construction photographs.

B. Photographic Documentation included within this section is to be the responsibility of the Construction Manager.

1.2 UNIT PRICES

A. Basis for Bids: Base number of construction photographs on average of 20 photographs per week over the duration of Project.

1.3 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
3. Identification: Provide the following information with each image description in file metadata tag:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect.
d. Name of Contractor.
e. Date photograph was taken.
f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
g. Unique sequential identifier keyed to accompanying key plan.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.5 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.
2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.

D. Preconstruction Photographs: Before commencement of work, take photographs of Project site, building perimeter, hardscape, paving, building elevations, and interior photographs of floor, ceiling, and each wall or each interior room/space, including existing items to remain during construction, from different vantage points, as directed by Architect.

1. Flag excavation areas before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

E. Periodic Construction Photographs: Take 20 photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

F. Architect-Directed Construction Photographs: From time to time, Architect will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

G. Time-Lapse Sequence Construction Photographs: Take 20 photographs as indicated, to show status of construction and progress since last photographs were taken.

1. Frequency: Take photographs monthly, coinciding with the cutoff date associated with each Application for Payment.

H. Final Completion Construction Photographs: Take 20 color photographs after date of Substantial Completion for submission as project record documents. Architect will inform photographer of desired vantage points.

1. Do not include date stamp.

I. Additional Photographs: Architect may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.

1. Three days' notice will be given, where feasible.
2. In emergency situations, take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following:

    a. Special events planned at Project site.
    b. Immediate follow-up when on-site events result in construction damage or losses.
    c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
    d. Substantial Completion of a major phase or component of the Work.
    e. Extra record photographs at time of final acceptance.
    f. Owner's request for special publicity photographs.

END OF SECTION

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Shop Drawings.
2. Product Data.
3. Samples.
4. Other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

a. Scheduled date for first submittal.
b. Specification Section number and title.
c. Submittal category: Action; informational.
d. Name of subcontractor.
e. Description of the Work covered.
f. Scheduled date for Architect's final release or approval.
g. Scheduled date of fabrication.
h. Scheduled dates for purchasing.
i. Scheduled dates for installation.
j. Activity or event number.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.

a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD 2013 format.
c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Contractor or CM shall use Architect’s cover sheet for all submittal correspondences. Architect reserves the right to withhold action on any submittal where said cover sheet is omitted.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 days for initial review of each submittal.
5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use project identifier and Specification Section number followed by a dash, then a sequential number, then Section Name, and ten a submittal type (PD=Product Data, SD=Shop Drawing, or SA=Sample) (e.g., 05 50 00-01-Misc. Metals-PD, SD, or SA). Resubmittals shall include an alphabetic suffix after another dash (e.g., 05 50 00-01-Misc. Metals-PD, SD, or SA-A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to Owner, containing the following information:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of Contractor.
    e. Name of firm or entity that prepared submittal.
    f. Names of subcontractor, manufacturer, and supplier.
    g. Category and type of submittal.
    h. Submittal purpose and description.
    i. Specification Section number and title.

j. Specification paragraph number or drawing designation and generic name for each of multiple items.
k. Drawing number and detail references, as appropriate.
l. Location(s) where product is to be installed, as appropriate.
m. Related physical samples submitted directly.
n. Indication of full or partial submittal.
o. Transmittal number.
p. Submittal and transmittal distribution record.
q. Other necessary identification.
r. Remarks.

E. Options: Identify options requiring selection by Architect.

F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:

    a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed. Take photos of physical samples and upload with cover sheet to Submittal Exchange for comments and record purposes. Either mail or hand deliver physical samples concurrently with Submittal Exchange submission.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of applicable Specification Section.
    e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit four sets of Samples. Architect will retain one Sample sets, one sample set will be sent to the Owner; remainder will be returned.

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:

    a. PDF electronic file.

F. Coordination Drawing Submittals: Comply with requirements specified in Section 01 31 00 "Project Management and Coordination."

G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures."

H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."

I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."

J. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

T. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

V. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note

corrections and field dimensions. Mark with approval stamp before submitting to Architect and Construction Manager.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION

SECTION 01 35 23

SAFETY PROGRAM

1. GENERAL

1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety activities and programs in connection with the Work.

1.2 Contractor shall be responsible for the safety of its personnel.

1.3 Hard hats and safety glasses must be worn by all personnel on the jobsite contractor's administrative office/trailer. All equipment must comply with OSHA stand. All job site personnel shall wear long pants, shims (no tank tops) and work boots.

2. SAFETY PROGRAM

2.1 Prior to commencing the Work, the Contractor shall submit to the (1) electronic copy and (1) bound copy of its safety program and one (1) copy of MSDS information in a 2" ringed notebook. One paper copy of the safety program and MSDS will be retained by the Construction Manager in the field office.

2.2 The safety program shall outline those hazards peculiar to the Contractor's Work, and the steps to be taken to eliminate or reduce the risk of injury or loss due to those hazards. The program shall be site specific. Contractor shall implement and enforce its safety program, which is in accordance with all OSHA, Federal, State and local laws.

2.3 Contractor shall designate a qualified Safety Supervisor to implement the safety program. Unless otherwise approved by the Owner, the Safety Supervisor shall be the Contractor's field Superintendent/Foremen.

2.4 Contractor shall hold weekly safety toolbox talks with all of its employees. The Contractor shall designate a responsible, capable person to conduct these meetings.

3. SUBSTANCE ABUSE POLICY STATEMENT

The Owner is committed to providing a safe work site environment for its employees and Contractors' employees. The Owner does not condone or permit employees and Contractors' employees to use or be influence of drugs or alcohol while they are on the work site. The Policy is as follows:

3.1 It is a violation Contractors' employees to use. possess, sell. trade, or otherwise engage in the use of illegal drugs and alcohol.

3.2 It is a violation for Contractors' employees to report to work while influenced by illegal drugs or alcohol.

3.3. It is a violation for Contractors' employees to use prescription drugs illegally (i.e. to use prescription drugs that have not been legally obtained) and to use prescription drugs in a manner other than the prescribed intentions.

3.4 Contractors' employees who are taking medication, which is prescribed by their

physician, are expected to discuss potential side effects with their prescribing physician, as it relates to the work requirements.

Violations of this policy will require disciplinary action. If any Contractors' employees are observed or suspected of being influenced by drugs or alcohol, they will be instructed to stop work and may be required to leave the work site.

4. EXECUTION

4.1 Contractor shall comply with all applicable federal, state and local laws, regulations and orders relating to occupational safety and health, and related procedures, and shall to the extent permitted by law, indemnify and hold Owner and Architect, and their respective directors, officers, or agents and employees, harmless from any and all liability, public or private, penalties, contractual or otherwise, losses, damages, costs, attorney's fees, expenses, causes of action, claims or judgments resulting from a claim filed by anyone in connection with the aforementioned acts, or any rule, regulation or order promulgated thereunder arising out of the Contractor's Work, this Agreement or any subcontract executed in prosecution of the Work. Contractor further agrees in the event of a claim of violation of any such laws, regulations, orders or procedures arising out of or in any way connected with the performance of this agreement, Owner may immediately take whatever action is deemed necessary by Owner and/or Architect to remedy the claim or violation. Any and all costs or expenses paid or incurred by Owner and/or Architect in taking such action shall be borne by Contractor, and may be deducted from any payments due Contractor.

4.2 The Contractor agrees to (1) take all necessary steps to promote safety and health on the jobsite.
(2) cooperate with Owner and/or Architect in preventing and eliminating safety and health hazards: (3) train, instruct and provided adequate supervision to ensure that its employees are aware of, and comply with, applicable Federal and State safety and health laws, standards, regulations and rules, safe healthful work practices and all applicable safety rules, regulations and work practices and procedures (4) not create any hazards or expose any of its employees, employees of the Owner and/or Architect or' employees of Contractors to any hazards; and (5) where the Contractor is aware of the existence of a hazard not within its control, notify the Owner/Architect of the hazard as well as warn exposed persons to avoid the hazard.

4.3 The Contractor's Superintendent or Safety Supervisor shall immediately, verbally report, and promptly thereafter confirm in writing to the Owner and Architect any unsafe conditions or practices that are observed, or violations of job safety which are not within the Contractor's control.

4.4 Contractors shall immediately, verbally report, and promptly thereafter confirm in writing, to the Owner and Architect any unsafe practices or conditions that are observed which are not under the Contractor's control.

4.5 The Contractor's Superintendent or Safety Supervisor shall insure that adequate first aid supplies are available, and that personnel are qualified to administer first aid/CPR, as required by State and/or Federal regulations.

4.6 Contractor shall promptly notify Owner and Architect of any personal injury requiring medical treatment of any of the Contractor's employees at the Project site; or of

significant damage to property arising in connection with Contractor's performance, as promptly as possible after the occurrence of such injury or damage. Within forty-eight hours of such occurrence, Contractor shall furnish to Owner and Architect a complete written report of such injury or damage.

4.7 Contractor certifies that the forgoing terms shall be made applicable to all Contractors' suppliers, materialmen or anyone furnishing labor and/or materials to the site.

1. The Contractor shall continue to educate his job Safety Supervisor or Superintendent of their responsibilities, which shall include: Instructing workers and subcontractors under its supervision in safe work practices and work methods at the time they are given work assignments.
2. Ensuring that its workers and subcontractors have and use the proper protective equipment and suitable tools for the job.
3. Continuously checking to see that no unsafe practices or conditions are allowed to exist on any part of his job.
4. Acquainting its workers and subcontractors with all applicable safety requirements and seeing that they are enforced.
5. Setting a good example for his workers.
6. Making a complete investigation of accidents to determine facts necessary to take corrective action.
7. Holding weekly "tool box" safety meetings with his men to:
    a. Discuss observed unsafe work practices or conditions including a review of current safety report.
    b. Review the accident experience of his crew and discuss correction of accident causes.
    c. Encourage safety suggestions from his men.
8. Seeing that prompt medical treatment is administered to an injured employee.
9. Correcting or reporting immediately to job superintendent any observed unsafe conditions, practices or violations of job security.
10. Making all reports required by these Contract Documents in a full and timely fashion.

5. SAFETY MEETINGS

5.1 The Contractor's Project Manager or Superintendent shall attend weekly or biweekly supervisory job meetings. The first topic of these meetings will be job site safety. The weekly safety reports will be reviewed and violations must be corrected immediately. Contractors will be encouraged to participate in the on-going jobsite safety.

6. TOOL BOX SAFETY MEETINGS

6.1 The Contractor shall schedule weekly “tool box” safety sessions to be held by his job safety supervisor or superintendent for all of his employees.

6.2 A member of the Contractor’s management staff shall periodically attend “tool box” safety sessions to evaluate their effectiveness and offer any appropriate suggestions for improvement.

7. REPORTS

7.1 Contractors shall report all accidents or injuries on a timely basis in accordance with all applicable regulations.

7.2 Contractors shall promptly complete an accident investigation report of all accidents.

7.3 A record *ot* all “tool box” safety sessions shall be made.

8. FALL PROTECTION PROCEDURES

8.1 Contractor is responsible, in accordance with federal, state, local laws and regulations including OSHA. to provide and enforce their own site-specific fall protection program and equipment. The following fall protection procedures shall be enforced by all Contractors as a minimum standard.

All workers on walking/working surfaces with unprotected sides or edges six feet (6’) or higher above the next lower level must be protected from falls by the use ot guardrail systems, net systems, fall arrest systems or controlled access zone programs. It is intended that when fall protection is required, it is required 100% of the time. All contractors are reminded that relevant industry regulations require that contractors comply with the following standards.

1. Workers constructing or working near leading edges must be protected.

2. Workers on the face of formwork or reinforcing steel must be protected at a height of 6 feet (6’) or greater.

3. Scaffolds shall be guarded at 6 feet (6’) above next lower level.

4. Brick layers performing overhand bricklaying and related work six feet (6’) or higher above lower levels must be protected from falls.

5 Roofers must comply with OSHA standards for roof work.

6 Contractor’s controlled access zone plan shall be included in their site-specific safety program and shall be submitted prior to the start of work. Contractors are responsible for assuring programs are OSHA compliant.

7. Guidelines for Residential Construction or any interpretations will not be accepted in lieu of 1926 Standards.

S.2 Contractor shall provide its own fall protection. Fall protection may be provided by guardrail systems, net systems, or personal fall arrest systems. All fall protection systems must comply with OSHA standards.

5.3 Stepladders, exposed to shafts or edges of the building, greater than six feet (6') above the next lower level, must be tied off or otherwise secured. Employee must wear fall protection, i.e.

Harness/lanyard.

8.4 The Safety Cable System shall not be altered or removed without a written request submitted to the Project Manager with a copy to the Field Manager. It shall be the responsibility of each and every Contractor that is removing or altering the Safety Cable System to maintain the fall protection safety provided by the safety cable and not leave the area unprotected. Each and every Contractor shall be responsible to re-install the Safety Cable System immediately after work is completed. Each and every Contractor shall be responsible to re-install the Safety Cable System in accordance to OSHA standards.

8.5 Fall protection will be enforced tor Structural Steel Erectors.

1. As for a Contractor engaged in structural steel erection, the Contractor is specifically advised that structural steel erectors shall comply with all protection requirements for all work at a height of six feet (6') or greater above the next lower level, 100 percent of the time, by any of the following means.

   a. Standard guardrail system.

   b. Personal Fall Arrest System (PFAS) — full body harness with shock absorbing lanyard. Maximum free fall distance permitted, with lanyard and lanyard attachment shall not exceed six feet (6'). Anchor point must be capable of supporting five thousand pounds. Perimeter guard cables or alignment of cables may not be used for anchor points.

   c. Access to work area shall be provided by ladders. There shall be sufficient number o1 ladders available to reduce the amount of "beam walking." When it is absolutely necessary to traverse a beam, 100% fall protection must be utilized.

   d. Steel erection Contractors must, at all times, be able to certify in writing that each o1 his employees have been properly trained in both OSHA fall protection standards and the Contractor's site specific project fall protection procedures.

   e. Prior to the erection of the steel, the Contractor shall meet with the Project Manager and Safety Representatives to review and document site specific procedures.

END OF SECTION

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CRANE LIFTING PLAN/CHECKLIST

1. PROJECT DATA

PROJECT NAME:		DATE:
JOB NUMBER:		
Main Crane Lifting Points:	Main Boom:	Jib Point:
Lift Accomplishment Date:		
Work Performed:		
Attachments: (Site Maps, Layout, Crane Location(s) etc.)	( ) Yes	( ) No

2. CRANE DEFINITION

Manufacturer: _____
Model: _____
Serial No.: _____
Crane Description: _____
Rated Capacity: _____
Area of Operation: _____

Crane Yearly Inspection:
Date: _____

3. LOAD DATA

A. Lift Description: _____
_____
1. Equipment No./Name: _____
2. Dimensions (L/W/H): _____
3. Total Gross Weight: _____
4. From Location to Location: _____
_____

B. Maximum Operating Radius
To Be Used During Lift (ft.): _____

4. CRANE CONFIGURATION

MAIN BOOM
No. of Sections: _____
Boom Size: _____
Boom Length: _____
Boom Type: _____
Hoisting from Main Boom: _____
Main boom Parts of Line: _____
Main Boom Line Size (Dia.): _____
Capacity of line @ Parts: _____
Max. Load Radius: _____
Main Boom Max. Capacity
Of Lift Point: _____
Length of Main Boom: _____
Angle of Main Boom at Pick
(Deg.) _____
Angle of Main Boom at Set
(Deg.) _____

JIB to be Used **( ) YES** **( ) NO**
No. of Sections: _____
Jib Size: _____
Jib Length: _____
Jib Type: _____
Jib Offset Angle: _____
Jib Capacity of line @ Parts: _____
Jib Max. Load Radius: _____
Jib Max. Capacity of Lift Point: _____
Jib Length of Boom: _____

Jib Angle of Boom at Pick (Deg.) _____
Jib Angle of Boom at Set (Deg.) _____
Ground Compact & Type of
Stable ( ) Yes ( ) No Surface: _____
Structural Supports Required: ( ) Yes ( ) No
Size: _____

5. LIFT WEIGHT DATA AND CALCULATIONS

Weight of Load to be Lifted: _____
Max. Load Line Weight: _____
Load Block Weight: # _____
Rigging-Lifting Beams Qty: ____ #_____
Rigging-Slings: Qty: ____ # _____
Type: _____ Capacity: # _____
Rigging-Shackles: Qty: ____ # _____
Type: _____ Capacity # _____

Other: # _____
Down Haul Weight: # _____
Jib Stow: ( ) Yes ( ) No # _____
Weight of Crane Components: # _____
Total Weight of Lifted Load & Crane Components: # _____

Total Weight Plus Factor Of 1.10 # _____

PERCENT CAPACITY THIS LIFT:
% _____

**** If total weight percentage capacity is 75% of the rated capacity of the selected crane (or greater), the following lift is considered a Critical Lift ****

6. LIFT ADMINISTRATION CHECKLIST

Has pre-lift meeting been held with signal person(s)/rigger/operator/site superintendent? ( ) Yes ( ) No
Operators Name: print: _____ sign: _____
Operators Certification Card (must be current) ( ) Yes ( ) No
Signal Person Name: print: _____ sign: _____
Rigging Person Name: print: _____ sign: _____
Communication will be held by: **HAND** / **RADIO** or **OTHER** (please insert on line) _____
Has JHA been Completed? ( ) Yes ( ) No
Has Swing Clearance been Checked? ( ) Yes ( ) No
Has Area been Checked for Safety Entry and Exit? ( ) Yes ( ) No
Tag Lines are to be used: Description **( ) Diameter ( ) Length Location:** _____
Pre-Lift Huddle performed for last minute safety check? ( ) Yes ( ) No
Does this lift meet the definition of a Critical Lift (**see definable critical lift reg. below**) ( ) Yes ( ) No

Potential Hazards To Be Addressed:

Weather: ( ) Yes ( ) No If Yes, please explain: _____
_____

Electricity: ( ) Yes ( ) No If Yes, please explain: _____
_____

What is the Wind Speed? _____ ( ) **15 mph** consider shutting down lift ( ) **20 mph** cancel lift

Ground: ( ) Yes ( ) No If Yes, please explain: _____
_____

Surrounding Obstacles: ( ) Yes ( ) No If Yes, please explain: _____
_____

Is evacuation of areas inside the building necessary to facilitate the lift? ( ) Yes ( ) No If Yes, please explain:
_____
_____

Person Responsible for the Lift (Operator) _____

7. Signatures of Plan Developers

	Print	Signature	Date
Site Superintendent:			
Other:			

Critical Lifts: **a**. Lifts involving hazardous materials (e.g., explosives, highly volatile substances); **b**. Hoisting personnel with a crane or hoist; **c**. Lifts made with more than one crane; **d**. Lifts where the center of gravity could change; **e**. Lifts the operator believes should be considered critical; **f**. Lifts made when the load weight is 75% of the rated capacity of the crane load chart or more (not applicable to gantry, overhead or bridge cranes); **g**. Lifts without the use of outriggers using rubber tire load charts; **h**. Lifts using more than one hoist on the same crane or trolleys; **i.** Lifts involving non-routine or technically difficult rigging arrangement (to include lifts involving Multiple Lift Rigging; **j**. Lifts involving submerged loads (EXCEPTION: lifts that were engineered to travel in guided slots throughout the lift and have fixed rigging and/or lifting beams, i.e., intake gates, roller gates, tailgates/logs,); **k**. Lifts out of the operator's view; EXCEPTION: if hand signals via a signal person in view of the operator or radio communications are available and in use, load does not exceed two tons AND is determined a routine lift by the lift supervisor.

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WOHLSEN
CONSTRUCTION

Demolition: Preparatory Operations Guidance

Before any demolition work begins, there are requirements to take in order to plan and prepare the work to be done safely. How the job will be coordinated, structure to be taken down, equipment needed to perform the work and safety planning are all essential for a successful demolition operation. All planning and preparatory work must be done by a Competent Person who has experience, training and authority to stop work in all phases of the demolition to be completed.

The American National Standards Institute (ANSI) in its ANSI A10.6-1983 - *Safety Requirements For Demolition Operations* states:
"No employee shall be permitted in any area that can be adversely affected when demolition operations are being performed. Only those employees necessary for the performance of the operations shall be permitted in these areas."

Specific preparatory operations that must be completed prior to demolition work include the following:

* Engineering Survey

* Utility Location

* Medical Services and First Aid

* Fire Prevention and Protection

Wohlsen teammates are to confirm that proper preparatory operations for demolition work have been taken and refer to the requirements as listed for each section. If a Wohlsen Competent Person is required to complete the Engineering Survey, the Full Wohlsen Pre-start Demo Survey form is to be used. This form is located on SharePoint at the Safety page under Forms, Demolition Forms.

Engineering Survey

OSHA's standard 29 CFR 1926.850(a) requires an engineering survey of the structure(s) to be demolished be completed by a Competent Person prior to any work taking place. Wohlsen project teams will request this survey from any contractor performing demolition work during the pre-installation meeting and be provided a copy for review and approval. The contractor performing demolition must maintain the survey and update as needed if conditions change.

The survey must be documented and include:

* Analysis of the condition of framing, floors and walls to ensure proper measures are taken to prevent collapse of any part of the structure

* Analysis of adjacent structures that are connected to, share a common wall or in proximity of the building being demolished where equipment or operations may impact the structural integrity

Wohlsen works.
548 Steel Way, P.O. Box 7066
Lancaster, PA 17604-7066
Phone 717-299-2500 • Fax 717-299-3419
WohlsenConstruction.com

* Pictures of existing damage in the building to be demolished and any adjacent structures prior to the start of work

* Analysis of the project from start to finish that includes plans for removal of the structure, equipment and manpower required to perform the work and protection of the public with safety of all workers a primary focus

* Planning for potential hazards such as injuries, fires and cave-ins from the demolition work

* Shoring or bracing protection against existing damage such as flood, fire or other events that may have compromised the condition of the building

* Determination if any hazardous chemicals or dangerous substances have been used or stored in the demolition site and samples of any materials that may be hazardous

* Requirements for safety equipment including Personal Protective Equipment (PPE), fall protection, fire protection, warning signs and confined spaces

Utility Location

***** Location of all utility services must be completed and confirmation they have been shut off, capped or controlled prior to demolition work starting and notification to the appropriate Utility companies involved for services or approval of demolition work

* Any utilities that are to be maintained during demolition must be located and protected from damage during demolition, including overhead power sources, with notification to all workers involved in the work

Medical Services and First Aid

* In the event of injury, prompt medical attention must be available and the location of the nearest medical service provider must be identified as part of the engineering survey

* Project supervisors should have directions to these facilities and ensure proper equipment to transport an injured worker is available, along with posting phone numbers for emergency services and medical providers

* Someone certified in First Aid/CPR is on site and available to provide attention to injured workers

* Fully stocked first aid kit from a professional provider that meets requirements from an occupational physician on site and maintained during all phases of demolition

* Contact information for local police, ambulance and fire departments must be posted at the project

Fire Prevention and Protection

***** A plan that outlines the assignments of key personnel in the event of a fire and includes evacuation procedures must be set up prior to demolition work starting

* This plan must include:

- Identification of all potential ignition sources with plans for corrective action

- Electrical wiring for temporary power or heat installed and inspected frequently by a Competent Person

- Planning for position of equipment with internal combustion engines to be located away from workers and combustible materials and engines to be shut down prior to refueling in a safe location

- Proper firefighting equipment must be present near flammable or combustible storage areas with approved containers or all flammable or combustible liquids

* Temporary heat equipment shall be secured to prevent displacement and located away from combustible materials

* Smoking is prohibited in all work areas

* Storage of combustible materials must be minimized and not interfere with vehicle or pedestrian traffic

* Emergency plans must be maintained at the project trailer or office and include access for emergency equipment

* Free access from the street to fire hydrants and to outside connections for standpipes, sprinklers, or other fire extinguishing equipment, whether permanent or temporary, should be provided and maintained at all times, as follows:

  - Pedestrian walkways should not be so constructed as to impede access to hydrants.
  - No material or construction should interfere with access to hydrants, Siamese connections, or fire-extinguishing equipment.

