
**NCC VOCATIONAL TECHNICAL SCHOOL
DISTRICT**

**HOWARD HIGH SCHOOL OF
TECHNOLOGY
BUS LOOP AND COURTYARD UPGRADES**

BID PACKAGE 'P-01'



February 22, 2019

TABLE OF CONTENTS

DIVISION 0 - PROCUREMENT AND CONTRACT REQUIREMENTS

| | |
|--------|----------------------------------|
| 000110 | Table of Contents |
| 001113 | Advertisement for Bid |
| 002113 | Instructions to Bidders |
| 004100 | Bid Forms |
| 005200 | Agreement |
| 006113 | Performance and Payment Bonds |
| 006216 | Certificate of Insurance |
| 007200 | General Conditions |
| 007300 | Supplementary General Conditions |
| 007343 | Wage Rate Requirements |
| 008114 | Drug Testing Forms |

DIVISION 1 - GENERAL REQUIREMENTS

| | |
|--------|--|
| 011100 | Summary of Work - Work Covered by Contract Documents |
| 012100 | Allowances |
| 012600 | Change Order Procedures |
| 012613 | Contractor Compensation |
| 012900 | Payment Procedures |
| 013113 | Project Coordination Meetings |
| 013119 | Pre-Installation Meetings |
| 013125 | Web-Based Project Management System |
| 013216 | Construction Progress Schedule |
| 013219 | Submittal Register |
| 013226 | Contractor Daily Reports |
| 013300 | Submittal Procedures |
| 013500 | Contractor Employee Background Check |
| 013523 | Safety Program |
| 014500 | Quality Control |
| 015113 | Temporary Electricity |
| 015123 | Temporary Heating, Cooling and Ventilating |
| 015200 | Construction Facilities & Temporary Controls |
| 016200 | Material and Equipment |
| 017329 | Cutting and Patching |
| 017700 | Contract Closeout |

DIVISION 5 – METALS

055213 Pipe Railings

DIVISION 12 – FURNISHINGS

129300 Site Furnishings

DIVISION 31 – EARTHWORK

311000 Site Clearing

312000 Earthmoving

DIVISION 32 – EXTERIOR IMPROVEMENTS

321216 Asphalt Paving

321312 Site Concrete

321313 Concrete Paving

321373 Concrete Pavement and Joint Sealants

321416 Brick Unit Paving

321613 Concrete Curb

323113 Chain Link Fences and Gates

323119 Ornamental Aluminum Fencing

323913 Metal Bollards

DIVISION 33 – SITE UTILITIES

334200 Sanitary and Storm Drainage Frame Adjustments

END OF SECTION

[illegible]

SECTION 001113 ADVERTISEMENT FOR BID

Receipt of Bids

Public notice is hereby given that sealed bids for the following prime contract will be received for **Bid Pac P-01 Bus Loop and Courtyard Upgrades**. Bids will be received at the **NCC Vocational Technical School District Office 1417 Newport Road, Wilmington, Delaware 19804 until 2:00 PM local time on Tuesday April 3rd, 2019**, at which time they will be publicly opened and read aloud. The time and location of the bid opening may be extended with a minimum of 2 calendar days notice to the Bidders.

Contract HHS-55 Bus Loop and Courtyard

Bidding Document

Documents may be viewed and downloaded at EDiS' FTP site on or after Friday, March 8, 2019. Bidders requesting the log on information may obtain user name and password permission by contacting Jackie McKee with EDiS Company at jmckee@ediscompany.com. Each contractor will be required to provide the following information prior to receiving the log on information: company name, contact name, email address, phone number, fax number and postal mailing address.

It is the responsibility of each bidder to review and coordinate all Project Documents. This includes plans, specifications and addendums. Documents may be examined on the State of Delaware Online Bid Solicitation Directory, bids.delaware.gov, or at the office of the Construction Manager, EDiS Company, 110 S. Poplar Street, Suite 400, Wilmington, Delaware 19801.

Bid Security

A bid security in the amount of 10% of the bid including all alternates, plus a consent of surety must accompany each bid. Bid Security shall specify the Owner: NCC Vocational Technical School District 1417 Newport Road, Wilmington, Delaware 19804.

Pre-Bid Meeting

A pre-bid meeting will be held at **Howard High School, 401 East 12th Street Wilmington, Delaware 19801 on Wednesday, March 13, 2019 at 3:30 PM local time**. A site visit will be conducted immediately following the pre-bid meeting. These site visits will be the only opportunities for the bidders to visit the existing building and review existing conditions affecting the work. Attendance is highly recommended but not mandatory.

Questions

Please contact EDiS Company, Kevin Lucas at klucas@ediscompany.com or 302-421-2893 or 302-420-3083 with questions.

Conformance to the Delaware Architectural Accessibility Act and the standards of the Architectural Accessibility Board is required on the Project.

Prevailing Wage Rates, as described by Delaware Law, must be adhered to where applicable.

Pursuant to the Office of Management and Budget (OMB) *"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 implement a Mandatory Drug Testing Program. The regulation can be downloaded from the following website:

<http://regulations.delaware.gov/register/september2015/final/19%20DE%20Reg%20207%2009-01-15.pdf>

END OF SECTION

SECTION 002113 - INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

- A. 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.
- B. All definitions set forth in the General Conditions and the other Contract Documents are applicable to the Bidding Documents.
- C. "Addenda" are written or graphic instruments issued by the Architect/Engineer prior to the receipt of bids which modify or interpret the Bidding Documents, by additions, deletions, clarifications or corrections. Addenda become part of the contract documents upon execution of the agreement.
- D. The term Work is defined in 1.1.3 of the General Conditions.
- E. A "Unit of Work" includes all Work covered by the one or more Sections of the specifications listed under that particular Unit of Work in Section 011100 - SUMMARY OF WORK. A Unit of Work is the smallest portion of the Project for which a separate Bid will be accepted by the Construction Manager. The word "Unit" means "Unit of Work" whenever the context clearly implies "Unit of Work".
- F. A "Bid" is a complete and properly executed proposal to do one or more Units of Work for the sum stipulated therein.
- G. A "Bidder" is one who submits a Bid to the Bidding Agency for the Unit or Units of Work indicated therein.
- H. A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including drawings, which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations to this section are not necessarily either complete or exclusive, but are general for the work to the extent not stated more explicitly in another provision of Contract Documents.
- I. General Requirements (or Conditions) apply to entire work of Contract and, where so indicated, to other elements which are included in the project.

- J. The term "indicated" is a cross reference to details, notes or schedules on the Drawings, to other similar means of recording requirements in the Contract Documents. Where terms such as "shown", "noted", "schedule" and "specified" are used in lieu of "indicate," it is for purpose of helping to locate cross reference and no limitation of location is intended, except as specifically noted.
- K. Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted" and "permitted" mean "directed by Construction Manager or Architect", "requested by Construction Manager or Architect", etc.
- L. Where used in conjunction with Construction Manager's or Architect's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term "approved" will be held to limitations of Construction Manager's and Architect's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Construction Manager or Architect be interpreted as a release of Contractor from responsibilities to fulfill requirements of the Contract Documents.
- M. The "Project Site" is the space available to Contractor for performance of the Work, either exclusively or in conjunction with others performing other work as part of the Project. The extent of project site is shown on the Drawings and may or may not be identical with description of the land upon which project is to be built. The Contractor shall visit the site to verify contract or construction limits.
- N. Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
- O. Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations as applicable in each instance.
- P. Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
- Q. An "Installer" is the entity, person or firm, engaged by the Contractor or his subcontractor or sub-subcontractor for the performance of a particular unit of work at the project site, including installation, erection, application and similar required operation. It is a general requirement that such installers be expert in operations they are engaged to perform.
- R. The duties and obligations of the Contract apply to this Contractor (as defined herein) regardless of similar or identical duties or obligations of other Prime Contractors related to the Project. Therefore, even though other Prime Contractors may have similar, identical or overlapping duties and obligations, each and every duty and obligation set forth in this

Contract is enforceable against this Contractor.

2. BIDDER'S REPRESENTATION

A. Each Bidder in submitting its bid represents that:

1. It has read and understands the Bidding Documents and its Bid is made in accordance therewith.
2. Contractor has visited the site; familiarized himself with the local conditions under which the work is to be performed; compared the site with drawings and specifications; satisfied himself of the conditions of delivery, handling and storage of materials and all other matters that may be incidental to the Work before submitting his Bid.
3. Its Bid is based upon the materials and equipment described within the Bidding Documents without exceptions.

B. EVIDENCE OF REPRESENTATION

1. Submission of a Bid will be considered as evidence of the bidder's representation. No allowance will subsequently be made to the successful contractor by reason of any error omission on his part, due to his neglect in complying with the requirements of this article.

3. BIDDING DOCUMENTS

A. ISSUANCE

1. The drawings and specifications of preceding bid packages may not be issued with the drawings and specifications of this bid package, but are included by reference in the Table of Contents. Contractors bidding on work in this bid package are responsible for knowing what work has preceded this bid package and how it affects its work. In order to assist contractors in this effort, the contract documents from preceding or simultaneous bid packages will be available for review at the Construction Manager's main office and job site office. Bidding documents will be available on the EDiS FTP site, **bids.ediscompany.com**. It is the responsibility of each Bidder to review and coordinate all Project Documents. This includes plans, specifications and addendums. Bidding documents will be made available to qualified bidders only. Contractors are advised that no change orders will be allowed that are based on ignorance of work assigned in preceding or simultaneous bid packages.
2. Bidding Documents will not be issued to subcontractors or other individuals or organizations who will not be contracting directly with the Owner.

3. The complete set of Bidding Documents shall be used in preparing bids; neither the Owner, the Architect nor the Construction Manager assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
4. The Owner, Architect, and the Construction Manager, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining bids on the Work and do not confer a license or grant for any other use.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

1. Bidders shall examine the Bidding Documents carefully and shall promptly notify the Construction Manager of any ambiguity, inconsistency or error which they may discover. No request for adjustment of Contract Time or Sum shall be permitted with regard to any purported ambiguity, inconsistency or error not promptly noticed to the Construction Manager.
2. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Construction Manager to reach him at least seven days prior to the date of receipt of bids.
3. Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes.

C. SUBSTITUTIONS

1. Refer to Specification Section 016200 - MATERIAL AND EQUIPMENT.
2. Substitution requests must be made at least seven (7) days prior to the receipt of bids.

D. ADDENDA

1. Addenda will be emailed, mailed, faxed or delivered to each person or firm recorded by the Construction Manager as having received a complete set of the Bidding Documents, and will be available for inspection wherever the Bidding Documents are kept available for that purpose.
2. Sub-Bidders, Suppliers, Manufacturers and others wishing to have Addenda mailed free of charge directly to them should address a letter to the Construction Manager requesting a listing on the Addenda mailing list for this Project. Such letter must include no other subject matter, must clearly identify this Project by name, and must indicate, line for line, exactly how the name and address is to be typed on the envelope. Phone requests will not be accepted. The Construction Manager will endeavor, but expressly does not promise, to mail Addenda directly to those who have properly

requested. Such mailing list is for this one Project only.

3. Addenda issued during the time of bidding shall be listed on Bid form in the space provided. Failure of a Bidder to receive any Addendum shall not release the Bidder from any obligations under his Bid, provided said addendum was sent by email, fax or by U.S. Mail to the addresses furnished by the bidder for transmittal of mail. Faxed Addenda will be confirmed by U. S. Mail.
4. No Addenda will be issued later than three (3) 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.

4. BIDDING PROCEDURE

A. FORM AND STYLE OF BIDS

1. Bids shall be submitted in triplicate upon the proposal form included in these specifications, or upon an exact copy of it.
2. The Bidder shall complete all blank spaces on the Bid form.
3. Where indicated on the Bid form, sums shall be expressed in both words and figures. In case of discrepancy between the two, the written amount shall govern.
4. Any interlineation, alteration or erasure of an entry made in a blank space of the form must be initialed by the signer of the Bid. However, no interlineation, alteration or erasure shall be made in the wording printed on the bid form unless the Bidder is instructed by the Bidding Documents to do so. The Bidders shall add no stipulations or qualifications on the Bid form or accompanying the bid form unless permitted by or instructed by the Bidding Documents to do so.
5. All requested quantities, unit prices and alternates shall be included as part of the bid.
6. All signatures shall be in long hand.
7. The Bidder shall include on the Bid Form, within the Base Bid total costs associated with providing both the Labor and Material Payment and Performance Bonds.
8. The Bidder shall affix his seal to the bid form, if organized as a corporation.

B. SUBMISSION OF BIDS

1. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Invitation to Bid, or any extension thereof made by Addendum. The time and location of the bid opening may be extended with a minimum of two (2) calendar days notice to the Bidders. Bids received after the time and date for receipt of

Bids will be marked "LATE BID" and returned.

2. The Bid Proposal (3 copies) shall be enclosed in a sealed envelope. The envelope shall be addressed to the Owner, and shall be identified with the Project name, the Bidder's name and address and the Unit of Work included in the Bid.
3. If the Bidder submits his Bid by mail, he shall enclose the above described sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof.
4. Bids shall include a fully executed Bid Bond, Power of Attorney, Non-collusion Statement, Consent of Surety and Subcontractor listing.
5. The Bidder shall include signed Affidavit(s) for the Bidder and each listed Subcontractor certifying compliance with OMB Regulation 4104- "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects."

C. MODIFICATION OR WITHDRAWAL OF BID

1. A Bidder may modify his Bid in writing at any time prior to the time scheduled for receiving Bids, provided such written modification is received by the Construction Manager prior to said time.
2. Unless specifically authorized, faxed bids will not be considered.
3. No Bidder shall modify, withdraw or cancel his Bid or any part thereof for NINETY (90) days after the time designed for the receipt of Bids, in the Invitation to Bid. Any further extension of the time will be by mutual consent of the Owner and the Contractor.
4. A Bid may be withdrawn up until the time scheduled for receiving the Bids. Such withdrawal shall be in writing.

5. CONSIDERATIONS OF BIDS

A. OPENING OF BIDS

1. Bid shall be publicly opened and read aloud.

B. REJECTION OF BIDS

1. The Owner, in its sole discretion, shall have the right to reject any or all bids for any reason or for no reason whatsoever.

C. ACCEPTANCE OF BIDS

1. The Owner, in its sole discretion, shall have the right to waive any informality or irregularity in any Bid received.
2. The Owner shall have the right to accept Alternates in any order or combination.

6. SUBCONTRACT INFORMATION

A. SUBMISSION OF SUBCONTRACTOR LIST

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 payment 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 the contract amount not to exceed \$10,000.

2. Upon request of the Construction Manager, the Bidder shall within seven (7) days of the request submit a list of the other subcontractors or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) if any, proposed for the various portions of the Work not included in the subcontractors list submitted with the bid.
3. The Bidder will be required to establish to the satisfaction of the Construction Manager the capability and experience of all proposed subcontractors to furnish and perform the work described in the sections of the specifications pertaining to such proposed subcontractor's respective trades.
4. Subcontractors and other persons and organizations proposed by the Bidder and accepted by the Owner must be used on the work for which they were proposed and accepted, and shall not be changed except with the written approval of the Construction Manager.

7. EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

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, color, sex 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, color, sex 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 solicitants 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, color sex, or national origin.
- C. The term "Contract for public works" means construction, reconstruction, demolition, alteration and repair work and maintenance work paid for, in whole or in part, with public funds.
- D. The Secretary of the Department of Labor shall be responsible for the administration of this section and shall adopt such rules and regulations and issue such orders as he deems necessary to achieve the purpose thereof, provided that no requirement established hereby shall be in conflict with subchapter 6904 of this title.

8. PREVAILING WAGE REQUIREMENT

- A. Wage Provisions: In accordance with Delaware Code, Title 29, Section 6960, renovation projects whose total cost shall exceed \$15,000 and \$100,000 for new construction, 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.
- B. The prevailing wage shall be the wage paid to a majority of employees performing similar work as reported in the Department's annual prevailing wage survey or in the absence of a majority, the average paid to all employees reported.
- C. The Contractor 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.
- D. 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.
- E. Every contract based upon these specifications shall contain a stipulation that certified

sworn payroll reports be maintained by every Contractor and Subcontractor performing work upon the site of construction. The Contractor and Subcontractor shall keep and maintain the sworn payroll information for a period of 2 years from the last day of the work week covered by the payroll. A certified copy of these payroll reports shall be made available: 1) Effective June 30, 2007, all Contractors performing work on public work projects are required to furnish sworn payroll records on a weekly basis to the Department of Labor. Specifically, 29 Del. C. § 6960(c) states that "every contract... shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly." Further, that "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." Lastly, the failure to submit payroll reports shall be subject to a civil penalty of not less than \$1,000 nor more than \$5,000 for each violation. 29 Del. C. § 6960(e). Sworn payroll information shall consist of a fully completed and notarized report on a form provided upon request by the Department of Labor. *See Delaware Prevailing Wage Regulations VII A.2(c)*"; 2) upon request by the public or for copies thereof. However, a request by the public must be made through the Department of Labor. The requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Department of Labor in accordance with the Department's copying fee policy. The public shall not be given access to the records at the principal office of the Contractor or Subcontractor; and 3) the certified payroll records shall be on a form provided by the Department of Labor or shall contain the same information as the form provided by the Department and shall be provided within 10 days from receipt of notice requesting the records from the Department of Labor.

9. PERFORMANCE AND PAYMENT BONDS

- A. The Contractor shall be required to furnish bonds covering the faithful performance of the contract and the payment of all obligations arising thereunder with such sureties secured through the Bidder's usual sources as may be agreeable to the parties. The Owner shall be noted as the obligee. The Owner is the New Castle County Vocational Technical School District.
- B. The performance and payment bonds shall each be in an amount equal to 100% of the Contract Sum as adjusted from time to time. The Owner shall be noted as the obligee. The Owner is the New Castle County Vocational Technical School District.

C. TIME OF DELIVERY AND FORM OF BONDS

- 1. The Bidder shall deliver the required bonds within seven (7) days from receipt of request from the Construction Manager.
- 2. The performance and payment bonds shall be written in the form found in Section 006113 Performance and Payment Bonds.
- 3. The required bonds shall be by an authorized agent of the bonding company and shall

be accompanied by a certified and current copy of the bonding agent's Power of Attorney, indicating the monetary limit of such power. The bonding company shall be licensed to operate in the state which the work is to be performed.

10. EXECUTION OF AGREEMENT

- A. The Agreement will be written on a contract form, stipulated by the Owner, a copy of which is included in the Specifications.
- B. The Bidder shall, within seven (7) days following its presentation, execute the Agreement and return it to the Construction Manager.
- C. The Bidder agrees to commence work within seven (7) days of 1) execution of the Agreement, or 2) receipt of a Letter of Intent to execute the Agreement, or other authorization to proceed, if furnished at an earlier date.
- D. The Bidder shall provide two (2) business days prior to contract execution, copies of the Employee Drug Testing Program for the Bidder and all listed Subcontractors.
- E. If the successful Bidder fails to execute the required Contract and Bond, as aforesaid, within twenty (20) 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 re-advertised, as the Agency may decide.

11. GENERAL COMMENTS

A. JOINT VENTURE AGREEMENTS

In the event of a mandatory pre-bid meeting, representatives of both Joint Ventures must attend the pre-bid meeting and must be an officer and co-joint venture of the corporations involved.

Each Joint Venture shall be qualified and capable to complete the project with their own forces.

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 Ventures involved.

All required bid bonds, performance bonds, material and labor payment bonds must be executed by both Joint Ventures and be placed in both of their names.

All required insurance certificates shall name both Joint Ventures.

Both Joint Ventures shall sign the bid form and shall submit a valid Delaware Business License with their bid.

Both Joint Ventures shall include their Federal E. I. Number with the bid.