* A temporary or permanent water supply of volume, duration, and pressure sufficient to operate the fire-fighting equipment properly should be made available

* Standpipes with outlets should be provided on large multi-story buildings to provide for fire protection on upper levels

* An ample number of fully charged portable fire extinguishers should be provided throughout the operation

* All motor-driven mobile equipment should be equipped with an approved fire extinguisher

* An alarm system, e.g., telephone system, siren, two-way radio, etc., shall be established in such a way that employees on the site and the local fire department can be alerted in case of an emergency

* The alarm code and reporting instructions shall be conspicuously posted and the alarm system should be serviceable at the job site during the demolition

* Fire cutoffs shall be retained in the buildings undergoing alterations or demolition until operations necessitate their removal

WOHLSEN CONSTRUCTION

NATIONAL DEMOLITION ASSOCIATION
PROJECT PRE-START SURVEY

PROJECT INFORMATION

Project Name_____ Project Number _____

Project Location_____ City_____

Legal Description:

_____

_____

_____

_____

_____

Plat # _____

State_____ Zip Code_____ County_____

Client_____

Client Address _____

_____

Contact(s)_____ Phone #_____

Owner_____

Owner Address _____

Owner Representative_____ Phone # _____

Required Project Meetings include Dates and Times:

Prestart_____

_____

Production_____

_____

Safety_____

_____

Description of Work to be Performed:

_____

_____

_____

_____

Is a SCOPE OF WORK included with the Project Survey? YES___ NO

_____

PROJECT SURVEY

Section #1

DESCRIPTION OF STRUCTURE(S) TO BE REMOVED OR ALTERED: (Include separate page for each structure)

Name of Structure_____Date of Construction ____/____/____

Location on Site_____

Original Function_____

Length of Structure_____Width_____Height _____Basement Depth_____

Structural Framing Construction and Material _____

Foundation Construction and Material _____

Roof Construction and Material _____

Wall Construction and Material _____

Floor Construction and Material _____

Floor loading Design-lb/sq. ft _____

STRUCTURAL CONDITIONS

Structural Alterations Yes ___No___ Locations _____

Unusual Structural Conditions Yes ___No___ Locations _____

Pre-Stressed Concrete Yes ___No___ Locations_____

Post-Tensioned Concrete:

With Grouted Tendons Yes ___No___ Locations _____

Without Grouted Tendons Yes ___No___ Locations _____

KNOWN STRUCTURAL HAZARDS

Physical Damage Yes_____No_____Locations_____

Structural Failures Yes_____No_____Locations_____

Fire Damage Yes_____No_____Locations _____

ADJACENT STRUCTURES

Describe Structure & Conditions _____

Location on Project _____

Describe Structure & Conditions _____

Location on Project _____

Describe Structure & Conditions _____

Location on Project _____

Describe Structure & Conditions _____

Location on Project _____

ENGINEERING SURVEY

STRUCTURES

STRUCTURE, UTILITIES AND SITE CONDITIONS

STRUCTURAL STABILIZATION

Temporary Structural Stabilization Required Yes_____ No_____

Comments_____

Structural Failure Prevention Plan _____

_____

_____

_____

Floors and Roof Shoring Plan _____

_____

_____

_____

Wall Shoring or Bracing Plan _____

_____

_____

_____

Overhead Protective Structures or Scaffold Locations Plan _____

_____

_____

UTILITIES

UTILITIES TO REMAIN INTACT AND PROTECTED

Describe Utility _____

Location on Project _____

Describe Utility _____

Location on Project _____

Describe Utility _____

Location on Project _____

Describe Utility _____

Location on Project _____

Describe Utility _____

Location on Project _____

UTILITIES TO BE RELOCATED

Telephone/Cable Relocation	Yes___ No___	subcontracted	Yes___	No___
Natural gas relocation	Yes___ No___	subcontracted	Yes___	No___
Electrical relocation	Yes___ No___	subcontracted	Yes___	No___
Direct current relocation	Yes___ No___	subcontracted	Yes___	No___
Potable water relocation	Yes___ No___	subcontracted	Yes___	No___
Industrial water relocation	Yes___ No___	subcontracted	Yes___	No___

SITE CONDITIONS

Roadways to be Maintained Yes _____ No _____

Locations_____

Comments_____

Roadways to be Temporarily Relocated Yes _____ No _____

Locations_____

Comments_____

Pedestrian Traffic to be Maintained Yes _____ No _____

Locations_____

Comments_____

Pedestrian Traffic to be Temporarily Relocated Yes _____ No _____

Locations_____

Comments_____

Temporary Pedestrian Protection Canopy Yes _____ No _____

Locations_____

Comments_____

Security Closure Yes _____ No _____

Locations_____

Comments_____

Temporary Fencing Yes _____ No _____

Locations_____

Comments_____

Silt Fencing Required Yes _____ No _____

Locations_____

Comments_____

Storm Water Runoff Plan Needed Yes____No _____

Locations_____

Comments _____

Storm Water Runoff Plan Completed Yes____No_____Date_____/____/____

Comments _____

Other _____

_____

_____

_____

_____

_____

_____

Project Survey Completed By

_____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

PROJECT SURVEY

Section # 2
SAFETY AND ENVIRONMENTAL

SPECIAL SAFETY REGULATIONS **PROJECT #**_____

_____

_____

_____

_____

_____

_____

WORK ZONE SAFETY

Work Zone Traffic Control Plan Completed Yes____No_____Date_____/____/____

Temporary Traffic Control Barricades Yes____No _____

Locations_____

Comments_____

Temporary Traffic Control Signage Yes No _____

Locations_____

Comments _____

UTILITY PROTECTION AND PRESERVATION

Underground Piping Yes____No _____

Locations_____

Underground Storage Tank Yes____No _____

Locations_____

Underground Electrical Ducts Yes____No _____

Locations_____

Water Lines Yes____No_____Yes_____No _____

Locations_____

Oxygen Lines Yes____No_____Yes_____No _____

Locations_____

Natural Gas Lines Yes____No_____Yes_____No _____

Locations_____

Telephone and Communication Lines Yes____No_____Yes_____No _____

Locations_____

Aerial Electrical Systems Yes____No____Yes____No____

Locations_____

Electrical Conduits Yes____No_____Yes____No _____

Locations_____

Transformers Yes____No_____Yes____No _____

Locations_____

Manholes Yes____No_____Yes____No _____

Locations_____

Underground Vaults Yes____No_____Yes____No _____

Locations_____

SAFETY HAZARDS

Common or Party Walls Yes____No ____

Location on Site _____

Control Measures _____

Energized Electrical Equipment Yes____ No ____

Location on Site _____

Control Measures _____

Combustible Materials Yes____ No ____

Location on Site _____

Control Measures _____

Flammable Materials Yes____ No ____

Location on Site _____

Control Measures _____

Explosion Hazards Yes____ No ____

Location on Site _____

Control Measures _____

Existing Openings & Fall Hazards Yes____No _____

Location on Site _____

Control Measures _____

Basements and Pits Yes____No _____

Location on Site _____

Control Measures _____

Trenches & Excavation Exposures Yes____ No ____

Location on Site _____

Control Measures _____

Confined Spaces Yes____ No ____

Location on Site _____

Control Measures _____

Process Piping & Tanks Yes____ No ____

Location on Site _____

Control Measures _____

Toxic Substances Yes____ No ____

Location on Site _____

Control Measures _____

ENVIRONMENTAL HAZARDS

Mercury Vapor Lamps:

Count _____

Location_____

Quantity _____

Sodium Vapor Lamps:

Count _____

Location_____

Quantity _____

Fluorescent Lamps:

Count _____

Location_____

Quantity 2ft_____4ft_____8ft_____U Shape _____

Ballasts:

Count _____

Location_____

Total Weight_____Non-PCB_____Suspected PCB _____

PCB Transformers:

Count _____

Location _____

Total Gallons _____

Total Weight _____

Highest PCB Concentration _____

Removal Methods _____

Transport & Disposal _____

PCB Capacitors:

Count _____

Location _____

Removal Methods _____

Transport & Disposal _____

Switches, Thermostats and Relays:

Count _____

Location _____

Removal Methods _____

Transport and Disposal _____

Emergency Exit Signs:

Count _____

Location _____

Removal Methods _____

Transport and Disposal _____

Contained Oil:

Quantity _____

Location _____

Contaminants _____

Transport & Disposal _____

Spilled Oil:

Quantity _____

Location _____

Contaminants _____

Removal Methods _____

Transport & Disposal _____

Grease:

Quantity _____

Location _____

Contaminants _____

Removal Methods _____

Transport & Disposal _____

Other Lubricants:

Quantity _____

Location _____

Contaminants _____

Removal Methods _____

Transport & Disposal _____

Drums & Container:

Count _____

Contents _____

Location _____

Contaminants _____

Removal Methods _____

Transport & Disposal _____

Tanks & Carboys:

Count _____

Contents _____

Location _____

Contaminants _____

Removal Methods _____

Transport & Disposal _____

Residual & Process Waste:

Vessel or Tank:

Count _____

Contents _____

Location_____

Contaminants_____

Removal Methods _____

Transport & Disposal _____

Brick or Refractory:

Count _____

Contents _____

Location_____

Contaminants_____

Removal Methods _____

Transport & Disposal _____

KNOWN HAZARDOUS MATERIALS

Reported Quantity of Asbestos Containing Material (ACM)

ACM description _____

Friable_____

Quantity _____

Location_____

Non-Friable _____

Quantity _____

Location _____

ACM Gaskets & Seals:

Count _____

Location_____

Quantity _____

SDS Listing from Last Operator Yes___ No ____

Hazardous SDSs _____

Describe Material _____

Location_____

Hazardous Constituents _____

Control Measures _____

Removal Methods _____

Containment Measures _____

SDS Listing from Last Operator Yes___ No ____

Hazardous SDSs _____

Describe Material _____

Location_____

Hazardous Constituents _____

Control Measures _____

Removal Methods _____

Containment Measures _____

Control Measures _____

Site Safety Hazard Survey Completed By

_____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

PROJECT SURVEY

UTILITY LOCATES and DISCONNECTS

Section # 3

PUBLIC UTILITIES LOCATES **PROJECT #**_____

DIG # _____

Site Address: _____

County:_____Cross Street: _____

Contact: _____

Scheduled Locate Date:_____/_____/_____ Locate Good Until:_____/_____/_____

PUBLIC UTILITIES DISCONNECT **PROJECT #**_____

NATURAL GAS UTILITIES:_____ **PH: #**_____

Meter / Unit #_____ Date of Notification _____/_____/_____

Site Address: _____

County:_____Cross Street: _____

Person Notified: _____

Scheduled Disconnect Time & Date _____ _____/_____/_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Completed # _____/_____/_____

Verification Completed Disconnect: _____

PUBLIC UTILITIES DISCONNECT **PROJECT #**_____

ELECTRIC CO. UTILITIES:_____ **PH: #**_____

Meter / Unit #_____ Date of Notification _____/_____/_____

Site Address: _____

County:_____Cross Street: _____

Person Notified: _____

Scheduled Disconnect Time & Date _____ _____/_____/_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

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FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Completed #_____/_____/_____

Verification Completed Disconnect: _____

PUBLIC UTILITIES DISCONNECT **PROJECT #**_____

TELEPHONE UTILITY: PHONE SERVICES **PH: #** _____

Meter / Unit #_____ Date of Notification _____/_____/_____

Site Address: _____

County:_____Cross Street: _____

Person Notified: _____

Scheduled Disconnect Time & Date _____ _____/_____/_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Completed #_____/_____/_____

Verification Completed Disconnect: _____

PUBLIC UTILITIES DISCONNECT **PROJECT #**_____

CABLE SERVICE COMPANY

NAME:_____ **PH: #**_____

NAME: _____ **PH: #**_____

Meter / Unit #_____ Date of Notification ____/____/____

Site Address: _____

County:_____Cross Street: _____

Person Notified: _____

Scheduled Disconnect Time & Date _____ ____/____/____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Completed #_____/____/____

Verification Completed Disconnect: _____

PUBLIC UTILITIES DISCONNECT **PROJECT #**_____

WATER DEPARTMENT:_____**PH: #**_____

Un-paid Water Cost: $ _____ Disconnect Fee: $ _____

Meter / Unit #_____ Date of Notification ____/____/____

Site Address: _____

County:_____Cross Street: _____

Person Notified: _____

Scheduled Disconnect Time & Date _____ ____/____/____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

PRIVATE UTILITIES DISCONNECT

PRIVATE UTILITIES DISCONNECT **PROJECT #**_____

WATER/WELL DISCONNECT

Site Address: _____

County:_____Cross Street: _____

Date of Contact_____/_____/_____ Scheduled Disconnect Date _____/_____/_____

ESTIMATED COST: $_____ **OTHER FEE: $** _____

SUBCONTRACTOR:_____

CONTACT:_____**PH: #**_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

FOLLOW UP

Person Notified & Date_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Done #_____ _____/_____/_____

Verification Completed By _____

PRIVATE UTILITIES DISCONNECT **PROJECT #**_____

SEWER DISCONNECT

Site Address: _____

County:_____Cross Street: _____

Date of Contact_____/_____/_____ Scheduled Disconnect Date _____/_____/_____

ESTIMATED COST: $_____ **OTHER FEE: $** _____

SUBCONTRACTOR_____

CONTACT:_____**PH: #**_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Done #_____ _____/_____/_____

Verification Completed By _____

PRIVATE UTILITIES DISCONNECT **PROJECT #_____**

SEPTIC DISCONNECT

Site Address: _____

County:_____Cross Street: _____

Date of Contact_____/_____/_____ Scheduled Disconnect Date _____/_____/_____

ESTIMATED COST: $_____ **OTHER FEE: $ _____**

SUBCONTRACTOR: _____

CONTACT:_____PH: #_____

FOLLOW UP

Person Notified:_____Date:_____

Comments _____

_____

Conformation # & Date Disconnect Done #_____ _____/_____/_____

Verification Completed By _____

Disconnect Form Completed By

_____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

PROJECT SURVEY

Section # 4

LICENSING, PERMITTING,

PROJECT #_____

LICENSE

CONTRACTOR LICENSE

Licensing Agency _____

Address of Agency _____

_____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / License Number ____/____/____ #_____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

BONDS

SURETY OR L&P BOND

Bonding Agency _____

Address of Agency _____

_____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Bond Number ____/____/____ # _____

Bond Amount _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued /Bond Number ____/____/____ #_____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

PERMITTING

COUNTY OR DISTRICT DEMOLITION / BUILDING PERMIT

Permitting Agency

Address of Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Bond Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

CITY OR MUNICIPALITY DEMOLITION / BUILDING PERMIT

Permitting Agency _____

Address of Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

PUBLIC PLACE OBSTRUCTION PERMIT

Permitting Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Special Permit Conditions _____

PERMITTING

STREET USE PERMIT

Permitting Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Special Permit Conditions _____

ALLEY USE PERMIT

Permitting Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Special Permit Conditions _____

WALKWAY / PARKWAY PERMIT

Permitting Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Special Permit Conditions _____

PERMITTING

FIRE HYDRANT USE PERMIT

Permitting Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Special Permit Conditions _____

MISCELLANEOUS PERMITS

Permitting Agency _____

Agency Contact Person _____

Contact Telephone Number _____ Ext # _____

Application Submitted By _____ Title _____

Date Submitted / Fee Paid ____/____/____ Fee $ _____

Date Issued / Permit Number ____/____/____ # _____

Effective Date / Expiration Date ____/____/____ Exp Date ____/____/____

Special Permit Conditions _____

Permit Form Completed By

_____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

PROJECT SURVEY

Section #5

REQUIRED REGULATORY NOTIFICATION

NOTIFICATIONS **PROJECT #**_____

ENVIRONMENTAL FILING

FED/STATE EPA NOTIFICATION:

Name of Agency _____

Address of Agency _____

Time & Date Written Notifications _____ ____/____/____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Target Start Date / Completion Date ____/____/____ ____/____/____

Amount of Fee Paid/Time & Date _____ ____/____/____

ENVIRONMENTAL FILING

COUNTY EPA NOTIFICATION

Name of Agency _____

Address of Agency _____

Time & Date Written Notifications _____ ____/____/____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Target Start Date / Completion Date ____/____/____ ____/____/____

Amount of Fee Paid/Time & Date _____ ____/____/____

ENVIRONMENTAL FILING

CITY EPA NOTIFICATION:

Name of Agency _____

Address of Agency _____

Time & Date Written Notifications _____ ____/____/____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Target Start Date / Completion Date ____/____/____ ____/____/____

Amount of Fee Paid/Time & Date _____ ____/____/____

WOHLSEN CONSTRUCTION

NON-ENVIRONMENTAL FILING

Name of Agency _____

Address of Agency _____

Time & Date written notifications _____ _____/_____/_____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Time & Date of Telephone Notification _____ _____/_____/_____

Telephone Notification Completed By _____

UNDERGROUND TANK REMOVAL NOTIFICATION

Target Start Date / Completion Date _____/_____/_____ _____/_____/_____

Amount of Fee Paid/Time & Date _____ _____/_____/_____

Permit/Authorization Secured By _____

Permit Number _____

Name of Agency _____

Address of Agency _____

Time & Date written notifications _____ _____/_____/_____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Time & Date of Telephone Notification _____ _____/_____/_____

Telephone Notification Completed By _____

Target Start Date / Completion Date _____/_____/_____ _____/_____/_____

Amount of Fee Paid/Time & Date _____ _____/_____/_____

Permit/Authorization Secured By _____

OTHER REQUIRED NOTIFICATION

Name of Agency _____

Address of Agency _____

Time & Date Written Notifications _____ _____/_____/_____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Target Start Date / Completion Date _____/_____/_____ _____/_____/_____

Amount of Fee Paid/Time & Date _____ _____/_____/_____

Permit Number _____

OTHER REQUIRED NOTIFICATION:

Name of Agency _____

Address of Agency _____

Time & Date Written Notifications _____ _____/_____/_____

Written Notifications Completed By _____

Agency Contact Person & Telephone _____Ph: _____

Target Start Date / Completion Date _____/_____/_____ _____/_____/_____

Notifications Form Completed By

_____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

Reviewed By _____

Date:_____/_____/_____

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PROJECT NAME – PROJECT #

S.T.A.R (STOP - THINK - AND REVIEW) SHEET

Daily Safety Review of Planned Work

Company_____ Foreman_____ Date_____

(Weather Conditions) – Clear – Rainy – Windy – Snow/Ice – Freezing

Today's Work _____

Stop, Think, & Review Checklist:

1. Any new workers on site today? _____
2. Does your work involve any high hazard activities? _____
3. Does your work today involve trenching/Confined Space? _____
4. If Yes, do you need Trench Boxes or Confined Space Approval? _____
5. Does your work today require fall protection? _____
6. If yes, what methods will be used? _____
7. Does your work today involve Utilities? _____
8. If yes, are lockout/tagout procedures required? _____
9. Does your work today involve GFCI Protection? _____
10. If yes, have all cords and connections been inspected? _____
11. Does your work today affect any other trades? _____
12. If yes, have those trades been informed and coordinated? _____
13. Does your work today require inspection? _____
14. Will your work today require any coordination with others? _____
15. Does your work today involve any coordination with site traffic? _____
16. Have you inspected all of your equipment, tools, safety checks and/or any Pre-Operation checks? _____
17. What other jobsite safety hazards exist that you may encounter?

    _____
18. Please describe any other safety considerations for your work today:
19.

WCC Super/PM _____ Date: _____

WORK SMART THINK SAFE

WOHLSEN CONSTRUCTION

DAILY HUDDLE MANDATORY ATTENDANCE SIGN IN		
NAME	SIGNATURE	COMPANY

Wohlsen Competent/Qualified Person Designations Form

WOHLSEN CONSTRUCTION

An evaluation has determined that the person named below has knowledge of the systems, equipment, conditions and procedures, proper use, inspection, manufacturer's recommendations, and maintenance for the activities designated below. Consequently, this person has been designated as a "Competent and/or Qualified Person" per OSHA/state-plan/USACE/in-country requirements and delegated the responsibility and authority for coordinating activities and operations covered by the designation(s).

Company: _____

Name: _____ Employee ID No.: _____

Competent Person Designation(s)
check as appropriate:

- ☐ Aerial Lift Trainer
- ☐ Asbestos
- ☐ Cadmium
- ☐ Compressed Air (tunneling)
- ☐ Confined Space Entry
- ☐ Crane Operator
- ☐ Demolition
- ☐ Excavation, Trenching, & Shoring
- ☐ Fall Protection Equipment Inspection
- ☐ Fall Protection User Training
- ☐ Hazardous Materials Usage
- ☐ Ionizing Radiation
- ☐ Ladder Inspection (portable)
- ☐ Lead Abatement
- ☐ Respiratory Protection
- ☐ Respirable Crystalline Silica
- ☐ Rigging Inspector
- ☐ Roof Inspection
- ☐ Safety Monitor (roof)
- ☐ Scaffolds – Erection/Inspection
- ☐ Scaffolds – Erection Only
- ☐ Steel Erection
- ☐ Other _____

Qualified Person Designation(s) *check as appropriate:*

- ☐ Fall Protection System Design
- ☐ Scaffold Design
- ☐ Active First Aid Training
- ☐ (excavation/trenching) Shoring Design
- ☐ Concrete and Masonry Construction
- ☐ Active CPR Training
- ☐ Personnel Platform Design
- ☐ Crane Maintenance/Repair
- ☐ Blood Borne Pathogens Training
- ☐ Other _____

Credentials Reviewed and Verified for Designation

- ☐ Union Apprenticeship _____
- ☐ Formal Training (describe, with year completed) _____
- ☐ Years of Experience (give number of years) _____
- ☐ On-The-Job Performance (OJT, OJE) _____

The employee has reviewed the following standard(s) and safety and health practice(s), and understands the roles, responsibilities, and authority he/she will be expected to execute in accordance with the standard(s) and practice(s). *check as appropriate:*

		Standard
☐	Aerial Lift Trainer	
☐	Asbestos	
☐	Concrete and Masonry	29 CFR 1926, Subpart Q (Qualified Person Only)
☐	Confined Space Entry	
☐	Crane	
☐	Demolition	
☐	Excavation, Trenching, and Shoring	29 CFR 1926, Subpart P (Qualified Person Only)
☐	Fall Protection and Safety Monitor	29 CFR 1926, Subpart M (Qualified Person Only)
☐	Forklift	
☐	Hazardous Materials Usage	
☐	Heavy Equipment Operator/Inspector	
☐	Ladders	
☐	Lead Abatement	
☐	Respiratory Protection	
☐	Rigging/Rigging Inspection	29 CFR 1926.753
☐	Respirable Crystalline Silica	29 CFR 1926.1153
☐	Scaffolds (all designations)	29 CFR 1926, Subpart L (Qualified Person Only)
☐	Steel Erection	29 CFR 1926, Subpart R (Wohlsen's policy is 100% tie-off, not 15' as stated in the standard)

Signatures: _____ Date: _____
Competent/Qualified Person

_____ Date: _____
Foreman/General Foreman/Superintendent/Supervisor

_____ Date: _____
Construction Manager/Project Manager/Engineering Manager

COMPETENT/QUALIFIED PERSON DESIGNATION FORM INSTRUCTIONS

Read the statement at the top of the Competent/Qualified Person Designation Form.

Employee Information:

Company:	Write the name of the company.
Name:	Print the employee's full name.
Employee ID No.:	Clearly write the employee's Company ID, Social Security number, or other personal identifier in the space provided.

Competent Person Designation(s):

Check the box to indicate which area the employee is being designated as a "Competent Person." (More than one box may be checked.)

Qualified Person Designation(s):

Check the box to indicate which area the employee is being designated as a "Qualified Person." (More than one box may be checked.)

Credentials Reviewed and Verified for Designation: **(Completion of this section is mandatory. Be as detailed as possible — list specifics.)**

Review and verify the credentials of the employee.

List any applicable formal training in the space provided.

List the number of years of experience the employee has relevant to the Competent and/or Qualified Person designations marked above.

Check the appropriate box if the employee has completed a union apprenticeship.

List any applicable informal training.

Check the appropriate box if the designation is based on "On-The-Job" Performance.

Standards and Practices Training: (Completion of this section is mandatory.)

Ensure the employee has read the relevant standards and safety and health practices governing the designations marked in the sections above.

Ensure the employee fully understands the roles, responsibilities, and authority he/she will be expected to execute.

Check the box indicating which standards and practices the employee read during the designation process.

Signatures:

The Competent/Qualified Person must sign and date the form accepting the responsibilities associated with the designations.

The employee's foreman, general foreman, or superintendent should sign and date the form acknowledging the designation. (This signature is not mandatory.)

The construction, project, or engineering manager must sign and date the form.

COMPETENT PERSON STRATEGY

BACKGROUND

1. Competent Person is a specifically defined designation from the U.S. Army Corps of Engineers, federal OSHA, state-plan OSHA standards, and in-country standards and MUST NOT BE CONFUSED with a person who is competent or qualified (proficient and/or trained) to perform a job/activity. The same is true for a Qualified Person.

2. Competent Persons must be designated in accordance with safety and health practice for the following tasks/activities:

- Aerial Lift Trainer
- Asbestos
- Cadmium
- Compressed Air (tunneling)
- Confined Space Entry
- Demolition (large scale)
- Excavation, Trenching and Shoring
- Fall Protection – Equipment Inspection
- Fall Protection – User Trainer
- Hazardous Materials Usage
- Hearing Protection/Conservation
- Ionizing Radiation
- Ladder Inspection (portable)
- Lead Abatement
- Respirable Crystalline Silica
- Respiratory Protection
- Rigging Inspector
- Roof Inspector
- Safety Manager
- Safety Monitor (roof)
- Safety Officer
- Safety Technician
- Safety Trainer
- Scaffold Erection
- Scaffold Inspection
- Steel Erection

3. Qualified Persons must be designated for the following tasks/activities:

- Concrete/Masonry Construction
- Crane Maintenance/Repair Person
- (excavation and trenching) Shoring Design
- Fall Protection System Design
- Hoisting and Rigging – Personnel Platform Design
- Scaffold Design

4. A Competent/Qualified Person designation is predicated on an individual being exceptionally well qualified in his/her subject area, and NOT SIMPLY training, education, experience, or on-the-job training in and of themselves.

5. A Competent/Qualified Person must demonstrate he/she is (a) highly knowledgeable on the subject, and (b) capable of using consistently good judgment in carrying out the appointed responsibilities in the subject area; one may be competent, and not be a Competent Person.

6. We should LIMIT THE NUMBER of Competent Persons to no more than three per craft, per subject area, per project – less if possible/appropriate. An exception may be in the subject areas such as scaffold inspection and excavation, trenching and shoring.

7. In most cases, a Competent/Qualified Person should be considered Competent from one project to another – however, this is the project/construction manager's call.

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"Nothing we do is more important than planning and conducting our activities safely."

Safety & Health Manual

WOHLSEN
CONSTRUCTION

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WOHLSEN CONSTRUCTION

Our Vision

A relentless pursuit of excellence, service and results for our clients.

Our Values

Safety *Nothing we do is more important than planning and conducting our activities safely.*

Integrity *Building trust through everything we do.*

Accountability *We deliver on our commitments.*

Continuous Improvement *We have a passion to improve our performance through listening, learning, and innovation.*

Collaboration *Generating success through a team oriented approach.*

Safety Vision Statement

We are uncompromising in our relentless commitment to the safety and health of our team members that include subcontractors, clients and communities.

Key components of our desired safety culture are listed below:

Leadership: All teammates are Empowered AND Motivated safety leaders

- Ensure Safety remains our #1 Value
- Personal commitment demonstrated through consistent actions, active participation in safety initiatives and teammate engagement
- Proactive approach towards safety in all areas of our business

Education: Wohlsen promotes and teammates pursue advancing safety knowledge

- Wohlsen's Safety Vision Statement is incorporated in all training and education programs
- Training programs designed to engage and motivate teammates
- Team driven training to develop and maintain knowledge, skills and safety attitude
- Continued education in safety is a requirement of career development

Processes: Clearly defined, communicated and understood

- Processes are aligned with our #1 value and promote the Safety Vision Statement
- Systems in place to monitor the level of execution of safety processes
- Processes focus on promoting safety behavior of all teammates to achieve an incident free environment
- Project Teams are empowered and encouraged to further enhance specific safety program requirements
- Pre-planning, operations and production are consistent with Safety Vision Statement

Evaluations: Performed consistently and timely with transparent reporting focused on improvement

- Periodic measurement of progress towards Safety Strategic Plan implementation
- Data captured through Inspections/Audits used to identify improvement opportunities
- On-going evaluation, rating and access to vendor performance data

Investigations: Excellent opportunity for team development through lessons learned

- Team driven investigations based on clearly defined expectations
- Investigations are conducted with a win – win approach
- Root cause and corrective actions identified on every incident and near miss
- Knowledge sharing system in place for efficient and timely communication of lessons learned

Goals: Relentless pursuit of Safety Vision Statement

- Goals clearly defined, communicated and in support of Safety Vision Statement
- Goals based on safety implementation performance, not incidents
- Incident free environment is a belief (commitment)

WOHLSEN CONSTRUCTION

Wohlsen's Commitment to Safety

Nothing we do is more important than planning and conducting our activities safely.

Safety Program

Wohlsen has a formal Safety and Health Program which is administered by the Safety and Health Department (right) and executed by each project team in the field.

While the Safety and Health Department is responsible for the administration of the program, it is the responsibility of all Wohlsen Construction team members, from the senior executive level to field craft labor, to ensure that the requirements and provisions of the program are executed on a daily basis. Safety is our number one value as a company and it influences all our decisions.

Safety Culture

Wohlsen Construction has both a vision for the Safety and Health Program as well as a formal policy statement developed and endorsed by the senior management of the company. The vision and policy are as follows:

- Safety will be incorporated in all decisions and activities.
- Every employee is empowered to act and stop or prevent unsafe work activities.
- Wohlsen will be a preferred employer for workers seeking safe and healthy work conditions.
- Wohlsen's safety culture and results will help promote a favorable competitive position.