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

B. BUSINESS LICENSES FOR SUBCONTRACTORS

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 and taxpayer identification number (i.e. federal employer identification number or social security number) 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.

C. BONDING REQUIREMENTS FOR NON-RESIDENT CONTRACTORS

All non-resident contractors are reminded that they must supply a surety or cash bond to the Division of Revenue equal to six percent (6%) of the total of all contracts exceeding \$20,000 for construction within this state. For Division of Revenue purposes, cash bonds and bank letters of credit issued by financial institutions will be accepted on all contracts.

D. CONTRACT AWARD TO NON-RESIDENT CONTRACTORS

Every architect, or professional engineer or contractor or construction manager engaging in the practice of such profession shall furnish the Department of Finance within 10 days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of the total value of such contract or contracts together with the names and addresses of the contracting parties.

E. STATE LICENSE AND TAX REQUIREMENTS

The Contractor and Subcontractor shall be licensed to do business in the State of Delaware & New Castle County 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 State Tax Department within ten (10) days after award of the Contract, a statement of the total values of each contract and subcontract, together with the names and addresses of the contracting parties ..."

F. RIGHT TO AUDIT RECORDS

The Owner (contracting agency) 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.

Said books and records shall be maintained by the Contractor for a period of three (3) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of three (3) years from the date of final payment under the Subcontract.

G. PREFERENCE FOR DELAWARE LABOR

In the construction of all public works for the State or any political subdivision thereof or by firms contracting with the State or any political subdivision 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. Each public works contract for the construction of public works for the State or any political subdivision thereof shall contain a stipulation that any persons, company or corporation who violates this section shall pay a penalty to the Secretary of Finance equal to the amount of compensation paid to any person in violation of this section.

END OF SECTION

Contract No. HHS-55 Bus Loop and Courtyard Upgrades

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.: _____ Taxpayer ID No.: _____

(Other License Nos.): _____

(A copy of Bidder's Delaware Business License must be attached to this form.)

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:

BASE BID:

\$ _____ (\$ _____)

ALTERNATE #1: Provide all work associated with Bid #3 Clifford Brown, as identified on documents.

\$ _____ (\$ _____)

ALTERNATE #2: Provide overlay work identified as ALTERNATE on sheet C-104 (lower section of N. Pine Street)

\$ _____ (\$ _____)

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 ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

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.

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: _____
(SEAL) (Authorized Signature)

(Title)
Date: _____

ATTACHMENTS

Subcontractor List

Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

| <u>Subcontractor</u> <u>Category</u> | <u>Subcontractor</u> | <u>Address (City & State)</u> | <u>Subcontractors tax payer ID #</u> <u>or Delaware Business license #</u> |
|---|----------------------|-----------------------------------|---|
| 1. Concrete Work | _____ | _____ | _____ |
| 2. Brick Pavers | _____ | _____ | _____ |
| 3. Landscaping | _____ | _____ | _____ |
| 4. Fencing/Gates | _____ | _____ | _____ |

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 _____.

All the terms and conditions of Contract No.: HHS-53 Sitework, Landscaping, and Streetscape have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE
(TYPED): _____

AUTHORIZED REPRESENTATIVE
(SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

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.

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 New Castle County Vocational Technical School District in the sum of _____ Dollars (\$_____), or percent not to exceed _____ Dollars (\$_____) of amount of bid on Contract No. _____ to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District 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 bounden Principal who has submitted to the New Castle County Vocational Technical School District 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 New Castle County Vocational Technical School District 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)

By: _____
Authorized Signature

Corporate
Seal
Attest _____

Title

Name of Surety

Witness _____

Title

CONSENT OF SURETY

DATE _____

To:

Gentlemen:

We, the _____

(Surety Company's Address)

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

(Contractor)

(Address)

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

(Surety Company)

By _____
(Attorney-in-Fact)

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 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.

END OF SECTION

SECTION 005200 - AGREEMENT

1. SUMMARY

1.1. The Agreement Form for this Project is either the American Institute of Architects [Standard Form of Agreement between Owner and Contractor, Construction Manager as Advisor, AIA Document A132 - 2009 Edition]

1.2 A copy of AIA Document A132 – 2009 Edition is bound into this Project Manual following this page.

1.2.1 Under Article 5.1.4.5 add the following:

“Upon completion of the work under the Contract, the Owner may release 60% of the amount then retained. The balance of the amount retained will be held until:

- A. All reports required of the Contract are received;
- B. All Subcontractors in trades listed on the Bid Form are paid by the Contractor, unless the amount owed to the Subcontractor is disputed, in which case the Owner may withhold 150% of the amount withheld by the Contractor in its dispute with the Subcontractor; and
- C. Final payment is authorized by the Owner.”

END OF SECTION

DRAFT AIA[®] Document A132[™] – 2009

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)

New Castle County Vocational Technical School District
1417 Newport Road
Wilmington, Delaware 19804

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

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

Renovations to Howard High School of Technology

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

EDiS Company
110 South Poplar Street, Suite 400
Wilmington, Delaware 19801

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

ABHA Architects
1621 North Lincoln Street
Wilmington, Delaware 19806

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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[™]-2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132[™]-2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132[™]-2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

AIA Document A232[™]-2009 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

| | |
|----|---|
| 1 | THE CONTRACT DOCUMENTS |
| 2 | THE WORK OF THIS CONTRACT |
| 3 | DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION |
| 4 | CONTRACT SUM |
| 5 | PAYMENTS |
| 6 | DISPUTE RESOLUTION |
| 7 | TERMINATION OR SUSPENSION |
| 8 | MISCELLANEOUS PROVISIONS |
| 9 | ENUMERATION OF CONTRACT DOCUMENTS |
| 10 | INSURANCE AND BONDS |

EXHIBIT A 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 SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

« »

If, prior to the commencement of the Work, the Owner requires time to file mortgages, mechanics' liens and other security interests, the Owner's time requirement shall be as follows:

« »

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

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than « » (« ») days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Per the construction schedule in Section 013216 Construction Schedule in the project manual.

Portion of the Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

« »

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 without a Guaranteed Maximum Price, 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. Based on the selection above, also complete either Section 5.1.4, 5.1.5 or 5.1.6 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Stipulated Sum shall be « » (\$ « »), subject to additions and deletions as provided in the Contract Documents.

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

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

« »

§ 4.2.3 Unit prices, if any:

(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

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

§ 4.2.4 Allowances included in the Stipulated Sum, if any:

(Identify allowance and state exclusions, if any, from the allowance price.)

| Item | Allowance |
|--|-----------|
| Miscellaneous Work as Directed by Construction Manager | \$10,000 |

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

§ 4.3.1 The Contract Sum is the Cost of the Work as defined in Exhibit A, Determination of the Cost of the Work, plus the Contractor's Fee.

§ 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 rate paid at the place of the Project.

§ 4.3.6 Unit prices, if any:

(Identify and state the unit price; state 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 for the Owner, in writing, a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the items in Section A.1 of Exhibit A, 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 Contract Sum is the Cost of the Work as defined in Exhibit A, Determination of the Cost of the Work, plus the Contractor's Fee.

§ 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 rate paid at the place of the Project.

§ 4.4.6 Unit Prices, if any:

(Identify and state the unit price, and state the 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 sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed <> (\$ <>), subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such 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.

(Insert specific provisions if the Contractor is to participate in any savings.)

§ 4.4.7.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

§ 4.4.7.3 Allowances included in the Guaranteed Maximum Price, if any:
(Identify and state the amounts of any allowances, and state whether they include labor, materials, or both.)

| Item | Allowance |
|------|-----------|
| | |

§ 4.4.7.4 Assumptions, if any, on which the Guaranteed Maximum Price is based:

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and upon certification of the Project Application and Project Certificate for Payment or Application for Payment and Certificate for Payment by the Construction Manager and Architect and issuance by the 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 25th day of a month, the Owner shall make payment of the certified amount in the Application for Payment to the Contractor not later than the 5th day of the second month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment shall be made by the Owner not later than forty five (45) 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 and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. 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.

§ 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 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.9 of the General Conditions;
- .2 Add 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), less retainage of **five** percent (**5**%);

- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Construction Manager or Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of the General Conditions.

§ 5.1.4.4 The progress payment amount determined in accordance with Section 5.1.4.3 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to **one hundred** percent (**100**%) of the Contract Sum, less such amounts as the Construction Manager recommends and the Architect determines for incomplete Work and unsettled claims; and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of the General Conditions.

§ 5.1.4.5 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.4.3.1 and 5.1.4.3.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

« »

§ 5.2 Final Payment

§ 5.2.1 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 Section 12.2 of AIA Document A232–2009, 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 A, Determination of the Cost of the Work when payment is on the basis of the Cost of the Work, with or without a Guaranteed Maximum payment; and
- .3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

As described in the contract documents.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A232–2009, 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 Section 15.3 of AIA Document A232–2009, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, 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.)

[☐] Arbitration pursuant to Section 15.4 of AIA Document A232–2009.

[☐ »] Litigation in a court of competent jurisdiction.

[☒] Other: *(Specify)*

Per 007300, “any or all remedies at law or in equity,”

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 A232–2009.

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2009.

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

§ 7.2.1 Subject to the provisions of Section 7.2.2 below, the Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2009.

§ 7.2.2 The Contract may be terminated by the Owner for cause as provided in Article 14 of AIA Document A232–2009; however, the Owner shall then only pay the Contractor an amount calculated 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 Sections 4.3.2 or 4.4.2, as applicable, or, if the Contractor’s Fee is stated as a fixed sum, 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; and
- .3 Subtract the aggregate of previous payments made by the Owner.

§ 7.2.3 If the Owner terminates the Contract for cause when the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, and as provided in Article 14 of AIA Document A232–2009, the amount, if any, to be paid to the Contractor under Section 14.2.4 of AIA Document A232–2009 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.2.

§ 7.2.4 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. 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.

§ 7.2.5 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2009; in such case, the Contract Sum and Contract Time shall be increased as provided in Section 14.3.2 of AIA Document A232–2009, except that the term ‘profit’ shall be understood to mean the Contractor’s Fee as described in Sections 4.3.2 and 4.4.2 of this Agreement.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2009 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 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.)

« » % « »

§ 8.3 The Owner’s representative:

(Name, address and other information)

Kevin Lucas
EDiS Company
110 South Poplar Street, Suite 400
Wilmington, Delaware 19801

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

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

§ 8.6 Other provisions:

<< >>

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A132–2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition.

§ 9.1.2 The General Conditions are AIA Document A232–2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

| Document | Title | Date | Pages |
|-----------|----------------------------------|------|-------|
| A232-2009 | Supplementary General Conditions | | |

§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

<< >>

| Section | Title | Date | Pages |
|---------|-------|------|-------|
| | | | |

§ 9.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

As described in the contract documents.

| Number | Title | Date |
|--------|-------|------|
| | | |

§ 9.1.6 The Addenda, if any:

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

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

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents are:

Bid Form dated
Letter of Intent dated
State of Delaware Purchase Order

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A232-2009.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A232-2009.)

Type of Insurance or Bond

Limit of Liability or Bond Amount (\$0.00)

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

NCC Vocational Technical School District

Contractor

OWNER (Signature)

CONTRACTOR (Signature)

« »« »

(Printed name and title)

« »« »

(Printed name and title)

SECTION 006113 – PERFORMANCE AND PAYMENT BONDS

1. PERFORMANCE AND PAYMENT BONDS

1.1 Bonds must be in the following form:

1. Form of Performance Bond (attached).
2. Form of Payment Bond (attached).

SECTION 006113 - FORM OF 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 State of Delaware, New Castle County Vocational Technical School District ("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, 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.

February 22, 2019

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.

Witness or Attest:

PRINCIPAL

By: _____

Name: _____

Title: _____

(Corporate Seal)

Witness or Attest:

SURETY

By: _____

Name: _____

Title: _____

(Corporate Seal)

SECTION 006113 - FORM OF 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 State of Delaware, New Castle County Vocational Technical School District ("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.

Witness or Attest:

PRINCIPAL

By: _____

Name: _____

Title: _____

(Corporate Seal)

Witness or Attest:

SURETY

By: _____

Name: _____

Title: _____

(Corporate Seal)

END OF SECTION

SECTION 006216 – CERTIFICATE OF INSURANCE

In conjunction with Insurance Requirements AIA General Conditions, Article 11, the Contractor shall be bound by the following limits of liability insurance (for Contracts under this Bid Pack). The Contractor shall use the standard "ACORD" for titled "Certificate of Insurance" in submitting his liability insurance limits. The required limits to be inserted in accordance with the sample "ACORD" form in this section:

GENERAL NOTES

1. Other Insurance
 - A. Contractor shall carry any necessary insurance required to cover Owned and Rental equipment that may be necessary for them to use in the performance of the Work.
2. Contractor shall have the following additional items added to his required "ACORD" form Certificate of Insurance:
 - A. Name and Address of Insured (Contractor).
 - B. Description of Operations/Locations -
3. Added Insured – NCC Vocational Technical School District and EDiS Company
4. Certificate Holder – New Castle County Vocational Technical School District
1417 Newport Road
Wilmington, Delaware 19804

Contractors shall note that although not a part of AIA Document A232 - 2009 Edition, these additional articles apply as noted to this Project.

A sample certificate is bound into the Project Manual immediately following this Document.

END OF SECTION

SECTION 007200 – GENERAL CONDITIONS

1. SUMMARY

- A. The General Conditions for this Project are the American Institute of Architects General Conditions of the Contract for Construction, Construction Manager as Advisor Edition, AIA Document A232 - 2009 Edition.
- B. A copy of AIA Document A232 - 2009 Edition is bound into this Project Manual following this page.

END OF SECTION

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

SECTION 007300 - SUPPLEMENTARY GENERAL CONDITIONS A232-2009

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A232-2009. 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
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
8. TIME
9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
11. INSURANCE AND BONDS
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

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. 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. ."

Delete Paragraph 1.5.2 in its entirety.

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

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 last sentence in this paragraph.

2.2.3 Add the following sentence:

"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."

2.2.5 Delete Subparagraph 2.2.5 in its entirety and substitute the following:

2.2.5 The Contractor shall be responsible to provide all Contract Documents (plans/specs) for their contract use. Owner will not supply documents.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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 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

Add the Following Paragraphs:

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

- 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:

- 3.5.1 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 year after Acceptance by the Owner, and will maintain all items in condition that conforms with the Contract Documents during the period of warranty.
- 3.5.2 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.
- 3.5.3 In addition to the General Warranty there are other warranties required for certain items for different periods of time than the one year 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.
- 3.5.4 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.

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

- 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.

3.17 In the second sentence of the paragraph, insert "indemnify and" between "shall" and "hold".

ARTICLE 4: ARCHITECT AND CONSTRUCTION MANAGER

4.1 General

4.1.2 Insert "As required by law," at the beginning of the first sentence.

4.2 Administration of the Contract

Delete the first sentence of Paragraph 4.2.10 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 4.2.10 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 4.2.16:

There will be no full-time project representative provided by the Owner or Architect on this project.

Add to Paragraph 4.2.19 "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.

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

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 "arbitration" 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

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

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

9.2 SCHEDULE OF VALUES

Add the following Paragraphs:

9.2.1 The Schedule of Values shall be submitted into Building Blok (EDiS' Web-Based Project Management software) using AIA Document G702, 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 G702 "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:

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

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.

9.7 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:

10.1.1 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.

10.1.2 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 work place, 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, 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

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.4 Strike "the Owner" immediately following "(1)" and strike "and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations."

11.2 OWNER'S LIABILITY INSURANCE

Delete Paragraph 11.2 in its entirety.

11.3 PROPERTY INSURANCE

Delete Paragraph 11.3 and its subparagraphs in their entirety and replace with the following:

11.3 The Owner will not provide Builder's All Risk Insurance for the Project. The Contractor and all Subcontractors shall provide property coverage for their tools and equipment, as necessary. Any mandatory deductible required by the Contractor's Insurance shall be the responsibility of the Contractor.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 Add the following sentence: "The bonds will conform to those forms approved by the Office of Management and Budget."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

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

Strike "except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4."

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

Insert "except that, if the parties have selected arbitration as the method of dispute resolution, the Delaware Arbitration Act, 10 Del. C. §5701, shall govern Section 15.4."

13.6 INTEREST

Strike "the date payment is due at such rate as the parties may 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." Insert "30 days of presentment of the authorized Certificate of Payment at the annual rate of 12% or 1% per month.

13.7 TIME LIMITS ON CLAIMS

Strike the last sentence.

Add the following Paragraph:

13.8 CONFLICTS WITH FEDERAL STATUTES OR REGULATIONS

13.8.1 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

15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

Delete Paragraph 15.1.6 and its subparagraphs in their entirety.

15.2 INITIAL DECISION

Delete Paragraph 15.2.5 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

STATE OF DELAWARE

DIVISION OF FACILITIES MANAGEMENT

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".

15.4 ARBITRATION

Delete Paragraph 15.4 and its subparagraphs in their entirety.

END OF SUPPLEMENTARY GENERAL CONDITIONS

SECTION 007343 – WAGE RATE REQUIREMENTS

1. SUMMARY

- A. In accordance with Delaware Code, Title 29, Chapter 69, Section 6912, all laborers and mechanics of the Contractor and all subcontractors employed to perform work directly upon the site of the work shall be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account the full amounts accrued at the time of payment computed at wage rates not less than those determined by the Division of Industrial Affairs, Department of Labor, State of Delaware, as the prevailing rates in this area.
- B. This approved scale of wages must be posted by the Contractor in a prominent and easily accessible place at the site of the work.
- C. It is further stipulated that there may be withheld from the Contractor such accrued payment as may be considered necessary by the contracting officer to pay laborers and mechanics employed by the Contractor or any subcontractors on the work the difference between the rates of wages required and the rate of wages received by such laborers and mechanics and not refunded to the Contractor, subcontractor or their agents.
- D. Where wage rates are published in this Manual they are issued by the State Department of Labor on the date indicated and is included for the convenience of Bidders. The Owner, the Architect, and the Construction Manager, accept no responsibility for the accuracy or applicability of any rates included herein. The actual wage rate determinations which will apply to the work will be those in effect on the first day of public advertisement for bids as determined by the State Department of Labor. It will be the responsibility of each bidder to contact the State Department of Labor and to incorporate these rates in his bid.
- E. "In accordance with Delaware Code, Title 29, Section 6912, as amended July 5, 1994, contractors shall furnish sworn payroll information to the Department of Labor on a weekly basis for each contract which exceeds \$15,000 for renovation work and \$100,000 for new construction. The construction contract amount is based on a cumulative total of all contracts bid for a specific project. Payroll forms for submission may be obtained from the Department of Labor."
 - 1. A Payroll Report, available from the Department of Labor is to be used to provide this information.
- F. A copy of the Prevailing Wages for the project is attached hereto.

END OF SECTION



STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
4425 NORTH MARKET STREET
WILMINGTON, DELAWARE 19802

TELEPHONE (302) 761-8200
FAX (302) 761-6601

Via Electronic and Regular Mail

February 14, 2019

Ms. Kristen Caras
EDIS Company
110 S. Poplar Street
Suite 400
Wilmington, DE 19801

Re: Contract # P-01 Howard High School of Technology - Bus Loop and Courtyard, New Castle County, DE

Dear Ms. Caras:

I am responding to your request for a category determination for Contract # P-01 Howard High School of Technology - Bus Loop and Courtyard, which is a state funded construction project located in New Castle County, DE. The work consists of renovations to the bus loop at Howard High school. Landscaping, new fencing, installation of new brick pavers at the courtyard. You estimate the total cost of construction for this project to be \$2,226,781.00.

Based upon the information you provided the Department of Labor has determined that this project is a Highway Construction project.

Delaware's Prevailing Wage Regulations provide that the rates applicable to a project are the rates in effect on the date of publication of the specifications for that project. I have enclosed a certified copy of the March 15, 2018, prevailing wage rates for Highway Construction to be included in your bid specification. However, please be advised that, in the event that a contract for a project is not executed within one hundred and twenty (120) days from the earliest date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project. Please be advised on March 15, 2019, the Department will issue its annual "Prevailing Wage Determination".

This determination is directed solely to the parties identified herein. It is based on the unique facts relevant to this matter. It does not constitute precedent and should not be cited as such by future parties.

Lastly, please see the enclosed debarment list. Entities/individuals listed shall not be permitted to bid on, be awarded or work on Delaware State funded construction projects, in the timeframe specified, as provided for under 29 Del.C. §6960 or other applicable State statutes.

If you have any questions or I can provide any additional assistance, please do not hesitate to contact me at (302) 761- 8321.

Sincerely,

David Burns
Labor Law Enforcement Officer
David.Burns@state.de.us

Enclosures

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 HIGHWAY CONSTRUCTION EFFECTIVE MARCH 15, 2018

| CLASSIFICATION | NEW CASTLE | KENT | SUSSEX |
|---------------------------|------------|-------|--------|
| BRICKLAYERS | 53.89 | 53.89 | 53.89 |
| CARPENTERS | 54.62 | 54.81 | 43.57 |
| CEMENT FINISHERS | 34.63 | 34.85 | 27.71 |
| ELECTRICAL LINE WORKERS | 24.02 | 46.36 | 22.69 |
| ELECTRICIANS | 68.70 | 68.70 | 68.70 |
| IRON WORKERS | 63.68 | 25.48 | 27.06 |
| LABORERS | 43.30 | 40.70 | 39.95 |
| MILLWRIGHTS | 17.20 | 16.69 | 14.41 |
| PAINTERS | 68.79 | 68.79 | 68.79 |
| PILEDRIVERS | 70.92 | 25.36 | 28.77 |
| POWER EQUIPMENT OPERATORS | 45.46 | 42.29 | 38.73 |
| SHEET METAL WORKERS | 24.30 | 21.68 | 19.64 |
| TRUCK DRIVERS | 36.49 | 30.14 | 36.72 |

CERTIFIED: 02/14/2019

BY: [Signature]

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: P-01 Howard High School of Technology - Bus Loop and Courtyard, New Castle County

SECTION 008114 – DRUG TESTING FORMS

1. SUMMARY

- A. Pursuant to 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 submit Testing Report Forms to the Owner no less than quarterly. See the form attached hereto.
- B. The Contractor will notify the Owner in writing of any positive results of random drug testing. See the form attached hereto. The results must be reported to the Owner within 24 hours of receipt of the test results.

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 submit Testing Report Forms to the Owner no less than quarterly.

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:

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

**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

SECTION 011100 - SUMMARY OF WORK

1. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Sections, apply to work of this Section.

2. CONTRACTS

- A. The work will be performed under separate prime contracts managed by the Construction Manager.

3. ALTERATIONS & COORDINATION

- A. Contractor shall be responsible to coordinate their work with the work of others, including, but not limited to, the preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from the beginning of activity, through project close-out and warranty periods.

4. KNOWLEDGE OF CONTRACT REQUIREMENTS

- A. The Contractor and his Subcontractors, Sub-subcontractors and material men shall consult in detail the Contract Documents for instructions and requirements pertaining to the Work, and at his and their cost, shall provide all labor, materials, equipment and services necessary to furnish, install and complete the work in strict conformance with all provisions thereof.
- B. The Contractor will be held to have examined the site of the Work prior to submitting his proposal and informed himself, his Subcontractors, Sub-subcontractors and material men of all existing conditions affecting the execution of the Work.
- C. The Contractor will be held to have examined the Contract Documents and modifications thereto, as they may affect subdivisions of the Work and informed himself, his Subcontractors, Sub-subcontractors and material men of all conditions thereof affecting the execution of the Work.
- D. The Scope of Work for the Contract is not necessarily limited to the description of each section of the Specifications and the illustrations shown on the Drawings. Include all minor items not expressly indicated in the Contract Documents, or as might be found necessary as a result of field conditions, in order to complete the Work as it is intended, without any gaps between the various subdivisions of work.
- E. The Contractor will be held to be thoroughly familiar with all conditions affecting labor in the area of the Project including, but not limited to, Unions, incentive pay, procurements, living, parking and commuting conditions and to have informed his

Subcontractors and Sub-subcontractors thereof.

5. CONTRACT DOCUMENTS INFORMATION

- A. The Contract Documents are prepared in accordance with available information as to existing conditions and locations. If, during construction, conditions are revealed at variance with the Contract Documents, notify the Construction Manager immediately, but no more than three (3) days from the day the variance is first known. Failure to give timely notice shall operate to waive any claim Contractor might otherwise have for an adjustment to Contract Time or Sum as a consequence of such variance.
- B. The Specifications determine the kinds and methods of installation of the various materials, the Drawings establish the quantities, dimensions and details of materials, the schedules on the Drawings give the location, type and extent of the materials.
- C. Dimensions given on the Drawings govern scale measurements and large scale drawings govern small scale drawings, except as to anything omitted unless such omission is expressly noted on the large scale drawings.
- D. The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic/descriptive", "compliance with standards", "performance", "proprietary", or a combination of these. The methods used for specifying one unit of work has no bearing on requirements for another unit of work.
- E. Whenever a material, article or piece of equipment is referred to in the singular number in the Contract Documents, it shall be the same as referring to it in the plural. As many such materials, articles or pieces of equipment shall be provided as are required to complete the Work.
- F. Whenever a material, article or piece of equipment is specified by reference to a governmental, trade association of similar standard, it shall comply with the requirements of the latest publication thereof and amendments thereto in effect on the bid date.
- G. In addition to the requirements of the Contract Documents, Contractor's work shall also comply with applicable standards of the construction industry and those industry standards are made a part of Contract Documents by reference, as if copied directly into Contract Documents, or as if published copies were bound herein.
- H. Where compliance with two (2) or more industry standards, contract requirements, or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, then the most stringent requirements, which are generally recognized to be also the most costly, is intended and will be enforced, unless specifically detailed language written into the Contract Documents clearly indicates that a less stringent requirement is to be fulfilled.

Refer apparently equal but different requirements, and uncertainties as to which level of quality is more stringent, to Architect for decision before proceeding.

- I. Reference standards referenced directly in Contract Documents or by governing regulations have precedence over non-reference standards which are recognized in industry for applicability of work.
- J. Contractor's bid is based on the complete set of Contract Documents including documents not specifically issued as part of the bid pack but referenced in same.

6. SCOPE OF WORK/GENERAL INFORMATION

- A. A Scope of Work for each contract to be awarded on the project follows in this section. When a Contract has been awarded to a Contractor, the successful Contractor will be listed after the title of the Contract. When no Contract has yet been awarded, no Contractor's name will be listed. Previous Scopes of Work include addendum changes.
- B. 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 ignorance 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.
- C. The Construction Manager will provide on-site a source for temporary electric, temporary water and portable sanitation facilities only. It is each Contractor's responsibility to make the necessary connections, including all material for temporary electric and water. Please note that utility charges for office trailers will be the responsibility of the individual Contractors.
- D. A dumpster will be provided on site for free use by Contractors to dispose of non-hazardous, common, work-related refuse. Clean-up is the responsibility of each Contractor. Clean up shall be performed on a daily basis. Contractors not complying will be advised in writing and back charged for all costs associated with the cleanup of their work.
- E. Contractors are reminded that there are limited storage areas available on site. Off-site storage will be the responsibility of each individual Contractor. Neither the owner or construction manager will be charged additional costs for storage during the project.
- F. Office trailer permits off site will be the responsibility of each individual Contractor. On site Contractor's field offices, one (1) per Contractor, if required, will be located as directed by the Construction Manager.

- G. Contractor will be prepared to discuss and submit a detailed project schedule seven (7) days after receipt of Notice to Proceed and to begin its submittal process. The Project Schedule is an integral part of this contract. 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 required by the current Construction Schedule or as directed by the Construction Manager. 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.
- H. All bids must include insurance limits in accordance with Article 11 of the Section 007300 SUPPLEMENTARY CONDITIONS.
- I. Hoisting, scaffolding and material handling is the responsibility of each Contractor, unless otherwise noted.
- J. Contractor will be responsible for layout of its own work. The Construction Manager will provide benchmark and layout of the building line.
- K. Contractor will be responsible to keep clean public roadways soiled by construction traffic on a daily basis. If cleaning is not done, the Construction Manager may perform the cleaning on an overtime basis and backcharge the Contractor responsible.
- L. Contractor Scopes of Work and Schedule are interrelated. Familiarity with each is required.
- M. The Construction Manager will provide testing services for soil, concrete and steel. Other testing as required by the Contract Documents will be in accordance with the technical specifications and/or the individual scope of work. Refer to Specification Section 004500 - QUALITY CONTROL.
- N. Safety is the responsibility of each individual Contractor. The project will be governed under the guidelines of OSHA.
- O. Inter-Contractor shop drawing distribution will be performed by the Construction Manager. Contractor is individually responsible for either coordinating his work with these distributed drawings or notifying the Construction Manager, in writing, of any discrepancies.
- P. Coordination with other trades will be required. The Contractor will be required to attend periodic coordination meetings with other trades where requirements, conflicts and coordination issues will be discussed and resolved. Attendance when requested will be mandatory. If inter-Contractor coordination is not satisfactorily performed, the conflicting Contractors shall mutually share the cost to relocate and/or reinstall their work.

-
- Q. Contractor shall submit a schedule of values to the Construction Manager, through Building Blok Management System, prior to the submission of their first invoice for approval.
- R. Contractor is expected to review and coordinate its Work with the complete set of Contract Documents, including all items noted as by his trade whether or not shown on that particular set of drawings. Documents are available at the site for review.
- S. Contractor is responsible for obtaining all necessary permits required for his work, including street permits. Unless otherwise noted, building permit shall be secured by the Construction Manager. Any subcontractor who will be restricting access to street, right of way or adjacent property must notify the Construction Manager 48 hours in advance.
- T. Contractor's License: Submit a copy of all business licenses required by local and state agencies.
- U. Contractor shall absorb, without additional compensation, any and all costs of working beyond normal hours to maintain job progress in accordance with the current construction schedule.
- V. No asbestos or PCB's in or on any material or equipment will be accepted or allowed on this project. All hazardous materials will be treated in accordance with all State and Federal regulations.
- W. Each individual Contractor will provide fine clean up on a daily basis. Fine cleaning will be defined as those means/methods utilized to ensure that all odors, dust, and debris will be non-existent within the project area at the end of each workday. In addition, means and methods shall be utilized that prevent the migration of odors, dust, debris, and excessive noise from migrating into non-working areas. An approved cleanup plan will be required before the initial start of the work. The construction manager reserves the right to stop the work, or any portion thereof, upon failure to provide the required cleaning. Contractors will be individually back charged by the Construction Manager for clean up not satisfactorily performed by the Contractor.
- X. In the event asbestos is uncovered, the Contractor shall notify the Construction Manager of the areas requiring removal of asbestos. The Construction Manager shall then coordinate the removal with the Owner.
- Y. This project is to be constructed adjacent to and in existing buildings. Contractor shall exercise all due precautions to minimize noise, air pollution and any other construction hazards which in any way would cause discomfort or danger to the occupants of the existing building in the area.
- Z. Existing mechanical, electrical, plumbing, sprinkler, medical gas, fire alarm, etc. systems will be shut off and locked out by the Owner as required by the Work. Tie-in and

modifications to those systems will be performed by the specific Contractor associated with the work as indicated in the Contract Documents. Re-energizing and re-startup of all systems should be performed by the Owner.

AA. NOT USED

AB. Normal work hours for this project are from 7:00 a.m. to 3:30 p.m. Any work to be performed outside of these hours must receive prior approval from the Construction Manager. Requests to work beyond normal work hours shall be submitted at least 48 hours prior.

AC. Contractor is responsible for having a competent project superintendent/foreman on-site during all work performed under its contract.

AD. In the event the Contractor has non-English speaking employees or subcontractors on the project, they shall have a superintendent or foreman on site, at all times, who speaks English and can communicate with Contractor's employees. Should the Contractor fail to meet this requirement, at any time, Construction Manager may direct all Work to stop until the proper supervision is on site. The Contractor will be responsible for maintaining the project work schedule and make up at its own expense, any delay to the Schedule resulting from the work stoppage.

AE. Punch List Procedures: Contractor shall be given a copy of the punch list with his appropriate work identified. Contractor shall have nine (9) calendar work days to complete its punch list work. On the 10th day or as determined by the Construction Manager, the Construction Manager shall employ other contractors, as required, to complete any incomplete punch list work and retain from the appropriate Contractors retainage all costs incurred.

AF. Contractor shall provide the necessary safety barricades and railings required to complete their work and comply with all OSHA, local code and contract specifications.

AG. Temporary Protection: Provide temporary protection to ensure that no damages occur to existing or new finishes, building components, materials, equipment, etc. In addition, provide all approved signage and safety devices applicable to the referenced temporary protection. An approved temporary protection plan will be required before the initial start of the work.

AH. All contractors will be responsible to review and be familiar with the classroom mock up; established to provide a level of expectation to the bidders during the bidding process.

AI. The contractor's shall be responsible for all quality control and the craftsmanship of the final products delivered.

AJ. Should any work not meet the expectations of the mock ups and the contract documents

it will be rejected and replaced at the contractors cost.

- AK. Contractors are expected to be present with their estimating team at the Pre-Construction meeting; this meeting with discuss the level of expectation expected by all contractors. These meetings are not mandatory; but you are responsible to view and understand the existing conditions of the project before bidding

CONTRACT NO. HHS-55 Bus Loop and Courtyard Upgrades

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections

| | |
|----------------|---|
| Division 0 | Procurement and Contract Requirements |
| Division 1 | General Requirements |
| Section 311000 | Site Clearing |
| Section 312000 | Earthmoving |
| Section 321216 | Asphalt Paving |
| Section 321312 | Site Concrete |
| Section 321313 | Concrete Paving |
| Section 321613 | Concrete Curb |
| Section 321373 | Concrete Pavement and Joint Sealers |
| Section 321416 | Brick Unit Pavers |
| Section 323113 | Chain Link Fences and Gates |
| Section 323119 | Ornamental Aluminum Fencing |
| Section 323913 | Metal Bollards |
| Section 334100 | Sanitary and Storm Drainage Adjustments |
| Section 055213 | Pipe Railings |
| Section 129300 | Site Furnishings |

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. All technical specifications noted above are the responsibility of this contractor.
2. Provide all demolition of existing concrete paving, sidewalks, and curbs and items identified in the contract documents.
3. Locating and identify all existing utilities shall be part of this contract.
4. Cut and remove all trees and associated debris as indicated at back Annex lot area.
5. This contract shall provide dumpsters and debris removal as required for the work of this contract.
6. Provide all excavation, fill, grade modifications as required or directed by the contract documents.

7. Adjust all utilities as indicated on documents and as required to meet new grades and concrete or paver elevations.
8. Street sweeping at completion of each day's work to be provided by this contract.
9. This contract shall include daily cleanup of the work area.
10. This contract shall provide all pedestrian and traffic control as necessary to safely conduct the work required. During Students and staff may be present in May, June, August and September. Precautions should be considered in your proposal.
11. Provide all new concrete paving and curbs.
12. Provide all paver curbing and brick edge details
13. Provide joint sealants for work associated with this contract work.
14. Provide all brick pavers, setting beds, and brick paver bands.
15. Provide truncated dome pavers and associated concrete beds.
16. Provide all soil preparation and top soiling.
17. Provide all plantings, planter beds, and landscaping.
18. Provide site furnishings including benches, flagpoles, and tree grates etc.
19. Provide new ornamental gates, operators, ornamental fencing, and all necessary installation.
20. Include the electrical connections to gate operators as well as all patching and restoration of areas disturbed.
21. Provide concrete, grout, and misc. metals required to fasten fencing to the existing dividing wall that runs along the Annex building at the river stone wall.
22. Final cleanup of entire work area at completion of work to be provided by this contractor.
23. Power wash all existing concrete areas at completion of new work
24. Work of this contract shall begin by May 5, 2019 and shall be completed and turned over the district by Sept 25, 2019. This contract owns this schedule. Any overtime or weekend work required to meet the completion date of Sept 25, 2019 shall be this contracts responsibility.
25. Protection of existing work and installed work of others is the responsibility of this contractor. Provide necessary protective coverings as required

26. You shall include an allowance of \$50,000 in your bid proposal for work to be determined by the owner and CM during construction.
27. Provide all joints preparation, backer rods, sealants and coatings as required and indicated on documents.
28. Include in this contract a \$75,000 allowance to be utilized for potential soils and existing condition remediation.
29. Provide all card access, car readers, A-phones and necessary components.
30. Provide all bituminous paving; including grade and subbase preparation, paving, striping and signage.
31. The milling and paving overlay area to the east side of the building is to be included in the Base Bid proposal. (sheet C-104)
32. This contractor shall be governed by all state, local, city and DNREC regulations and shall be responsible to for all permitting other than the building permit which the owner will acquire.
33. Protection of existing structures, steps, walks, and improvements is to be include in this contractor's proposal.
34. Special attention is required when working around existing conditions and the existing bridges between buildings and building overhangs. Contractor to protect existing conditions and be responsible for any damages.
35. Area labelled Bid #3 will be bid as Alternate #1.
36. Area marked a "paving overlay" at N. Pine Street to be bid as Alternate #2.
37. Protection of existing storm and sanitary drains while under construction is the responsibility of this contractor.
38. Provide all bollards and installation.
39. Provide all handrails, guard rails, fastening devices and installation as required. Match all existing conditions.
40. Electrical services to equipment and operators required by this contract to be provided by other under a separate bid package. Coordination with the awarded contractor will be required by this contract.

END OF SECTION

SECTION 012100 - ALLOWANCES

1. RELATED DOCUMENTS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.
- B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.
- C. Refer to Scope Information Sheets for all contracts bound in the Project Manual under Section 011100 - SUMMARY OF WORK. The Scope Information Sheets describe generally the work included in each contract, but the work is not necessarily limited to that described.
- D. For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.
- E. Include in the Contract Sum all lump sum and unit cost allowances stated in the Contract Documents.
- F. Designate in the construction progress schedule the delivery dates for products specified under each allowance.
- G. Designate in the Schedule of Values the quantities of materials required under each unit cost allowance.

2. ALLOWANCES FOR PRODUCTS

- A. The amount of each allowance includes:
 - 1. The cost of the product or labor to the Contractor or Subcontractor, less any applicable trade discounts.
 - 2. Delivery to the site.
 - 3. Labor required under the allowance, only when labor is specified to be included in the allowance. If labor is not specified to be included in the allowance, it shall be included in the Contractor's bid and in the resulting Contract Sum.
 - 4. Applicable taxes.

5. Profit and overhead.

B. In addition to the amount of each allowance, include in the Contract Sum the Contractor's costs for:

1. Handling at the site; including unloading, uncrating and storage.

2. Protection from the elements and from damage.

3. Labor for installation and finishing, except where labor is specified to be a part of the allowance.

4. Other expenses required to complete the installation.

5. Contractor's and Subcontractor's overhead and profit.

C. Refer to Scope Information Sheets under Section 011100 - SUMMARY OF WORK for the amount of each lump sum allowance and for work specified in the specification sections.

3. ADJUSTMENT OF COSTS

A. Should the net cost be more or less than the specified amount of the allowance, the Contract Sum will be adjusted accordingly by Change Order.

1. For products and labor specified under a unit cost allowance, the unit cost shall apply to the quantities actually used with a nominal allowance for waste, as determined by receipted invoices, or by field measurement.