Safety Team

Adam Brown, CSP, CESCO
Safety Director
Lancaster, PA

BS in OSHM from Millersville University
15+ years construction safety experience

Jeff Bruso, CHST
Safety Manager
New Jersey/Connecticut

BA from Monmouth University
15+ years construction safety experience

Alan Houck, ASP, CHST
Safety Manager
Pennsylvania

BS from Mansfield University of PA
10+ years field safety & health experience

Wess Donahue, CUSP, CQCM
Safety Manager
Delaware/Maryland

BS & BAS from Rutgers University
12+ years of field safety experience

Wohlsen's Safety & Health Policy
Management considers no phase of operations or administration of greater importance than loss prevention and believes that incidents which result in personal injury and/or damage to property and equipment represent needless waste and loss. Therefore, it is Wohlsen's expectation to conduct all operations safely, thereby preventing injuries to employees and damage to property. Planning for safety will be incorporated into all phases of the company's work. A project-specific safety plan will be developed to improve understanding of expectations and execution of work being performed. Pre-installation meetings will be scheduled with subcontractors with emphasis on safety, scope of work and schedule.

It is the policy and primary responsibility of all Wohlsen employees to develop and maintain safe and healthy workplace conditions for all Wohlsen employees, Wohlsen subcontractors, the public and environment. Wohlsen is committed to planning and completing construction to protect the environment and communities where we are working. This will be accomplished through site-specific safety plans, safety training, information, programs, procedures and policies as outlined in this manual or as developed for job specific conditions. All subcontractors are expected to abide by the provisions of the Wohlsen Safety & Health Manual and site-specific safety program.

Loss Control Principle
Construction is a dangerous occupation. Situations involving potentially hazardous conditions can occur if preventative measures are not taken. It is important to be alert to these potential conditions and to respond with safety in mind at all times.

The principle of loss control is based on the importance of preventing injuries to our employees, promoting conservation of property and preserving the earning potential of employees and the company. It requires all employees to have a personal concern for the protection of life and property.

Incident and accident prevention and property conservation measures will be integrated with operating functions as prime responsibilities of all employees. Supervisors are responsible for maximizing the prevention of incidents in work areas or projects under their direction and are further responsible for thorough safety and incident control and instruction of their employees. In addition, all supervisory personnel are responsible for being alert to, identifying, and correcting potential safety hazards.

The basic objective of the policy is to establish, throughout the entire organization, the firm and fully accepted concept that people and property are our most important company assets, and conservation will receive top priority support and participation.

Wohlsen's Safety and Health Policy has been signed and endorsed by Senior Leadership.

Section 1 Roles & Responsibilities

Wohlsen Leadership – Clear and consistent direction of safety as Wohlsen's #1 Value
Project Executive – Empower the Project Team to execute our Safety Vision and Values
Wohlsen Project Team – Ensure 100% implementation of Wohlsen's safety program
Wohlsen Safety Team – Support the project team and administer Wohlsen's safety program

Section 2 Fit for Duty

In order to provide a safe workplace, employees must be able to perform the essential duties of their jobs in a safe, secure, productive and effective manner without presenting safety hazards to themselves, other employees or the public. A fitness for duty exam can determine if the employee is physically and/or psychologically able to safely perform their current role.

Section 3 Ergonomics/Office Safety

Ergonomics - fitting a job to a person - can help prevent employees from experiencing musculoskeletal disorders. When working in an office environment, employees could experience injuries if they do not take the proper steps.

When working at a desk, position monitors slightly above your eye level. Increase the font size on your computer to avoid straining your eyes. Use an adjustable chair, stand and stretch periodically and reposition your keyboard, monitor or chair to stay flexible.

Never stand on a chair to reach something overhead. Always get a proper A-frame ladder or ask for help. Make sure all carpets are laid flat to prevent trips and falls. Use a headset for frequent or prolonged phone use to avoid neck strain. Be sure to maintain a clean and orderly work station to prevent tripping hazards. Avoid running electrical cords under carpet or through windows and doorways. Also, don't fasten them with unapproved devices, such as staples. When handling materials, always bend with your knees, get help for heavy or bulky items and be sure you have a clear path of travel. Be sure to shut file cabinet doors after use to prevent a tripping hazard. Never block access to exit doors or prop open fire doors and know your emergency evacuation procedures.

Section 4 Wohlsen Safety Orientation

Wohlsen believes that communication and the understanding of expectations are critical components in any effective safety and health program. All Wohlsen employees are required to participate in Safety Orientation.

The orientation program is designed to provide company-specific safety information, requirements, rules, and expectations to Wohlsen employees.

Every project will also have a Site-Specific Safety Orientation. All Wohlsen employees, subcontractors, and client representatives will be required to participate in the orientation. The orientation program is not intended to represent or replace the safety training responsibilities of employers of employees working on a Wohlsen project. It is the responsibility of each subcontractor, lower-tier contractor, supplier and vendor to ensure that their employees have

been properly trained in accordance with any/all local, state and federal laws, codes or regulations covering their operations and scope of work.

Project-Specific Orientation Process

- A Wohlsen-authorized orientation trainer will provide the Project-Specific Safety Orientation to all Wohlsen employees, subcontractors, vendors and suppliers on the project PRIOR to their work beginning.

- The orientation trainer will ensure that all participants complete and sign the orientation acknowledgment form.

- A numbered site-specific orientation sticker will be provided to each attendee. The orientation sticker is valid for the length of the project and is not transferable to other Wohlsen projects.

- The sticker number and corresponding name will be entered in an orientation and observation tracking log.

Section 5 Hazard Communication Program

Wohlsen Construction Policy

It is the policy of Wohlsen Construction to ensure that information about the dangers of all hazardous chemicals used by Wohlsen Construction is known by all affected employees. The following hazardous communication program has been established to facilitate the dissemination of information. All field and office employees will participate in the hazard communication program. This written program will available at the project site or Wohlsen office for review or reference.

Training Program

Employees will be provided with information and training on hazardous chemicals in their work area at the time of their initial assignment and/or whenever a new chemical hazard is introduced into their work area. Information on specific chemicals or categories of hazards is to be included in the training. Proper container labeling, including secondary containers, must be maintained and legible for all workers on the site. Safety Data Sheets (SDS) must be immediately available upon request and kept on file in the Wohlsen project trailer or office.

Container Labeling

All containers containing hazardous chemicals or potential hazardous chemicals must be clearly labeled. Manufactures' labels must be maintained in such a manner that the information communicated from the manufacture is legible.

The Project Superintendent will verify that all containers are clearly labeled as to the contents, noting the appropriate hazard warning, and list the name and address of the manufacturer.

The superintendent at each project will ensure that all secondary containers are labeled with either an extra copy of the original manufacturer's label or with labels that have the identity and the appropriate hazard warning.

Safety Data Sheets (SDS)
The Project Manager is responsible for establishing and monitoring the project's efforts relative to the collection and maintenance of SDS. They will make sure procedures are developed to obtain the necessary SDS's and will review incoming SDS's for new or significant health and safety information. They will further see that any new information is passed on to affected employees.

The Project Superintendent shall verify that all materials brought on to the site have a current SDS on digital storage. When an SDS is not received at the time of initial delivery, the Superintendent (or their designee) will:

1. Request an SDS from the subcontractor, product vendor; and/or,
2. Request an SDS from product manufacturer

Wohlsen SDS Management Process

- Request SDS from all Subcontractors as a submittal prior to work starting
- Review SDS status during pre-installation meeting (received or pending)
- Store and maintain SDS from all Subcontractors in Wohlsen trailer/office
    - Digital storage on P drive or Project Dashboard*
    - Subcontractor Foreman maintains SDS file on site

*OSHA requires SDS to be immediately accessible upon request. To have electronic storage, the project must have a backup in the event of a power loss or computer failure. Acceptable back up would be an iPad that can access SDS without being connected to a network. If any project does not have a backup, hard copies shall be maintained as the back up to electronic files.

Subcontractor Hazard Communication Programs
It is the responsibility of all Subcontractors working on a Wohlsen project to maintain a Hazard Communication Program in accordance with the requirements of OSHA CFR 1910.1200. Individual subcontractors are responsible for their own HAZCOM manuals. A copy of all subcontractors' HAZCOM programs and Safety Data Sheets are to be given to a Wohlsen Construction Project Representative and will then be located in the project trailer.

The Subcontractor Hazard Communication Programs and related SDS will be made available upon request to other site contractors who may come into contact with these materials during the course of operations.

Section 6 Accident/Incident Reporting

An accident is defined as any unscheduled event causing damage to property and/or persons. An incident is any unscheduled event, which results in delays of activities and presents the potential for damaging persons or property. These also include "Near Misses."

In the event of an accident/incident or near miss, regardless of the severity of the occurrence, a written report and a completed investigation form must be submitted within 24 hours by supervisory personnel to the Wohlsen Safety & Health Department. Notification is to be made immediately via phone.

Subcontractors must notify a Wohlsen Project Team member immediately and follow the 24-hour investigation and reporting requirements. Documentation of the investigation must be provided in report form.

Investigation is critical in determining the root cause and in the further elimination of any hazardous conditions or unsafe practices.

All site employees are required to notify their immediate supervisor in the event of an accident, injury or near miss. It is imperative that proper treatment and care is provided to any injured employee.

Section 7 Subcontractors

The term “subcontractor employee” is considered to mean a person who agrees to perform any part of the labor or material requirements of a contract for construction, alteration, or repair on behalf of a subcontractor. The definitions of project “subcontractor and subcontractor employee” will apply to every tier of sub subcontractor and their employees, suppliers and all workers who enter the project and perform a portion of the contract involving labor. Persons furnishing supplies, materials or technical support will also be considered a “subcontractor employee.” To the extent that a subcontractor of any tier agrees to perform any part of the contract, he also assumes responsibility for complying with the provisions of the safety management plan and will be referred to as site employees.

Prior to the commencement of work on the project, subcontractors will develop and submit to Wohlsen a Site-Specific Safety and Health Program that addresses the hazards associated with the subcontractor’s scope of work, as defined in Wohlsen’s Site-Specific Safety Plan Policy.

A safety representative (Competent Person) from each sub subcontractor will be designated to the project. The representative from each sub subcontractor must have the authority to stop work of their work force in the event of a safety issue.

The subcontractor project safety representative will ensure that their site employees, suppliers and technical support, regardless of tier, comply with the Wohlsen Safety Policy, their Company’s project-specific safety and health and HAZCOM programs, the contract documents, the project-specific safety plan, OSHA standards and all other federal, state and local codes, laws and regulations.

Each Subcontractors’ Superintendent/Foreman Will:

- Plan and execute all work operations so as to comply with stated objectives of the project’s site-specific safety plan.
- Ensure that all employees are scheduled for and complete project’s Safety Orientation prior to working on site.
- Complete, when requested or required by Wohlsen, a Job Hazard Analysis, or JHA, for any high-hazard scope of work. A JHA may be requested at any time in advance of the start of a particular scope of work associated with the contract documents.
- Good housekeeping is an important part of overall project safety. It is the responsibility and requirement of all site employees, supervisors and workers to keep the workplace clean.

- Provide and enforce the use of personal protective equipment for their site employees as is required by the project, federal, state and local regulations or codes.

- Complete an accurate investigation report of all injuries, losses to public property or personnel, equipment and material with submission to the Wohlsen project superintendent within 24 hours of occurrence.

- Attend all safety and project meetings as scheduled by the Wohlsen project management team.

- Schedule and complete weekly toolbox safety meetings with all their employees. The toolbox safety meetings will be held once per week. Toolbox safety meetings will be documented and cover topics pertinent to work being performed. Toolbox safety meetings will be conducted by the subcontractor superintendent or designated foreman and attended by all field subcontractor site employees. All subcontractor site employees will sign the meeting form and are encouraged to make topic suggestions. Copies of the weekly toolbox safety meetings must be provided to the Wohlsen project superintendent by the close of business each Friday.

- Report to the Wohlsen Project Team all unsafe conditions, practices and violations observed on the project, including those that are not within the subcontractor's direct control, to implement corrective action.

- Maintain and communicate the Contractor's Hazard Communication Program on site. The program must be current and up-to-date. A copy of the program will be provided to the Wohlsen Project Team and kept in the Wohlsen project trailer.

Section 8 Traffic Control/Site Logistics/Proper Work Attire

All material deliveries or heavy equipment that operates or travels on the existing roadways open to public traffic must have a flagman to accompany the load or equipment. It is the responsibility of each subcontractor to provide the required flagging and flag person to escort their equipment or deliveries to the destination of operation or storage.

All subcontractors should read and understand the site logistics plan.

Proper work attire is required on Wohlsen projects. Long pants (not sweatpants) and sleeved shirts must be worn. Prescription glasses must be ANSI-approved with side shields or be covered with safety goggles. Jewelry is not permitted on projects.

No music streaming of any kind is permitted on the project. This includes ear buds and radios.

Section 9 Personal Protective Equipment [Subpart E]

Wohlsen and our subcontractors must ensure that the correct personal protective equipment (PPE) is provided to and used by employees working on the project.

The planning process allows for the use of several methods of exposure elimination, reduction and control of the hazards. Those methods include engineering controls, work practices and administrative controls. When the use of engineering controls, work practices and administrative controls are not feasible or do not provide sufficient protection, Wohlsen and our subcontractors must ensure that the correct PPE is provided to and used by employees working on the project.

This policy does not eliminate the need for subcontractors to perform a Hazard Assessment to determine the full PPE needs of their employees. It is intended to communicate the minimum requirements for PPE for persons accessing or working on the project.

Wohlsen has established a list of required personal protective equipment for all projects:

- Hard Hats – Must meet the ANSI Z89.1 requirements
- Safety glasses with side shields – Must meet the ANSI Z87 requirements
- Work boots with ankle support and hard sole for puncture resistance
- High-visibility shirts with sleeves or vest

Specific tasks may require additional PPE such as gloves, a face shield, hearing protection, dust masks, respirators, etc.

All visitors to a Wohlsen project who will access construction areas are expected to follow the PPE requirements. If a visitor does not have the required PPE to access the construction area, Wohlsen may provide a hard hat, safety glasses and high-visibility vest. Proper footwear is expected and visitors wearing open toed shoes, high heels or sandals will not be permitted to walk the project. All visitors are expected to check in with the Wohlsen Project Team on site and be escorted while accessing construction areas.

Section 10 Tools & Equipment [Subpart I]

Unsafe or poorly maintained tools and equipment can lead to a poor-quality job, but also to injuries to the worker using those tools. To ensure that no injuries arise out of the use of a defect tool or the use of an improper tool, the following must be adhered to:

- Tools and equipment must be maintained in a safe condition and only used in the manner for which they are intended and designed.
- Any power-operated tool designed to accommodate a guard MUST be equipped with a guard. Any employee observed willfully disabling a guard will be suspended from the project.
- Employees are required to inspect tools and equipment prior to use and tag the equipment appropriately.
- Any damaged or defective tool must be removed from the project.

- Employers must permit only qualified/certified employees to operate machinery and equipment. Wohlsen requires all certified operators to present training cards issued by a qualified instructor prior to operating equipment. Training must be current within the past three years and refreshed when initial training expires. Operators found to be in violation of safety rules or involved in an incident must complete refresher training prior to being allowed to operate the equipment.

- Employees operating vehicles or equipment are solely responsible for the safe operation of the vehicle. This includes any transported personnel or loads, as well as the securement of loads and adherence to the lifting capacity of the equipment.

- Operators of vehicles and equipment will inspect for defects at the beginning of each shift. Defective vehicles or equipment must not be used.

- Equipment provided with only an operator's seat will not be used to carry passengers unless an approved personnel platform or seat has been provided.

- Vehicles with a restricted view to the rear will be equipped with an operable and audible backup alarm.

- Blades and buckets of earth-moving equipment will be lowered to the ground when unattended and at the end of the workday.

- Engines will be shut down during refueling operations. Smoking is prohibited in refueling areas. Refueling will be done while maintaining contact between the hose and tank. No open flames or combustible materials are to be in or around the refueling area. A spill kit will be maintained on site by the subcontractor/operator for use in the refueling area.

- All vehicles and equipment must be operated in accordance with the Wohlsen Site Logistics Plan and maintain a minimum clearance of 10 feet from any energized power lines (overhead lines). Any alterations to this plan must follow Section 12, Electrical Safety, with an appropriate completed JSA.

- Operators unloading equipment must ensure that trailers or delivery vehicles have tire chocks in place and are secured prior to unloading.

- Operators will set the emergency brake and shift into neutral or park prior to dismounting equipment.

- Operators will don appropriate personal protective equipment if the equipment they are using is not equipped with an enclosed cab. Hard hats and safety glasses are required to be with the operator during equipment operations and must be used if the cab does not provide adequate protection.

Section 11 Welding/Cutting and Hot Work [Subpart J]

All construction work involving the use of welding, cutting with torches or other heat sources requires a Hot Work Plan to be completed and approved by Wohlsen prior to the start of the

operation. The Hot Work Plan is to be completed by the Competent Person and include the following information:

- Identification and training verification for those employees performing the work
    - Employees performing welding, cutting or hot work must have documentation of training to address the safe operation and use of equipment and processes

- Identification of Qualified Personnel or Vendor for equipment repairs
    - Defective or unsafe equipment must not be used and removed from service
    - Repairs may only be completed by the Qualified Person or Vendor
    - Repaired equipment may only be returned to service after verification of repairs has been provided to Wohlsen

- Description of work to be performed and safety precautions to reduce fire hazards
    - Basic description of the work to be done and safety precautions
    - Alternative measures necessary
    - Removal of fire hazards (combustible materials) from the work area
    - Use of protective devices (guards, fire blankets, shields)

- Stop work conditions and identity of authorized personnel to issue order
    - Hot work will not be performed if hazards are not able to be moved to a safe location
    - Hot work will not be performed if guards or controls are not used to prevent fire hazards

- Ventilation or respiratory protection requirements for work involving metals
    - Identification of hazardous metals to be completed by the Competent Person

- Completion of a Hot Work Permit by the Competent Person
    - Use of Wohlsen's Hot Work Permit is required
    - Permit must be approved by Wohlsen to authorize work
    - Completed permits must be kept on site

- Identification of the designated Fire Watch (to be listed on the Hot Work Permit)
    - Fire Watch is required when performing Hot Work near combustible materials, in areas where a fire may develop or in compliance with Client requirements
    - Fire Watch personnel must provide verification of training in the operation of fire extinguishers and acknowledge the project Crisis Management Plan to sound an alarm
        - Must have appropriate fire extinguishers in the immediate work area
    - Fire Watch must remain in place for one hour after hot work has been completed
        - Additional time may be required for specific clients and listed on the Hot Work Permit

Section 12 Electrical Safety [Subpart K]

It is Wohlsen's policy to comply with Federal OSHA, applicable state regulations, the National Electrical Code and other established safety standards to reduce or eliminate the dangers

associated with the use of electrical energy. The electrical safety program is intended to give those persons who may come in proximity with energized electrical parts in their work activities the knowledge of safety and recommended practices necessary to protect against electrical shock or burns. It is Wohlsen's policy that all management, supervisors and employees follow the fundamental principles of Safe Work Practices described in this program. A clear understanding of these principles increases the safety of those who work with or around electricity.

It is very important that we recognize electrical hazards so that we can identify Safe Work Practices and methods to control those hazards. Electrical Hazards include:

- Electric Shock - Electricity is one of the most commonly encountered hazards. Under normal conditions, protection from shock is afforded by the safety features of the electrical equipment. Nonetheless, accidental contact with electricity can cause serious injury or death. Most electrical systems establish a voltage reference point by connecting a portion of the system to an earth ground. Because these systems use conductors that have voltages with respect to ground, a shock hazard exists for workers who are in contact with the earth and exposed to the conductors. If people come in contact with a "live" (ungrounded) conductor while they are in contact with the ground, they become part of the circuit and current passes through their bodies.

- Electrocution – A fatal electrical shock.

- Burns – There are three basic types of burns suffered in an electrical incident: electrical burns, arc burns and thermal contact burns. In electrical burns, tissue damage (whether skin deep or deeper) occurs because the body is unable to dissipate the heat from the current flow. Typically, electrical burns are slow to heal. Arc burns are caused by electric arcs and are similar to heat burns from high-temperature sources. Temperatures generated by electric arcs can melt nearby material, vaporize metal in close vicinity, burn flesh and ignite clothing at distances up to 10 feet. Thermal contact burns are those normally experienced from skin contact with the hot surfaces of overheated electric conductors.

- Fire – Electrical currents can cause fires either to clothing of an employee or other combustible material with which the electrical current may come into contact. If the material has a low conductive rate resulting high resistance, a fire is possible. Additionally, electrical fires can occur when circuits are overloaded and the circuit breaker is defective.

Electrical Safe Work Practices

- ONLY Qualified electricians are permitted to work on any electrical system or component of a system. **Qualified person (Electrical):** One familiar with the construction and operation of the equipment and the hazards involved (OSHA); an individual that has sufficient understanding of a device, system or piece of equipment to be able to positively control any hazards it may present. The individual must possess the experience and training necessary to execute the work per recognized and accepted technical standards.

- A Ground Fault Circuit Interrupter Program (GFCI) is in effect on all Wohlsen projects. GFCIs are required for use on any temporary, permanent or generator-supplied outlets that are not equipped with a GFCI. GFCIs ARE REQUIRED FOR USE AT ALL TIMES. GFCIs must be installed at the outlet, not the tool end of the extension cord.

- All temporary and permanent electrical work, installation and wire capacities will conform to the National Electrical Code and other applicable federal, state and local codes.

- Only qualified electricians familiar with code requirements will be allowed to perform electrical work.

- No employee will be permitted to work close enough to an unprotected electrical power circuit such that they may contact the same in the course of their work unless the employee is protected against electrical shock by de-energizing the circuit and grounding it or by guarding it with effective insulation or other means.

- All temporary electric wiring will be installed so that the wiring cannot be damaged when materials are moved as construction progresses.

- Suitable barriers or other means will be provided to ensure that the workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.

- Each temporary disconnect box will be legibly marked to indicate its purpose unless located and arranged so that the purpose is evident.

- Use electrical devices only as intended. Electrical devices may not be modified beyond the intent of their design. Electrical equipment is only safe when it is used according to its intended purpose. Some examples of misuse of electrical equipment are: constructing home-made extension cords or deforming a contact to enable it to fit a receptacle for which it was not intended.

- Always consider electrical equipment energized unless positively proven otherwise. When working on electrical equipment, treat the equipment as live until it is tested, locked, tagged, shorted, and /or grounded as appropriate.

- Reset circuit breakers only after the problem has been corrected. Do not attempt to reset a circuit breaker unless the problem has first been identified and corrected or isolated.

- Only those persons who are qualified and authorized may install, repair, test or calibrate electrical devices or equipment.

- Electrical equipment is considered safe only when it is used as specifically intended by its listing and design. Equipment must not be altered beyond the original design intent and must not be used for any purpose other than that for which it was constructed.

- Isolate all sources of dangerous voltage and current with covers and enclosures. Access to circuits must be guarded against accidental contact by either screw-on panels or interlocked doors, panels, covers, etc. The frame or chassis of the conductive enclosure must be connected to a good electrical ground with a conductor capable of handling any potential fault current.

- A minimum safe clearance distance of 10 feet will be maintained when working in an elevated position near energized power lines (overhead lines). Only Qualified Persons

may perform work inside the safe clearance distance after a Job Hazard Analysis (JSA) has been completed and the power lines have been de-energized or protected by other means, such as temporary blankets or barriers. The JSA must reference OSHA CFR 1910.333(c)(3)(ii) and list the approach distance to be followed per Table S-5 (Construction CFR 1926.403(i)(1)(i) table K-1).

- Protective measures, such as signage or protective shields/barriers, will be utilized to ensure that employees do not enter spaces with electrical hazards or exposed energized parts unless proper lighting is in place to allow them to work safely. OSHA CFR 1926.56 Illumination table D-3 will be followed for all areas of operation.

- Conductive items of clothing may not be worn in areas with potential electrical hazards unless they are protected by covering, wrapping, or other non-conductive measures. Jewelry, including wrist watches, is not to be worn while performing electrical work.

- All temporary lights will have basket type protection.

Extension Cord Safe Work Practices

- Extension cords used with portable electrical tools and appliances will be of the three-wire type. Cords with the ground probe removed or rendered ineffective will be removed from service.

- Electrical cords and trailing cables will be covered, elevated, or otherwise protected from damage that could create a hazard to employees or other persons in the area. A weekly cord roll up program will be utilized to prevent hazards and maintain work areas.

- Use only approved and properly maintained extension cords that have no exposed live parts, exposed ungrounded metal parts, damage or splices.

- Making repairs to extension cords is prohibited (repairing cord ends) as they alter the cord from the Manufacturer's approved state.

- Use extension cords that are protected by a ground fault circuit interrupter (GFCI) around construction sites, in damp areas or in an area where a person may be in direct contact with a solidly grounded conductive object. The GFCI can consist of a special circuit breaker, a GFCI outlet or an extension cord with a built-in GFCI.

- Always use three-conductor (grounded) extension cords – even if the device has a two-conductor cord. Never use two-conductor extension cords.

- Avoid running extension cords through doors, ceilings, windows or holes in the walls. If it is necessary for short-term use, make sure the cord is protected from damage, does not create a tripping hazard and is removed immediately when no longer in use.

Section 13 Lockout/Tagout (LOTO) [Subpart K]

In addition to the Electrical Safety program, additional areas have been identified for work specific to "Lockout/Tagout" procedures and are listed in this section.

Wohlsen Construction and our Subcontractors will utilize several methods to eliminate the hazards associated with electricity. This includes potential energy from sources such as hydraulic, stored energy (tension), pneumatic, thermal or other sources.

- ONLY qualified electricians are permitted to work on any electrical system or component of a system involving lockout/tagout procedures. **Qualified Person (Electrical):** One familiar with the construction and operation of the equipment and the hazards involved (OSHA). An individual that has sufficient understanding of a device, system or piece of equipment to be able to positively control any hazards it may present. The individual must possess the experience and training necessary to execute the work according to recognized and accepted technical standards. This training must include:
    - Recognition of hazardous energy source, type and magnitude of energy available
    - Methods and means necessary for energy isolation and control
    - Purpose and use of the energy control procedure
    - Directions for any other employee whose work operations are or may be in an area where energy control procedures may be utilized
    - When tagout systems are used including the limitations of a tag
    - Tags are not to be removed without authorization
    - The tag is never to be ignored or bypassed

Training is to be completed prior to initial assignment, when there is a change in job assignments or there is a change to the equipment/machine, energy control procedure or a new hazard is discovered.

- Qualification and authorization to perform electrical work involving lockout/tagout procedures are based upon a combination of formal training, experience and on-the-job training. Documented verification of training must be signed, certified and provided to the Wohlsen Project Team prior to any work being performed involving electrical work.