B. At Contract closeout, reflect all approved changes in Contract amounts in the final statement of accounting.

4. ALLOWANCES

A. The following allowances are part of the contractor documents and shall be included in contract sum:

See Summary of Work Section 011100.

END OF SECTION

SECTION 012600 - CHANGE ORDER PROCEDURES

1. GENERAL:

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.
- B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.
- C. The Construction Manager is responsible for processing all change orders. Each request will be assigned a change order request (COR) number. The Change Order Request & Execution Form will be initiated via the web-based project management system (Building Blok) used by the CM.
- D. It is to be clearly understood that no extra work shall commence without an approved written and executed change order from the Owner.

2. INITIATING A CHANGE ORDER:

- A. Specific changes initiated by the Owner, Architect, Construction Manager (CM) or Contractor will be processed as follows:
 - 1. The Owner will authorize the Architect to prepare sufficient documents to establish an accurate price. These documents to be forwarded to the Construction Manager and Owner “for pricing only, not authorized for construction.” The Construction Manager will develop the estimate (within 2 weeks) showing a breakdown by trades with all trade contractor quotes. The Owner will approve or reject the change request within two (2) weeks. If the Owner elects to proceed with the change, the Construction Manager will prepare formal change orders to the various trade contractors involved in the change and reference in all formal change orders the original change order request number.
 - 2. Field Change: Contractor shall immediately notify the Construction Manager of a change due to field conditions or site conditions. If documents cannot be prepared for pricing due to schedule constraints, the Construction Manager will make every effort in estimating the field change. If the Owner and Construction Manager agree that certain field changes should be handled on a time and material basis, the Construction Manager will closely monitor the Contractor's labor and material affecting this change. At the completion of the work a formal change order will be issued.
 - 3. Contractor Change: If a Contractor initiates a change order for work not included in the Contract, the Construction Manager and Architect will research the validity of the request, verify quantities and pricing and submit to the Owner for approval on a change order request.

- B. The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor, Construction Manager and the Architect.

3. PROCESSING A CHANGE ORDER:

- A. The Contractor will fill in the Change Order Request & Execution Form (COREF) with a brief description of the change, any time extension, and cost changes.
- B. The Contractor will attach to the COREF copies of the written quotations from the trade contractors, Contractors, and suppliers. The Labor Detail Sheet and the Change Order Detail forms must be added as an attachment to the COREF. The Contractor and each sub-tier contractor (as applicable) must fill out the Labor Detail Sheet and Change Order Detail Sheet. Samples of these forms are attached.
- C. In all cases, this cost or credit shall be based on the "DPE" wages required and the "invoice price" of the materials/equipment needed.
- D. "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes direct salary plus customary fringe benefits (prevailing wage rates) and documented statutory costs such as workman's compensation insurance, FICA, and unemployment insurance (a maximum multiplier of 1.35 times DPE).
 - 1. "Fringe Benefit" is any medical, life or disability insurance, paid time off, etc.
 - 2. "Worker's Compensation" is the insurance required for injuries including medical leave, etc.
 - 3. "FICA" is the costs association with Social Security and Medicare insurance.
 - 4. "Unemployment insurance" is the cost associated with the governmental assessment for employee's unemployment benefits.
- E. "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.
- F. In addition to the above, the Contractor is allowed markup for overhead and profit on additional work performed as outlined in Specification Section 012613, Contractor Compensation.
- G. Building Blok Procedures: The Contractor will submit all change order requests and supporting documentation via the Building Blok web-based project management system. Each Contractor will be issued a unique login and password. Each contractor must submit the information as follows:
 - 1. Create a new change order, from your "To-Do List" by clicking on the "Create Issue"

tab in the upper right corner and select "Change Order Request".

2. The Contractor will enter a brief description of the change in the "Summary" block. A detailed description of the change will be entered in the "Description of Change" block, to include any changes to documents or time extension. The cost of the change will be entered in the "Total Cost Change" block.
3. The Labor Detail Sheet and the Change Order Detail forms must be added as an attachment to the request. The Contractor and each sub-tier contractor (as applicable) must fill out the Labor Detail Sheet and Change Order Detail Sheet. Samples of these forms are included behind this section. In addition to these forms, the Contractor also must attach any material and equipment rental quotations. All of these documents should be scanned and saved as a PDF file. Click on the "Browse" box to upload the file. Be sure to wait until Building Blok tells you the file was "Uploaded Successfully".
4. Once the information is entered on the form and the proper attachments are uploaded, the contractor will click "Save". The Contractor will be prompted to enter their password to approve an electronic signature. Once you save the request you will have an opportunity to check it before submitting it to the CM. After you verify the COREF is correct click "Recommend Approval" to submit the change request to the CM. The Contractor will then be prompted to re-enter the password to approve an electronic signature and complete the submission request. Click on "Home" in the upper left corner to make sure the change order does not appear on your To-Do List.
5. The Change Order Request will then be reviewed by the CM Project Manager and Recommended for Approval, Rejected, or returned to the Contractor for additional information. Once the Construction Manager, Owner, and Architect have approved the request all parties will receive an email from Building Blok notifying them that a fully executed Change Order and Contract Recalculation Form can be downloaded from Building Blok. Hard copies of the executed change order and recalculation form will not be provided by the CM.
6. Once approved on Building Blok, the Contractor is to print out a copy of the approved change order request form and send a signed hard copy of the request with a printout of the associated back-up to the Construction Manager.

It is to be clearly stated that no extra work shall commence without an approval from the **Owner or Construction Manager** or Owner's representative.

END OF SECTION



CHANGE ORDER REQUEST & EXECUTION FORM

110 South Poplar Street
Suite 400
Wilmington, DE 19801

Tel. 302-421-5700
Fax 302-421-5715

DATE:
CONTRACT:
CONTRACTOR:

PROJECT NAME: Howard High School
REQUEST NUMBER:
CHANGE ORDER NUMBER:
STATE PO NUMBER:

The following is a summary of the request submitted by the contractor as described above. All supporting documents have been attached and described herewith. This summary shall contain a total amount of compensation requested by the contractor as well as any request for an extension in contract time. It shall be understood that the amounts described below shall remain valid for a period of sixty days from the date described above unless otherwise stated.

A detailed breakdown of Labor, material, equipment, and subcontract costs must be attached to be considered for review.

1. Summary Description(s):
2. Changes to the Contract Drawings:
3. Changes to the Project Manual:
4. Total Cost Change:
5. Total Time Change:

| | | |
|--|------------|------|
| REVIEWED | | |
| This request has been reviewed and ____approval____disapproval is recommended by: | | |
| Name | Title | Date |
| APPROVED | | |
| This change order request is not approved until executed by all parties bound by a contractual relationship. Upon execution it shall represent a modification to the agreement and is subject to all terms and conditions of the contract documents. | | |
| <hr/> | | |
| Contractor: | Architect: | |
| Signed By: | Signed By: | |
| Title: | Title: | |
| Date: | Date: | |
| <hr/> | | |
| EDiS Company | Owner: | |
| Signed By: | Signed By: | |
| Title: | Title: | |
| Date: | Date: | |



CHANGE ORDER DETAIL FORM
(Provided by contractor, subcontractor or sub tier contractor)

DATE SUBMITTED:

CONTRACT:

CONTRACTOR:

PROJECT NAME: Renovations to Howard High School of Technology

CHANGE ORDER REQUEST #:

| LABOR SECTION | | | |
|---------------|-------------|---------------------|----------|
| TRADESMAN(s): | LABOR HOURS | RATE (per schedule) | SUBTOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Subtotal | | | |

| MATERIAL SECTION | | | |
|------------------|----------|-----------|----------|
| MATERIAL: | QUANTITY | UNIT COST | SUBTOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Subtotal | | | |

| EQUIPMENT SECTION | | | |
|-------------------|----------|-----------|----------|
| EQUIPMENT: | QUANTITY | UNIT COST | SUBTOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Subtotal | | | |

| | |
|---|--|
| SUBTOTAL | |
| SUBCONTRACTOR/ SUB TIER* | |
| OH & PROFIT (10% on sub/sub tier only)) | |
| BOND COST | |
| OH & PROFIT (15% on own work) | |
| GRAND TOTAL | |



CHANGE ORDER DETAIL FORM

(Provided by contractor, subcontractor or sub tier contractor)

DATE SUBMITTED:

CONTRACT:

CONTRACTOR:

PROJECT NAME:

CHANGE ORDER REQUEST #:

| LABOR SECTION | | | |
|---------------|-------------|---------------------|----------|
| TRADESMAN(s): | LABOR HOURS | RATE (per schedule) | SUBTOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Subtotal | | | |

| MATERIAL SECTION | | | |
|------------------|----------|-----------|----------|
| MATERIAL: | QUANTITY | UNIT COST | SUBTOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Subtotal | | | |

| EQUIPMENT SECTION | | | |
|-------------------|----------|-----------|----------|
| EQUIPMENT: | QUANTITY | UNIT COST | SUBTOTAL |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Subtotal | | | |

| | |
|---|----------------------|
| SUBTOTAL | <input type="text"/> |
| SUBCONTRACTOR/ SUB TIER* | <input type="text"/> |
| OH & PROFIT (10% on sub/sub tier only)) | <input type="text"/> |
| BOND COST | <input type="text"/> |
| OH & PROFIT (15% on own work) | <input type="text"/> |
| GRAND TOTAL | <input type="text"/> |



LABOR DETAIL FORM

(Provided by contractor, subcontractor, or sub-tier contractor)

DATE:

CONTRACT:

CONTRACTOR:

PROJECT NAME: Renovations to Howard High School of Technology

CHANGE ORDER REQUEST #:

| | | | |
|-----------------------------------|--|--|--|
| CLASSIFICATION: | | | |
| Base Wage Rate: | | | |
| Health Insurance | | | |
| Holidays | | | |
| Sick Days | | | |
| Life Insurance | | | |
| Disability Insurance | | | |
| Dental Insurance | | | |
| Company Vehicle | | | |
| 401K | | | |
| Education | | | |
| Other (<i>specify below</i>) | | | |
| | | | |
| | | | |
| Subtotal | | | |
| Posted Prevailing Rate | | | |
| FICA (Social Security & Medicare) | | | |
| SUTA (State Unemployment) | | | |
| FUTA (Federal Unemployment) | | | |
| General Liability Insurance | | | |
| Worker's Compensation | | | |
| Total Wage Rate | | | |

4/14

SECTION 012613 - CONTRACTOR COMPENSATION

1. GENERAL

- A. The Contractor agrees to perform any additional Work, for the net cost of materials and labor (including wages paid, payroll taxes, and all insurance) plus the following percentage for all of his overhead and profit, which includes Field Supervision:

The percentages to be added or allowed for any Work change involving both added Work and omitted Work shall be applied only to the net difference in cost.

1. 15% mark-up (10% overhead and 5% profit) by the Contractor on Work performed by his own forces.
 2. For work done by a Subcontractor, 10% for subcontractor overhead and 5% for subcontractor profit to which the Contractor may add 7.5% for his overhead and profit combined.
 3. Contractor mark-up shall include supervision, home and field overhead, all self-owned small tools and equipment.
- B. When the Contractor is directed to perform overtime work at the CM (Owner) expense to accelerate contractual work, the cost for same shall only be the actual premium costs incurred by the Contractor.

END OF SECTION

SECTION 012900 - PAYMENT PROCEDURES

1. GENERAL PROVISIONS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.
- B. Refer to provisions in AIA Document A232 - 2009 Edition, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.
- C. For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.

2. REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to Construction Manager in accordance with the schedule and procedures established in the Contract Documents.

3. RELATED REQUIREMENTS

- A. Owner-Contractor Agreement.
- B. Conditions of the Contract: Article 9 PAYMENTS AND COMPLETION.
- C. Section 01 31 13: Project Coordination Meetings
- D. Section 01 33 00: Submittal Procedures
- E. Section 01 77 00: Closeout Procedures

4. FORMAT AND DATA REQUIRED

- A. Submit itemized applications inputted into Building Blok (EDiS' Web-Based Project Management software), examples of which will be furnished to the Contractor at the Pre-Construction meeting.
- B. Provide itemized data on Continuation Sheet:
 - 1. Format, schedules, line items and values: Duplicates of those of the schedule of values previously accepted by the Construction Manager.
- C. Once approved on Building Blok, print out two copies and submit signed and notarized copies to the Construction Manager.

5. PREPARATION OF APPLICATIONS FOR PROGRESS PAYMENTS

A. Form: AIA Document G702/CMa

1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
2. Fill in summary of dollar values to agree with respective totals indicated on Continuation Sheets.

B. Continuation Sheets:

1. Line items of components of Work will be subject to Owner's review and approval under the Provisions of Section 013300 - SUBMITTALS, and the General Conditions. Continuation Sheets shall follow Schedule of Values submitted with the first application for payment.
2. Fill in total list of all scheduled components of Work, with item number and scheduled dollar value for each item. Fill in values of work completed in the period.
3. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored; round off values to nearest dollar.
4. List each Change Order executed prior to date of submission, at the end of the Continuation Sheets; list by Change Order Number, and description, as for an original component item of work.
5. Contractor is to include a line item for "Closeout Documents" equaling 3.5% of their contract value.

6. PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified in progress payments.

7. SUBMITTAL PROCEDURES

A. Complete Payment Applications:

1. Submit completed Application to the Construction Manager by the date stipulated in the Project Manual.

- B. Number: Submit 2 copies of each Building Blok invoice signed and notarized payment application.

END OF SECTION

SECTION 013113 - PROJECT COORDINATION MEETING

1. PROJECT COORDINATION MEETING

- A. An on-site project coordination meeting will be held on a biweekly basis throughout the project construction period.

2. ATTENDANCE

- A. Attendance at the project coordination meeting is mandatory of each Contractor or major supplier on the project.
- B. The representative of the Contractor shall be the Project Manager and field superintendent, unless a substitute representative has been approved by the Construction Manager.
- C. Contractor will begin attending the Project Coordination Meetings at least 4 weeks prior to mobilization on site, and will continue until the Contractor has fulfilled the obligations of his Contract.

3. AGENDA

- A. The Construction Manager will set the agenda for the biweekly Project Coordination Meeting.
- B. At a minimum, the Contractor shall be prepared to discuss the following:
1. Actual vs. as planned progress for the prior two week period.
 2. Planned construction activities for the next four weeks.
 3. Contract document clarifications.
 4. Coordination items with other contractors.
 5. Quality Control.
 6. Recently issued change orders.
 7. Potential change orders.
 8. Submittals and shop drawings.
 9. Other items requiring Construction Manager's attention.

END OF SECTION

SECTION 013119 – PRE-INSTALLATION MEETINGS

1. PRE-INSTALLATION MEETINGS

- A. An on-site pre-installation meeting will be held at least two weeks prior to commencement of installation of work.

2. ATTENDANCE

- A. Attendance at the pre-installation meeting is mandatory of each Contractor and/or major supplier as required for each specific meeting listed below.

- B. The following individuals shall attend these meetings:

- Contractors' Project Manager
- Contractors' Field Superintendent
- Contractors' Safety Representative (as needed)
- Key Subcontractors, Suppliers, and Vendors
- EDiS Project Manager
- EDiS Field Manager
- EDiS Safety Director (as needed)
- EDiS MEP Specialist (as needed)
- Owner's Representative (as needed)
- Architect/Engineer (as needed)
- Governmental Agency Representatives (as needed)
- Testing/Inspection Agency Representatives (as needed)
- Utility Company Representatives (as needed)

3. SUBMITTALS

- A. Each contractor is responsible to have all submittals and mock-ups, as related to the pre-installation meeting scope of work, submitted and approved prior to commencement of the pre-installation meeting.

4. LIST OF REQUIRED MEETINGS

- Foundations & Concrete Slabs
- Under slab Utilities
- Structural Steel Erection & Miscellaneous Metals OSHA mandated Safety Meeting
- Roofing OSHA mandated Safety Meeting
- Masonry
- Windows, Storefront, & Glazing
- Doors/Frames/Hardware
- Casework & Millwork
- Acoustical Ceilings
- Paint and VWC
- Flooring (VCT, Carpet)
- Epoxy Flooring
- Food Service Equipment

- Partition Walls
 - Metal Studs
 - Drywall
 - Insulation
 - Doors/Frames/Hardware
- Fire Protection
 - Fire Sprinkler Systems
 - Fire Alarm Systems
- MEP Coordination
 - Mechanical Piping Roughin
 - Plumbing Roughin
 - Insulation
 - Electrical Roughin
 - Electrical – Bonding, grounding, lightning protection
 - Automatic Temperature Controls
 - Commissioning

5. AGENDA

- A. At a minimum, the Contractor shall be prepared to discuss the items as listed on the agenda template shown on the following page:

PROJECT: RENOVATIONS HOWARD HIGH SCHOOL OF TECHNOLOGY
PRE-INSTALLATION MEETING: (Phase of Work)

A. ATTENDEES:

| <u>NAME</u> | <u>COMPANY</u> | <u>WORK ITEM</u> | <u>CONTRACT</u> |
|-------------|----------------|------------------|-----------------|
|-------------|----------------|------------------|-----------------|

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

B. TESTING & INSPECTION REQUIREMENTS

C. REVIEW CONTRACT DRAWINGS AND SPECIFICATIONS

| <u>Drawing / Spec No.</u> | <u>Comments / Conflicts</u> |
|---------------------------|-----------------------------|
|---------------------------|-----------------------------|

| | |
|--|--|
| | |
| | |

D. REVIEW SCOPES OF WORK

E. REVIEW RELEVANT RFI'S

F. REVIEW SUBMITTALS

G. REVIEW MATERIALS AND DELIVERIES

H. REVIEW SCHEDULE AND SEQUENCE OF WORK

I. JOB SITE SAFETY

- Safety Plans must be submitted before the start of work
- Certificates of Insurance need to be submitted before the start of work
- Minimum PPE – Hardhats, steel toe boots, safety glasses
- Lock-out, Tag, Test and Try ALL utilities is critical before the start of demolition
- Signage & HAZCOM Requirements
- Potential Hazards
 - Excavations >4 ft
 - Slips/trips/falls
 - Existing utilities to remain and protected

- Overhead debris
- Power tools
- Heavy equipment

J. COORDINATION WITH OTHER TRADES

K. ACTION ITEMS AND RESPONSIBILITY

L. CLOSEOUT

END OF SECTION

SECTION 013125- WEB-BASED PROJECT MANAGEMENT SYSTEM

1. GENERAL PROVISIONS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.
- B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, for requirements in addition to those specified in Division 1.
- C. Refer to Scope Information Sheets for all contracts bound in the Project Manual under Section 011100 - SUMMARY OF WORK. The Scope Information Sheets describe generally the work included in each contract, but the work is not necessarily limited to that described.
- D. All Contractors shall use Internet/Web-based project management software to transmit documents, track, and otherwise manage this project.
- E. Use of this project management software will not change any contractual responsibilities of the construction team members.

2. DEFINITIONS

- A. System: A real time web-based software that shares data, translates data, organizes data, facilitates communication, archives actions, and offers scheduling prompts to identified Users.
- B. Users: Authorized participants of this project furnished with a unique password and authorized to access the system to view/input/export data. Owner, Construction Manager, Architect, and the Contractors are all Users. Other Users may be added as necessary.
- C. Contacts: Entities identified to automatically receive specific transmissions or entities selected to receive specific information sent by the system through to an e-mail address.
- D. Signees: Those individuals identified, by the Contractors, authorized to sign change orders and payment applications via electronic signature. This electronic signature is as contractually binding as an original signature on paper.

3. USE OF SYSTEM

- A. The use of the system is mandatory for the documentation of the transmittal of all non-oral information, even if the actual transmission of the information is by another means.