Lockout/Tagout and Energy Control Procedure

- Electrical equipment or machinery will be de-energized and rendered inoperative by locking out supply switches and using established procedures for that specific machine or equipment prior to performing work on such equipment or machinery unless power must be applied for the purpose of adjustment or electrical trouble-shooting. If lockout devices are not feasible, a tagout system will be used at all points where the equipment may be energized. A qualified electrician should assist other crafts to lock out or tag out electrical machinery.

- Prior to power shutdown, the qualified electrician must be aware of the energy source (type), magnitude, associated hazards and methods to control the energy.

- Controls of equipment or circuits to be deactivated during the course of work will be tagged out.

- Equipment or circuits that are de-energized will be locked out, or tagged out where locks are not feasible, at all points where such equipment or circuits can be energized to isolate the energy source.

- Locks and tags will be placed and marked to identify the equipment or circuit being worked on and include the name of the employee placing the device and their employer.

- After locks and/or tags have been placed, all potential energy must be rendered safe by relief, restraint or disconnect methods.

- Prior to starting work on machines or equipment that have been locked and/or tagged out, the qualified electrician will test and verify that the energy has been isolated. If the potential energy may build up during the work being performed, this verification will continue until the work is complete or the potential of buildup no longer exists.

- Lockout/tagout procedures will be limited to the trade performing the work during their scheduled shift as determined in the scope of work.

- In the event that multiple trades must perform lockout/tagout work on the same equipment or power source, each qualified electrician will place their own lock and/or tag to remain in place during their work and only be removed by the person who placed the lock and/or tag.

- The process of multiple trades using lockout/tagout procedures on the same equipment or power source must be coordinated by a designated qualified electrician. This person will be responsible for the exposure and protection of a set number of employees and include any personnel or shift changes.

- All Subcontractors performing electrical work are subject to periodic inspections conducted to verify that requirements for the energy control procedure are being followed. These inspections are to be documented and completed annually for the duration of the project.

Section 14 Fire Protection [Subpart F]

SMOKING is not permitted on the jobsite. Designated smoking areas will be provided if permitted by the client.

A fire extinguisher not less than 5# class ABC will be provided for each 3,000 square feet of building area and the maximum travel distance between extinguishers will not exceed 100 feet.

All fire extinguishers are subject to monthly visual inspection and annual maintenance record review by any member of the Wohlsen Project Team. Subcontractors providing portable fire extinguishers are responsible for maintaining inspections and maintenance on their equipment with documentation provided to the Wohlsen Project Team.

A fire extinguisher will be immediately available for use during any cutting, welding or burning, or other work that creates and ignition source.

A fire extinguisher rated at least 10# class ABC will be provided whenever more than five gallons of flammable or combustible liquid, or five pounds of flammable gas is being used on the project.

Combustible materials such as scrap lumber and debris will be removed 50 feet from areas where hot work activities are occurring.

Employee Training
Only employees trained and who feel confident should attempt to extinguish a fire. Training will include basics of fire extinguisher use and the P.A.S.S. (Pull Aim Squeeze Sweep) system along with hazards associated with basic firefighting procedures to be completed prior to initial assignment and then on an annual basis.

Note: The use of video or electronic training elements in replacement of a live fire are acceptable as part of a fire safety training program, provided they meet the same demonstration of competency by the employee.

Section 15 Scaffolds & Aerial Lifts [Subpart L]

Any subcontractor utilizing a scaffolding system to complete any part of their scope of work must identify their designated Competent Person in writing prior to the start of scaffolding erection.

Scaffolds

- The designated Competent Person will be responsible to ensure that the scaffold system is constructed in accordance with OSHA standards as well as manufacturer instruction for erection including all parts from the same manufacturer.

- The Competent Person will be required to complete daily pre-operational safety inspections and to determine the fall protection systems to be used during the construction, use, and disassembly of the scaffolding system.

- Only employees that have been trained by a qualified person to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize the hazards will be permitted to work on the scaffold. Wohlsen reserves the right to request scaffold training documentation from any subcontractor utilizing scaffolding systems.

- All scaffolds must have ladder access.

- The working areas of a scaffold must be fully decked.

- Guardrails should be installed at the proper levels as described in Section 18, Fall Protection.

- Toe-boards or other means of protection are required when falling object hazards are present.

Aerial Lifts

- Employees working from aerial lifts must be provided with and wear a full-body harness and lanyard attached to the anchor point provided in the lift basket.

- Only authorized and trained personnel may operate the lift.

- Never exceed aerial lift and basket load limits.

- The guardrail system on the lift must be maintained and the gate or chain opening used to access the equipment must be in the closed position.
- Do not stand on the boom lift mid-rail or top-rail. An employee's feet must remain on the platform of the equipment.
- Lift brakes will be set and when outriggers are used, will be positioned on pads or a solid surface.
- Upper and lower controls must be provided and employees working from the lift must be familiar with operating them.
- Lifts can only be moved with an employee inside if the equipment was designed for that use.
- Modifications of an aerial lift must not occur unless approved by the manufacturer.
- When lifts are used inside buildings, precautions must be taken to monitor carbon monoxide emissions and reduce hazardous levels of exposure.
- All lifts being used on a project must come with current service and inspection documents.
- Concrete slabs, bituminous paving and finished flooring will be protected from lift tire damage as needed.

Section 16 Ladder Safety [Subpart X]

- Each subcontractor working on the project will comply with the provisions of OSHA CFR 1926.1053 – 1926.1060.
- It is the employer's responsibility to provide training to each employee that ensures employees can recognize hazards related to ladders and the procedures to be followed to minimize those hazards.
- Only non-conductive ladders are permitted on Wohlsen projects.
- The type of ladder will be selected based on the task to be completed. The correct type of ladder and the correct rated capacity for the job must be used.
- Working from ladders, step or extension, at heights over six feet from the ground or working surface requires fall protection.
- The condition of the ladder will be inspected prior to set up and use. No defective or broken ladders will be used on the project.
- Ladders will be set up in accordance with the manufacturer instruction.

- All manufacturer labels, warning stickers, and other instructions will be present and legible.

- Ladders must be placed on a sound footing; they will not be placed on unstable objects such as loose bricks or mud.

- Employees will not carry tools, materials, or objects while climbing and will avoid leaning from side to side or away from the ladder and remain having three points of contact.

- Employees will face the ladder while climbing and only one worker at a time is permitted on a ladder.

- Step or A-frame type ladders will be used with the spreaders/locking bars fully engaged.

- Only 2-in-1 cross step ladders may be used in the closed position as recommended by the manufacturer.

- Ladders must not be used as a component for scaffolding.

- Straight and extension ladders:
    - Must have non-skid safety feet
    - Must be secured at the top when in use for accessing another level
    - Must be placed at an angle of one foot of run for every four feet of rise
    - Must extend a minimum of three feet above the landing surface
    - May not be separated into two ladders for any purpose

Section 17 Excavation Safety [Subpart P]

An excavation is any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. This can include excavations for anything from cellars to highways. A trench is defined as a narrow underground excavation that is deeper than it is wide, and no wider than 15 feet at the bottom.

Excavation Safe Work Practices

- Prior to any excavation activities, the location of any underground utilities should be located by using the One-Call System (811) or designated utility company. Existing drawings, as built, or other document reviews will also be completed.

- A Competent Person as defined by OSHA must be present on-site anytime employees are working in an excavation. A Competent Person must inspect an excavation and the areas around it daily for possible cave-ins, failures of protective systems and equipment, hazardous atmospheres, or other hazardous conditions before allowing workers to enter and perform their tasks.
    - Inspections are also required after natural events such as heavy rains or manmade events, such as blasting that may increase the potential for hazards. If the inspector finds any unsafe conditions during an inspection, you must clear employees from the hazardous area until proper safety precautions are implemented.

- All excavations five feet or greater in depth must be protected by sloping, benching, shoring, or shielding. The protective measure to be used in an excavation less than five feet in depth will be determined by the Competent Person on the job.

- Keep materials or equipment that might fall or roll into an excavation at least two feet from the edge of excavations, use retaining devices, or both.

- Warning systems such as mobile equipment, barricades, hand or mechanical signals, or stop logs will be used to alert operators to the edge of an excavation when the operator may have difficulty visually seeing the edge of the excavation.

- Excavations that are to be left open during construction or unattended after work is complete for the day must be protected with a barricade and/or visual warning to protect workers. Stakes with orange fencing, flagging or rigid barriers are to be in place around edges of open excavations.

- Scaling will be provided when needed to remove loose rock or soil, or install protective barricades and other equivalent protection to protect employees against falling rock, soil, or materials.

- Employees are not permitted to work on faces of sloped or benched excavations at levels above other employees unless you provide the employees at the lower levels with adequate protection from the hazard of falling, rolling, or sliding material or equipment.

- Employees are prohibited from standing or working under loads being handled by lifting or digging equipment.

- Employees are required to stand away from vehicles being loaded or unloaded to protect them from being struck by any spillage or falling materials.

- Excavation operations must be free from water accumulation. A Competent Person must determine the best means to be utilized to eliminate water accumulation and direct the dispersion away from other areas where it could create hazards.

- Safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit must be provided for employees working in trench excavations four feet or deeper. These devices must be located in the excavation within 25 feet of all workers.

Section 18 Fall Protection [Subpart M]

It is the responsibility of each Subcontractor employer completing any scope of work to assess the fall hazards/exposures related to that scope of work and ensure that they have planned for this exposure and apply the principals of pre-planning, engineering controls, guarding, fall restraint, and personal fall arrest systems to protect their employees. Work areas must also be kept clear of debris, materials or other materials that can create slip/trip/fall hazards.

Fall Protection Safe Work Practices

- All site employees exposed to an elevated fall of six feet or greater in height will be protected from falls to lower levels by guarding, fall restraint and/or personal fall arrest systems.

- A fall protection plan completed by a Competent Person is required when workers are exposed to fall hazards.

- All workers must be trained in fall protection hazards, methods of protection and all elements required in the fall protection plan.

- All components of fall protection systems (lanyards, harness, retractable, etc.) must be inspected prior to use.
    - Any damaged/defective equipment must be immediately removed from service.
    - Any equipment subjected to fall must also be removed from service.

- All fall protection equipment must be properly maintained and stored to protect against weather/project hazards.

- Tools and/or equipment being used at heights must be tethered or secured to prevent falling object hazards to workers below.

- Restricted access zones must be in place where elevated work is in place (setting steel and/or decking, demolition, re-roofing, etc.).

- Work being performed from step ladders next to edges, including open stairwells, must have secondary fall protection in place or be protected by additional guard rails being installed.

- All employees will be protected from being struck by falling objects using toe-boards, guardrails, safety nets or ground level barriers.

- All floor openings two inches or greater in size must be protected with a cover or barrier system.
    - Covers must be able to support at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.
    - To prevent accidental displacement resulting from wind, equipment, or workers' activities, all covers must be secured. All covers will be color coded and be marked "HOLE" or "COVER."

- No worker is to remove a cover or barrier system installed by any contractor without first contacting who installed it, planning work that is needed to remove the cover or barrier and proper methods of secondary fall protection is in place (fall restraint or fall arrest systems).

- Open-sided floors and platforms six feet or more in height must be guarded.

- Guardrail systems must have a top rail of 42 inches (plus or minus three inches) capable of withstanding 200 pounds of pressure, mid-rail halfway between the top rail and working surface capable of withstanding 150 pounds of pressure and toe board to protect against falling object hazards. Cable guardrail systems must meet all of these requirements, have the top rail flagged at every six feet for visibility and no more than two inches of deflection when force is applied in any direction.

- The use of a personal fall restraint or personal fall protection systems must be determined by a Competent Person.

- Only designated and trained personnel will be authorized to use personal fall restraint and/or personal fall arrest systems. Wohlsen reserves the right to request in writing the documented training of all subcontractor employees working with fall protection equipment.

- A Retrieval Plan must be included in the fall protection plan related to rescue of an employee in the event they suffer a fall. The Retrieval Plan must list all equipment and personnel to be utilized in the rescue.

Section 19 Crane Safety [Subpart CC]

Cranes are one of the most useful and productive pieces of equipment on a jobsite. Crane accidents, on the other hand, can be outright devastating to a project and the employees working on the job. OSHA standards **29 CFR 1926.1400 – 1442,** which set forth the requirements of crane regulations, must be complied with at all times on this project. Wohlsen reserves the right to increase the safety requirements relative to crane operations at any time if it will provide a safer work place.

Wohlsen does not own or operate cranes but our subcontractors are expected to use cranes on the project. Wohlsen's responsibilities as it relates to cranes on our jobs include:

- Site preparations for any subcontractor who informs us in advance that they will be utilizing a crane on the project (use must be agreed upon)

- Notification to the crane operator of any known underground hazards – utility locations, vaults, and history of sink holes or voids.

Crane Safe Work Practices

- Completed crane lift plan

- Crane safety procedures

- Name of the lift supervisor (if needed)

- Erection sequencing plan (if needed)

- Copy of the annual inspection

- Copy of the crane operator's license/certification

- Copies of the rigger's qualification

- Copies of the signalperson's certification

Section 20 Rigging Material Handling [Subpart H]

All construction work involving the use of rigging/material handling requires a Qualified Person to be operating machinery and approved by Wohlsen prior to the start of the operation. Verification of training will be provided to Wohlsen and identify those employees determined to be Qualified Persons for each Subcontractor on a Wohlsen project. The Qualified Person is responsible to ensure the following practices are in use and enforce compliance with all safety measures.

- Inspection for rigging equipment will be done to ensure it is safe for use
  - Employees should inspect all equipment prior to use on each shift
  - As necessary if equipment, material, etc., are changed

- Defective rigging or unsafe equipment must be identified
  - Defective or unsafe equipment must not be used and removed from service immediately
  - Repairs may only be completed by the Qualified Person or Vendor
  - Repaired equipment may only be returned to service after written verification of repairs has been provided to Wohlsen

- Rigging equipment will not be loaded beyond its recommended safe working load
  - Identification markings, indicating rated capacity for the type(s) of hitch(es) used
  - The angle upon which it is based
  - Number of legs, if more than one, will be permanently affixed to the rigging

- Rigging equipment must be properly stored/secured at all times
  - Rigging equipment not in use will be removed from the immediate work area
  - Rigging equipment should be stored as not to present a hazard to employees
  - Rigging equipment will be stored to protect from damage, including weather

- Tag lines will be used unless their use creates an unsafe condition

- Latches are in place to eliminate hook throat openings
  - Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies will be a type that can be closed and locked.
    - An alloy anchor type shackle with a bolt, nut and retaining pin may be used as an alternative if determined to be necessary by the Qualified Person

- Suspended Loads
  - All employees will be clear of loads about to be lifted and of suspended loads

Section 21 Housekeeping [Subpart C]

All subcontractors are required to keep the work area clean and orderly. Poor housekeeping leads to a higher potential for slips and falls, creates potential fire hazards, attracts rodents and pests and lowers productivity. All workers are required to keep walking surfaces free from these hazards.

Garbage and other waste will be disposed of at frequent and regular intervals. Scrap and debris from work activities will be removed from work areas daily. Materials will be stored in an orderly fashion, clear of work areas and traffic lanes. Protruding nails will be removed or bent over in scrap lumber.

Every worker on the project is expected to clean up after themselves during the course of a workday. Subcontractors are expected to clean their work areas periodically throughout the day.

If a subcontractor does not meet the expectations associated with housekeeping practices, Wohlsen Project Team may:

1. Request that the subcontractor provide manpower to participate on a general clean-up crew.
2. Use Wohlsen manpower and apply back charges to the subcontractor.
3. Utilize the weekly cord roll up program for Friday afternoons.

Section 22 Crystalline Silica Safety [Subpart Z]

Crystalline silica is an important industrial material found abundantly in the earth's crust. Quartz, the most common form of silica, is a component of sand, stone, rock, concrete, brick, block, and mortar. Materials containing quartz are found in a wide variety of workplaces.

Silica dust is hazardous when very small (respirable) particles are inhaled. These respirable dust particles can penetrate deep into the lungs and bring about disabling and sometimes fatal conditions including cancer, silicosis, and other physical effects.

- A written plan is REQUIRED to be submitted which details the tasks that involve exposure to silica, the controls and respiratory protection used to prevent exposure for each task, housekeeping measures and procedures used to restrict access to work areas.

- Provide the name of the Competent Person that will implement the written plan.

- If duration of exposure is 15 minutes or less and the 8-hour time weighted average can reasonably be anticipated to remain under the permissible limit, please indicate this next to the tasks involving silica exposure and submit to Wohlsen on company letterhead.

Best Practices for Controlling Silica Exposure

1. Use water wherever and whenever possible. The best, easiest and most cost-effective system to controlling silica exposure is to utilize water when cutting concrete, block, brick, tile, etc.
2. Set up cutting stations close to the water supply and away from the majority of the work force. Try and maintain a single cutting area for all brick and block work.
3. Where water cannot be used, in a completed building or completed area, a properly filtered vacuum or other dust control system is to be used instead.

Section 23 Safety Inspections/Audits

A Safety Inspection Policy has been established for all Wohlsen projects. This policy does not replace the responsibilities of all Wohlsen employees from stopping unsafe acts or reporting unsafe conditions upon observation. Nor does it replace site supervisor's responsibilities to identify these conditions as a matter of daily standard operating procedure. It is intended to allow greater focus on these efforts and provide a set of means and methods to complete the process.

Documented safety inspections must be completed every week. Superintendents, project managers, and project engineers are required to complete two safety inspections per month. The Safety & Health Department will conduct unannounced visits to the project to complete and report Safety Inspections/Site Surveys.

Section 24 Stop Work Policy

Whenever an imminent danger is present to any person, including, but not limited to, Wohlsen employees, subcontractor employees, and third parties, all workers on site have the right to stop work so that hazards are abated or safe work practices are incorporated. For the purposes of this policy, an imminent danger includes, but is not limited to:

- A situation for which the individual is not properly trained or experienced
- A situation for which the individual is not equipped (i.e. safety or personal protective equipment)
- A hazard that is not typical to the individual's work activities or job
- A worker that is unfit for work due to the influence of alcohol or illegal or mind-altering substances
- A danger that would normally stop work in the affected area

Subcontractor's employees are required to report all "stop work" actions immediately to their supervisor and the Wohlsen project manager/engineer and/or safety manager for investigation. During the investigation, the employee(s) involved with the "stop work" action will not leave the site or return to the work activity without authorization.

If the "stop work" action is used for legitimate safety reasons, the individual initiating the action (employee or subcontractor) is protected from discipline, retribution, or discrimination by Wohlsen or their employer.

Section 25 Disciplinary Process

The prevention of accidents, injuries, and illnesses to the site employees is a prime objective of this project. The Wohlsen Project Team is committed to reducing unnecessary human suffering and the accompanying financial burdens, which the site employees could realize as a result of accidents. All project personnel are expected to take an active and constant interest in the prevention of accidents.

No group of safety rules can be so complete that they cover all conditions. For this reason, all site employees are to use good common sense and, in all their actions, take time to think of the consequences to your fellow subcontractor site employees.

Violations of Safety Rules will result in disciplinary action, up to and including termination of employment, based on severity. Every violation requires investigation to determine the root cause on why it happened and what corrective actions are needed to prevent future occurrences. Wohlsen Management will determine appropriate disciplinary action based on the severity of the violation and results of the investigation. Use of the progressive disciplinary program is at the discretion of Wohlsen Construction and may result in an immediate escalation to a higher step if the violation is deemed high risk and would therefore bypass a lower step.

Wohlsen Construction follows a progressive disciplinary action plan for the following offense(s):

First Offense – Written Warning
Second Offense – Three-Day Suspension from all Wohlsen projects
Third Offense – Termination from all Wohlsen projects

Note: Progressive discipline follows a rolling six-month time frame following the first offense. Violations will be communicated to Wohlsen's Safety Department and logged on a disciplinary action chart. All employees are empowered to report and address safety violations, however written notice of discipline will be issued by Foremen, Superintendents, Project Managers or any other designated Wohlsen employee in a managerial role. Written notices will be done using the Human Resources (HR) "Employee Performance Corrective Action Form" and be reviewed with the employee with a copy placed in their HR personnel file.

Advanced Violation – Violations of Fall Protection, Equipment Guarding or Lockout/Tagout result in Advanced Discipline as described in the "Advanced Discipline Policy Guidelines"

Advanced Discipline for Violations

- First Offense: 5-day suspension from all Wohlsen projects with minimum of 6 hours training* related to safety

- Second Offense: Termination

*Note: Training topics will focus on the violation observed and include additional topics on safety. Training will consist of classroom, online and hands on settings and be overseen by the employee(s) supervisor and Wohlsen's Safety Department.

Advanced Discipline Policy Guidelines:
Fall Protection: While performing construction work, any employee exposed to an elevated fall or fall to a lower level of six feet or more must be protected from falling through the use of fall protection systems. Examples of fall protection systems include, but are not limited to, guardrail systems, personal fall arrest systems, personal fall restraint systems, covers, safety nets, controlled access zones, warning lines, or a combination of these systems. Employees observed working without fall protection while exposed to fall hazards will be in violation of this policy.

- Duties associated with inspection, investigation, assessment or installation of fall protection systems require fall protection systems to be in place when employees performing these tasks are exposed to immediate fall hazards such as a steep sloped roof*, holes or openings, damaged or deteriorated deck/flooring or unprotected sides or edges within six feet.

*Note: A steep sloped roof is defined as having a 4-in-12 (or greater) slope, meaning for every 12 inches of horizontal run, it rises 4 inches (or greater).

Equipment Guarding/Disabling Guards – Equipment guarding/disabling a guard – no employee shall alter, change, or otherwise disable a machine or equipment guard. Employees observed using machines or equipment without the guards in place will be in violation of the policy – regardless if they themselves removed or disabled the guard.

Lockout/Tagout – No employee shall remove or disable a lock or tag placed on a piece of equipment, circuit breaker, valve, or any other energy control device. No employee is authorized to work on live or energized systems. Those systems can include electrical, pneumatic, hydraulic, chemical, or mechanical energy. Employees observed to have removed or disable a lock or tag from an energy control device or have performed work on energized systems without a lock or tag – regardless if they themselves removed or disabled the lock – will be in violation of this policy.

Section 26 COVID-19 Precautions and Protocols

- The following are general requirements, but more specific requirements are included in Wohlsen's COVID-19 Mitigation Plan and site-specific Mitigation Plans, which may be updated from time to time, and which are incorporated by reference
- All companies on site are to have COVID-19 mitigation plans for their workers
- All workers on site are expected to follow Wohlsen's COVID-19 Mitigation Plan and any mitigation plans specific to their companies.
- Daily health screening is required
    - All workers must complete the health screen using the QR code or paper form
    - Any "Yes" answers to the screen must be reviewed and the worker may not be permitted on site
- Temperature checks are required
- Workers should not report to the site if they are feeling ill
- Protocols include wearing face masks, eye protection, and gloves
    - Face shields with a Z87 stamp are approved for use in lieu of a mask
- Social Distancing should be followed to the fullest extent possible
- Follow signage and any directives applicable to work patterns
- Subcontractor must identify their Pandemic Safety Officer (PSO)
    - PSO responsible for enforcing compliance and working with Wohlsen
- No eating inside the building and no group breaks without social distancing

- Subcontractors are to establish their own space for drinking water
    - Responsible for preventing sharing of water
    - Responsible for cleaning up bottles
- Hand washing stations are provided on the project site
- Tools, equipment and vehicles shall be cleaned each day
- Subcontractors are expected to be aware of and adhere to travel guidance

Responding to potential or confirmed COVID-19 tests

- Supervisors must assess their employees for signs of illness
- All workers are required to report having symptoms or feeling ill to their Supervisor
- Supervisors are required to notify Wohlsen immediately of any potential cases
    - Companies should interview ill workers to determine close contacts, to extent practical
    - Wohlsen will follow protocols for potential or confirmed cases
    - Quarantine of worker and close contacts following CDC, federal, state, and local health and safety guidelines
    - Notification to Client and Contractors
    - Wohlsen will establish protocol for cleaning and re-opening project
    - Communication between Wohlsen and Contractor on return to work
    - Protocols following positive COVID-19 test will be put into place

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Specifications Regarding Project Safety Protocols Related To COVID-19 Pandemic

Section 01 35 23.G

As of the issuance of this contract, there is a continuing global pandemic, including in the state of Delaware, related to the 2019 novel coronavirus and the disease it causes, COVID-19. The COVID-19 pandemic has had widespread impacts to businesses in Delaware and throughout the world.

Federal, state, and local authorities have issued guidance for businesses to mitigate the spread of COVID-19 in the workplace. Contractor acknowledges and agrees to its ongoing obligation to monitor and comply with the most recent guidance of all federal, state, and local authorities related to the mitigation of infectious diseases such as COVID-19 and to take appropriate safety measures on site to protect the health and safety of workers from the spread of COVID-19.

Contractors, all Subcontractors and Sub-subcontractors on the Project Site shall comply with any orders, requirements or recommendations issued by the following entities regarding infectious or communicable diseases:

- Federal Department of Health and Human Services Centers for Disease Control (CDC)
- Federal Occupational Safety and Health Administration
- The State of Delaware
- Delaware Department of Health
- Any other applicable federal, state and local requirements.

Contractor recognizes that mitigation measures may be revised during the course of the Project and it will adopt any revisions to mitigation measures that may be established by applicable authorities, the Project Owner or the Construction Manager. Contractor shall only supply workers to the Project site that it can reasonably determine, in accordance with applicable guidance, are fit for duty, which may include requirements related to the vaccination of individuals on the site.

Contractor shall submit an Infectious/Communicable Disease Safety Plan to Construction Manager within 14 days of project award. The Plan shall include the following minimum infectious disease mitigation measures:

1. All individuals on the project site must stay home if they are experiencing symptoms consistent with COVID-19. Individuals on site exhibiting symptoms must be directed to leave. Most recent CDC guidance should be consulted for return to work following symptoms.
2. All individuals are expected to adhere to basic practices known to reduce the likelihood of spreading COVID-19. Individuals should monitor most recent guidance, but at a minimum:
    a. Workers must wash hands often with soap and water for at least 20 seconds. Use an alcohol-based hand sanitizer if soap and water are not available.
    b. Avoid touching eyes, nose, and mouth with unwashed hands.
    c. Cover your cough or sneeze with a tissue, and throw the tissue in the trash. Wash or disinfect your hands afterward.
    d. Practice social distancing by maintaining a separation of at least six feet from others.
    e. Wear appropriate Personal Protective Equipment.
3. Communication with all project participants should include information and precautions related to COVID-19. Posters regarding symptoms, handwashing, safety, and other measures should be placed in conspicuous locations around the jobsite.

4. All Contractors must provide orientation to their workers regarding infectious disease control. Employees should be updated, through the use of Toolbox Talks or other communications, regarding the must recent guidance for the mitigation of COVID-19.
5. Contractors must provide wash stations or hand sanitizer for their employees. In the event Construction Manager determines that shared facilities are appropriate for the stage of the Project, Contractors may utilize the shared facilities.
6. Workers should not share hand tools, phones, computers, desks, offices, personal protective equipment (PPE) or other tools and equipment. Any tools or vehicles on the jobsite that must be shared should only be used by one individual at a time, and must be disinfected after each use.
7. Everyone seeking admittance to the site must complete a COVID safety certification at the start of work each morning. The certification may be updated from time to time to reflect current best practices.
8. Contractors must follow most recent cleaning and disinfection recommendations by the CDC. Employees are responsible for cleaning and disinfecting their work areas. Contractors must routinely disinfect high touch, shared surfaces.
9. Shared facilities, such as jobsite trailers, must be cleaned regularly.
10. Portable onsite toilet facilities should be cleaned and disinfected at least every other day.
11. Job appropriate PPE must be worn while on the project site. Workers should be informed that this helps to protect not only themselves but others on the site from a risk of transmission. This includes:
    a. Facemasks to minimize the airborne transmission of infectious disease. Facemask type and usage should be in accordance with most recent CDC guidance.
    b. Wearing gloves at all times
12. Social distancing needs to occur as much as possible during work. This means maintaining at least a six-foot distance between other individuals. Special attention should be paid to limiting the number of individuals in close contact in confined spaces.
13. Contractors must monitor and enforce social distancing practices during travel to project sites and while work is ongoing. Carpooling/ridesharing should be eliminated unless there is no alternative for commuting.
14. Contractors are to stagger break and lunch schedules to minimize the number of people in proximity to one another.
15. For work that must be performed without social distancing, Contractors must conduct a Job Hazard Analysis in accordance with OSHA guidelines to determine if a combination of PPE, engineering controls, behavioral controls, or other controls should be implemented to minimize risk of COVID-19 transmission.
16. Minimize indoor close, personal contact by replacing face-to-face meetings with virtual communications and implementing telework if feasible. Necessary gatherings (e.g. weekly safety meetings, daily huddles, job hazard analyses) should be held with virtual communications where possible. If communication must be in person, it should be held outside with at least a 6-foot space between individuals.
17. Contractors should schedule work to maximize the work being performed outdoors and limit indoor work lacking fresh air. Seek to maximize outdoor air circulation, through controls such as keeping windows open.
18. Contractors should consider staggered shifts, longer work days, or the possibility of a four-day schedule to encourage social distancing and limit the number of workers on site at any given time.
19. To the maximum extent possible, the construction site is to be segregated into zones or by other method to keep different crews/ trades physically separated. This promotes social distancing and supports the containment of COVID-19 propagation.

20. Contractors should consider splitting crews into individual teams that only work with each other. That team may need to self-quarantine in the event of a COVID exposure, but other teams may not.
21. Contractors should implement workflow controls to minimize frequently contacted surfaces and direct the flow of workers. Controls may include opening all doors so that they do not need to be opened and closed, identifying "in" and "out" doors and "up" and down" stairs to avoid individuals passing each other, and limiting the number of workers in a given space.
22. Do not stack trades if possible.
23. Any other measures deemed necessary to limit the propagation of COVID-19.

Each Contractor, Subcontractor, and Sub-subcontractor is responsible for the minimum requirements set forth herein. Contractors shall ensure that adherence to site safety policies, including the control of infectious diseases, are incorporated into all subcontracts.

Contractor recognizes that impacts related to the COVID-19 pandemic may affect its work on the Project, including the need to provide safety and sanitizing equipment and materials, the progress of work activities, the timing of materials delivery, the availability of manpower, and the cost of materials or equipment. Contractor represents that it has taken impacts related to the COVID-19 pandemic into account in submitting its price and in agreeing to the Project schedule.

Contractor recognizes that adherence to health and safety measures related to the control of infectious disease protects not only its employees, but also protects other workers at the project. Contractor recognizes that its plan and work practices must be coordinated with other trades on the project, and that the number and activity of trades during the course of the Project may require revision to safety plans.

Where coordination is necessary, Construction Manager will schedule a Safety Plan Coordination Meeting to discuss comments, concerns, and potential revisions to Contractor plans, and to facilitate mutual agreement among Contractors to regarding site safety practices. In the event of disagreement among contractors, Construction Manager will issue final guidance to all contractors, which contractors shall adopt. Contractors shall not be entitled to additional cost or time in their schedules in order to implement additional protocols related to the control of infectious diseases.

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SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Quality assurance requirements.
2. Quality control requirements.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of **five** previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 ACTION SUBMITTALS

A. Shop Drawings: For integrated exterior mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.

1. Indicate manufacturer and model number of individual components.
2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice of Award, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project,

whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.

d. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

a. Allow seven days for initial review and each re-review of each mockup.

6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. Demolish and remove mockups when directed unless otherwise specified to remain as part of complete Work.

L. Integrated Exterior Mockups: Construct integrated exterior mockup as indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections attached to this Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents except where a specific date is specified or is established by code.

C. Copies of Standards: When copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International); www.abma.com.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.

29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CEA - Canadian Electricity Association; www.electricity.ca.
51. CEA - Consumer Electronics Association; www.ce.org.
52. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
53. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
54. CGA - Compressed Gas Association; www.cganet.com.
55. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
56. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
57. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
58. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
59. CPA - Composite Panel Association; www.pbmdf.com.
60. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
61. CRRC - Cool Roof Rating Council; www.coolroofs.org.
62. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
63. CSA - Canadian Standards Association; www.csa.ca.
64. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
65. CSI - Construction Specifications Institute (The); www.csinet.org.
66. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
67. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.

68. CWC - Composite Wood Council; (See CPA).
69. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
70. DHI - Door and Hardware Institute; www.dhi.org.
71. ECA - Electronic Components Association; (See ECIA).
72. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
73. ECIA - Electronic Components Industry Association; www.eciaonline.org.
74. EIA - Electronic Industries Alliance; (See TIA).
75. EIMA - EIFS Industry Members Association; www.eima.com.
76. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
77. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
78. ESTA - Entertainment Services and Technology Association; (See PLASA).
79. EVO - Efficiency Valuation Organization; www.evo-world.org.
80. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
81. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
82. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
83. FM Approvals - FM Approvals LLC; www.fmglobal.com.
84. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
85. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridaroof.com.
86. FSA - Fluid Sealing Association; www.fluidsealing.com.
87. FSC - Forest Stewardship Council U.S.; www.fscus.org.
88. GA - Gypsum Association; www.gypsum.org.
89. GANA - Glass Association of North America; www.glasswebsite.com.
90. GS - Green Seal; www.greenseal.org.
91. HI - Hydraulic Institute; www.pumps.org.
92. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
93. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
94. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
95. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
96. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
97. IAS - International Accreditation Service; www.iasonline.org.
98. IAS - International Approval Services; (See CSA).
99. ICBO - International Conference of Building Officials; (See ICC).
100. ICC - International Code Council; www.iccsafe.org.
101. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
102. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
103. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
104. IEC - International Electrotechnical Commission; www.iec.ch.
105. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
106. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
107. IESNA - Illuminating Engineering Society of North America; (See IES).
108. IEST - Institute of Environmental Sciences and Technology; www.iest.org.

109. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
110. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
111. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
112. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
113. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
114. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
115. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
116. ISO - International Organization for Standardization; www.iso.org.
117. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
118. ITU - International Telecommunication Union; www.itu.int/home.
119. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
120. LMA - Laminating Materials Association; (See CPA).
121. LPI - Lightning Protection Institute; www.lightning.org.
122. MBMA - Metal Building Manufacturers Association; www.mbma.com.
123. MCA - Metal Construction Association; www.metalconstruction.org.
124. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
125. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
126. MHIA - Material Handling Industry of America; www.mhia.org.
127. MIA - Marble Institute of America; www.marble-institute.com.
128. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
129. MPI - Master Painters Institute; www.paintinfo.com.
130. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
131. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
132. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
133. NADCA - National Air Duct Cleaners Association; www.nadca.com.
134. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
135. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
136. NBI - New Buildings Institute; www.newbuildings.org.
137. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
138. NCMA - National Concrete Masonry Association; www.ncma.org.
139. NEBB - National Environmental Balancing Bureau; www.nebb.org.
140. NECA - National Electrical Contractors Association; www.necanet.org.
141. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
142. NEMA - National Electrical Manufacturers Association; www.nema.org.
143. NETA - InterNational Electrical Testing Association; www.netaworld.org.
144. NFHS - National Federation of State High School Associations; www.nfhs.org.
145. NFPA - National Fire Protection Association; www.nfpa.org.
146. NFPA - NFPA International; (See NFPA).
147. NFRC - National Fenestration Rating Council; www.nfrc.org.
148. NHLA - National Hardwood Lumber Association; www.nhla.com.
149. NLGA - National Lumber Grades Authority; www.nlga.org.

150. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
151. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
152. NRCA - National Roofing Contractors Association; www.nrca.net.
153. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
154. NSF - NSF International; www.nsf.org.
155. NSPE - National Society of Professional Engineers; www.nspe.org.
156. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
157. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
158. NWFA - National Wood Flooring Association; www.nwfa.org.
159. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
160. PDI - Plumbing & Drainage Institute; www.pdionline.org.
161. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
162. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
163. RFCI - Resilient Floor Covering Institute; www.rfci.com.
164. RIS - Redwood Inspection Service; www.redwoodinspection.com.
165. SAE - SAE International; www.sae.org.
166. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
167. SDI - Steel Deck Institute; www.sdi.org.
168. SDI - Steel Door Institute; www.steeldoor.org.
169. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
170. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
171. SIA - Security Industry Association; www.siaonline.org.
172. SJI - Steel Joist Institute; www.steeljoist.org.
173. SMA - Screen Manufacturers Association; www.smainfo.org.
174. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
175. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
176. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
177. SPIB - Southern Pine Inspection Bureau; www.spib.org.
178. SPRI - Single Ply Roofing Industry; www.spri.org.
179. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
180. SSINA - Specialty Steel Industry of North America; www.ssina.com.
181. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
182. STI - Steel Tank Institute; www.steeltank.com.
183. SWI - Steel Window Institute; www.steelwindows.com.
184. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
185. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
186. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
187. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
188. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
189. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
190. TMS - The Masonry Society; www.masonrysociety.org.

191. TPI - Truss Plate Institute; www.tpinst.org.
192. TPI - Turfgrass Producers International; www.turfgrasssod.org.
193. TRI - Tile Roofing Institute; www.tileroofing.org.
194. UL - Underwriters Laboratories Inc.; www.ul.com.
195. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
196. USAV - USA Volleyball; www.usavolleyball.org.
197. USGBC - U.S. Green Building Council; www.usgbc.org.
198. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
199. WASTEC - Waste Equipment Technology Association; www.wastec.org.
200. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
201. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
202. WDMA - Window & Door Manufacturers Association; www.wdma.com.
203. WI - Woodwork Institute; www.wicnet.org.
204. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
205. WWPA - Western Wood Products Association; www.wwpa.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE or USACE – U.S. Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.

15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.

6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS; California Department of Health Services; (See CDPH).
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservice.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 45 23

TESTING AND INSPECTING SERVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Selection and payment.
2. Laboratory responsibilities.
3. Laboratory reports.
4. Limits on testing laboratory authority.
5. Contractor responsibilities.

B. Third Party Inspections Program (TPIP) requirements are as follows:

1. Bid Pack 0:

a. Civil

1) Laboratory Testing
2) Review of Subgrade Conditions
3) Review of Fill Placement
4) Review of Pavement Construction

b. Structural

1) Concrete sampling for strength tests, slump, air content, and temperature – continuous
2) Review of Concrete
3) Review of Reinforced Steel

2. Bid Pack 1:

a. Structural

1) Reinforcing Steel, Including Prestressing Tendons – periodic inspection
2) Welding of Reinforcing Steel – periodic inspection
3) Cast-in bolts & embeds – periodic inspection
4) Post-installed anchors or dowels – periodic inspection
5) Use of required mix design
6) Concrete sampling for strength tests, slump, air content, and temperature – continuous
7) Concrete & shotcrete placement – continuous
8) Curing temperature and techniques – periodic inspection

9) Pre-stressed concrete – continuous
10) Strength verification – periodic inspection
11) Formwork – periodic inspection
12) Verify subgrade is adequate to achieve design bearing capacity – periodic
13) Verify excavations extend to proper depth and material – periodic
14) Verify that subgrade has been appropriately prepared prior to placing compacted fill – periodic
15) Perform classification and testing of compacted fill materials – periodic
16) Verify proper materials, densities, and lift thicknesses during placement and compaction – continuous
17) Designed seismic systems – if applicable
18) Prototype tests for seismically isolated structures – if applicable
19) Fabrication and installation of seismically isolated structures – if applicable

3. Bid Pack 2 (based on current 2/3 split):

a. Structural

1) Cast-in bolts & embeds – periodic inspection
2) Post-installed anchors or dowels – periodic inspection
3) Erection of precast concrete – periodic inspection (possibly unless all cast stone used instead)

b. Architectural

1) Roof Deck Inspection
2) Roofing Inspection
3) Penetration Firestops – Periodic
4) Fire-resistant joint systems – periodic
5) Erection and fastening of exterior cladding or interior and exterior veneers – periodic

4. Bid Pack 3 (based on current 2/3 split):

a. Structural

b. Architectural

1) Penetration Firestops – Periodic
2) Fire-resistant joint systems – periodic
3) Erection and fastening of interior and exterior non-bearing walls – periodic
4) Access floors – periodic

c. Mechanical

1) Weld Testing: Provide ultrasonic or radiographic testing of pipe welds, including 100% of all concealed welds (underground and within shaft enclosures) and 10% of all remaining welds in accessible spaces.

1.2 SELECTION AND PAYMENT

A. CM will employ and pay for services of an independent testing laboratory to perform specified inspecting and testing as scheduled in contract documents.

B. The local Authorities Having Jurisdiction may provide other special inspection services to inspect and verify work installed is in accordance with codes and ordinances.

C. Costs for additional tests or inspections required because of a Contractor change in product, materials, or source will be borne by the Contractor.

D. Costs for testing required solely for the convenience of the Contractor in its scheduling and performance of the Work will be borne by the Contractor.

E. Costs for verification of testing of work done without timely notice, improper supervision, or contrary to construction practice, will be borne by the Contractor.

1.3 QUALITY ASSURANCE

A. Laboratory: Authorized to operate in State in which Project is located.

B. Laboratory Staff: Maintain a full time registered engineer on staff to review services.

C. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Institute of Standards and Technology or accepted values of natural physical constants.

1.4 SUBMITTALS

A. Submit one PDF electronic file or two paper copies of each required submittal to Architect and Contractor, with a copy to the Owner and local jurisdiction having authority.

B. Submit with transmittal letter as specified for Submittals in Section 01 33 00 “Submittal Procedures.” Submit and distribute reports, logs, and certificates as specified in Section 01 33 00 “Submittal Procedures.”

1.5 CONTRACTOR SUBMITTALS

A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer.

B. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Institute of Standards and Technology during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.6 LABORATORY RESPONSIBILITIES

A. The independent firm will perform tests, inspections and other services specified in individual specification sections and as indicated on Drawings.

1. Perform additional inspections and tests required by Owner or Architect.

B. Testing, inspections and source quality control may occur on or off the project site. Perform off-site testing as required by the Architect or the Owner.

C. Test samples of mixes submitted by Contractor.

D. Provide qualified personnel at site. Cooperate with Owner and Contractor in performance of services.

E. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.

F. Ascertain compliance of materials and mixes with requirements of Contract Documents.

G. Promptly notify Owner, Architect and Contractor of observed irregularities or non-conformance of Work or Products. Immediately upon determination of test failure, the inspector will telephone results to the Contractor, Owner, and Architect. On the same day, the inspector will distribute written test results.

H. Attend preconstruction conferences and progress meetings as requested.

1.7 LABORATORY REPORTS

A. After each inspection and test, promptly submit copies of laboratory report.

B. In each report, include:

1. Date issued.
2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and Specifications Section.
6. Location in the Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.

10. Conformance with Contract Documents.
11. Weather and climatic conditions at time sample was obtained or work observed.
12. Description of test methods.

C. When requested by Owner or Architect, provide interpretation of test results.

1.8 LIMITS ON TESTING LABORATORY AUTHORITY

A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.

B. Laboratory may not approve or accept any portion of the Work.

C. Laboratory may not assume any duties of Contractor.

D. Laboratory has no authority to stop the Work.

1.9 CONTRACTOR RESPONSIBILITIES

A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.

B. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.

C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.

D. Notify laboratory 48 hours before expected time for operations requiring inspection and testing services. Coordinate schedule with laboratory to ensure testing and inspection personnel are available at the site when required by Work in progress. Coordinate testing and inspection activities to avoid delay and to eliminate need to uncover work for testing or inspection. Give sufficient advance notice of cancellation to impacted parties to allow rescheduling of work. Any charges due to insufficient advance notice will be borne by the Contractor.

E. Arrange with laboratory and pay for additional samples and tests required by Contractor beyond specified requirements.

F. When initial tests indicate Work is defective, pay for additional inspections and tests required to confirm corrected Work conforms to Contract Documents.

G. Remove and replace any work found defective or not complying with contract document requirements at no additional cost to Owner. Where testing requires cores or cut-outs to verify compliance, repair prior to acceptance.

H. Code Compliance Inspection and Tests: Inspections and tests not specified in the contract documents and required by codes and ordinances or by plan approval authorities, will be the responsibility of the Contractor.

I. Where indicated or as required by Owner or Architect, engage manufacturer's field services, inspectors, or representatives to inspect or observe components, installation, and connections. Report results in writing.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Temporary utilities.
2. Support facilities.
3. Security and protection facilities.
4. Moisture and mold control.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.

B. Sewer Service: Service to building provided and paid for by Contractor.

C. Water Service: Service to building provided and paid for by Contractor.

D. Electric Power Service: Service to building provided and paid for by Contractor.

E. Internet Service: Pay internet service use charges for internet access used by all entities for construction operations, including the Owner.

1.3 ACTION SUBMITTALS

A. Shop Drawings:

1. For project sign including details, materials, and methods.
2. For construction elevator including site plan, details, elevations, and connection points.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, construction elevator, and parking areas for construction personnel.

B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

C. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.

1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

D. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste handling procedures.
5. Other dust-control measures.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading. Exact location of construction trailers to be determined with assistance from Construction Management.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
3. Drinking water and private toilet.
4. Coffee machine and supplies.
5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped as required to accommodate materials and equipment for construction operations. Construction trailers may not available due to space requirements. All installations of temporary trailers are to be determined with assistance from Construction Management.

1. Store combustible materials apart from building.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system.

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

2.3 PROJECT SIGN

A. All project signage must be approved by owner (DFM) prior to purchasing and installing.

B. Materials:

1. Exterior Grade B-B, 4 by 8 feet plywood, 3/4 inch thick with medium density overlay.
2. Hardware: Galvanized.
3. Framing and Supports: Preservative treated wood, minimum 4 by 4 inches, or steel.
4. Paint and Printing: Exterior quality. Provide colors for structure, framing, sign surfaces, and graphic applications. Paint all exposed surfaces with one coat of primer and one coat exterior paint.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance.

2. Locate facilities within the limits defined in the drawings.

3. The Contractor is responsible for obtaining permitting from the City (or State if required) for any lane or street closures and any sidewalk closures.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Upcoming required shut-downs are to be presented to Building Superintendent and State Project Manager in bi-weekly construction meetings and coordinated with Building Superintendent.

B. Sewers and Drainage: Existing sewers and drainage to building is to remain. Coordinate any temporary service interruptions with owner.

C. Water Service: Existing water service to building is to remain. Coordinate any temporary service interruptions with owner.

D. Sanitary Facilities:

1. Existing Facilities: Existing multi-stall restrooms are to remain in service during construction. Contractors and their subcontractors are free to utilize these facilities. It is the contractor's responsibility to maintain these facilities and systems and protect them from damage. The use of these facilities can be revoked if deemed necessary.
2. Service Interruption: Coordinate any temporary service interruptions with owner.

E. Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

H. Electric Power Service: Existing electric power service to building is to remain. Coordinate any temporary service interruptions with owner and sub-contractors.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

J. Internet Service: Provide temporary internet service in common-use facilities for use by all construction personnel, including the Owner.

1. Owner will have a laptop and require an open internet connection.

K. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install minimum one telephone line for each field office.

1. Provide additional telephone lines for the following:

a. Provide a dedicated telephone line for each facsimile machine in each field office.

2. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.
b. Ambulance service.
c. Contractor's home office.
d. Contractor's emergency after-hours telephone number.
e. Architect's office.
f. Engineers' offices.
g. Owner's office.
h. Principal subcontractors' field and home offices.

3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

L. Scope / Responsibility: The requirements for temporary utilities will be under the scope and responsibility of the Construction Manager.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within the limits defined in the drawings that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking:

1. Construction Manager's Superintendent may park within the secure lot.
2. All other construction personnel must park where street or unsecured lot parking is available.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.

   a. Two printed signs of size, graphic design, and construction indicated by Owner or Architect. Allow for a background color and two lettering colors. Sign will also include a full-color project rendering.
   b. Sign will identify Project, Owner, A/E Team, Contractor, and Primary Subcontractors (where applicable).
   c. Locate sign as directed by Owner or Architect. Preference is given to lighted areas and areas of high public visibility.

2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

   a. Provide temporary, directional signs for construction personnel and visitors.

3. No other corporate or project signage to be displayed except if approved by Owner.
4. Maintain and touchup signs so they are legible at all times. Avoid obstructions and maintain sightlines to public ways to greatest extent possible. Relocate signage as progression of work may require.
5. Remove signage at time of Substantial Completion. Repair surrounding areas.

F. Waste Disposal Facilities:

1. Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."
2. A trash chute may be installed within the limits defined on the drawings.

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 01 10 00 "Summary."

C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 31 10 00 "Site Clearing."

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross existing planting areas.
2. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
3. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

D. Stormwater Control: Comply with requirements of authorities having jurisdiction.

E. Tree and Plant Protection: Existing trees and foliage on the south side of the building are to be removed to allow for construction traffic and support facilities. Trees and foliage must be replaced at the end of construction. Foliage is to be replaced in kind. Trees are to be replaced by trees of similar size and of a species approved by the city of Wilmington’s arborist. Basis-of-design of trees are the same species as existing, but the contractor must get approval from the arborist, or direction for installation of a different species, prior to submitting to the architect and include it with their submittal to the architect.

F. Security Enclosure and Lockup: Install temporary enclosure around exterior construction staging area. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241 and OSHA requirements; manage fire-prevention program.

1. Smoking is prohibited on the facility property, extending out to the edge of the sidewalk. Additionally, smoking is prohibited within the construction staging area, including where it extends onto the sidewalk.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary fire extinguishers. Fire extinguishers to comply with section 2.2 A and located per NFPA requirements.
5. Notify Building Superintendent and State Project Manager prior to any hot work.

J. Site Security Cameras:

1. CM to provide Construction Site Security Cameras in the following locations:

a. On the interior pointing in the direction of the construction once built.
b. On the exterior encompassing the construction staging area.
c. Coordinate security feeds with Owner.

3.5 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

B. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use permanent HVAC system to control humidity.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings

beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.

c. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Product delivery, storage, and handling.
2. Product warranties.
3. Product selection procedures.
4. Comparable products.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Approval: As specified in Section 01 33 00 "Submittal Procedures."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Contractor may, but is not required to, provide a secure location and enclosure at Project site for storage of materials and equipment within the area indicated on the drawings to be secured by the Contractor.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications or Drawings name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications or Drawings name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

    a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
    b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

    a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
    b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications or Drawings name a product, and include a list of products or manufacturers, provide the basis of design product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Construction layout.
2. Installation of the Work.
3. Cutting and patching.
4. Coordination of work by Owner.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.3 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.4 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Mechanical systems piping and ducts.
    f. Control systems.
    g. Communication systems.
    h. Fire-detection and -alarm systems.
    i. Electrical wiring systems.
    j. Operating systems of special construction.
    k. Security barriers.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Exterior curtain-wall construction.
    d. Sprayed fire-resistive material.
    e. Equipment supports.
    f. Piping, ductwork, vessels, and equipment.
    g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.

2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for interpretation to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.

B. Building Lines and Levels: Locate and lay out control lines and levels for structures, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.

2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance as indicated on Drawings in occupied spaces and 90 inches in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection:

1. Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
2. Where cutting occurs adjacent to other spaces in the building they must be secured at the end of each day.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable.

F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as

invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
6. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

I. Execute cutting, fitting, and patching to avoid damage to other work and provide proper surfaces to receive future work.

J. Whenever possible and practical, coordinate cutting and patching with other trades to minimize impact to progress of Work.

K. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before cutting and patching will be performed. Include extents, dates, building elements affected, and additional trades affected.

3.6 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in

Section 01 50 00 "Temporary Facilities and Controls." and Section 01 74 19 "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 01 91 13 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

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SECTION 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Requirements and limitations for cutting and patching of Work.

1.2 SUBMITTALS

A. Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate contractor.
6. Continuous operation of utilities, building services, fire suppression, fire alarm, or security system.

B. Include in request:

1. Identification of Project.
2. Location and description of affected Work.
3. Necessity for cutting or alteration.
4. Description of proposed Work, and Products to be used.
5. Alternatives to cutting and patching.
6. Effect on work of Owner or separate contractor.
7. Written permission of affected separate contractor.
8. Date and time work will be executed.

1.3 WARRANTY

A. Perform cutting and patching in a manner to preserve conditions suitable for executing specified warranties and maintaining previously issued warranties for the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Primary Products: Those required for original installation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

B. After uncovering existing Work, assess conditions affecting performance of work.

C. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

B. Provide protection from elements for areas which may be exposed by uncovering work.

C. Maintain excavations free of water.

3.3 CUTTING

A. Execute work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

B. Identify hazardous substances or conditions exposed during the Work to the Architect/Engineer for decision or remedy.

C. Execute cutting and fitting to complete the Work.

D. Uncover work to install improperly sequenced work.

E. Remove and replace defective or non-conforming work.

F. Remove samples of installed work for testing when requested.

G. Provide openings in the Work for penetration of mechanical and electrical work.

H. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight-exposed surfaces.

I. For sight-exposed surfaces.

1. Cutting New Work: Employ original installer.
2. Cutting Existing Facilities to Accommodate New Work: Employ qualified installer.

J. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

3.4 PATCHING

A. Execute patching to complement adjacent Work.

B. Fit Products together to integrate with other Work.

C. For sight-exposed surfaces.

1. Patching New Work: Employ original installer.
2. Patching Existing Facilities to Accommodate New Work: Employ qualified installer.

D. Restore work with new Products in accordance with requirements of Contract Documents.

E. Fit work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

F. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids in accordance with Section 078400.

G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

END OF SECTION

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SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Section includes: Administrative and procedural requirements for construction waste management activities.

1.2 DEFINITIONS

A. Construction, Demolition, and Land clearing (CDL) Waste: Includes all non-hazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.

B. Salvage: Recovery of materials for on-site reuse, sale or donation to a third party.

C. Reuse: Making use of a material without altering its form. Materials can be reused on-site or reused on other projects off-site. Examples include, but are not limited to the following: Crushing or grinding of concrete for use as sub-base material. Chipping of land clearing debris for use as mulch.