- B. The use of the system will be mandatory by the Contractors to send, retrieve, and respond to data.
- C. In addition to this web-based project management system, the Contractors will be required to use electronic mail (email) for day-to-day communication and correspondence. Email will be the primary means of transmitting written communication (i.e. meeting minutes, draft pay applications, etc.).

4. QUALITY ASSURANCE

- A. A three hour training session in the use of the software for this project will be offered by the Construction Manager at a location convenient to the project site. Attendance by one member of each Contractor's organization is mandatory. Additional attendees may enroll based on availability of training space. All attendees must have a working knowledge of computers. Training can not begin until three working days after the receipt of the submittals indicated below.
- B. Technical assistance will be provided by on-line help, email, or telephone for all Users through-out the life of the project.

5. SUBMITTALS

- A. Submit to the Construction Manager, within 5 days following the receipt of the letter of intent to award, in an electronic template, the following:
 - 1. Electronic logo of organization (as needed)
 - 2. Names, mailing address and electronic address of its Users and Contacts.
 - 3. Designation the role/responsibility for each User

6. SOFTWARE AND HARDWARE REQUIREMENTS

- A. Each User shall provide and maintain a computer with high speed internet access and an email address. The computer shall have a highspeed internet browser (Internet Explorer 8.0 or higher, Firefox version 3.6.12 or higher, Google Chrome or Safari version 5.0 or higher) and a high speed cable Internet access, high speed DSL or T1 line.
- B. License(s) to Use System - Each Contractor will be provided unlimited licenses to use the system for this project. Each license will allow secure unlimited usage from the notice to proceed until the original contract completion date.

7. SYSTEM DESCRIPTION

- A. The web based project management system is a "secure, real-time, interactive, centralized database" specifically established and maintained for the management of

this construction project. The product is designed to facilitate communication and improve the time management of its users by facilitating the sharing of information. Information will be available 24/7, from any computer meeting the specifications listed above. The information is fully protected. The electronic platform allows information to be transmitted across the internet reducing printing and postage costs and the time associated with such activities.

- B. The system contains a directory of the project participants.
- C. The system includes templates, with the CM's letterhead, for each document created inside the system. The template allows the use of "pull down" menus to complete significant portions of each document.
- D. The system allows the templates (and attached documents created outside the system) to be distributed to Users and Contacts.
- E. The System contains "translation software" to permit the viewing (and marking) of documents created outside the system. The system can view documents created by different software programs and can deliver images of its translation to any computer meeting the criteria listed above.
- F. The system can be personalized by the Construction Manager to automatically send e-mail notices upon issuance of certain documents if such a practice facilitates the User's business needs.
- G. The system is the product of *Building Blok LLC* (www.buildingblok.com) and will be continuously updated.
- H. The Construction Manager will administer the Building Blok User accounts for this project.

8. DOCUMENTS CREATED INSIDE THE SYSTEM

- A. The following documents shall be created on templates inside the system.
 - 1. Transmittals for submittals processed in the system. The transmittals are automatically created by the system when the submittal is uploaded.
 - 2. Submittal Register showing all of the submittals required of the contract, assigned to each Contractor.
 - 3. Submittal Log: The CM will maintain submittal log after it is initialized.
 - 4. RFI (Requests for Information)
 - 5. Change Orders
 - 6. RFP (Requests for Proposal)
 - 7. ASI (Architect's Supplemental Instructions)
 - 8. Tasks & Memos as determined by the CM

9. Payment Applications
10. Closeout Tracking Log

B. The following documents may, at each Users option, be created on the system.

1. Morning & Afternoon Activity Reports generated by the system
2. E-mails: Contacts that do not have access to the system may be sent information from the system, by the system.
3. Reports of information on the system
4. Project Notices: "Broadcast" messages can be sent to other Users system entry screen.

9. DOCUMENTS CREATED OUTSIDE THE SYSTEM AND DISTRIBUTED BY THE SYSTEM

A. The following documents are expected to be created outside the system and distributed through the system. The actual documents may be scanned or electronically attached to the transmittal.

1. Technical Submittals: Shop drawings, product data, testing reports, certifications, installation instructions, operation & maintenance manuals, will be submitted and distributed through the system. The Architect will return all submissions through the system electronically. The Construction Manager will distribute submittals (after Architect's action) electronically. Contractors may download and distribute submittals to their subcontractors and suppliers or elect to print paper copies for distribution, or both.
2. Photographs: Digital photographs and scanned images can be loaded onto the system and shared.
3. Schedule of Values/ Payment Applications: (The "pencil" review of these documents can occur inside the system).
4. Change Orders: (The "pencil" review of these documents can occur inside the system.)
5. Schedules: The schedule document(s) will be available for review on the system.
6. Data created in other software may be uploaded to the system electronically.

10. DOCUMENTS CREATED OUTSIDE THE SYSTEM AND DISTRIBUTED OUTSIDE THE SYSTEM

A. The following documents are expected to be created outside the system and distributed outside the system. The actual documents may be scanned or electronically attached to the transmittal.

1. Schedules: The Construction Manager will develop the Master Schedule through Microsoft Project 2003. The schedule will be distributed either through hard copies at meetings or through email.
2. Product samples, color samples, physical samples are still required to be provided

per the technical specifications, however, the transmittal documenting the distribution shall be done inside the system and submitted electronically and printed to accompany the actual submission.

3. Meeting minutes will be created using Microsoft Word 2003 and distributed through hard copies at meetings or through email.
4. AIA closeout documents, which require an "original" signature, will created and distributed outside the system.

END OF SECTION

SECTION 013216 - 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.
- C. Work of this bid package shall start by **May 5, 2019** for all Base Bid work. The area identified as Bid #2 must be completed by **August 15th, 2019**, include necessary overtime and required costs to meet this posted schedule date. The areas identified as Bid #1 must be completed by **September 20th, 2019**. If accepted Add Alternate #1 and Add Alternate #2 shall meet the same dates as Bid #1 work.

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.
- C. 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-week look ahead of anticipated manpower showing the number of men, classification, and anticipated work.

END OF SECTION

SECTION 013219 - SUBMITTAL REGISTER

1. SUBMITTALS/SUBMITTAL REGISTER

- A. The Contractor shall submit all items listed or specified within the sections of the Specifications included in its Work. Submittals shall include such items as: contractor's, manufacturer's or fabricator's drawings; descriptive literature including, but not limited to, catalog cuts, diagrams, operation charts or curves; test reports; samples, operations and maintenance manuals, including parts lists; certifications; warranties and other required submittals. Submittals pertinent to materials and equipment which are subject to advance approval shall be scheduled and made prior to the acquisition or the delivery thereof.
- B. The Contractor shall carefully control procurement operations to assure that each individual submittal is made on or before the dates required for timely performance of its Work.
- C. Within seven (7) days after award of Contract or issuance of Notice to Proceed, the Contractor shall execute and submit to the Construction Manager, seven (7) copies of the Submittal Register, on a form to be provided by the Construction Manager, on which shall be listed each item of equipment and material of each type for which fabricator's drawings and/or related descriptive data, test reports, samples, spare parts, operation and maintenance manuals, or other types of submittals required by the Specifications. The Submittal Register form shall be reproduced by the Contractor. The order of listing of items on the Register shall conform to the sequence of the items as they occur within the divisions. Drawings of component items forming a system or that are interrelated shall be scheduled to be correlated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time shall be allowed for review and approval and possible resubmittal of any item subject to approval, because no delay damages or time extensions will be allowed for time lost in late submittals or resubmittals. The Construction Manager and Architect/Engineer will review the Submittal Register for approval action. The approved Register will become a part of the Contract and Contractor will be subject to requirements thereof. The Contractor shall revise and/or update the Register monthly to take into account all changes in the Contract. Each such revised edition and/or revision to the Register shall be resubmitted to the Construction Manager. This Register shall be coordinated with related submittals of other Contractors.

2. SAMPLES

- A. Submit tagged or labeled samples in triplicate, unless another quantity is otherwise specified by the Construction Manager.
- B. Tags or labels shall be securely affixed and contain as a minimum the following information: Project Name, Contractor's Name, Contract Title and Number, Date, Transmittal Number, Product Manufacturer's or Fabricator's Name and Product Identifier.

END OF SECTION

SECTION 013226 - CONTRACTOR DAILY REPORTS

1. CONTRACTOR DAILY REPORTS

- A. The Contractor shall submit a Daily Report to the Construction Manager on the forms provided covering the following subjects:
1. Work in Progress, including areas where work is being performed, nature of the operations in progress, and the manpower assigned.
 2. Extra Work (Time and Material) in progress.
 3. Materials Received.
 4. Trade labor breakdown including identification of all workers on site and the number of hours (or portions thereof) worked by each.
 5. Inspection Checklist (performed daily).
- B. The Contractor shall submit the Daily Report to the Construction Manager by 9:00 AM on the next workday following the workday covered in the Daily Report.

2. DAILY EXTRA WORK REPORT

- A. The Contractor shall submit on the form provided a Daily Extra Work Report on each day he performs authorized Extra Work on a time and material basis.
- B. A separate Daily Extra Work Report shall be submitted for each separate authorized Extra Work item done on a time and material basis.
- C. The Contractor shall submit his Daily Extra Work Report as an attachment to his Daily Report by 9:00 AM on the next workday following the workday covered in the Daily Extra Work Report.

3. Sample Daily Report

- A. A sample daily report follows this section for your reference.

END OF SECTION



EDIS COMPANY

CONTRACTOR'S DAILY REPORT

Project Name: Renovations to Howard High School of Technology

Date: _____

Contractor: _____

Contract No. & Description: _____

Weather: _____

Foreman's Name (Print)

| TRADE | *CLASS | MANPOWER COUNT | TOTAL MAN HOURS | TODAY'S DESCRIPTION / LOCATION OF WORK |
|-------|--------|-------------------|-----------------------|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| TOTAL | | | | |

* INDICATE: F = FOREMAN; J = JOURNEYMAN; A = APPRENTICE

Work Status/Work Planned: _____

Construction Equipment: _____

Qualified Operator(s) _____

Deliveries or Materials: _____

Machinery, tools, material, and equipment to be used: _____

Inspection of work area, machinery, tools, material, or equipment _____

The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement

Is prohibited. Such machine, tool, material or equipment shall either be identified as unsafe by tagging or locking The controls to render them inoperable or shall be physically removed from its place of operation.

Please See Other Side

Below is a general checklist of requirements on this project. Contractors will check off items that pertain to their contract and project tasks. Notify EDis Field Manager of any issues. This checklist is not meant to be all inclusive. Please refer to additional OSHA regulations for compliance.

House Keeping

- ☐ Material Storage Area's Orderly
- ☐ Trash Containers Available and Emptied daily
- ☐ Fire Hazards
- ☐ Lighting and ventilation
- ☐ Exits and Stair clear passage
- ☐ Walkways, corridors clear passage
- ☐ Daily debris /trash removal
- ☐ _____

Personal Protective Equipment

- ☐ Hard Hats being worn
- ☐ Safety Glasses with side shields being worn
- ☐ Secondary Eye/Face protection
- ☐ Respirators as required
- ☐ Hand protection when needed
- ☐ Ear protection when needed
- ☐ Inspected & Maintained
- ☐ _____

Fire Prevention

- ☐ Fire extinguishers inspected
- ☐ Flammable / Combustibles properly store
- ☐ Approved Fuel cans used and labeled
- ☐ Oxygen / Acetylenes stored properly
- ☐ _____

Electrical

- ☐ GFI in use
- ☐ Three prong insulated extension cords used
- ☐ Extension cords in good condition
- ☐ Lockout / Tag-out program in use
- ☐ _____

Excavations

- ☐ Miss Utility been contacted
- ☐ Properly Barricaded
- ☐ Ladders in use at depths over 4'-0"
- ☐ Ladders every 25'-0" distance
- ☐ Shored, sloped, benched as required
- ☐ Dewatering as needed
- ☐ _____

Ladders

- ☐ Good condition
- ☐ Correct pitch
- ☐ Extends 3'-0" above landing
- ☐ Open and secured / tied off
- ☐ _____

Scaffolds

- ☐ Certified Scaffold Installer
- ☐ Guardrails, toe boards, and planking secured
- ☐ Appropriate signage
- ☐ Adequate cross bracing
- ☐ Secured to building over 25'-0" in height
- ☐ _____

Cranes

- ☐ Rated Load Capacity available in cab
- ☐ Swing Radius barricaded
- ☐ Appropriate certificates / decals / hand signals
- ☐ Daily safety inspection log completed
- ☐ _____

Fall Protection

- ☐ Fall protection plan on file
- ☐ Full harness / shock absorbing lanyard used
- ☐ Anchoring points secured
- ☐ Perimeter barricades
- ☐ Open sided floor protection
- ☐ 6'-0" Tie-off utilized
- ☐ _____

Paperwork

- ☐ MSDS Information
- ☐ Contractors Safety Program
- ☐ Hazardous Communications Training
- ☐ Hazardous Communications Program
- ☐ Contractor Qualified Representation
- ☐ _____

Other

- ☐ _____
- ☐ _____

Foreman / Competent Person:

Print Name _____

SECTION 013300 – SUBMITTAL PROCEDURES

1. GENERAL PROVISIONS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

2. ITEMS TO BE SUBMITTED AT START OF WORK

- A. Performance/Labor and Material Payment Bond(s): One (1) copy of each bond simultaneously with the signed Agreement. See General Conditions Article 11.4 and Supplementary Conditions.
- B. Policies or Certificates of Insurance: Two (2) copies simultaneously with the signed Agreement. See General Conditions Article 11 and Supplementary Conditions.
- C. Contractor's License: Submit a copy of all business licenses required by local and state agencies.
- D. Contractor's Schedule of Values: Two (2) copies for approval within 21 days after the Agreement is signed. See General Conditions Article 9.2 and provisions in this Section.
- E. Contractor's Progress Schedule: Two (2) copies for review and reference within 21 days after the Agreement is signed. See General Conditions Article 3.10 and provisions in this Section.
- F. Submittal Schedule: Two (2) copies for review and reference within 21 days after the Agreement is signed. See provisions in this Section.
- G. Products List: Two (2) copies for approval within 30 days after the Agreement is signed. See provisions in Section 016200 - MATERIAL AND EQUIPMENT.

3. NON-RESIDENT CONTRACTOR & SUBCONTRACTORS BONDS

- A. Refer to requirements in Section 011100 - INSTRUCTIONS TO BIDDERS for filing of Surety Bonds with the Division of Revenue.
- B. If such bonds are required on this project, it will be the responsibility of the Contractor to produce evidence to the Construction Manager that they have been filed, or if not required, to supply a notarized statement that they are not required. This must be done within seven (7) days after award of Contract and in any event before construction starts.

4. RELATED REQUIREMENTS

- A. See Section 017700 - CONTRACT CLOSE OUT: for submittal requirements for Contract Close out.

5. SUBMITTALS

- A. All submittals shall be directed to the Construction Manager in the manner directed by the Construction Manager, and paragraph 9 of this section. Contractor shall use the Contractor Submittal Form appended to this section.
- B. Prepare a Submittal's Schedule for Shop Drawings, Product Data and Samples. Show:
1. The dates for Contractor's submittals.
 2. The dates submittals will be required for Owner-furnished products.
 3. The date approved submittals will be required from the Architect.
- C. Should the Architect or Construction Manager elect to omit any items from the list of items to be reviewed, it shall not relieve the Contractor from compliance with the Contract Documents with regard to that item. In such instance, the Contractor may still elect to have submittals prepared for his own use without review by the Architect or Construction Manager.

6. SHOP DRAWINGS

- A. Conform to provisions in General Conditions applying to Shop Drawings.
- B. Present in a clear and thorough manner.
1. Identify details by reference to sheet and details, schedule or room numbers shown on Contract Drawings.
 2. Maximum sheet size: 30" x 42".

7. PRODUCT DATA

- A. Conform to provisions in General Conditions applying to Product Data.
- B. Preparation:
1. Clearly mark each copy to specifically identify products or models pertinent to project.

2. Show performance characteristics and capacities.

3. Show dimensions and clearances required.

4. Show wiring or piping diagrams and controls.

C. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the Work.

2. Supplement standard information to provide information specifically applicable to the Work.

8. SAMPLES

A. Conform to provisions in General Conditions applying to Samples.

B. Provide samples of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the project, with integrally related parts and attachment devices.

2. Full range of color, texture and pattern.

C. Field samples and mock-ups; See requirements, if any, in other specification Sections.

9. SUBMITTAL REQUIREMENTS

A. Make submittals promptly through the Construction Manager in accordance with published schedule, and in such sequence as to cause no delay in the Work or in the Work of any other contractor.

B. Number of submittals required.

1. Shop drawings: Submit eight (8) copies for each submittal. Copies will be marked up with corrections and comments, stamped and returned. Any additional copies required by the Contractor shall be made by him.

2. Product Data: Submit a clear .pdf scan of each submittal on to Building Blok. Scanned shop drawings will be marked up with corrections and comments, stamped and returned. Any additional copies required by the Subcontractor shall be made by him from the returned scan.

3. Samples: Submit three (3) each. Submit a scanned picture of the submittal on to

Building Blok with a transmittal document showing the date sent to the construction manager. When approved it will be returned to the Construction Manager to be retained at the site for reference use.

C. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The Project title and number.
3. Contract identification.
4. The names of the Contractor, Supplier and Manufacturer.
5. Identification of the product, with the specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the Work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on resubmittals.
11. An 8 inch x 3 inch blank space for Contractor and Architect's stamps.
12. Contractor's stamp, initialed or signed, certifying review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents. Submittals which have not been stamped with this stamp or its approved equivalent will be returned without being reviewed.

D. Shop Drawing coordination and interface with work of other Contracts and adjacent work is the responsibility of each individual Contractor.

E. All submittals shall be accompanied by the contractor's submittal form, a copy of which is part of this section. The contractor's submittal form must be completed in its entirety by the contractor.

10. RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by the Architect and resubmit until approved.

B. Shop drawings and Product Data:

1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
2. Indicate any changes which have been made other than those requested by the Architect.

C. Samples: Submit new samples as required for initial submittal.

11. FINAL DISTRIBUTION OF APPROVED SUBMITTALS

- A. The Construction Manager will receive and log submittals and forward to Architect after processing.
- B. The Construction Manager will distribute copies of Shop Drawings and Product Data which carry the Architect's stamp to:
 1. Contractor that made submittal.
 2. Jobsite File.
 3. Record Document File.
 4. Other Contractors, as required for coordination.
- C. The Construction Manager will distribute samples as required.
- D. The Contractor will distribute copies of Shop Drawings and Product Data which carry the Architect's stamp to:
 1. Subcontractors.
 2. Suppliers.
 3. Fabricators.

12. SCHEDULE OF VALUES

- A. Input online using Building Blok version of AIA Document G703, Continuation Sheet to G702.

13. PROGRESS SCHEDULE

- A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar chart for each trade or operation.
 2. Horizontal time scale: Identify the first work day of each week.
 3. Scale and spacing: To allow space for notations and future revisions.
 4. Minimum sheet size 11 inches by 17 inches.
- B. Format of listings: The chronological order of the start of each item of work.
- C. Show the complete sequence of construction by activity.
- D. Show the dates for the beginning, and completion of, each major element of construction such as:
1. Site clearing.
 2. Site utilities.
 3. Foundation work.
 4. Structural framing.
 5. Subcontractor work.
 6. Equipment installation.
- E. Show projected percentage of completion for each item as of the first day of each month.
- F. Update Progress Schedule monthly and submit with Application for Payment and Schedule of values.
- G. Indicate progress of each activity to date of submission.
- H. Show changes occurring since previous submission of schedule:
1. Major changes in scope.
 2. Activities modified since previous submission.
 3. Revised projections of progress and completion.
 4. Other identifiable changes.

- I. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays and the impact of the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other prime contractors.
- J. Submit one reproducible transparency.
- K. After review, distribute copies of the schedule to:
 - 1. Jobsite File.
 - 2. Subcontractors.
 - 3. Architect.
 - 4. Owner.
- L. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

END OF SECTION

SECTION 013500 – CONTRACTOR EMPLOYEE BACKGROUND CHECK

1. It is the Contractor's responsibility to perform background checks and screen all employees working onsite. The background check must include checking for a previous history of Child Abuse Convictions, Child Molestation Convictions, Felony Convictions, and Drug Convictions within the last 5 years. Any employee with any of these convictions may not enter the job site or school campus. This background check must be completed and screened by the contractor prior to an employee entering the job site. The background check cannot be any older than 1 year prior to the date of the contract between the Contractor and the Owner. The Construction Manager, the Owner's representative and the Owner have the right to request that the screening data be submitted on a case-by-case basis.
2. The contractor is required to provide the Construction Manager written notice verifying background checks were completed and screened by the contractor prior to an employee entering the job site. This notice will contain the individual's name and the last four digits of their social security numbers. Notices must be received no later than two (2) working days before access is required. Notices will be forwarded electronically to the Construction Manager. A sample notice follows this section for your reference.

END OF SECTION

February 22, 2019

Date

Project Manager
EDiS Company
110 South Poplar Street
Wilmington, DE 19805

RE: INSERT PROJECT NAME - Certification of Background Checks

Dear _____:

This letter is to certify that background checks have been completed in accordance with Section 013500 Contractor Employee Background Check. The following individuals are certified as having met the requirements of the specification:

| <u>Name</u> | <u>Last 4 SSN</u> |
|----------------|-------------------|
| Mr. John Smith | 1234 |

If you require any additional information you may contact INSERT POINT OF CONTACT, PHONE NUMBER AND EMAIL ADDRESS.

Sincerely,

Company

NAME

TITLE

SECTION 013523 - SAFETY PROGRAM

1. GENERAL

- A. The Contractor shall be responsible for initiating, maintaining and supervising all safety activities and programs in connection with the Work.
- B. Contractor shall be responsible for the safety of its personnel.
- C. Hard hats and safety glasses must be worn by all personnel on the jobsite, except in contractor's administrative office/trailer. All equipment must comply with OSHA standards. All job site personnel shall wear long pants, shirts (no tank tops), high visibility garments, and work boots.

2. SAFETY PROGRAM

- A. Prior to commencing the Work, the Contractor shall submit to the Construction Manager (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.
- B. 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.
- C. Contractor shall designate a qualified Safety Supervisor to implement the safety program. Unless otherwise approved by the Construction Manager, the Safety Supervisor shall be the Contractor's field Superintendent/Foremen.
- D. Contractor shall furnish the names and qualifications of the competent persons and qualified persons who may be required for their scope of work by the Contractor's safety procedures, and by federal, state and/or local regulations. Examples include competent persons and/or qualified persons for steel erection, excavation, scaffold erection, confined space entry, crane and rigging operations, annual crane inspections, fall protection including horizontal lifeline systems, etc.
- E. The employer shall verify compliance by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall include the date the employer determined the prior training was adequate rather than the date of actual training.

- F. Copies of any and all documents, including information stored electronically, such as safety and health program handbooks and training certification records.
 - 1. The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury. Please forward certification (document) of training for each employee on an EDiS project. The latest training certificate shall be maintained.
- G. Contractor Daily Reports with Safety Inspection Checklist will be submitted daily to Field Manager, verifying inspection of work area, machinery, equipment and tools.
- H. Prior to starting work on-site, the Contractor shall arrange with the on-site Field Manager to have their employees complete the EDiS Company Zero Accidents Safety Orientation program.
- I. Contractor shall hold weekly safety toolbox talks with all of its employees every Monday at 12:30 PM. The Contractor shall designate a responsible, capable person to conduct these meetings. Contractor's safety supervisor or superintendent must submit to the Construction Manager weekly toolbox talks attendance sheets and the topics discussed.

3. SUBSTANCE ABUSE POLICY STATEMENT

The Construction Manager is committed to providing a safe work site environment for its employees and Contractors' employees. The Construction Manager does not condone or permit employees and Contractors' employees to use or be under the influence of drugs or alcohol while they are on any of the Construction Manager work sites. The Policy is as follows:

- A. It is a violation of the Construction Manager's policy for employees and Contractors' employees to use, possess, sell, trade, or otherwise engage in the use of illegal drugs and alcohol.
- B. It is a violation for employees and Contractors' employees to report to work while influenced by illegal drugs or alcohol.
- C. It is a violation for employees and 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.
- D. Employees and 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 employees or 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

- A. 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 Construction Manager, 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, Construction Manager may immediately take whatever action is deemed necessary by Owner and/or Construction Manager to remedy the claim or violation. Any and all costs or expenses paid or incurred by Owner and/or Construction Manager in taking such action shall be borne by Contractor, and may be deducted from any payments due Contractor.
- B. The Contractor agrees to (1) take all necessary steps to promote safety and health on the job site; (2) cooperate with Owner and/or Construction Manager and other Contractors in preventing and eliminating safety and health hazards; (3) train, instruct and provide 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 Construction Manager 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 Construction Manager of the hazard as well as warn exposed persons to avoid the hazard.
- C. The Contractor's Superintendent or Safety Supervisor shall immediately, verbally report, and promptly thereafter confirm in writing to the Construction Manager any unsafe conditions or practices that are observed, or violations of job safety which are not within the Contractor's control.
- D. Contractors shall immediately, verbally report, and promptly thereafter confirm in writing, to the Construction Manager any unsafe practices or conditions that are observed which are not under the Contractor's control.

- E. 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.
- F. Contractor shall promptly notify Construction Manager 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 twenty-four hours of such occurrence, Contractor shall furnish to Construction Manager a complete written report of such injury or damage.
- G. 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.
- H. The Contractor shall continue to educate his job Safety Supervisor or Superintendent of their responsibilities, which shall include:
 - 1. 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. Promptly completing a "Supervisor's Investigation Form" with his Supervisor's assistance and distributing as required. This form will be provided by the Construction Manager.
 - 8. Holding weekly "tool box" safety meetings with his men to:
 - a. Discuss observed unsafe work practices or conditions including a review of current Construction Manager safety report.
 - b. Review the accident experience of his crew and discuss correction of accident

causes.

c. Encourage safety suggestions from his men.

9. Seeing that prompt medical treatment is administered to an injured employee.

10. Correcting or reporting immediately to job superintendent any observed unsafe conditions, practices or violations of job security.

11. Making all reports required by these Contract Documents to the Construction Manager in a full and timely fashion.

5. SAFETY MEETINGS

A. 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

A. The Contractor shall schedule weekly "tool box" safety sessions to be held by his job safety supervisor or superintendent for all of his employees.

B. 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

A. Contractors shall report all accidents or injuries on a timely basis in accordance with all applicable regulations.

B. Contractors shall promptly complete an accident investigation report of all accidents.

C. A record of all "tool box" safety sessions shall be made and submitted to the Construction Manager on forms to be provided.

8. SAFETY REPRESENTATIVE

A. The Construction Manager may employ the services of a Safety Representative on the project.

B. The Safety Representative *will* visit the job site on a weekly basis to determine if the work is being performed in a safe manner and in accordance with OSHA, State and

Local safety regulations. Safety representative is not responsible for observing and documenting all possible safety violations. The Contractor's Safety Representative or Superintendent shall attend job site safety inspections with the Safety Representative on a weekly basis.

- C. The Safety Representative will file a written report with the Construction Manager at the end of each inspection listing the safety violations observed during the inspection.
- D. The Construction Manager will distribute the Safety Representative's report to all Contractors. All safety violations must be corrected immediately.

9. RIGHT TO STOP THE WORK DUE TO SAFETY VIOLATIONS

- A. The Construction Manager, in its sole discretion, may order the Contractor to stop the work due to safety violations under the following circumstances:
 - 1. If the Construction Manager observes the Contractor is violating safety regulations and the Contractor takes no immediate action to correct the violation.
 - 2. If the Contractor has been notified by the Construction Manager in writing that he is in violation of safety regulations and fails to take action to correct the violation within 24 hours of the notice.
- B. If the Construction Manager directs the Contractor to stop the work due to safety violation, it will be done in accordance with the General Conditions of the Contract. Contractor shall not be permitted an adjustment of the Contract Time or Sum for the days lost to any suspension of work.
- C. If the Construction Manager or Safety Representative observes Contractor's employee violating this safety program or OSHA Standards in an habitual manner, or creating a serious life safety violation, the Construction Manager or Safety Representative may instruct the Contractor's superintendent or foreman to remove the violator from the work site for failure to comply with the safety program and the contract.

10. EMERGENCY PROCEDURES

- A. The Construction Manager shall establish a central meeting location for the assembly of all Contractors' employees in the event of a major job site emergency.
- B. Contractor shall assemble all of their personnel and account for all employees. Contractor must immediately report to the Project Superintendent with the status of their employees.

11. FALL PROTECTION PROCEDURES

- A. Contractor is responsible, in accordance with federal, state, local laws and regulations including OSHA. Contractor 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 of guardrail systems, net systems, fall arrest systems or control 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. The 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.
 8. Contractors must provide certification per OSHA CFR29 § 1926.503(b) of employee training and retraining on fall protection upon request.
- B. 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.
- C. 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.
- D. 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.

E. Fall protection will be enforced for 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 cables may not be used for anchor points.
- c. Access to work area shall be provided by ladders. There shall be sufficient number of 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 of his employees has 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.

12. AIRBORNE CONTAMINENTS PROCEDURES

- A. Contractor must provide and use equipment furnished with Exhaust Purifiers / Scrubbers when any equipment produces airborne containments and will be used in an enclosed building.
- B. The Contractor shall verify air quality by the use of air monitoring equipment and document such verified air quality on the daily report. The monitoring equipment shall, at a minimum, be designed with an auditory alarm and shall provide continuous

monitoring of these four gases: Oxygen, Hydrogen Sulfide, Carbon Monoxide and Combustible gases.

- C. The Contractor must provide administrative or engineering controls to protect its workers from exposure to occupational health, environmental or other hazards to be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed by local, state, and federal regulations. Any equipment and technical measures used for this purpose must first be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with 1926.103.

END OF SECTION

CONTRACTOR COMPETENT / QUALIFIED PERSON DESIGNATION LOG

Project:

Field Manager:

| Contract: Contractor: | Applicable to Subcontractor (yes / no) | | Foreman | Competent Person (if not foreman) |
|--|---|--|---------|--------------------------------------|
| Subpart C-General Provisions | | | | |
| 1926-20 General Safety | | | | |
| Subpart D - Health and Environmental Controls | | | | |
| 1926-53 Ionizing Radiation | | | | |
| 1926-55 Gases, Vapors, Fumes, Dusts, Mists | | | | |
| 1926-57 Ventilation | | | | |
| 1926.59 Hazard Communication | | | | |
| 1926.62 Lead | | | | |
| Subpart E - Personal Protective Equipment | | | | |
| 1926.101 Hearing | | | | |
| 1926.103 Respirator Protection | | | | |
| Subpart H - Materials Handling, Storage | | | | |
| 1926.251 Rigging Equipment for Material Handling | | | | |
| Subpart J - Welding and Cutting | | | | |
| 1926.354 Welding, Cutting and Heating | | | | |
| Subpart K - Electrical | | | | |
| 1926.404 Wiring Design and Protection | | | | |
| Subpart L - Scaffolding | | | | |
| 1926.451 Scaffolding | | | | |
| Subpart M - Fall Protection | | | | |
| 1926.502 Fall Protection Criteria and Practices | | | | |
| 1926.503 Training | | | | |
| Subpart N - Cranes, Derrick -Redesignated 1926.1501 | | | | |
| Subpart O - Motor Vehicles and Equipment | | | | |
| 1926.601 Motor Vehicles | | | | |
| Subpart P - Excavations | | | | |
| 1926.651 Specific Excavation Requirements | | | | |
| 1926.652 Requirements to Protective Systems | | | | |
| Subpart S - Tunnels, Shafts, Caissons | | | | |
| 1926.800 Tunnels, Shafts, Caissons | | | | |
| 1926.803 Compressed Air | | | | |
| Subpart T - Demolition | | | | |
| 1926.850 Preparatory Operations | | | | |
| 1926.852 Chutes | | | | |
| 1926.859 Mechanical Demolition | | | | |

| Contract: Contractor: | Applicable to Subcontractor (yes / no) | | Foreman | Competent Person (if not foreman) |
|--|---|--|---------|--------------------------------------|
| Subpart V - Power Transmission and Distribution | | | | |
| 1926.955 Overhead Lines | | | | |
| | | | | |
| Subpart X - Stairways and Ladders | | | | |
| 1926.1053 Ladders | | | | |
| 1926.1060 Training Requirements | | | | |
| Subpart Z - Toxic and Hazardous Substances | | | | |
| 1926.1101 Asbestos | | | | |
| 1926.1101 thru 1926.1148 Toxic and Hazardous Substances | | | | |

I certify that the listed employees are competent persons, as defined and required by specific OSHA standards. They are capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

 Name (print)

 Contractor Signature

 Date

PU09, Revised 3/2012

Certification of Training Documents to be Submitted with Safety Policy/Program

Provide a certification of training for employees on your safety program.

In addition, Contractor shall provide certification of training on the following programs, as they pertain to your contract and project tasks. Certification of training must include: Employee's name, date of training, person conducting the training, topics covered, and a statement that the student has successfully completed the course. This list is not meant to be all inclusive: please refer to OSHA regulations for applicable safety requirements.

- a. ☐ Scaffold: 1926.454
- b. ☐ Fall Protection 1926.503
- c. ☐ Crane Operator: 1926.1427
- d. ☐ Signal person (this is for any persons connecting material or equipment for lifting):
1926.1428
- e. ☐ Crane maintenance: 1926.1429
- f. ☐ Steel erection fall protection: 1926.761
- g. ☐ Respiratory protection (medical clearance and training records complying with 1910.134
- h. ☐ Powder-actuated tools: 1926.302
- i. ☐ Motor Vehicles (are those vehicles that operate within an off-highway jobsite, not open to public traffic): 1926.21

SECTION 014500 - QUALITY CONTROL

1. DESCRIPTION

- A. Quality control services include inspections and tests performed by independent agencies and governing authorities, as well as by the Contractor. Inspection and testing services are intended to determine compliance of the work with requirements specified. Specific quality control requirements are specified in individual specification sections.

2. RESPONSIBILITIES

- A. Contractor Responsibilities: Except where indicated as being the Owner's responsibility, quality control services are the Contractor's responsibility, including those specified to be performed by an independent agency and not by the Contractor. The Contractor shall employ and pay an independent agency, testing laboratory or other qualified firm to perform quality control services specified.
1. The Owner will engage and pay for services of an independent agency to perform the inspections and tests that are specified as Owner's responsibilities.
- B. Retest Responsibility: Where results of inspections or test do not indicate compliance with Contract Documents, retests are the Contractor's responsibility.
- C. Responsibility for Associated Services: The Contractor shall cooperate with independent agencies performing inspections or test. Provide auxiliary services as are reasonable. Auxiliary services include:
1. Provide access to the Work.
 2. Assist taking samples.
 3. Deliver samples to test laboratory.
- D. Coordination: The Contractor and independent test agency shall coordinate the sequence of their activities and shall avoid removing and replacing work to accommodate inspections and test. The Contractor is responsible for scheduling time for inspections and tests.
- E. Qualifications for Service Agencies: Contractor shall engage only inspection and test service agencies which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories.
- F. Submittals: Contractor shall submit a certified written report of each test, Inspection

or similar service, in duplicate to the Construction Manager. Contractor shall submit additional copies of each report to any governing authority, when the authority so directs.

- G. Report Data: Written inspection or test reports shall include:
1. Name of testing agency or test laboratory.
 2. Dates and locations of samples, tests or inspections.
 3. Names of individual present.
 4. Complete inspection of test data.
 5. Test results.
 6. Interpretations.
 7. Recommendations.
- H. Repair and Protection: Upon completion of inspection or testing, Contractor shall repair damaged work and restore substrates and finishes. Contractor shall comply with requirements for "Cutting and Patching."
- I The 2013 IBC code the following testing is code required:
1. Structural tests and special inspections must be conducted by an approved agency (an agency or firm regularly engaged in conducting tests or furnishing inspection services, approved by the authority having jurisdiction.) This means that contractors will no longer be allowed to cast their own test cylinders for example.
 2. Continuous special inspection (the full-time observation of work by an approved special inspector who is present until completion of the work) is required for any steel welds and connections. Critical elements may include: all slip critical bolted connections, complete and partial groove welds, multi-pass fillet welds and single pass fillet welds greater than 5/16".
 3. Continuous special inspection is required during the placement of all concrete and shotcrete for the proper application techniques with a few exceptions.
 4. Periodic special inspection (the part-time observation by an approved special inspector) is required for any steel welds and connections. Critical elements may include: all slip critical bolted connections, complete and partial groove welds, multi-pass fillet welds and single pass fillet welds greater than 5/16".

5. Spray applied fireproofing requires periodic special inspection for the structural member surface conditions, application, thickness, density and bond strength.
6. Based on the classification, occupancy, and design of the structure, the code requires periodic special inspection for placement of masonry units and reinforcing steel and continuous special inspection of grout placement.

END OF SECTION

SECTION 015200 - CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

1. GENERAL

A. DESCRIPTION

1. Construction Manager and Contractors shall provide all temporary facilities throughout the construction period unless otherwise indicated in the Contract Documents.
2. Construction Manager and Contractors shall pay all costs for providing, maintaining and removing of all temporary facilities unless otherwise indicated in the Contract Documents.

2. FACILITIES

A. TEMPORARY SANITATION FACILITIES

1. Construction Manager will provide and maintain sanitary facilities for all personnel on the project.
2. The number of sanitary facilities required shall be based on the total number of workers employed on the site and shall be in accordance with the provisions of the applicable code.
3. Construction Manager will maintain sanitary facilities in a sanitary and clean condition at all times.

B. TEMPORARY WATER

1. Drinking Water: Contractor shall provide potable water for drinking purposes for all his personnel on the site. He shall furnish disposable drinking cups at water stations. Each water station shall be equipped with a suitable trash container for disposal of the drinking cups.
2. Construction Water: Contractor will provide and maintain tap locations for construction water of sufficiently pure and potable quality to avoid deleterious effect on any materials used. Location of construction water tap locations will be determined by the Construction Manager. Contractor shall provide and maintain all hoses, piping and valves as required for obtaining construction water from taps provided by the Construction Manager.

C. TEMPORARY TELEPHONES

1. Construction Manager will not provide any telephones or fax machines for Contractor's personnel. Each Contractor is responsible for its own phones and

fax machines.

D. FIELD OFFICE

1. During the period of the Work and until final acceptance of the project, the Construction Manager will provide a weatherproof building for the Construction Manager's Field Project Manager(s) and Superintendent(s). Contractor shall make provisions for its own field office, subject to approval by the Construction Manager.

E. FIRE PROTECTION

1. Provide temporary fire protection as needed for your work.

F. ACCESS ROADS AND PARKING AREAS

1. See scope of work for road maintenance plan.
2. Parking for Contractor's personnel on the project site will be at locations determined by the Owner and Construction Manager. Parking at locations other than designated areas is PROHIBITED. Parking to be responsibility of contractors. Limited in the construction area.

G. STORAGE AREAS

1. The Construction Manager will assign storage areas on the site. Storage areas are extremely limited and will be assigned in a manner which will best facilitate the work.
2. Contractor shall provide all other storage space required for its work at off-site locations.
3. All combustible or flammable materials must be safely stored in a secured area in strict accordance with regulations, codes and laws enforced by local, State or Federal agencies, whatsoever is the most stringent.