D. Recycling: The process of sorting, cleaning, treating, and reconstituting materials for the purpose of using the material in the manufacture of a new product.

E. Source-Separated CDL Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.

F. Co-mingled CDL Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.

G. Approved Recycling Facility: Any of the following:

1. A facility that can legally accept CDL waste materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
2. Material Recovery Facility: A general term used to describe a waste-sorting facility. Mechanical, hand-separation, or a combination of both procedures, are used to recover recyclable materials.

1.3 SUBMITTALS

A. Contractor shall develop a Waste Management Plan: Submit 3 copies of plan within 14 days of date established for the Notice to Proceed.

B. Contractor shall provide Waste Management Report: Concurrent with each Application for Payment, submit 3 copies of report.

1.4 PERFORMANCE REQUIREMENTS

A. General: Divert a minimum of 75% CDL waste, by weight, from the landfill by one, or a combination of the following activities:

1. Salvage
2. Reuse
3. Source-Separated CDL Recycling
4. Co-mingled CDL Recycling

B. CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:

1. Acoustical ceiling tiles
2. Asphalt
3. Asphalt shingles
4. Cardboard packaging
5. Carpet and carpet pad
6. Concrete
7. Drywall
8. Fluorescent lights and ballasts
9. Land clearing debris (vegetation, stumpage, dirt)
10. Metals
11. Paint (through hazardous waste outlets)
12. Wood
13. Plastic film (sheeting, shrink wrap, packaging)
14. Window glass
15. Wood
16. Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard.

1.5 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED Accredited Professional, certified by the USGBC as waste management coordinator.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Conduct construction waste management activities in accordance with hauling and disposal regulations of all authorities having jurisdiction and all other applicable laws and ordinances.

D. Preconstruction Conference: Schedule and conduct meeting at Project site prior to construction activities.

1. Attendees: Inform the following individuals, whose presence is required, of date and time of meeting.

a. Owner
b. Architect
c. Contractor's superintendent
d. Major Subcontractors
e. Waste Management Coordinator
f. Other Concerned Parties

2. Agenda Items: Review methods and procedures related to waste management including, but not limited to, the following:

a. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
b. Review requirements for documenting quantities of each type of waste and its disposition.
c. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
d. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
e. Review waste management requirements for each trade.

3. Minutes: Record discussion. Distribute meeting minutes to all participants. Note: If there is a Project Architect, they will perform this role.

1.6 WASTE MANAGEMENT PLAN – Contractor shall develop and document the following:

A. Develop a plan to meet the requirements listed in this section at a minimum. Plan shall consist of waste identification, waste reduction plan and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight throughout the plan.

B. Indicate anticipated types and quantities of demolition, site-cleaning and construction waste generated by the project. List all assumptions made for the quantities estimates.

C. List each type of waste and whether it will be salvaged, recycled, or disposed of in a landfill. The plan should include the following information:

1. Types and estimated quantities, by weight, of CDL waste expected to be generated during demolition and construction.

2. Proposed methods for CDL waste salvage, reuse, recycling and disposal during demolition including, but not limited to, one or more of the following:

    a. Contracting with a deconstruction specialist to salvage materials generated,
    b. Selective salvage as part of demolition contractor's work,
    c. Reuse of materials on-site or sale or donation to a third party.

3. Proposed methods for salvage, reuse, recycling and disposal during construction including, but not limited to, one or more of the following:

    a. Requiring subcontractors to take their CDL waste to a recycling facility;
    b. Contracting with a recycling hauler to haul recyclable CDL waste to an approved recycling or material recovery facility;
    c. Processing and reusing materials on-site;
    d. Self-hauling to a recycling or material recovery facility.

4. Name of recycling or material recovery facility receiving the CDL wastes.
5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

1. Total quantity of waste.
2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
3. Total cost of disposal (with no waste management).
4. Revenue from salvaged materials.
5. Revenue from recycled materials.
6. Savings in hauling and tipping fees by donating materials.
7. Savings in hauling and tipping fees that are avoided.
8. Handling and transportation costs. Including cost of collection containers for each type of waste.
9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE MANAGEMENT, GENERAL

A. Provide containers for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be

the same as the materials recycled at the receiving material recovery facility or recycling processor.

B. The collection containers for recyclable CDL waste must contain no more than 10% nonrecyclable material, by volume.

C. Provide containers for CDL waste that is disposed in a landfill clearly labeled as such.

D. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.

E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.

F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

3.2 SOURCE SEPARATION

A. General: Contractor shall separate recyclable materials from CDL waste to the maximum extent possible.

B. Separate recyclable materials by type.

1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water and to minimize pest attraction. Cover to prevent windblown dust.
3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from weather

3.3 CO-MINGLED RECYCLING

A. General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

3.4 REMOVAL OF CONSTRUCTION WASTE MATERIALS

A. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.

B. Transport CDL waste materials off Owner's property and legally dispose of them.

C. Burning of CDL waste is not permitted

WASTE MANAGEMENT PROGRESS REPORT				
MATERIAL CATEGORY	DISPOSED IN MUNICIPAL SOLID WASTE LANDFILL	DIVERTED FROM LANDFILL BY RECYCLING, SALVAGE, OR REUSE		
		RECYCLED	SALVAGED	REUSED
1. ACOUSTICAL CEILING TILES				
2. ASPHALT				
3. ASPHALT SHINGLES				
4. CARDBOARD PACKAGING				
5. CARPET AND CARPET PAD				
6. CONCRETE				
7. GYPSUM BOARD				
8. FLOURESCENT LIGHTS AND BALLASTS				
9. LAND CLEARING DEBRIS (VEGETATION, STUMPAGE, DIRT)				
10. METALS				
11. PAINT (THROUGH HAZARDOUS WASTE OUTLETS)				
12. WOOD				
13. PLASTIC FILM (SHEETING, SHRINK WRAP, PACKAGING)				
14. WINDOW GLASS				
15. FIELD OFFICE WASTE (OFFICE PAPER, ALUMINUM CANS, GLASS, PLASTIC, AND COFFEE CARBOARD)				
16. OTHER (INSERT DESCRIPTION)				
17. OTHER (INSERT DESCRIPTION)				
TOTAL		**(TOTAL OF ALL ABOVE VALUES – IN WEIGHT)**		
		PERCENT OF WASTE DIVERTED	**(TOTAL WASTE DIVIDED BY TOTAL DIVERTED)**	

END OF SECTION

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SECTION 01 75 00

STARTING AND ADJUSTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Starting systems.
2. Demonstration and instructions.
3. Training session recording.

1.2 STARTING SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and Owner seven days prior to start-up of each item. Contractor may direct subcontractor to “start systems” in order to prevent delay of project.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

G. Execute start-up in accordance with manufacturers' instructions.

1.3 DEMONSTRATION AND INSTRUCTIONS

A. Demonstration and instructions to comply with requirements in Section 01 79 00 “Demonstration and Training”.

B. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

C. Demonstrate Project equipment and instructed by a qualified manufacturers' representative who is knowledgeable about the Project.

D. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.

F. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.

G. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.4 TRAINING SESSION RECORDING

A. Record demonstration and instruction sessions in accordance with requirements in Section 01 79 00 “Demonstration and Training”.

PART 2 - PRODUCTS - Not Used.

PART 3 - EXECUTION - Not Used.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

1.2 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Close out checklist at end of this specification.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of ten (10) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner's signature for receipt of submittals.

5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **10** days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Architect.
d. Name of Contractor.
e. Page number.

4. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Architect will return annotated file.
b. PDF electronic file. Architect will return annotated file.
c. Three paper copies. Architect will return two copies.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within **15** days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. There should be no construction dust or debris upon completion. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.

i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
p. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls" and Section 01 74 19 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

Closeout Document Checklist

Project:

Date:

1. (2 wet signed hard copy) original Form G704 Substantial Completion
2. (2 wet signed hard copy) original Form G706 Affidavit of Payment of Debts and Claims
3. (2 wet signed hard copy) original Form 706A Release of Liens Contractor / Subcontractor
4. (2 wet signed hard copy) original Form 707 Consent of Surety Company
5. (3 wet signed hard copy) original Final Payment App
6. Meeting Minutes
7. General Correspondence
8. Certificate of Occupancy
9. Environmental Certificates
10. (2) Hard copy original of Warranties (Letter of Guarantee and Warranty Info)
11. (2) O&M Manuals
12. (2 Hard Copy) of As-Built Drawings
13. (2 Digital Sets on gold foil archival grade Compact Disc) Updated CAD files and Drawings
14. Occupancy Permits
15. Test & Balancing Reports
16. Field Reports/Inspection Reports
17. Pest Control Final Inspection Report & Warranty (Slabs over 400SF)
18. (2 hard copy) sets of Record Shop Drawings and submittals
19. Affidavit of Discharge of State Tax Liability
20. Copy of completed final punch list signed off on by Owner’s Rep
21. Punch list Closeout Letter.

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Operation and maintenance documentation directory.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Product maintenance manuals.
5. Systems and equipment maintenance manuals.

1.2 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect and Commissioning Authority will comment on whether content of operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

   a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
   b. Enable inserted reviewer comments on draft submittals.

2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.

C. Initial Manual Submittal: Submit draft copy of each manual at least **30** days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least **15** days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.

1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within **15** days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of

equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Architect.
7. Name and contact information for Commissioning Authority.
8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
9. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.

7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.

2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared record Drawings in Section 01 78 39 "Project Record Documents."

G. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

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SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of record Drawings as follows:

a. Initial Submittal:

1) Submit PDF electronic files of scanned record prints and one of file prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit PDF electronic files of scanned record prints and three set(s) of prints.
2) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

E. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible, but no greater than a week, after obtaining it.
    d. Record and check the markup before enclosing concealed installations.
    e. Cross-reference record prints to corresponding archive photographic documentation.
    f. Electronic copies of marked-up paper copies are to be submitted with each Payment Application in accordance with Section 01 29 00 “Payment Procedures”.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Depths of foundations below first floor.
    d. Locations and depths of underground utilities.
    e. Revisions to routing of piping and conduits.
    f. Revisions to electrical circuitry.
    g. Actual equipment locations.
    h. Duct size and routing.
    i. Locations of concealed internal utilities.
    j. Changes made by Change Order or Construction Change Directive.
    k. Changes made following Architect's written orders.
    l. Details not on the original Contract Drawings.
    m. Field records for variable and concealed conditions.
    n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide all materials and labor necessary to complete all concrete, plain and reinforced, as indicated or as specified in these specifications and as required to complete the Project. Work, without limiting the generality thereof, includes:

1. Setting of concrete curb and sidewalk.
2. Concrete pads for mechanical equipment.
3. Finishing of concrete as specified herein or as indicated.

1.2 SUBMITTALS

A. Product Data: Submit data on the following:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement.
7. Aggregates.
8. Admixtures:

    a. Include limitations of use, such as restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.

9. Color pigments.
10. Fiber reinforcement.
11. Vapor retarders or waterproof membranes.
12. Curing materials:

B. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum water-cementitious materials ratio.
5. Calculated equilibrium unit weight for lightweight concrete.
6. Slump limit.

7. Air content.
8. Nominal maximum aggregate size.
9. Steel-fiber reinforcement content.
10. Synthetic micro-fiber content.
11. Indicate amounts of mixing water to be withheld for later addition at Project Site, if permitted.
12. Submit separate mix designs if admixtures are required for the following:

    a. Hot and cold weather concrete Work.
    b. Air entrained concrete Work.

C. Qualification Data: Submit data for the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

D. Shop Drawings:

1. Construction Joint Layout:

    a. Indicate proposed construction joints required to construct structure.
    b. Location of construction joints is subject to approval of Architect/Engineer.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Manufacturer Instructions: Submit installation procedures and interfacing required for adjacent Work.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer employing Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor certified as ACI Flatwork Concrete Finisher/Technician, or an ACI Concrete Flatwork Technician with experience installing and finishing concrete, and incorporating permeability-reducing admixtures

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced manufacturing ready-mixed concrete products that complies with ASTM C94 requirements for production facilities and equipment.

C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.

1. Personnel performing laboratory tests are required to be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing

agency laboratory supervisors are required to be ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Field Quality-Control Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

1. Personnel conducting field tests are required to be qualified as ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

E. Additional Testing and Inspection Services:

1. If required, Owner's testing agency will perform additional testing and inspection services to verify conformance to Contract Documents as listed below:

a. Inspect concrete batching, mixing, and delivery operations.
b. Inspect forms, foundation preparation, reinforcement, embedded items, reinforcement placement, and concrete placing, finishing, and curing operations.
c. Sample concrete at point of placement and other locations as directed by Architect/Engineer and perform required tests.
d. Other testing or inspection services as required by Architect/Engineer.

2. Provide Owner's testing agency with requested documentation and access to perform testing and inspection activities.

1.4 AMBIENT CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301, ACI 306.1, and as follows:

1. Protect concrete Work from physical damage or reduced strength caused by frost, freezing actions, or low temperatures.
2. 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 and ACI 305.1.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Concrete Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
3. Obtain aggregate from single source.
4. Obtain each type of admixture from single source from single manufacturer.

B. Concrete Components:

1. Cement:

    a. Comply with ASTM C150/C150M, Type I – Normal.
    b. Type: Portland.

2. Fly Ash: Comply with ASTM C618, Class C or F.
3. Silica Fume: Comply with ASTM C1240, amorphous silica.
4. Slag:

    a. Description: Ground granulated, blast furnace.
    b. Comply with ASTM C989.
    c. Grade: As indicated .

5. Normal Weight Aggregates:

    a. Comply with ASTM C33 coarse aggregate or better, graded. Provide aggregates from a single source.

    b. Coarse Aggregate Maximum Size: 3/4 inch nominal.
    c. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

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

    a. Air-Entraining Admixture: ASTM C260.
    b. Water-Reducing Admixture: ASTM C494, Type A.
    c. Retarding Admixture: ASTM C494, Type B.
    d. Water-Reducing and -Retarding Admixture: ASTM C494, Type D.
    e. High-Range, Water-Reducing Admixture: ASTM C494, Type F.
    f. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494, Type G.
    g. Plasticizing and Retarding Admixture:

        1) Comply with ASTM C1017/C1017M.

    h. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494, Type C.

        1) Manufacturers:

a) Euclid Chemical Company (The); an RPM company.
b) GCP Applied Technologies Inc.
c) Master Builders Solutions.
d) Sika Corporation.

i. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

1) Manufacturers:

a) Euclid Chemical Company (The); an RPM company.
b) GCP Applied Technologies Inc.
c) Master Builders Solutions.
d) Sika Corporation.

j. Permeability-Reducing Admixture: ASTM C494, Type S, hydrophilic, permeability-reducing crystalline admixture, capable of reducing water absorption of concrete exposed to hydrostatic pressure (PRAH).

1) Manufacturers:

a) AQUAFIN, Inc.
b) Kryton International.
c) Xypex Chemical Corporation.

k. Shrinkage-Reducing/Compensating Admixture:

1) Designed to provide both of the following characteristics:

a) Expands at a rate that closely compensates for the shrinkage of the concrete mix.
b) Reduces the capillary surface tension of the concrete pore water.

2) Provides at least 80% shrinkage reduction as measured and documented by field performance.
3) Formulated for use in freezing and thawing weather.
4) Dosage rate and mixing sequence per manufacturer's recommendations.
5) Certified by NSF/ANSI Standard 61: Drinking Water System Components - Health Effects.
6) Manufacturers:

a) Cortec Corporation.
b) Euclid Chemical Company (The); an RPM company.
c) GCP Applied Technologies Inc.
d) General Resource Technology.
e) Green Umbrella.
f) Master Builders Solutions.

g) Sika Corporation.

l. Color Pigment: ASTM C979, synthetic mineral-oxide pigments, color stable,free of carbon black, nonfading, and resistant to lime and other alkalis.

1) Manufacturers:

a) Alabama Pigments Company, LLC.
b) Brickform; a division of Solomon Colors.
c) Butterfield Color, Inc.
d) Dynamic Color Solutions, Inc.
e) Euclid Chemical Company (The); an RPM company.
f) Hoover Color Corporation.
g) Master Builders Solutions.
h) NewLook International, Inc.
i) Scofield, a Business Unit of Sika Corporation.
j) Solomon Colors Inc.

2) Color: As selected by Architect/Engineer from manufacturer's full range.

7. Water and Water Used to Make Ice: ASTM C94, potable

2.3 FIBER REINFORCEMENT

A. Carbon-Steel-Wire Fiber: ASTM A820, Type 1, cold-drawn wire, deformed

1. Manufacturers:

a. ABC Polymer Industries.
b. Bekaert.
c. Euclid Chemical Company (The); an RPM company.
d. Fibercon International, Inc.
e. FORTA Corporation.
f. Master Builders Solutions.
g. Nycon, Inc.
h. Propex Operating Company, LLC.
i. Sika Corporation.

B. Synthetic Monofilament Micro-fiber: Monofilament polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C1116, Type III,

1. Manufacturers:

a. ABC Polymer Industries.
b. Euclid Chemical Company (The); an RPM company.
c. GCP Applied Technologies Inc.
d. Master Builders Solutions.
e. Propex Operating Company, LLC.
f. Sika Corporation.

C. Synthetic Fibrillated Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C1116, Type III,

1. Manufacturers:

a. ABC Polymer Industries.
b. Euclid Chemical Company (The); an RPM company.
c. GCP Applied Technologies Inc.
d. Master Builders Solutions.
e. Propex Operating Company, LLC.
f. Sika Corporation.

D. Synthetic Macro-fiber: Synthetic macro-fibers engineered and designed for use in concrete, complying with ASTM C1116, Type III,

1. Manufacturers:

a. ABC Polymer Industries.
b. Euclid Chemical Company (The); an RPM company.
c. GCP Applied Technologies Inc.
d. Propex Operating Company, LLC.
e. Sika Corporation.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Manufacturers:

a. Bon Tool Co.
b. Brickform; a division of Solomon Colors.
c. Dayton Superior.
d. Euclid Chemical Company (The); an RPM company.
e. Kaufman Products, Inc.
f. Lambert Corporation.
g. Laticrete International, Inc.
h. Master Builders Solutions.
i. Nox Crete products group.
j. Sika Corporation.
k. SpecChem, LLC.
l. TK Products.
m. Vexcon Chemicals Inc.
n. W.R. Meadows, Inc.

B. Concrete Curing Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Concrete Curing Reusable Moisture-Retaining Covers, ASTM C171:

1. Burlap-polyethylene sheet.

a. 10 oz. burlap laminated onto 5 mil white coated polyethylene.
b. Reusable, natural burlap provides moisture absorption.
c. Coated white poly reflects sunlight and intense heat rays.
d. Quality lamination between the two fabrics.
e. Size: 10-by-100-foot roll.

2. Provide wet cure blankets comprised of a non-woven polypropylene fabric coated with a white-pigmented polyethylene, complying with ASTM C171; total thickness varies per manufacturer. Acceptable products are as follows

a. HydraCure reusable, reflective wet cure blankets as manufactured by PNA Construction Technologies, thickness 40 mils.
b. Transguard 4000 as manufactured by Reef Industries, Inc., thickness 42 mils.
c. Conkure 80 as manufactured by Raven Industries, thickness 17 mils.

D. , Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Manufacturers:

a. ChemMasters, Inc.
b. Dayton Superior Specialty Chemicals.
c. Euclid Chemical Company (The); an RPM company.
d. Kaufman Products, Inc.
e. Lambert Corporation.
f. Laticrete International, Inc.
g. Master Builders Solutions.
h. Metalcrete Industries.
i. Nox Crete products group.
j. SpecChem, LLC.
k. Vexcon Chemicals Inc.
l. V-Seal Concrete Sealers & Specialty Coatings.
m. W.R. Meadows, Inc.

2. Substitutions: Permitted.

E. Clear, Solvent-Borne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

1. Manufacturers:

a. ChemMasters, Inc.
b. Concrete Sealers USA.
c. Dayton Superior Specialty Chemicals.
d. Euclid Chemical Company (The); an RPM company.
e. Kaufman Products, Inc.
f. Lambert Corporation.

g. Laticrete International, Inc.
h. Master Builders Solutions.
i. Metalcrete Industries.
j. Nox Crete products group.
k. Right Pointe.
l. SpecChem, LLC.
m. TK Products.
n. Vexcon Chemicals Inc.
o. W.R. Meadows, Inc.

Substitutions: Permitted.

2.5 AUTOMATIC CONCRETE CURING SYSTEM

A. Basis-of-Design Product: The Cure Tender USA Automatic Curing System automatically time releases water required for concrete curing onto the concrete and under the cure blankets, allowing the concrete to be unattended. This system is self-contained and solar powered, and can be used on both vertical and flat concrete. It consists of the following components:

1. 1,200-gallon water storage tank to provide 50-60 hours of constant supply.
2. Specially designed perforated watering hoses.
3. Solar-powered time release pump capable of running five days without recharging.
4. 2-inch gas-powered water pump for priming of soaking blankets.
5. Anti-theft devices (optional).

2.6 SMART CONCRETE SENSORS AND SOFTWARE

A. Smart concrete sensor and software system consists of an integrated platform of embedded wireless sensors that automatically monitor the curing and hardening of concrete, combined with manufacturers' mobile apps and associated cloud software.

B. Basis-of-Design Products: Subject to compliance with requirements, provide Wireless SmartRock and BlueRock Sensors, SmartRock mobile app, Giatec 360 cloud dashboard and SmartHub as manufactured by Giatec Scientific Inc., or comparable products by one of the following:

1. Concrete Sensors, a subsidiary of Hilti, offers the following:

a. NovoConcrete - wireless sensors for automatic data collection.
b. NovoSyte - cloud software and analytics.
c. NovoHub - wireless gateway.
d. NovoDB - mix design database.

C. SmartRock Sensor Technical Specifications:

1. Reading Range: Minus 22 to plus 176 deg. F
2. Accuracy: Plus or minus 1 degree C.
3. Measurement Frequency: Once every 15 minutes (for two months of data).
4. Wireless Signal Range: Up to 26 feet.

5. Dimensions: 1.5 x 1.5 x 0.5 inches.
6. Temperature Cable Length: 16 in./10 ft.
7. Battery Life: Up to four months after installation.
8. Data Communication and Analysis: Android and iOS app, Giatec 360 Cloud Dashboard.
9. Standards: ASTM C1074 (approved by ACI 318, CSA A23.1/A23.2, most of USDOT specifications).

D. SmartRock System Attributes:

1. Concrete Strength: Based on the maturity method in accordance with ASTM C1074. Smart concrete testing technologies and real-time data collection.
2. Wireless Sensors: Rugged, waterproof, and designed to survive toughest conditions. Sensors are fully embedded and tied to rebar prior to concrete pour.
3. Instant wireless connection to smartphones.
4. User-friendly mobile app displays temperature, strength, maturity information, and more.
5. Share full PDF or CSV reports instantly with all project stakeholders.
6. Track and review all projects with Giatec 360 cloud dashboard.

E. Joint Devices and Filler:

1. Joint Filler, Type A:

   a. Description: Asphalt-impregnated fiberboard or felt.
   b. Comply with ASTM D1751.
   c. Thickness: 1/4 inch
   d. Profile: Tongue-and-groove.
2. Construction Joint Devices:
   a. Material: Integral galvanized steel.
   b. Thickness: 1.5 inches.
   c. Profile: Tongue-and-groove with removable top strip exposing sealant trough and knockout holes spaced at 6inches o.c.
   d. Furnish ribbed steel spikes with tongue to fit top screed edge.

3. Expansion Joint Devices:

   a. Comply with AASHTO M153.
   b. Material: polyurethane bonded recycled rubber.

F. Nonshrink Grout:

1. Manufacturers:

   a. CGM, Incorporated.
   b. Euclid Chemical Company (The); an RPM company.
   c. Laticrete International, Inc.
   d. QUIKRETE.
   e. Sika Corporation.

G. Bonding Agent:

1. Manufacturers:

a. Euclid Chemical Company (The); an RPM company.
b. Metalcrete Industries.
c. QUIKRETE.
d. Sika Corporation.
e. W.R. Meadows, Inc.

2.7 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, in accordance with ACI 301.

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.
2. Slag Cement: 50 percent by mass.
3. Silica Fume: 10 percent by mass.
4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass, and silica fume not exceeding 10 percent by mass.
5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass, and silica fume not exceeding 10 percent by mass.

C. Admixtures: Use in accordance with 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] [concrete with a w/cm below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
5. Use permeability-reducing admixture in concrete mixtures where indicated.

D. Color Pigment: Add color pigment to concrete mixture in accordance with manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.8 CONCRETE MIXTURES

A. Select proportions for normal weight concrete according to ACI 301 Method 1.

B. Performance and Design Criteria:
1. Compressive Strength: 3000 psi at 28 days.
2. Cement Type: ASTM C150
3. Aggregate Type: Normal weight.

4. Coarse Aggregate: conform to the requirements of AASHTO M80 except no crushed concrete (RCC) may be used. Conform to the gradation requirements of AASHTO M43, or AASHTO M80 as applicable.
5. Fine Aggregate: Fineness modulus must be 2.3 to 3.1. Conform to AASHTO M6 except the grading should be:

Sieve Size	% Passing
	Concrete Sand
3/8” (9.5 mm)	100
No. 4 (4.75 mm)	95 – 100
No. 50 (300 µm)	5 – 30
No. 100 (150 µm)	1 – 10
No. 200 (75 µm)	0 - 4

6. Maximum Water-Cementitious Materials Ratio: 0.45 by weight.

7. Air Content: 4.0 – 7.0 percent, plus or minus 1.5 percent.
8. Nominal Slump:1 to 3 inches.
9. Maximum Permeability: 3,000 Coulombs

C. Ready-Mixed Concrete: Mix and deliver concrete according to ASTM [C94/C94M

D. Site-Mixed Concrete: Mix concrete according to ACI 318.

E. Mass Concrete: Comply with requirements of ACI 301 Section 8 - Mass Concrete.

F. High Early Concrete Mix Proportions: Provide high early concrete as a preblended, prepackaged material requiring only the addition of water and stone aggregate.

2.9 CONCRETE MIXING

A. Ready-Mix Concrete: Comply with requirements of ASTM C94 and ASTM C1116 and as herein specified. Delete references for allowing additional water to be added to batch for material with insufficient slump. Addition of water to the batch will not be permitted.

1. Retempering of concrete by adding water or any other material is not permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify requirements for concrete cover over reinforcement.

B. Verify that anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

A. Previously Placed Concrete:

1. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
2. Remove laitance, coatings, and unsound materials.

B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels, and pack solid with non-shrink grout.

C. Remove debris and ice from formwork, reinforcement, and concrete substrates.

D. Remove water from areas receiving concrete before concrete is placed.

3.3 INSTALLATION

A. Placing Concrete:

1. Place concrete according to ACI 301.
2. Notify testing laboratory Authority and Construction Manager minimum 24 hours prior to commencement of operations.
3. Ensure that reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
4. Vapor Barrier:

a. Install vapor retarder under interior slabs on grade according to ASTM E1643.
b. Lap joints per manufacturer specifications and seal watertight by taping edges and ends.
c. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
d. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
e. Protect vapor retarder during placement of reinforcement and concrete.
f. Repairs:

1) Repair vapor retarder damaged during placement of concrete reinforcement.
2) Using vapor retarder material, lap over damaged areas per manufacturer specifications and seal watertight.