H. FIRST AID STATION

1. 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.

I. SECURITY

1. The Construction Manager will provide the following security measures at the site: security lighting will be provided.

2. All other safety and security measures shall be the responsibility of each Contractor. These measures shall include but are not limited to the provision of secured storage for tools, construction equipment, and materials and equipment scheduled for installation in the building.

J. BENCH MARKS AND BASELINE

1. The Construction Manager will lay out and establish and maintain bench marks and baselines.
2. The Contractor shall lay out his own work and shall be responsible for the accuracy of same.
3. Contractor shall check grades, lines, levels and dimensions as shown on the drawings and shall promptly report errors or inconsistencies in same to the Construction Manager before Work proceeds.
4. The Contractor is responsible for damaging or altering the bench marks and baselines established by the Construction Manager and shall bear the costs of replacing same.

K. FIELD OFFICE AND STORAGE TRAILERS

1. Contractor shall provide and maintain its own field office and storage trailers as required.
2. Contractor shall provide temporary heat and power for its field office and storage trailer.
3. Contractor's field offices and storage trailers shall be located as directed by the Construction Manager.

L. TRASH DISPOSAL

1. Each Contractor shall be responsible for daily clean up and depositing its common trash in the dumpsters provided by the Construction Manager.
2. The Construction Manager will not provide a trash chute.
3. The Construction Manager will provide dumpsters, and will arrange for disposal of common, non-hazardous, work-related trash deposited in these dumpsters. Contractors will not use the owner's dumpsters.

M. HOISTING

1. Contractor shall provide its own materials hoists and cranes. No personnel hoist will be provided.

N. SCAFFOLDING AND WORKING PLATFORMS

1. No scaffolding shall be provided by the Construction Manager. Each Contractor shall provide all scaffolding required to perform its Work.

O. SAFETY BARRICADES AND RAILINGS

1. The Contractor creating the hazard shall provide barricades **and protective barriers** around stairs, shafts and cut openings in floors and roofs, and edges of floors and roofs. The methods and materials used in barricading shall be in accordance with OSHA and local code regulations. Barricades and protective barriers will be installed immediately after the installation of the floor slab on any level or part of a level on the Building. When a warning barricade is used to prohibit employees from entering a restricted work area. The "warning barricade" shall meet the requirements of CFR 1926.502 (f)(2). The supported rope, wire, or chain shall be flagged at not more than 6-foot (1.8 m) intervals with high-visibility material and maintain between 34 and 39 inches above the walking/working surface; Warning signs and tags shall be used in accordance with Subpart G of CFR OSHA Construction Industry Regulations.
2. After the barricades and protective barriers are no longer needed, the Structural Contractor will remove the barricades from the site. The Construction Manager will determine the location and scheduling of barriers to be removed.
3. Contractor shall provide for its own barricades at all other trenches, excavations, and locations not specifically identified in Paragraph 1 above.
4. Contractors who remove barricades shall be responsible for replacing them. If, after proper notification, in writing, from the Construction Manager the responsible Contractor does not correct his deficiencies in safety barricade placement, the Construction Manager reserves the right to undertake this work and backcharge the responsible Contractor(s).
5. During the execution of his work, Contractor will provide daily maintenance of, and upon completion of same, restore all barricades in a manner acceptable to prevailing safety standards enforced by local, State or Federal ordinance, whatsoever is most stringent. The intent is to leave no floor penetration or perimeter opening in an unsafe condition.

P. PUMPING AND DRAINAGE

1. Contractor shall provide its own pumping and drainage.

2. When an area is released by one Contractor to another, the Contractor releasing an area shall be responsible for leaving it in a drained condition. The incoming Contractor shall assume responsibility for drainage on the day that he is scheduled to start work in the area. If the incoming Contractor is late in starting work, he shall assume responsibility for pumping and drainage arising as a result.

Q. TEMPORARY BUILDING ENCLOSURES

1. The Construction Manager will equip all temporary exterior doors of the building with self-closing hardware and padlocks.
2. All other temporary enclosures and protection shall be provided by the Contractor requiring the protection.
3. Temporary enclosures required due to late delivery of materials or untimely installation of work shall be the responsibility of the Contractor responsible for the delay.

R. TEMPORARY POWER AND LIGHTING

1. Contractor shall provide all extension cords and outlets as required for obtaining electric power from power centers. Refer to Section 015113 - TEMPORARY ELECTRIC.
2. Contractor shall provide its own additional temporary lighting of sufficient lighting levels to properly install his work.

S. TEMPORARY HEAT

1. Contractor shall provide temporary heat as required for its operations. Once a building has reached the "Permanent Enclosure" stage, temporary heat will be provided as specified in Section 015123 - TEMPORARY HEAT AND VENTILATION.
2. Equipment and methods of temporary heating shall be reported to the Construction Manager.

T. PROTECTION OF ADJACENT MATERIALS

1. Contractor shall protect adjacent materials and finishes from damage as a result of its work.

U. CLEAN UP

1. Contractor shall arrange for clean up and removal of debris resulting from its

operations, and shall dispose of debris in accordance with the provisions of Paragraph 2.M above. Clean up shall be on a continual basis to ensure that building, grounds and public properties are maintained free from accumulations of waste materials and trash.

2. The Contractor will limit use of and ensure that all materials, including waste, that are combustible or flammable will be removed from the building continually, as work progresses, **and at a minimum** at the end of each work day. All trash which is potentially edible or may attract rodents or insects will be disposed of in metal containers and removed by the end of the work day.
3. At completion of its Work, each Contractor shall remove waste materials, rubbish, tools, equipment, and clean up all exposed surfaces in preparation for final cleaning.
4. If, after notification in writing from the Construction Manager, the Contractor does not correct its deficiencies in housekeeping within twenty four (24) hours, the Construction Manager reserves the right to undertake the Work and to backcharge the Contractor.
5. Final clean up prior to Owner occupancy shall be arranged for by the Construction Manager.

V. DUST PROTECTION

1. Contractor shall erect and maintain dust proof protection whenever its operations will produce dust and dirt that might filter through the building into occupied or finished areas. Contractor shall be responsible for all cleaning required due to its failure to provide adequate dust protection.

W. PROTECTION OF EXISTING CONSTRUCTION

1. Contractor shall be responsible for all damage that it may cause to materials and equipment stored or installed by other Contractors.

X. OTHER

1. Contractor shall provide any other Temporary Facilities and services that it requires and which are not specifically identified above.

3. PERMITS

- 3.1 The Construction Manager will obtain the Building Permit. All other permits are to be obtained and paid for by the Contractor requiring them.

4. EXECUTION

A. GENERAL

1. Contractor shall install all temporary facilities in accordance with applicable codes.
2. Contractor shall maintain temporary facilities for which it is responsible throughout the construction period.
3. Contractor shall remove all temporary facilities for which it is responsible when they are no longer required or when the Construction Manager directs the removal of same.
4. Contractor shall repair all damage to the Project Site caused by the installation of its temporary facilities.

END OF SECTION

SECTION 016200 - MATERIAL AND EQUIPMENT

1. GENERAL CONDITIONS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate apply to the Work specified in this Section.
- B. Where work is to be executed under Separate Prime Contracts, the provisions of this Section apply to each Contract.

2. REQUIREMENTS INCLUDED

- A. All materials and equipment incorporated into the Work shall:
 - 1. be new;
 - 2. conform to applicable specifications and standards; and
 - 3. comply with size, make, type and quality specified, or as specifically approved in writing by the Architect.
- B. Manufactured and Fabricated Products shall conform to the following requirements:
 - 1. Designed, fabricated and assembled in accord with the best engineering and shop practices.
 - 2. Manufactured like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - 3. Two or more items of the same kind shall be identical, by the same manufacturer.
 - 4. Products shall be suitable for service conditions.
 - 5. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
- C. Contractor shall not use materials or equipment for any purpose other than that for which it is designated or is specified.
- D. Materials removed from existing structures shall not be reused in the completed work unless specifically indicated or specified.
- E. For materials and equipment specifically indicated or specified to be reused in the Work:

1. Contractor shall use special care on removal, handling storage and reinstallation, to assure proper function in the completed Work.
 2. Arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation. Pay all costs for such work.
3. MANUFACTURER'S INSTRUCTIONS
 - A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, Contractor shall obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Construction Manager.
 1. Maintain one set of complete instructions at the job site during installation and until completion.
 - B. Contractor shall handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
 1. Should job conditions or specified requirements conflict with manufacturer's instructions, Contractor shall consult with Construction Manager for further instructions.
 2. Contractor shall perform work in accord with manufacturer's instructions. Contractor shall not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
4. TRANSPORTATION AND HANDLING
 - A. Contractor shall arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 2. Contractor shall immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.
 - B. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.
5. STORAGE AND PROTECTION

-
- A. Contractor shall store Products in accord with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Contractor shall store Products subject to damage by the elements in weathertight enclosures.
 - 2. Contractor shall maintain temperature and humidity within the ranges required by manufacture's instructions.
 - B. Exterior Storage
 - 1. Contractor shall store fabricated Products above the ground, on blocking or skids, to prevent soiling or staining. Cover Products which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
 - 2. Contractor shall store loose granular materials in a well-drained area on soiled surfaces to prevent mixing with foreign matter.
 - C. Contractor shall arrange storage in a manner to provide easy access for inspection. Contractor shall make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
 - D. Contractor shall store flammable materials so as to prevent contact with flames and fire. Conform with manufacturer's recommendations and local laws. Pay particular attention to storage of:
 - 1. Roof insulation.
 - 2. Roofing materials, including solvents.
 - 3. Paint materials.
 - 4. Cleaning and other solvents.
 - 5. Fuels.
 - E. Protection after Installation:
 - 1. Contractor shall provide substantial coverings as necessary to protect installed Products from damage from traffic and subsequent construction operations. Remove when no longer needed.

6. SUBSTITUTIONS AND PRODUCT OPTIONS

A. Product List.

1. Within 30 days after Contract Date, Contractor shall submit to Construction Manager a complete list of major products proposed to be used, with the name of the manufacturer and the installing Contractor.

B. Contractor's Options.

1. For Products specified only by reference standard, Contractor shall select any Product meeting that standard.
2. For Products specified by naming several Products or manufacturers, Contractor shall select any one of the Products or manufacturers named which complies with the specifications.
3. For Products specified by naming one or more Products or manufacturers and "or equal", Bidders must, during the bidding period, submit a request for substitutions for any Product or manufacturer not specifically named. See provisions in Paragraph 6.C, below.
4. For Products specified by naming only one Product and manufacturer, there is no option; and Contractor shall provide the precise Product specified.

C. Substitutions.

1. Until a date no later than seven (7) days before the date Bids are due, Architect will consider written requests from bidders for substitution of Products. **The contractor will submit any substitution requests to the Construction Manager for transmittal to the Architect. The architect will review requests and will notify Bidders in an Addendum if the requested substitution is acceptable.**
2. Should the Bidder desire a substitution, it shall submit a separate request for each Product, supported with complete data, with drawings and samples as appropriate, including:
 - a. Comparison of the qualities of the proposed substitution with that specified.
 - b. Changes required in other elements of the Work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed substitution with the Product specified.
 - e. Any required license fees or royalties.

- f. Availability of maintenance service, and source of replacement materials.
- 3. Architect, in its sole discretion, shall be the judge of the acceptability of the proposed substitution.
- 4. A request for a substitution constitutes a representation that Bidder:
 - a. has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified;
 - b. will provide the same warranties or bonds for the substitution as for the Product specified;
 - c. will coordinate the installation of an accepted substitution into the Work, and make such other changes as may be required to make the Work complete in all respects; and
 - d. waives all claims for additional costs, under his responsibility, which may subsequently become apparent.
- D. Architect will review requests for substitutions with reasonable promptness, and notify Bidders, in writing, through the Construction Manager, of the decision to accept or reject the requested substitution. Any decision to accept a substitution must be confirmed in an Addendum issued during the bidding period in order to be valid. Oral approvals will not be binding.

END OF SECTION

SECTION 017329 - CUTTING AND PATCHING

1. GENERAL

- A. Definition: "Cutting and Patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.
- B. Refer to Other Sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.
- C. Structural Work: Do not cut and patch structural work in a manner resulting in a reduction of load carrying capacity or load deflection ratio. Submit proposal and request and obtain Architect's/Engineer's approval before proceeding with cut and patch of structural work.
- D. Operational/Safety Limitations: Do not cut and patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance. Submit proposals and requests and obtain Architect's/Engineer's approval before proceeding with cut and patches of structural work.
- E. Visual/Quality Limitations: Do not cut and patch work exposed to view (exterior and interior) in manner resulting in noticeable reduction of aesthetic qualities and similar qualities, as judged by Architect/Engineer.
 - 1. Engage the original Installer/Fabricator, or (if not available) an acceptable equivalent entity, to cut and patch the following categories of exposed work but not limited to
 - 2. Exterior wall materials, ie., curtain wall
 - 3. Finish floor materials, ie., substrate, carpet, ceramic tile
 - 4. Walls
 - 5. Ceilings
- F. Limitation on Approvals: Architect's/Engineer's approval to proceed with cutting and patching does not waive right to later acquire removal/replacement of work found to be cut and patched in an unsatisfactory manner, as judged by Architect/Engineer.

2. MATERIALS

- A. General: Use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal or better

performance characteristics.

3. EXECUTION

- A. Inspection: Before cutting, examine surfaces to be cut and patched and conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.
- B. Temporary Support: To prevent failure provide temporary support of work to be cut.
- C. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.
 - 1. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
 - 2. Take precautions not to cut existing pipe, conduit or duct serving the building but scheduled to be relocated until provisions have been made to bypass them.
- D. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible review proposed procedures with the original installer; comply with original installer's recommendations.
 - 1. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut and drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.
- E. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
 - 1. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and finishing.

END OF SECTION

SECTION 017700 – CONTRACT CLOSEOUT

1. DESCRIPTION OF REQUIREMENTS

- A. Provisions of this section apply to the procedural requirements for the actual close out of the Work, not to the administrative matters such as final payment or the change over of insurance. Close out requirements relate to both substantial and final completion of the Work; they also apply to individual portions of completed work as well as the Total work. Specific requirements contained in other sections have precedence over the general requirements contained in this section.

2. PROCEDURES AT SUBSTANTIAL COMPLETION

- A. Prerequisites: Contractor shall comply with the General Conditions and complete the following before requesting inspection of the Work, or a designated portion of the Work, for certification of substantial completion:

1. submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates, releases of liens, tax certification and similar required documentation for specific units of work, and documents needed to enable Owner's unrestricted occupancy and use;
2. submit record documentation, maintenance manuals, tools, spare parts, keys and similar operational items;
3. complete instructions of Owner's operating personnel, and start up of systems; and
4. complete final cleaning and remove temporary facilities and tools.

- B. Inspection Procedures: Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Construction Manager of prerequisites not fulfilled. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion, or advise Construction Manager of work which must be performed prior to issuance of certificate. The Architect/Engineer will repeat the inspection when requested and assure that the work has been substantially completed. Results of the completed inspection will form the initial "punch list" for final acceptance.

- C. Punch List Procedures: Each Contractor shall be given a copy of the punch list with its appropriate work identified. Each Contractor shall be given 9 (nine) calendar work days to complete their punch list work. On the 10th day or as determined by the Construction Manager the Construction Manager shall employ other Contractors, as required, to complete any incomplete punch list work and retain from the appropriate Contractors retainage all costs incurred.

3. PROCEDURES AT FINAL ACCEPTANCE

- A. Reinspection Procedure: The Architect/Engineer will reinspect the Work upon receipt of the Contractor's notice that, except for those items whose completion has been delayed due to circumstances that are acceptable to the Architect/Engineer, the Work has been completed, including punch list items from earlier inspections. Upon completion of reinspection, the Architect/Engineer will either recommend final acceptance and final payment, or will advise the Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, this procedure will be repeated.

4. RECORD DOCUMENTATION

- A. Record Drawings: Contractor shall maintain a complete set of either blue or black line prints of the contract documents and shop drawings for record mark up purposes throughout the Contract Time. Contractor shall mark up these drawings during the course of the Work to show both changes and the actual installation, in sufficient detail to form a complete record for Owner's purposes giving particular attention to work that will be concealed and difficult to measure and record at a later date, and Work which may require servicing or replacement during the life of the project. Require the entities marking prints to sign and date each mark up. Bind prints into manageable sets, with durable paper cover, appropriately labeled.
- B. Installation, Operation and Maintenance Manual: Contractor shall provide 3-ring vinyl covered binders containing required maintenance manuals, properly identified and indexed and including operating and maintenance instructions extended to cover emergencies, spare parts, warranties, inspection procedures, diagrams, safety, security, and similar appropriate data for each system of equipment item.
- C. State Tax Certification: Contractor shall provide recent Delaware State Tax Certification form as issued by State of Delaware, Department of Finance, Division of Revenue, Carvel State Office Building, 820 N. French Street, Wilmington, Delaware 19801.
- D. AIA Documents: Contractors shall provide the following AIA documents with their final payment application submission:
- AIA G732, Application for Payment for 100% Complete
 - AIA G732, Final Application for Payment for Retainage
 - AIA G704-CMA, Certificate of Substantial Completion – 4 originals
 - AIA G706, Affidavit of Payment of Debts & Claims
 - AIA G706A, Affidavit of Release of Liens
 - AIA G707, Consent of Surety
- E. Release of Liens: Contractors shall provide the following release of liens with their final payment application submission:

- Prime Contractor's Release of Liens
- Subcontractors' & Suppliers' Release of Liens (major subs and suppliers)

5. GENERAL CLOSE OUT REQUIREMENTS

A. Operator Instruction: Contractor shall require each Installer of systems requiring continued operation and maintenance by Owner's operating personnel, to provide on location instruction to Owner's personnel, sufficient to ensure safe, secure, efficient, non-failing utilization and operation of systems. Contractor shall provide instructions for the following categories of work:

1. Mechanical/electrical/electronic systems (not limited to work of Division 15 and 16).
2. Roofing, flashing, joint sealers.
3. Floor finishes.
4. Door hardware

6. FINAL CLEANING

A. At the time of project close out Contractor shall clean or re-clean the Work to the condition expected from a normal, commercial building cleaning and maintenance program. Complete the following cleaning operations before requesting the Architect/Engineer's inspection for certification of substantial completion:

1. Remove non-permanent protections and labels.
2. Polish glass.
3. Clean exposed finishes.
4. Touch up minor finish damage.
5. Clean or replace mechanical systems filters.
6. Remove debris.
7. Broom clean unoccupied spaces.
8. Sanitize plumbing and food service facilities.
9. Clean light fixtures and replace burned out lamps.
10. Sweep and wash paved areas.
11. Police yards and grounds.

END OF SECTION

SECTION 311000**SITE CLEARING****PART 1 GENERAL****1.01 DESCRIPTION**

- A. Site Clearing shall consist of clearing of the site within the limits of construction to include the following:
1. Removal and disposal of trees and brush, weeds, roots, and similar materials.
 2. Removal and disposal of structures, paving, base course, utilities, concrete sidewalks and aprons, and all other obstructions which are designated on the Plans for removal during construction.
 3. Protection of existing utilities and adjacent property, structures, benchmarks, and monuments.

1.02 STANDARDS

- A. The quality and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016, latest revision (hereinafter referred to as the "Standard Specifications").
1. Section 201: Clearing and Grubbing
 2. Section 211: Removal of Structures and Obstructions, and Existing Portland Cement Concrete Pavement, Curb and Sidewalk

1.03 PHASING

- A. Clearing, grubbing, and removal shall be performed prior to the grading and stripping operations, within the limits of grading, as indicated on the drawings and as specified herein. Following clearing, topsoil shall be stripped and stored for later use on the site or disposition by the Owner.