5. Joint Filler:

a. Separate slabs on grade from vertical surfaces with 1/2 inch thick joint filler.
b. Place joint filler in floor slab; set top to required elevations; secure to resist movement by wet concrete.
c. Finish Joint Sealer Requirements: As specified in Section 079000 - Joint Protection

6. Joint Devices:

a. Coordination: Install construction joint devices in coordination with floor slab; set top to required elevations; secure to resist movement by wet concrete.
b. Install joint device anchors, maintaining correct position to allow joint cover to be flush with floor and wall finish.
c. Install joint covers in longest practical length when adjacent construction activity is complete.
d. Apply sealants in joint devices as specified in Section 079000 - Joint Protection.

7. Deposit concrete at final position, preventing segregation of mix.
8. Place concrete in continuous operation for each panel or section as determined by predetermined joints.
9. Consolidate concrete.
10. Maintain records of concrete placement, including date, location, quantity, air temperature, and test samples taken.
11. Place concrete continuously between predetermined expansion, control, and construction joints.
12. Do not interrupt successive placement and do not permit cold joints to occur.
13. Saw-Cut Joints:

a. Saw-cut joints within 12 hours after placing.
b. Cut into ¼ depth of slab thickness.

B. Concrete Finishing:

1. Provide formed concrete surfaces to be left exposed with smooth-rubbed finish.
2. Finish concrete floor surfaces according to ACI 301 and ACI 318.
3. Wood float surfaces receiving quarry tile, ceramic tile and terrazzo with full-bed setting system.
4. Steel trowel surfaces receiving carpeting, resilient flooring, seamless flooring, thin-set quarry tile and thin-set ceramic tile.
5. Steel trowel surfaces indicated to be exposed.
6. In areas with floor drains, maintain floor elevation at walls and pitch surfaces uniformly to drains as indicated.
7. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.

a. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
b. Coordinate required final finish with Architect/Engineer before application.

8. Slip-Resistive Finish: Before final floating, apply slip-resistive finish to concrete stair treads, platforms, ramps as indicated.

C. Curing and Protection:

1. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
2. Protect concrete footings from freezing for minimum of 2 days.
3. Cure floor surfaces according to ACI 301 and ACI 318.
4. Ponding: Maintain 100 percent coverage of water over floor slab areas continuously for seven days.

5. Spray water over floor slab areas and maintain wetness for seven days.
6. Mass Concrete Curing: Cure mass concrete in accordance with ACI 301, Section 8. Use thermocouple sensors for monitoring temperature and maturity. Place sensors at center of largest portion of concrete placement and at 2 inches below concrete surface. Place a back-up sensor at each location. Provide data from sensors to Architect/Engineer and Construction Manager daily. Maximum temperature in concrete after placement should not exceed 160 deg. F
7. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.

    a. Recoat areas subject to heavy rainfall within three hours after initial application.
    b. Maintain continuity of coating and repair damage during curing period

3.4 FIELD QUALITY CONTROL

A. Inspection and Testing: Performed by Owner's testing laboratory according to ACI 318.

B. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.

C. Concrete Inspections:

1. Continuous Placement Inspection: Inspect for proper installation procedures.
2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.

D. Strength Test Samples:

1. Sampling Procedures: Comply with ASTM C172/C172M.
2. Cylinder Molding and Curing Procedures:

    a. Comply with ASTM C31/C31M.
    b. Cylinder Specimens: Standard cured.

3. Sample concrete and make one set of five cylinders for every 50 cu. yd. or less of each class of concrete placed each day, and for every 2500 sq. ft. of surface area for slabs and walls.
4. If volume of concrete for a class of concrete would provide less than five sets of cylinders, take samples from five randomly selected batches, or from every batch if less than five batches are used.
5. Make one additional cylinder during cold weather concreting and field cure.

E. Field Testing:

1. Slump Test Method: Comply with ASTM C143.
2. Air Content Test Method: Comply with ASTM C231.
3. Temperature Test Method: Comply with ASTM C1064.
4. Compressive Strength Concrete:

    a. Measure slump and temperature for each sample.

5. Measure air content in air-entrained concrete for each sample.

F. Field Testing:

1. Slump Test Method: Comply with ASTM C143.
2. Air Content Test Method: Comply with ASTM C231.
3. Temperature Test Method: Comply with ASTM C1064.
4. Compressive Strength Concrete:

    a. Measure slump and temperature for each sample.
    b. Measure air content in air-entrained concrete for each sample.

G. Cylinder Compressive Strength Testing:

1. Test Method: Comply with ASTM C39.
2. Test Acceptance: According to ACI 318.
3. Test two cylinders at 7 days and three cylinder at 28 days.

H. Core Compressive Strength Testing:

1. Sampling and Testing Procedures: Comply with ASTM C42/C42M.
2. Test Acceptance: According to ACI 318.
3. Drill three cores for each failed strength test from failed concrete.

I. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 48 hours of completion of floor finishing and promptly report test results to Architect.

J. Patching:

1. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.
2. Honeycombing or Embedded Debris in Concrete:

    a. Not acceptable.
    b. Notify Architect/Engineer upon discovery.

3. Patch imperfections according to ACI 318.

K. Defective Concrete:

1. Description: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
2. Repair or replacement of defective concrete will be determined by Architect/Engineer.
3. Do not patch, fill, touch up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Grounding systems and equipment.

B. Section includes grounding systems and equipment, plus the following special applications:

1. Underground distribution grounding.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Ground rods.

B. Qualification Data: For qualified testing agency and testing agency's field supervisor.

C. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. 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.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.2 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch diameter by 10 feet in length.

PART 3 - EXECUTION

3.1 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install ground rods under pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 4/0 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches from the foundation.

3.2 INSTALLATION

A. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer 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.
    b. Perform tests by fall-of-potential method according to IEEE 81.

E. Grounding system will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

G. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 5 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Data Center, Telecommunications Rooms/Closets: 1 ohm(s).
5. Substations and Pad-Mounted Equipment: 5 ohms.
6. Manhole Grounds: 10 ohms.

H. 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 26 05 43

UNDERGROUND DUCTS AND RACEWAYS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Type HDPE raceways
2. Type PVC raceways
3. Fittings for conduit, tubing, and cable.
4. Solvent cements.
5. Duct accessories.
6. Handholes and boxes for exterior underground wiring.
7. Duct sealing.

1.2 ALLOWANCES

A. See Section 012100 "Allowances" for description of allowances affecting items specified in this Section.

1.3 UNIT PRICES

A. See Section 012200 "Unit Prices" for description of unit prices affecting items specified in this Section.

1.4 ALTERNATES

A. See Section 012300 "Alternates" for description of alternates affecting items specified in this Section.

1.5 DEFINITIONS

A. Duct: A single raceway or multiple raceways, installed singly or as components of a duct bank.

B. Duct Bank: Two or more ducts installed in parallel, direct buried or with additional casing materials such as concrete.

C. Handhole: An underground chamber containing electrical cables, sized such that personnel are not required to enter in order to access the cables.

D. Manhole: An underground chamber containing electrical cables and equipment, sized to provide access with working space clearances.

E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.6 PREINSTALLATION MEETINGS

A. Preinstallation Coordination Meeting(s): For underground ducts and raceways. Conduct meeting(s) at Project site before road closures or saw cutting.

1. Attendees: Installers, fabricators, representatives of manufacturers, and administrants for field tests and inspections. Notify Architect, and Construction Manager of scheduled meeting dates.

1.7 ACTION SUBMITTALS

A. Product Data:

1. Duct-bank materials, including spacers and miscellaneous components.
2. Ducts, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Underground-line warning tape.
4. Warning planks.

B. Shop Drawings:

1. Electric Utility Duct Banks and Structures:

a. Include plans, elevations, sections, and details, including attachments to other Work.
b. Indicate locations of private property boundaries and utility easements.
c. Include information required for approval by electric utility and for obtaining public space utility work permits.

PART 2 - PRODUCTS

2.1 TYPE HDPE RACEWAYS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 651A and UL CCN EAZX.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

C. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ARNCO Corp.
2. Beck Manufacturing.
3. Cantex, Inc.
4. CertainTeed Corp.; Pipe & Plastics Group.
5. Champion Fiberglass.
6. Condux International, Inc.
7. ElecSys, Inc.
8. Electri-Flex Company.
9. IPEX Inc.
10. Lamson & Sessions; Carlon Electrical Products.
11. Manhattan/CDT; a division of Cable Design Technologies.
12. Spiraduct/AFC Cable Systems, Inc.
13. United Fiberglass of America
14. TE Connectivity / Raychem

D. Schedule 40 Electrical HDPE Underground Conduit (EPEC-40):

1. Dimensional Specifications: Schedule 40.
2. Minimum Trade Size: Metric designator 16 (trade size 1/2).

2.2 TYPE PVC RACEWAYS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 651 and UL CCN DZYR.

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

C. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ARNCO Corp.
2. Beck Manufacturing.
3. Cantex, Inc.
4. CertainTeed Corp.; Pipe & Plastics Group.
5. Champion Fiberglass.
6. Condux International, Inc.
7. ElecSys, Inc.
8. Electri-Flex Company.

9. IPEX Inc.
10. Lamson & Sessions; Carlon Electrical Products.
11. Manhattan/CDT; a division of Cable Design Technologies.
12. Spiraduct/AFC Cable Systems, Inc.
13. United Fiberglass of America
14. TE Connectivity / Raychem

D. Schedule 40 Rigid PVC Conduit (PVC-40) and Fittings:

1. Dimensional Specifications: Schedule 40.
2. Options:

a. Minimum Trade Size: Metric designator 21 (trade size 3/4).
b. Markings: For use with maximum 90 deg C wire. For directional boring applications.

2.3 FITTINGS FOR CONDUIT, TUBING, AND CABLE

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. NEMA TC 2, Type EPC-40-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.4 SOLVENT CEMENTS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: As recommended by conduit manufacturer in accordance with UL 514B and UL CCN DWTT.

2.5 DUCT ACCESSORIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ARNCO Corp.
2. Beck Manufacturing.
3. Cantex, Inc.
4. CertainTeed Corp.; Pipe & Plastics Group.

5. Champion Fiberglass.
6. Condux International, Inc.
7. ElecSys, Inc.
8. Electri-Flex Company.
9. IPEX Inc.
10. Lamson & Sessions; Carlon Electrical Products.
11. Manhattan/CDT; a division of Cable Design Technologies.
12. Spiraduct/AFC Cable Systems, Inc.
13. United Fiberglass of America
14. TE Connectivity / Raychem

C. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.

D. Underground-Line Warning Tape:

1. Recommended by manufacturer for method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape must be permanent and may not be damaged by burial operations.
3. Tape material and ink must be chemically inert and not be subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
4. Color and Printing:

   a. Comply with APWA Uniform Color Code using NEMA Z535.1 safety colors.
   b. Inscriptions for Red Tapes: "CAUTION BURIED ELECTRIC LINE BELOW".
   c. Inscriptions for Orange Tapes: CAUTION BURIED COMMUNICATION LINE BELOW"

5. Tape Type I:

   a. Pigmented polyolefin, bright colored, [continuous-printed on one side with inscription of utility, compounded for direct-burial service.
   b. Width: 3 inch.
   c. Thickness: 4 mil.
   d. Weight: 18.5 lb/1000 sq. ft.
   e. Tensile in accordance with ASTM D882: 30 lbf and 2500 psi.

E. Duct plugs:

1. Plugs in all unused ducts shall be rubber stopper type, water and gas tight, with eye for retaining pull rope.

2.6 DUCT SEALING

A. Duct-Sealing Compound: Nonhardening, safe for contact with human skin, not deleterious to cable insulation, and workable at temperatures as low as 35 deg F. Compound must be capable of withstanding temperature of 300 deg F without slump and adhering to clean surfaces of plastic ducts, metallic conduit, conduit and duct coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals. Duct sealing compound must be removable without damaging ducts or cables.

B. Inflatable Duct-Sealing System: Wraparound inflatable bladder that seals ducts that are empty or containing conductors against air and water infiltration. System is suitable for use in steel, plastic, or concrete ducts and penetrations.

2.7 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. All handholes will be furnished by the associated utility company.

B. Handholes will be purchased by the Owner and shall not be included in the Bid.

C. Contractor shall coordinate acquisition of the handhole with the associated utility company.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in field. Notify Architect if there is conflict between areas of excavation and existing structures or archaeological sites to remain.

B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by Architect.

C. Clear and grub vegetation to be removed, and protect vegetation to remain in accordance with Section 311000 "Site Clearing." Remove and stockpile topsoil for reapplication in accordance with Section 311000 "Site Clearing."

3.2 SELECTION OF UNDERGROUND DUCTS

A. Concrete Encased Ducts: PVC-40, concrete encased unless otherwise indicated.

B. Direct Buried Duct for Electrical Branch Circuits: PVC-40, direct buried unless otherwise indicated.

C. Bored Underground Duct: HDPE-40 or PVC-40 unless otherwise indicated.

D. Stub-ups: Concrete encased, PVC-40.

3.3 EARTHWORK

A. Excavation and Backfill: Comply with Section 312000 "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restoration: Restore area in accordance with drawings.

C. Restore surface features at areas disturbed by excavation, and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

E. Cut and patch existing pavement in path of underground duct, duct bank, and underground structures in accordance with "Cutting and Patching" Article in Section 017300 "Execution."

3.4 INSTALLATION OF DUCTS AND DUCT BANKS

A. Reference Standards:

1. Unless more stringent requirements are specified in Contract Documents or manufacturers' published instructions, comply with NEMA TCB 2 for installation of underground ducts and duct banks.
2. Consult Architect for resolution of conflicting requirements.

B. Special Techniques:

1. Where indicated on Drawings, install duct, spacers, and accessories into duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.
2. Slope: Pitch duct minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from high point between two manholes to drain in both directions.
3. Install expansion fitting near center of straight line duct with calculated expansion of more than 3/4 inch.
4. Curves and Bends:

    a. Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with minimum radius of 36 inch for electrical ducts, both horizontally and vertically, at other locations unless otherwise indicated.

b. Field bending must be in accordance with NFPA 70 minimum radii requirements, except bends over 45 degrees must be made with minimum radius of 36 inch for electrical ducts. Use only equipment specifically designed for material and size involved. Use PVC heating bender for bending PVC conduit.

5. Joints: Use solvent-cemented joints in nonmetallic duct and fittings and make watertight in accordance with manufacturer's published instructions. Stagger couplings so those of adjacent duct do not lie in same plane. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with minimum 3 inch of concrete for minimum of 12 inch on each side of coupling.

   a. Install insulated grounding bushings on steel raceway terminations that are less than 12 inch below grade or floor level and do not terminate in hubs.

6. Installation Adjacent to High-Temperature Steam Lines: Where duct is installed parallel to underground steam lines, perform calculations showing duct will not be subject to environmental temperatures above 104 deg F. Where environmental temperatures are calculated to rise above 104 deg F, and anywhere duct crosses above underground steam line, install insulation blankets listed for direct burial to isolate duct bank from steam line to maintain maximum environmental temperature of 104 deg F.
7. End Bell Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 8 inch o.c. for 4 inch duct.

   a. Begin change from regular spacing to end-bell spacing 10 ft from end bell, without reducing duct slope and without forming trap in line.
   b. Grout end bells into structure walls from both sides to provide watertight entrances.

8. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15 psig hydrostatic pressure.
9. Pulling Cord: Install 200 lbf test nylon cord in empty ducts.
10. Concrete-Encased Ducts and Duct Bank:

    a. Excavate trench bottom to provide firm and uniform support for duct. Prepare trench bottoms as specified in Section 312000 "Earth Moving" for pipes 6 inch or less in nominal diameter.
    b. Width: Excavate trench 3 inch wider than duct on each side.
    c. Depth: Install so top of duct envelope is at least 36 inch below finished grade. Install so top of duct envelope is below local frost line.
    d. Support duct on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
    e. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than four spacers per 20 ft of duct. Place spacers within 24 inch of duct ends. Stagger spacers approximately 6 inch between tiers. Secure spacers to earth and to duct to prevent floating during concreting. Tie entire assembly together using fabric straps; do not

use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.

f. Minimum Space between Ducts: 3 inch between edge of duct and exterior envelope wall, 2 inch between ducts for like services

g. Elbows:

1) Use manufactured duct elbows for stub-ups and at changes of direction in duct unless otherwise indicated. Extend encasement throughout length of elbow.

h. Stub-ups to Outdoor Equipment: Extend concrete-encased steel raceway horizontally minimum of 60 inch from edge of equipment base.

1) Stub-ups must be minimum 4 inch above finished concrete pad or utility pole and minimum 3 inch from conduit side to edge of slab.

i. Reinforcement: Reinforce concrete-encased duct where crossing disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.

j. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.

k. Concrete Cover: Install minimum of 3 inch of concrete cover between edge of duct to exterior envelope wall, 2 inch between duct of like services.

l. Place minimum 6 inch of engineered fill above concrete encasement of duct.

m. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.

1) Start at one end and finish at other, allowing for expansion and contraction of duct as its temperature changes during and after pour. Use expansion fittings installed in accordance with manufacturer's published instructions, or use other specific measures to prevent expansion-contraction damage.

2) If more than one pour is necessary, terminate each pour in vertical plane and install 3/4 inch reinforcing-rod dowels extending minimum of 18 inch into concrete on both sides of joint near corners of envelope.

n. Pouring Concrete: Comply with requirements in "Concrete Placement" Article in Section 033000 "Cast-in-Place Concrete." Place concrete carefully during pours to prevent voids under and between duct and at exterior surface of envelope. Do not allow heavy mass of concrete to fall directly onto ducts. Allow concrete to flow around duct and rise up in middle, uniformly filling open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-installation application.

11. Direct-Buried Duct and Duct Bank:

a. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Section 312000 "Earth Moving" for preparation of trench bottoms for pipes less than 6 inch in nominal diameter.
b. Width: Excavate trench 3 inch wider than duct on each side.
c. Depth: Install top of duct at least 36 inch below finished grade unless otherwise indicated.
d. Set elevation of top of duct bank below frost line.
e. Place minimum 3 inch of sand as bed for duct. Place sand to minimum of 6 inch above top level of duct.
f. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
g. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 ft of duct. Place spacers within 24 inch of duct ends. Stagger spacers approximately 6 inch between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
h. Install duct with minimum of 3 inch between ducts for like services and 6 inch between power and communications duct.
i. Install manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct direction unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.

    1) Stub-ups to Outdoor Equipment: Extend concrete-encased steel raceway horizontally minimum of 60 inch from edge of base. Install insulated grounding bushings on terminations at equipment.

        a) Stub-ups must terminate in coupling installed flush with finished base and minimum 3 inch from conduit side to edge of base.

j. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inch over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction. Comply with requirements in Section 312000 "Earth Moving" for installation of backfill materials.

12. Underground-Line Warning Tape: Bury nonconducting underground line no less than 12 inch above concrete-encased duct and duct banks and approximately 6 inch below grade. Align tape parallel to and within 3 inch of centerline of duct bank. Provide additional warning tape for each 12 inch increment of duct-bank width over nominal 18 inch. Space additional tapes 12 inch apart, horizontally across width of ducts.

3.5 INSTALLATION OF HANDHOLES AND BOXES

A. Utility Furnished Handholes:

1. Install units level and plumb and with orientation and depth coordinated with connecting duct to minimize bends and deflections required for proper entrances.
2. Unless otherwise indicated, support units on level bed of crushed stone or gravel graded from 1 inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
3. Field-cut openings for conduits in accordance with enclosure manufacturer's published instructions. Cut wall of enclosure with tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

B. Elevations:

1. Install handholes with bottom below frost line
2. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
3. Where indicated, cast handhole cover frame integrally with handhole structure.

C. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

D. Field-Installed Bolting Anchors Handholes: Do not drill deeper than 2 inch for handholes, for anchor bolts installed in field. Use minimum of two anchors for each cable stanchion.

3.6 FIELD QUALITY CONTROL

A. Field tests and inspections must be witnessed by authorities having jurisdiction or associated utility company.

B. Tests and Inspections:

1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide minimum 12 inch long mandrel equal to duct size minus 1/4 inch. If obstructions are indicated, remove obstructions and retest.
3. Test handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."

C. Nonconforming Work:

1. Underground ducts, raceways, and structures will be considered defective if they do not pass tests and inspections.
2. Correct deficiencies and retest as specified above to demonstrate compliance.

3.7 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Remove foreign material.

END OF SECTION 260543

SECTION 31 05 13

EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparing subgrades for pavements, walks and plants.
2. Excavating and backfilling trenches for utilities and pits for buried utility structures other than the stormwater management basins.
3. Excavating and backfilling for structures.
4. Subbase course for concrete walks and pavement.

B. Related Requirements:

1. Document: Report titled, “Geotechnical Evaluation, State of Delaware, Delaware Family Courts-Sussex County Expansion, Georgetown, Delaware,” prepared by Duffield Associates, LLC, Project No. 12598.GF, dated May 4, 2021.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials (AASHTO)

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg Rammer and a 457-mm Drop.

B. ASTM International:

1. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3).
2. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
3. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

C. Delaware Department of Transportation (DelDOT) Standard Specifications for Road and Bridge Construction.

1.4 SUBMITTALS

A. Product Data: Submit name of imported materials source.

B. Samples: Submit, in airtight containers, 10 lb. sample of each type of soil and aggregate fill to testing laboratory.

C. Supplier's Certificate: Certify that products meet or exceed specified requirements.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Pavement Base Course: Type B (Crushed Stone) DelDOT Section 1005.

E. Bedding Course: AASHTO No. 8 stone DelDOT Section 1004.

F. Structural Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; with at least 90 percent passing a 1-1/2-inch sieve and not more than 25 percent passing a No.200 sieve.

G. Drainage Course: AASHTO No. 57 stone. DelDOT Section 1004

2.2 GEOTEXTILES

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefin or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Grab Tensile Strength: 157 lbf ; ASTM D 4632.
3. Sewn Seam Strength: 142 lbf ; ASTM D 4632.
4. Tear Strength: 56 lbf ; ASTM D 4533.

5. Puncture Strength: 56 lbf ; ASTM D 4833.
6. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.
7. Permittivity: 1.4 per second, minimum; ASTM D 4491.
8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

B. Separation/Stabilization Geotextile: Woven geotextile, manufactured for separation, stabilization and subsurface filtration applications, made from polyolefin or polyesters; complying with AASHTO M 288, Survivability Class 1 or Class 2 and permittivity of 0.70 per sec. or greater (ASTM D 4491).

PART 3 - EXECUTION

3.1 MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Pavement Base Course Material: Type B Graded Aggregate DelDOT Standard Specification Section 1005

E. Bedding Course: AASHTO No. 8 stone DelDOT Section 1004 e.

F. Structural Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; with at least 90 percent passing a 1-1/2-inch sieve and not more than 25 percent passing a No. 200 sieve.

G. Drainage Course: AASHTO No. 57 stone DelDOT Section 1004

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.3 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.4 EXPLOSIVES

A. Explosives: Do not use explosives.

3.5 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with structural fill.

B. Undercut Excavation. Undercut excavation shall be considered the excavation of miscellaneous material and construction debris as reviewed and approved by the Owner’s representative.

3.6 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Tanks, Basins, and Mechanical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.7 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.8 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: Minimum 8 inches each side of pipe.

C. Trench Bottoms: Excavate trenches 8 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

3.9 SUBGRADE INSPECTION

A. Notify Owner's Representative when excavations have reached required subgrade.

B. Proof-roll subgrade below the building slabs and pavements plus 5-feet beyond with a minimum of three (3) passes in each direction with 10-ton vibratory roller and in accordance with the recommendation of the project geotechnical evaluation to densify the subgrade and identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

C. If Owner's Representative determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed. If encountered at foundation subgrade elevation, unsatisfactory soil shall be excavated to competent bearing material and backfilled with structural fill as recommended by the Owner's Representative.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices. Authorized excavations shall be jointly measured by the contractor and the Owners authorized representative.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Owner's Representative, without additional compensation.

3.10 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without

altering top elevation. Lean concrete fill, with 28-day compressive strength of 2000 psi, may be used when approved by Owner's Representative.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Owner's Representative.

3.11 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

2. Cover stockpiled material with a minimum 5 mil poly sheeting or equivalent. Securely anchor poly sheeting to avoid removal by the wind.

3.12 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, damp proofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.13 UTILITY TRENCH BACKFILL

A. Utility trenches shall be backfilled with certified clean fill.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

C. 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.

D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Place and compact final backfill of satisfactory soil in 6-inch layers to final subgrade elevation.

3.14 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, to a zone of 2’ below grade, use certified clean fill materials as approved by the Owner’s Representative.
2. Under walks and pavements, use satisfactory soil material.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

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.

3.16 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers. Use hand operated tampers adjacent to structures.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Structural Fill and compaction operations to extend 5’ beyond the building footprint.

D. Compact soil materials to not less than the following percentages of maximum dry unit weight according to the Modified Proctor Test (ASTM D 1557):

1. Under structures, building slabs, steps, and pavements, compact each layer of structural fill soil material to a minimum of 95 percent.
2. Under walkways, compact each layer of backfill or fill soil material to a minimum of 90 percent.
3. Under turf or unpaved areas compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches in landscape areas, compact each layer of initial and final backfill soil material at 85 percent.

3.17 GRADING

A. 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.

B. Site Rough Grading: Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

3.18 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

3.19 FIELD QUALITY CONTROL

A. Owner will engage a qualified materials testing and engineering firm to review construction and perform testing of materials for general conformance with these specifications.

B. The placement and compaction of structural fill shall be monitored on a fulltime basis.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Prevent water and sediment from entering stormwater stone detention bed excavation.

C. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Owner's Representative; reshape and recompact.

D. Where settling occurs before Project completion and acceptance, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

Removal of surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris must be performed in a manner consistent with the plan prepared by the project's environmental consultant. Disposal facilities for all materials must be pre-approved by the Owner's Representative. Documentation of all export, in the form of manifests or bills of lading, with weigh tickets (where available) must be maintained by the Contractor and submitted to the Owner's Representative on a weekly basis.

3.22 BASIS OF PAYMENT

A. Cubic yard, including off-site disposal as required.

B. Undercut excavation and backfill (Cubic yard) – per unit price bid for excavation and disposal and backfill.

C. Municipal wastes and construction and demolition debris –per unit price bid for disposal.

END OF SECTION

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SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing surface debris.
2. Removing designated paving curbs and sidewalk.
3. Excavating topsoil.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices.

1.3 QUALITY ASSURANCE

A. Conform to Delaware Department of Natural Resources (DNREC) code for environmental requirements and disposal of debris.

B. Perform Work in accordance with Town of Georgetown and Delaware Department of Transportation standards.

C. Contractor shall maintain at all times on site a set of official stamped approved project drawings for all disciplines (civil, architectural, mechanical/electrical, plumbing, etc.).

PART 2 - EXECUTION

2.1 EXAMINATION

A. Identify waste area for placing removed materials.

2.2 PREPARATION

A. Miss Utility shall be notified three (3) consecutive working days prior to commencing work at 1-800-282-8555.

1. Request underground utilities to be located and marked within and surrounding construction areas.

2.3 PROTECTION

A. Locate, identify, and protect from damage utilities indicated to remain.

B. Protect trees, plant growth, and features designated to remain, as final landscaping.

C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

2.4 CLEARING

A. Clear areas required for access to site and execution of Work to minimum depth of 6 inches.

2.5 REMOVAL

A. Remove debris, rock, and extracted plant life from site.

B. Partially remove paving curbs, and sidewalk as indicated on Drawings. Neatly saw cut edges at right angle to surface.

C. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

D. Do not burn or bury materials on site. Leave site in clean condition.

2.6 TOPSOIL EXCAVATION

A. Excavate topsoil from marked areas without mixing with foreign materials for use in finish grading.

B. Do not excavate wet topsoil.

C. Stockpile in area designated on site to depth not exceeding 4 feet and protect from erosion. Stockpile material on impervious material until disposal.

D. Remove excess topsoil not intended for reuse, from Site.

END OF SECTION

SECTION 31 23 16.13

TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Backfilling and compaction.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices.

1.3 QUALITY ASSURANCE

A. Perform Work according to Town of Georgetown and Delaware Department of Transportation standards.

B. Prepare excavation protection plan under direct supervision of professional engineer experienced in design of this Work and licensed in State of Delaware.

1.4 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.5 COORDINATION

A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

A. Subsoil Fill: Type S2.

PART 3 - EXECUTION

3.1 SUSTAINABILITY CHARACTERISTICS

A. Materials and Resources Characteristics:

1. Recycled Content Materials: Maximum available recycled content.

3.2 LINES AND GRADES

A. Lay utilities to lines and grades indicated.

1. Architect/Engineer may make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

B. Maintain grade alignment of pipe using string line parallel with grade line and vertically above centerline of pipe.

1. Establish string line on level batter boards at intervals of not more than 25 feet (7.5 meters).
2. Install batter boards spanning trench, rigidly anchored to posts driven into ground on both sides of trench.
3. Set three adjacent batter boards before laying pipe to verify grades and line.
4. Determine elevation and position of string line from elevation and position of offset points or stakes located along pipe route.
5. Do not locate pipe using side lines for line or grade.

3.3 PREPARATION

A. Call Miss-Utility of Delmarva at 1-800-282-8555 not less than 72 hours before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum locations.

C. Protect plant life, lawns, and other features remaining as portion of final landscaping.

D. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Maintain and protect above and below grade utilities indicated to remain.

F. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.

3.4 TRENCHING

A. Excavate subsoil required for utilities.

B. Perform excavation within 24 inches of existing utility service according to Delmarva's requirements.

C. Do not advance open trench more than 200 feet ahead of installed pipe.

D. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.

E. Excavate bottom of trenches maximum 24 inches wider than outside diameter of pipe.

F. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.

G. When Project conditions permit, slope side walls of excavation starting 24 inches above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this Section.

H. When subsurface materials at bottom of trench are loose or soft, notify Architect/Engineer, and request instructions.

I. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Type S2 fill and compact to density equal to or greater than requirements for subsequent backfill material.

J. Trim excavation. Remove loose matter.

K. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Architect/Engineer.

L. Stockpile subsoil in area designated on Site to depth not exceeding 8 feet and protect from erosion.

3.5 SHEETING AND SHORING

A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.

B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.

C. Design sheeting and shoring to be removed at completion of excavation Work.

D. Repair damage caused by failure of sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.

E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.6 BACKFILLING

A. Backfill trenches to contours and elevations with unfrozen fill materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

C. Place fill material in continuous layers and compact.

D. Employ placement method that does not disturb or damage foundation perimeter drainage and utilities in trench.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Do not leave more than 50 feet of trench open at end of working day.

G. Protect open trench to protect the public.

3.7 FIELD QUALITY CONTROL

A. Perform laboratory material tests according to ASTM D1557.

B. Perform in place compaction tests according to following:

1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D2922.
2. Moisture Tests: ASTM D3017.

C. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.8 PROTECTION OF FINISHED WORK

A. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.9 SCHEDULE

A. Duct Bank:

1. Cover duct and bedding with Type S2 fill: 30 inches thick.
2. Compact uniformly to minimum 95 percent of maximum density.

END OF SECTION

SECTION 32 11 23

AGGREGATE BASE COURSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aggregate subbase.
2. Aggregate base course.

B. Related Sections:
1. Section 312316.13 - Trenching: Compacted fill under base course.
2. Section 329119 - Landscape Grading: Topsoil fill at areas adjacent to aggregate base course.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices.

1.3 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work.

B. Perform Work according to DelDOT standards.

C. Contractor shall maintain at all times on site a set of official stamped approved project drawings for all disciplines (civil, architectural, mechanical/electrical, plumbing, etc.).

PART 2 - PRODUCTS

2.1 SUSTAINABILITY CHARACTERISTICS

A. Materials and Resources Characteristics:

1. Recycled Content Materials: Furnish materials with maximum available recycled content.

2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.

2.2 AGGREGATE MATERIALS

A. Subbase Aggregate: ASTM D2940; graded type.

1. Percent Passing per Sieve Size:

a. 2 Inches: 100.
b. No. 4: 30 to 60.
c. No. 200: Zero to 12.

B. Base Aggregate: ASTM D2940; graded type.

1. Percent Passing per Sieve Size:

a. 2 Inches: 100.
b. 1-1/2 Inches: 95 to 100.
c. 3/4 Inch: 70 to 92.
d. 3/8 Inch: 50 to 70.
e. No. 4: 35 to 55.
f. No. 30: 12 to 25.
g. No. 200: Zero to 8.

2.3 ACCESSORIES

A. Geotextile Fabric: AASHTO M288; non-woven, polypropylene.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify compacted substrate is dry and ready to support paving and imposed loads.

1. Proof roll substrate in minimum two perpendicular passes to identify soft spots.
2. Remove soft substrate and replace with compacted fill.

B. Verify substrate has been inspected, gradients and elevations are correct.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

A. Install geotextile fabric over subgrade according to manufacturer's instructions.

1. Lap ends and edges minimum 6 inches.
2. Anchor fabric to subgrade when required to prevent displacement until aggregate is installed.

B. Spread aggregate over prepared substrate to total compacted thickness indicated on Drawings.

C. Roller compact aggregate to 95 percent maximum density.

D. Level and contour surfaces to elevations, profiles, and gradients indicated.

E. Add small quantities of fine aggregate to coarse aggregate when required to assist compaction.

F. Maintain optimum moisture content of fill materials to attain specified compaction density.

G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 FIELD QUALITY CONTROL

A. Compaction testing will be performed according to ASTM D1556.

B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

C. Frequency of Tests: One test for every 1000 square yards of each layer compacted aggregate.

3.5 COMPACTION

A. Compact materials to 98 percent of maximum density as determined from test strip, according to ASTM D2940.

3.6 SCHEDULES

A. Asphalt Paving Base Course: 8 inches thick placed in three equal layers.

B. Concrete Paving Base Course: 4 inches thick placed in single layer.

END OF SECTION

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SECTION 32 16 23

SIDEWALKS

1.1 SUMMARY

A. Section Includes: Concrete paving for sidewalks.

B. Related Requirements:
1. Section 033000 - Cast-in-Place Concrete: Cast-in-place or in-situ concrete for structural building frames, slabs on fill or grade, and other concrete components.
2. Section 321123 - Aggregate Base Courses.
3. Section 329119 - Landscape Grading: Preparation of subsoil at pavement perimeter.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices.

1.3 SUBMITTALS

A. Product Data:

1. Submit required information regarding concrete materials joint filler , admixtures , and curing compounds.
2. Mix Design:

a. Submit concrete mix design for each concrete strength prior to commencement of Work.
b. Submit separate mix designs if admixtures are required for hot- and cold-weather concrete Work.
c. Identify mix ingredients and proportions, including admixtures.

3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

C. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

E. Qualifications Statement:

1. Submit qualifications for manufacturer and installer.

1.4 QUALITY ASSURANCE

A. Perform Work according to Sections 033000 - Cast-in-Place Concrete.

B. Obtain cementitious materials from same source throughout.

C. Perform Work according to Town of Georgetown and DelDOT standards.

D. Contractor shall maintain at all times on site a set of official stamped approved project drawings for all disciplines (civil, architectural, mechanical/electrical, plumbing, etc.).

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

B. Store materials according to manufacturer instructions.

C. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.6 AMBIENT CONDITIONS

A. Minimum Conditions: Do not place concrete if base surface temperature is less than 35 deg. F, or if surface is wet or frozen.

B. Subsequent Conditions: Maintain minimum 40 deg. F, for not less than 72 hours after placing, and at a temperature above freezing for remainder of curing period.

1.7 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 AGGREGATE SUBGRADE

A. As specified in Section 321123 - Aggregate Base Courses.

2.2 SUSTAINABILITY CHARACTERISTICS

A. Sustainable Sites Characteristics:

1. Paving Surfaces: Minimum SRI of 29, calculated according to ASTM E1980.

    a. Reflectance: Measured according to ASTM E903, ASTM E1918, or ASTM C1549.
    b. Emittance: Measured according to ASTM E408 or ASTM C1371.

B. Material and Resource Characteristics:

1. Recycled Content Materials: Furnish materials with maximum available recycled content.

2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project Site.

2.3 MATERIALS

A. Forms:
1. Height: Equal to full depth of finished sidewalk or curb.

B. Forms:

1. Material:

    a. Wood: Straight and free from warping, twisting, loose knots, splits, or other defects.

2. Profile: To suit conditions.
3. Joint Filler:

    a. Material: Asphalt-impregnated fiberboard or felt.
    b. Comply with ASTM D1751.
    c. Thickness: 1/4 inch.

4. Joint / Crack Sealant Material:

    a. Type: Premolded compressible.
    b. Thickness: 1/4 inch.
    c. Cork: Comply with ASTM D1752.

C. Reinforcement:

1. Use fibers that conform to the requirements of ASTM C1116, Type III with a minimum fiber length of 1/2 inch and a maximum length of 1-1/2 inch.

D. Concrete:

1. Concrete Materials:

   a. As specified in Section 033000 - Cast-in-Place Concrete.
   b. Furnish materials according to the Town of Georgetown and DelDOT standards.

2. Cement:

   a. Comply with ASTM C150/C150M.
   b. Type: I - Normal or II - Moderate Portland.
   c. Color: Gray.

3. Blended Cement:

   a. Comply with ASTM C595/C595M.
   b. Type: Type IP or Type I(PM) or Type IS or Type I(SM).
   c. Color: Gray.

4. Fine and Coarse Aggregates:

   a. Comply with AASHTO M 6.
b. Coarse Aggregate Maximum Size: 1-1/2 inch.

5. Concrete Reinforcing Fibers:

a. Description: High-strength industrial-grade fibers specifically engineered for secondary reinforcement of concrete.
b. Comply with ASTM C1116/C1116M.
c. Length: 1/2 to 1-1/2 inch.
d. Fiber Count: 1.5 lb per cubic yard minimum or as per manufacturer's recommendation.

6. Water:

a. Description: Potable.
b. Comply with ASTM C1602/C1603 with following modifications:

Hydrogen ion concentration	4.5 to 8.5 pH
Total Solids	5000 ppm maximum
Total chlorides	300 ppm maximum
Total sulfates as SO_4	500 ppm maximum
Total alkalis as $Na_2O + 0.658K_2O$	500 ppm maximum
Organic content (Test Method ASTM D4129)	2000 ppm maximum

Compressive strength, minimum at 7 days	90% of control specimen
Time of setting	+/-60 minutes from control and meeting AASHTO M 85, Vicat test

7. Air Entrainment: Comply with ASTM C260/C260M.

8. Fly Ash:

a. Comply with AASHTO M 295.
b. Class: C or F.
c. Traces of ammonia and oil are not permitted in the fly ash

9. Slag:

a. Description: Ground-granulated blast-furnace slag.
b. Comply with AASHTO M 302.
c. Grade: 100 or 120.

10. Color Pigment:

a. Comply with AASHTO M148 / ASTM 309, Type 2, Class A or B.
b. Resistant to mineral oxides, alkalis, and fading.
c. Color: White.

E. Surface Detectable Warning System:
1. Submit samples of the proposed system to the Engineer for approval prior to the start of work.
2. Submit mortar mix formula for concrete sidewalk applications to the Engineer for approval prior to the start of work.
3. Submit certification that the surface of the system is slip resistant using one of the following standard methods:
   a. ASTM C1028 B Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method
   b. ASTM D2047 B Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
   c. ASTM E303 B Measuring Surface Frictional Properties Using the British Pendulum Tester
   d. VOSI V41.21-98 B Universal Specification / Test Method for Slip Resistant Walkways, in the Field and Laboratory, as measured by a Drag Type Friction Tester (Voices of Safety International (VOSI)
4. Utilize the dome pattern shown in the Standard Construction Details
5. Use one of the following material systems:
   a. Precast concrete or fired clay brick paver units: manufactured with the truncated dome pattern, set on the concrete sidewalk surface.
      1) Use mortar for adhesion to the sidewalk surface and for joint filling.
   b. Cast iron plates: manufactured with the truncated dome pattern, set on the concrete sidewalk surface.

1) Anchor the plates to the sidewalk surface according to the manufacturer's recommendations.

c. Stamping systems, applied membranes and ceramic tiles are not acceptable for work.

d. The color of the final surface of the system must conform to the following:

1) For concrete sidewalk surface the detectable warning system color must be brown, dark gray, red, brick red, or black.

6. P.C.C. Sidewalk: Use precast concrete.

a. Construct the base material of the sidewalk section receiving the detectable warning surface at a lower elevation to allow the thickness of the concrete under the detectable warning system to be the same as the sidewalk (minimum of 6 inches).

b. Install paver units to achieve a flush surface with the surrounding ramp/sidewalk surfaces.

c. Mortar:

1) Mix Portland cement mortar in the following proportion: one part Portland cement to three parts fine aggregate, add hydrated lime not to exceed 10 percent of the cement by weight.

2) Dry mix the fine aggregate, Portland cement, and lime until the mixture assumes a uniform color.

3) Add water as the mixing continues until the mortar attains a consistency that can be easily handled and spread with a trowel.

4) Mortar that is not used within 30 minutes after water has been added cannot be used.

5) Retempering of mortar will not be permitted.

d. Place the mortar to form a firm bond.

e. Set paver units in a bed of mortar and mortar the joints.

1) Maintain 1/4 inch wide joints, no larger than 3/8 inch. Plastic spacers may be used.

2) Keep joints uniform and straight in all both directions.

f. Maintain clean surfaces and joints prior to applying grout.

g. Bevel edges of the system with grade changes in between 0.25 and 0.50 inch with a slope no steeper than 2 to 1.

h. Grade changes up to 0.25 inch may be vertical.

2.4 MIXES

A. Concrete:

1. Mix concrete according to ACI 304, and deliver concrete according to ASTM C94/C94M.
2. Mix Design:

a. Compressive Strength: 1,950 psi at seven days.
b. Compressive Strength: 3,000 psi at 28 days.
c. Slump: 4 to 5 inches.
d. Air Entrainment:

1) Comply with ASTM C94/C94M.
2) Exposure Condition: Moderate.

3) Maximum Variation from Required Air Content: 1.5 percent.

3. Admixtures:

a. Use accelerating admixtures in cold weather only if approved by Architect/Engineer in writing.
b. Use of admixtures will not relax cold-weather placement requirements.
c. Use calcium chloride only if approved by Architect/Engineer in writing.
d. Use set-retarding admixtures during hot weather only if approved by Architect/Engineer in writing.

2.5 ACCESSORIES

A. Curing Compound:

1. Comply with ASTM M148/C309.
2. Type: 2.
3. Class: A or B.

B. Joint Sealers:

1. Hot Applied:

a. Comply with ASTM D6690.
b. Type: II.

2. Cold Applied: Comply with ASTM C920.

C. Cover Sheets:

1. Comply with ASTM C171.
2. Burlap: Shall be plain weave cloth made of jute or kenaf, weighing 10 ounces per square yard or greater.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify that gradients and elevations of subgrade are as indicated on Drawings.

C. Verify reinforcing placement for proper size, spacing, location, and support.

3.2 PREPARATION

A. Moisten substrate to minimize absorption of water from fresh concrete.

B. Notify Architect/Engineer minimum 24 hours prior to commencement of concreting operations.

3.3 INSTALLATION

A. Subgrade:

1. As specified in Section 321123 - Aggregate Base Courses.
2. Comply with Town of Georgetown and DelDOT standards.

B. Forms:

1. Place and secure forms and screeds to correct location, dimension, profile, and gradient.
2. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
3. Clean forms and coat with form oil each time before concrete is placed.
4. Wood Forms: Thoroughly wet with water before concrete is placed.

C. Reinforcement:

1. Place reinforcing as indicated on Drawings.
2. Interrupt reinforcing at expansion joints.
3. Place reinforcing to achieve indicated paving alignment.

D. Placing Concrete:

1. As specified in Section 033000 - Cast-in-Place Concrete.
2. Comply with Town of Georgetown and DelDOT standards.
3. Use slip-form technique.
4. Place concrete in forms in one layer.
5. Ensure that reinforcing, inserts, embedded parts, and formed joints are not disturbed during concrete placement.
6. Place concrete continuously over full width of panel and between predetermined construction joints.
7. Do not break or interrupt successive pours such that cold joints occur.
8. Consolidate concrete by tamping and vibration.
9.

E. Joints:

1. Place continuous transverse expansion joints at[5-foot intervals or width of sidewalk, whichever is less.
2. Filler:

a. Place joint filler between paving components and building or other appurtenances.

3. Provide expansion joint between sidewalks and curbs.
4. Provide keyed joints as indicated on Drawings.

F. Finishing:

1. Strike off and float the surface with a wooden, cork or magnesium float. Light broom and trowel edges of joints.
2. Texture Direction: Transverse to paving direction.
3. Ramps: Broom perpendicular to slope.
4. Place curing compound on exposed concrete surfaces immediately after finishing.
5. Edges and Joints:

a. Edger Radius: 1/8 inch.
b. Spalled Corners and Edges: Clean and fill with mortar mixture and finish.

G. Curing:

1. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
2. Mats:

a. Cover exposed surface with two or more layers of wetted burlap, overlapping each other minimum 6 inches.
b. Maintain burlap continuously saturated and in contact with concrete for minimum seven days.

3. Impervious Sheeting:

a. Wet exposed surface and cover with impervious sheeting material, overlapped minimum 12 inches.
b. Maintain sheet in contact with concrete for minimum seven days.

4. Membrane Curing:

a. Apply membrane-curing compound uniformly to exposed surface after free water has disappeared from finished surface and before concrete has dried.
b. Apply compound in two coats, with second coat applied perpendicular to first coat.
c. If concrete has dried, moisten dried surface and apply curing compound as soon as free water disappears.

H. Backfilling: After curing, backfill, grade, and compact adjacent disturbed area as indicated.

3.4 FIELD QUALITY CONTROL

A. Inspection and Testing:

1. Comply with ASTM C94/C94M.
2. Samples:

a. Sampling Procedures: Comply with ASTM C172/C172M.
b. Cylinder Molding and Curing Procedures: Comply with ASTM C31/C31M, standard cured.
c. Sample concrete and make one set of three cylinders for every 150 cu. yd. or less of each class of concrete placed each day, and for every 5,000 sq. ft. of surface area paving.
d. Make one additional cylinder during cold-weather concreting, and field cure.

3. Cylinder Compressive Strength:

a. Comply with ASTM C39/C39M.
b. Acceptance:

1) Average Compressive Strength of Three Consecutive Tests: Maximum 500 psi less than specified compressive strength.

c. Acceptance: According to Town of Georgetown and DelDOT standards.
d. Test one cylinder at seven days, and two cylinders at 28 days.
e. Dispose of remaining cylinders if testing is not required.

4. Slump, Temperature, and Air Content:

a. Measure for each compressive-strength concrete sample.
b. Slump: Comply with ASTM C143/C143M.
c. Air Content: Comply with ASTM C173/C173M.
d. Temperature: Comply with ASTM C1064/C1064M.

5. Records:

a. Maintain records of placed concrete items.
b. Record date, location of pour, quantity, air temperature, and number of test samples taken.

3.5 PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, rain and flowing water, and mechanical injury.

B. Do not permit traffic over paving until 90 percent design strength of concrete has been achieved.

C. Damaged Concrete:

1. Remove and reconstruct concrete that has been damaged for entire length between scheduled joints.
2. Refinishing damaged portion is not acceptable.
3. Dispose of damaged portions.

END OF SECTION

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SECTION 32 91 19

LANDSCAPE GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Final grade topsoil for finish landscaping.

B. Related Sections:
1. Section 329219 – Seeding.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices.

1.3 SUBMITTALS

A. Materials Source: Submit name of imported materials source.

B. Manufacturer's Certificate: Certify products meet or exceed DNREC requirements.

1.4 QUALITY ASSURANCE

A. Furnish each topsoil material from single source throughout the Work.

B. Perform Work in accordance with DNREC standards.

C. Contractor shall maintain at all times on site a set of official stamped approved project drawings for all disciplines (civil, architectural, mechanical/electrical, plumbing, etc.).

PART 2 - PRODUCTS

2.1 SUSTAINABILITY CHARACTERISTICS

A. Materials and Resources Characteristics:

1. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.

2.2 MATERIAL

A. Topsoil: Soil Type S2: Excavated and reused material, graded; free of roots, lumps greater than one inch, rocks larger than ½ inch, debris, weeds and foreign matter.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify trench backfilling have been inspected.

B. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

A. Protect landscaping and other features remaining as final Work.

B. Protect existing structures, fences, sidewalks, utilities, paving, and curbs.

3.3 SUBSTRATE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, roots, branches and stones. Remove contaminated subsoil.

C. Scarify surface to depth of 6 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 PLACING TOPSOIL

A. Place topsoil in areas where seeding, and planting. is required. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to plant material and building, to prevent damage.

E. Lightly compact placed topsoil.

F. Remove surplus subsoil and topsoil from site.

G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.5 PROTECTION OF INSTALLED WORK

A. Prohibit construction traffic over topsoil.

3.6 SCHEDULES

A. Compacted topsoil thicknesses:

1. Seeded Grass: 6 inches.

END OF SECTION

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SECTION 32 92 19

SEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fertilizing.
2. Seeding.
3. Hydroseeding.
4. Mulching.
5. Maintenance.

B. Related Sections:
1. Section 329119 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for the Work of this section.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 012200 – Unit Prices.

1.3 REFERENCES

A. ASTM International:

1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.4 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

B. Weeds: Vegetative species other than specified species to be established in given area.

1.5 SUBMITTALS

A. Product Data: Submit data for seed mix, fertilizer, mulch and other accessories.

B. Manufacturer's Certificate: Certify seed mixes meet or exceed DNREC requirements.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

B. Perform Work according to DNREC standards.

C. Contractor shall maintain at all times on site a set of official stamped approved project drawings for all disciplines (civil, architectural, mechanical/electrical, plumbing, etc.).

1.7 QUALIFICATIONS

A. Seed Supplier: Company specializing in manufacturing Products specified in this section with evidence of experience.

B. Installer: Company specializing in performing work of this section with minimum 3 years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.9 MAINTENANCE SERVICE

A. Maintain seeded areas immediately after placement until production of a uniform stand of established perennial grass specied having attained a height of 3 inches with a density of 70% of the seeded area for acceptance by the engineer.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

A. Furnish materials according to DNREC standards.

B. Seed mixture according to Civil Drawings.

2.2 SUSTAINABILITY CHARACTERISTICS

A. Materials and Resources Characteristics:

1. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.

2.3 ACCESSORIES

A. Mulching Material: Straw shall be unrotted small grain straw relatively free of weeds and shall be free of noxious weeds such as; thistles, Johnsongrass and quack grass.

B. Mulching Material: Wood chips.

C. Fertilizer: Commercial grade; recommended for grass; of proportion necessary to eliminate deficiencies of topsoil to the following proportions: Nitrogen 20.00 percent, phosphoric acid 10.00 percent, soluble potash 5.00 percent, combined calcium 2.60 percent, combined sulfur 1.60 percent, iron 0.35 percent. Lime: ASTM C602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.

D. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.

E. Erosion Fabric: jute matting, open weave.

F. Herbicide: pre- or post-emergent.

G. Stakes: Softwood lumber, chisel pointed.

H. String: Inorganic fiber.

2.4 SOURCE QUALITY CONTROL

A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, combined calcium, combined sulfur soluble salt content, organic matter content, and pH value.

B. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.

C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify prepared soil base is ready to receive the Work of this section.

3.2 FERTILIZING

A. Apply dolomitic lime at application rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into top 4 to 6 inches of soil.

B. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soil.

C. Apply after smooth raking of topsoil.

D. Do not apply fertilizer at same time or with same machine used to apply seed.

E. Mix fertilizer thoroughly into upper 2 inches of topsoil.

F. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.

3.3 SEEDING

A. Apply seed at rate recommended by seed mixture evenly in two intersecting directions. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph.

D. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
   a. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.

E. Immediately following seeding and compacting, apply mulch to thickness of 1/8inches. Maintain clear of shrubs and trees.

F. Apply water with fine spray immediately after each area has been mulched. Saturate to 4inches of soil.

3.4 HYDROSEEDING

A. Apply fertilizer, mulch and seeded slurry with hydraulic seeder at a total rate 25% greater than the specified rate by seeding mixture evenly in one pass.

B. After application, apply water with fine spray immediately after each area has been hydroseeded. Saturate to 4 inches of soil and maintain moisture levels two to four inches.

3.5 SEED PROTECTION

A. Identify seeded areas with stakes and string around area periphery. Set string height to 6 inches. Space stakes at 6 inches.

B. Cover seeded slopes where grade is 4inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.

C. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum 12 inches. Backfill trench and rake smooth, level with adjacent soil.

D. Secure outside edges and overlaps at 36 inch intervals with stakes.

E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.6 MAINTENANCE

A. Mow grass at regular intervals to maintain at maximum height of 3 inches. Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.

B. Neatly trim edges and hand clip where necessary.

C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.

D. Water to prevent grass and soil from drying out.

E. Roll surface to remove minor depressions or irregularities.

F. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.

G. Immediately reseed areas showing bare spots.

H. Repair washouts or gullies.

I. Protect seeded areas with warning signs during maintenance period.

3.7 SCHEDULE

A. Front Seeded Area: Grass seed mixture specified, 3 inch top soil.

B. Rear Seeded Area: Grass seed mixture specified except substitute Clover for Kentucky Blue Grass, 2 inch top soil.

END OF SECTION