1.04 PROTECTION

- A. The Contractor shall protect all trees, shrubs, ground plants, roads, walks, pavements, structures, civil improvements, and appurtenances not indicated to be cleared from the site. Methods of protection shall be by use of substantial wood or chain link fences, barriers, or other methods, as approved by the Engineer. Any trees, shrubs, ground plants, roads, walks, pavements, structures, or appurtenances indicated to remain that become damaged during construction of the project shall be repaired or replaced by the Contractor, as directed by the Engineer, at no additional cost to the Owner.
- B. The Contractor shall contact all utility companies to mark the location of their facilities. The contractor shall protect all existing utilities in place and maintain continuous service to the Owner. Any damage to the utilities shall be corrected by the Contractor at his expense. The Contractor shall also be responsible for coordinating and/or relocating any utilities which must be relocated to accommodate the proposed construction.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. All materials shall be at the Contractor's option, subject to the approval of the Engineer.

PART 3 EXECUTION**3.01 CLEARING AND GRUBBING**

- A. Clearing shall consist of the removal of all trees and shrubs, brush, down timber, rotten wood, heavy growth of grass and weeds, vines, rubbish, walks, roads, curbs, walls and foundations, existing utilities already abandoned, and all objectionable debris. All walls, foundations, slabs, pavements, curbs, and footings shall be removed to their full depth.
- B. Grubbing shall consist of the removal of stumps, roots, root mats, stubs, buried logs, and other debris within the project limits. The Contractor shall remove all stumps and root mats in their entirety and all buried logs and other debris from within building areas and from the limits of proposed drives and walks. Within proposed lawn areas, stumps, roots and debris shall be removed to a minimum depth of one foot below design rough grade.
- C. Construction methods shall be in accordance with Section 201 of the Standard Specifications.

3.02 DISPOSAL OF REMOVED MATERIALS

- A. All timber and cleared materials shall become the property of the Contractor, and shall be disposed of by the Contractor. Burning of materials on site is prohibited.
- B. Pavement, base course, concrete, utilities, and other obstructions shall be removed from the site and shall be disposed lawfully. The Contractor shall provide evidence of the lawful disposal when requested by the Owner or the Owner's Representative.

3.03 SALVAGED MATERIALS

- A. Materials listed to be salvaged for reuse shall be stored by the Contractor in such a manner to prevent damage to the material. Salvaged materials which are not reused shall be disposed of lawfully by the Contractor unless the Owner specifically requests to take possession of the material.

3.04 SITE DEMOLITION

- A. Remove walks, roads, curbs, walls and foundations, existing utilities already abandoned, and all objectionable debris. All walls, foundations, slabs, pavements, curbs, and footings shall be removed to their full depth.
- B. Procure all permits required for demolition and disposal. Coordinate utility work with utility companies and subcontractors. All debris shall be removed and disposed lawfully.

- C. Where applicable, brace and shore all portions of the existing structure for safety and to maintain the integrity of the existing building. Provide protection for the general public. Disconnect all utilities prior to demolition in areas where live utilities may be located.

END OF SECTION

SECTION 312000**EARTHMOVING****PART 1 GENERAL****1.01 DESCRIPTION**

- A. Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Filling and backfilling to attain indicated grades.
 2. Excavation, rough and finish grading.
 3. Furnishing and installing graded aggregate base course material for pavements, hot-mix patches and other structures.
 4. Undercut excavation and furnishing graded aggregate base course for undercut excavation.
 5. Furnishing excavation support systems, as required, including shoring and bracing.
 6. Excavation for trenches.
 7. Preparing topsoil stripped from the site and placing topsoil in locations requiring seeding or sodding.
- B. Definitions
1. Excavation: removal and disposal of all material encountered when establishing required grade elevations, including pavements and other obstructions visible on the ground surface, and underground structures and utilities indicated to be demolished and removed, and unsuitable subgrade material.
 2. Unauthorized excavation: Removal of materials beyond specified subgrade elevations without approval of Engineer.

1.02 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies
1. All excavations shall be in compliance with Federal Occupational Safety and Health Act.
 2. Excavation work shall be in compliance with application requirements of other governing authorities having jurisdiction.
- B. Standards
1. Refer to the following sections in the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016, latest revision. (Hereinafter referred to as the "Standard Specifications")

Section 202: Excavation and Embankment
Section 207: Structural Excavation and Backfill
Section 209: Borrow
Section 301: Graded Aggregate Base Course
Section 762: Saw Cutting and Butt Joints
Section 908: Soil Stabilization Practices
Section 1001: Borrow

Section 1004: Coarse Aggregate
Section 1005: Graded Aggregates

2. American Society for Testing and Materials (ASTM);
 - D-1556: Density of Soil in Place by the Sand-Cone Method.
 - D-698: Moisture Density Relations of Soils and Soil Aggregate Mixtures
 - D-2049: Relative Density of Cohesionless Soils.
 - D-2166: Unconfined Compressive Strength of Cohesive Soil.
 - D-2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)

1.03 SUBMITTALS

- A. Material Certification and delivery Slips for:
 1. Borrow Type C
 2. Graded Aggregate Base Course

1.04 JOB CONDITIONS

- A. Existing Utilities
 1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the Utility Owner immediately for directions. Cooperate with the Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility Owner.
 2. Do not interrupt existing utilities serving facilities occupied and used by the Owner.
 3. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.
- B. Use of Explosives: The use of explosives is not permitted unless approved by the Engineer.
- C. Protection of Persons and Property
 1. Barricade open excavations occurring as part of this work and post with warning signs as required to protect persons on the site.
 2. Protect trees, shrubs, lawns and other features remaining as part of final landscaping.
 3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement lateral movement undermining, washout and other hazards created by earthwork operations.
 4. In the event of damage, immediately make all repairs and replacements to the approval of the Engineer at no cost to the Owner.
- D. Dust Control
 1. Use all means necessary to control dust on and near the work if such dust is caused by the Contractor's operations during performance of the work or if resulting from the conditions in which the Contractor leaves the site.

2. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site.
- E. Weather Conditions: Do not place, spread, or roll fill material during freezing, raining, or otherwise unfavorable weather conditions.

PART 2 PRODUCTS

2.01 GENERAL

- A. For approval of borrow materials, at least five (5) working days in advance of intention to import material, designate the proposed borrow area, and provide samples to prove the quality and suitability of the material.

2.02 ON-SITE FILL

- A. All on-site materials used for fill shall be acceptable to the Engineer and shall be minimally subject to the following requirements:
 1. Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay.
 2. Free of large rocks or lumps that may create voids or prevent proper compaction.

2.03 BORROW FILL MATERIAL

- A. Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay, and shall be Borrow Type "C" conforming to Section 209 of the Standard Specifications.

2.04 TRENCH AND CIVIL STRUCTURE BACKFILL MATERIAL

- A. Backfill for civil structures shall conform to the requirements of Section 207 of the Standard Specifications.
- B. Backfill for trenches shall conform to the requirements of Section 207 of the Standard Specifications.
- C. All trench and civil structure backfill material shall meet the requirements of Section 1001.01 of the Standard Specifications for Borrow Type C backfill. All suitable excavated material, which meets the requirements of Section 1001.01 of the Standard Specifications, shall be used for structure or trench backfill as far as practicable.

2.05 GRADED AGGREGATE BASE COURSE

- A. Graded Aggregate base course for bituminous and concrete pavements and other structures shall be Type "B" conforming to the requirements for Graded Aggregate in Section 1005 of the Standard Specifications.

2.06 GEOTEXTILE STABILIZATION FABRIC

- A. Geotextile stabilization fabric used for undercut excavation shall be a woven polypropylene geotextile designed for base course reinforcement and subgrade stabilization. Geotextile shall have a minimum tensile strength of 500 lbs, and shall be Mirafi HP565, or approved equal.

2.07 TOPSOIL

- A. Topsoil furnished from within or outside the project limits shall conform to Section 908.02.A of the Standard Specifications except as modified by the following requirements.
 - 1. Topsoil shall not contain stones, lumps, roots or other objects larger than one inch in any dimension.
 - 2. Acid-Alkaline Range: pH 5.8 to 6.5.
 - 3. Free of pests, pest larvae, and matter toxic to plants.
 - 4. Maximum soluble salts: 500 ppm
 - 5. Free of viable Bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, Canada thistle, and other objectionable grassy or broadleaf weeds.
- B. Topsoil Furnished from Outside Project Limits
 - 1. Gradation range:
 - Sand (2.00 mm to 0.05 mm) 40-80 percent
 - Silt (0.050 mm to 0.005 mm) 10-30 percent
 - Clay (0.005 mm and smaller) 10-30 percent
 - a. When one-half of the sand content is larger than 0.500 mm, the maximum sand content shall be seventy-five percent; and maximum clay content shall be fifteen percent.
 - b. Lower limits of silt and clay shall be flexible to extent that soils with minimum combined silt and clay content of twenty percent shall be satisfactory. However, if more than one-half of the sand is larger than 0.50 mm., then minimum clay content shall be fifteen percent, or the minimum combined silt and clay content shall be twenty-five percent.
 - 2. Organic content:
 - a. Minimum of 2.75 percent by weight.
 - b. If necessary, add peat at the rate necessary to attain minimum organic content.

PART 3 EXECUTION

3.01 INSPECTION BY CONTRACTOR

- A. Examine the areas and conditions under which excavating, filling and grading are to be performed. No extra cost or time allowances will be granted for conditions existing and visible at the time of the bid opening.

3.02 PREPARATION

- A. Prior to commencement of work, establish location and extent of all utilities in the work areas. Maintain and protect, as required, existing utilities which pass through the work area.

- B. Prior to excavation in pavement areas, saw cut existing pavement in accordance with Section 762 of the Standard Specifications.

3.03 EXCAVATION

A. Unauthorized Excavation

Unauthorized excavation shall not be at the Owner's expense. Under roadways and pipes, fill unauthorized excavation by removing all loosened material and providing select material as required to attain a firm and unyielding subgrade and/or foundation and to attain required grade elevations.

B. Rock Excavation

Rock Excavation shall apply to the removal of bedrock and ledgerock which cannot be accomplished without blasting or the use of rippers, and the use or disposal of such material. Excavation of material classified as "rock" shall conform to the requirements of Section 201 of the Standard Specifications.

- C. Rock Excavation for Structures and Trenches shall apply to the removal, use, or disposal of all boulders or other detached stones having a volume of 1/3 cubic yard or more. Excavation of such material shall conform to Section 201 of the Standard Specifications.

D. Undercut Excavation

1. If unsuitable bearing materials are encountered at the required subgrade elevations notify the Engineer immediately.
2. Unstable bearing materials shall be removed to a depth of one foot below subgrade. Place geotextile stabilization fabric and one foot of graded aggregate base course, Type B.
3. Base course shall be placed and compacted in six-inch lifts.

E. Stability of Excavations

1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space.
2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

F. Shoring and Bracing

1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
2. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction
3. Maintain shoring and bracing in excavations regardless of time period excavations will be open.
4. Brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.

5. In the event of damage to such improvements, immediately make all repairs and replacements necessary at no additional cost to the Owner.
6. Arrange bracing, sheeting and shoring so as to not place stress on any portion of the completed work until the general construction thereof has proceeded far enough to provide sufficient strength.
7. Exercise care in the drawing and removal of sheeting, shoring, bracing and timbering to prevent collapse and caving of excavation faces being supported.

G. Dewatering

1. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding the project site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water from excavations.
3. Convey water removed from excavations and rainwater to collecting or runoff areas, which are not subject to erosion. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

H. Material Storage

1. Stockpile satisfactory excavated materials where directed until required for use as backfill or fill. Place, grade and shape stockpiles for proper drainage.
2. Locate and retain soil materials away from edge of excavations.
3. Dispose of excess soil material and waste materials as herein specified. Excavated material unsuitable for backfilling shall be kept separate from other materials excavated, and disposed of. Materials suitable for backfilling shall not be disposed of until completion of filling or backfilling operations.

I. Excavation for Pavements and Pavement Patches

1. Cut surface under pavements to comply with cross- sections, elevations and grades as shown.

J. Excavation for Trenches

1. Dig trenches to the uniform width required for the particular item to be installed sufficiently wide to provide ample working room. Trench width to a point no less than two feet (2') above the outside top of pipe shall be the pipe outer diameter plus twenty-four inches (24").
2. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building perimeter, keep bottoms of trenches for which elevations are not given sufficiently below finish grade to avoid freeze-ups.
3. Trenches for pipes shall not be opened more than the number of linear feet of pipe that can be placed and backfilled in one (1) day.
4. Grub roots and stumps within six inches (6") of outside surface of pipe bottom and sides to minimum depth of six inches (6") below grade. Backfill trenches with concrete where trench excavations pass within eighteen inches (18") of column or

wall footings and which are carried below the bottom of such footings, or which pass under wall footings. Place concrete to the level of the bottom of adjacent footing.

5. Pipe bedding shall be as shown on the Plans.

K. Cold Weather Protection

1. Protect excavation bottoms against freezing when atmospheric temperature is less than thirty-five degrees (35°).

3.04 BACKFILL FILL AND COMPACTION

A. General

1. The project Inspector or Engineer shall be notified 24 hours in advance of any fill, backfill or compaction operations.
2. Place acceptable material in 8" lifts to required subgrade elevations.
3. Fills: Use suitable material (per Section 2.02.A of this section) obtained from on-site excavation, except use borrow material when suitable on-site material is not available or when specified by the Engineer or shown on the Plans.
4. Backfilling: Use suitable material (per Section 2.02.A of this section) obtained from on-site excavation, except use select backfill where indicated on Plans. Backfill to a height of two feet (2') above the top of pipe with earth free from stones, rock fragments, dirt clogs or frozen material greater than two inches (2") in largest dimension.
5. Do not provide additional off-site borrow material until all acceptable excavated materials on the site have been utilized in the work, unless approved by the Engineer.
6. Place the various types of materials in the areas as designated on the Plans.

B. Backfill excavation as promptly as work permits, but not until completion of the following:

1. Inspection, testing, approval and recording locations of underground utilities.
2. Removal of concrete formwork.
3. Removal of shoring and bracing, and backfilling of voids satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
4. Removal of trash and debris.
5. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

C. Backfilling Prior to Approvals

1. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work at no additional cost to the Owner.
2. After the work has been completely tested, inspected and approved, make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.

D. Ground Surface Preparation Prior to Filling

1. Remove all vegetation, debris, topsoil, unsatisfactory soil materials, obstructions and deleterious materials from existing ground surface to a depth of not less than four inches (4") and not more than six inches (6") prior to placement of fills. Plow, strip or

break-up sloped surfaces steeper than one (1) vertical to four (4) horizontal to a depth of not less than six inches (6") so that fill material will bond with existing surface.

2. When existing ground surface has a density less than that specified under "Compaction," for the particular area classification, break up the ground surface, pulverize, moisture condition to the optimum moisture content, and compact to required depth and percentage of maximum density.

E. Placement and Compaction

1. Place backfill materials in layers not more than eight inches (8") in loose depth.
2. Control soil compaction during construction providing minimum percentage of density specified for each area classification listed below.
3. Pavement areas are defined, for the purpose of this Section, as extending a minimum of five feet (5') beyond the building and/or pavement.
4. Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D-1557; and not less than the following percentages of relative density determined in accordance with ASTM D-2049, for soils which will not exhibit a well-defined moisture-density relationship.
 - a. Lawn or Unpaved Areas: Compact top six inches (6") of subgrade and each layer of backfill or fill material at 90 percent (90%) maximum dry density.
 - b. Walkways: Compact top six inches (6") of subgrade and each layer of backfill or full material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
 - c. Pavement Areas: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
 - d. Base Course Materials: Compact each layer of base course material to 95 percent (95%) of maximum dry density.
 - e. Trench Stabilization Materials: Compact each layer of material to 95 percent (95%) of maximum dry density.
5. Moisture control:
 - a. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
 - b. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
 - c. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.
 - d. Moisture condition fills materials to within 3 percent (3%) of the optimum moisture. Fill that is so wet that it is unstable under compaction equipment shall be dried and re-compacted to achieve a stable fill.
6. Puddling or jetting will not be permitted.
7. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice, or other unsuitable materials.

8. Place backfill and fill material evenly adjacent to structures, to be required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.
9. Compact backfill to height of two feet (2') above top of pipe using approved flat-faced mechanical tampers.

3.05 GRADING

A. General

Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Grading Outside Building Lines

Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:

1. Lawn or unpaved areas: Finish area to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations.
2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below the required subgrade elevation.
3. Pavement: Shape surface of areas under pavement line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation. All topsoil and other unsuitable material shall be removed and replaced with suitable backfill.

C. Compaction

1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

D. Treating after Grading

1. After grading is completed, permit no further excavating, filling or grading.
2. Use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

E. Subgrade Preparation

1. All subgrade preparation shall be performed in accordance with the applicable Sections of the Delaware Department of Transportation Standard Specifications except as may be modified by this Specification Section.
2. Subgrades for paving shall be firm and unyielding when proof-rolled in accordance with Section 202.03.10.j. of the Standard Specifications.

3.06 GRADED AGGREGATE BASE COURSE

A. General

1. Base Course consists of placing graded aggregate base course material in layers of specified thickness over subgrade surface to support pavements, pavement patches and structures, as shown on Plans.
2. Provide Base Course in accordance with Section 1005.01 of the Standard Specifications, except as otherwise modified by this Specification Section.

B. Grade Control

1. During construction, maintain lines and grades including crown and cross-slope of base course.

C. Placing

1. Place base course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting base course material during placement operations.
2. When a compacted base course is shown to be eight inches (8") or less, place material in a single layer. When shown to be more than eight inches (8") thick, place material in equal layers, except no single layer shall be more than eight inches (8") in thickness when compacted.
3. Spread, shape and compact all base course material deposited on the subgrade during the same day.

3.07 FIELD QUALITY CONTROL

- A. Quality control testing during construction. Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.
- B. If subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no expense to the Owner. This shall include compaction and testing at areas initially tested and at other locations as directed.

3.08 MAINTENANCE

A. Protection of Graded Areas

1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
2. Repair and establish grades in settled, eroded and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas

1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove waste materials, including excess and unacceptable excavated material, trash and debris, and dispose of it off the Owner's property.

3.10 TOPSOILING

A. Preparation

1. Verify that clearing, earthwork, grading and other preceding work affecting ground surface have been completed and that the area to be topsoiled is cleared, shaped, and dressed.
2. Preparation of Topsoil Subsoil
 - a. Shape and dress area to be topsoiled. This work includes grading to required lines and elevations; removal of all stones, clods, lumps two inches or larger in any dimension; removal of all wires, cables, pieces of concrete, tree roots, and debris or other unsuitable material.
 - b. Do not proceed with installation of topsoil until this work has been approved.

B. Installation

1. Place in even layers that will produce the minimum compacted thickness as indicated on the Plans.
2. If quantity of topsoil obtained from stripping is insufficient for the project requirements, provide required topsoil from approved sources located outside project limits.
3. Remove stones, lumps, roots and other objects larger than one inch in any dimension from graded topsoil surface.

C. Maintenance

1. Immediately before establishment of ground cover, re-topsoil and regrade areas, which become eroded or otherwise disturbed.
2. Perform all maintenance work in accordance with the Specifications without additional compensation.
3. Maintenance period to extend until installation of ground cover.

D. Cleaning

1. Immediately clean spills, soil, and conditioners on paved and finished areas.
2. Haul and dispose of topsoil in excess of the quantity required for the project off site.
3. Dispose of protective barricades and warning signs at termination of maintenance period.

END OF SECTION

SECTION 321216
ASPHALT PAVING**PART 1 GENERAL****1.01 DESCRIPTION**

- A. Work included: Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Patching pavement, including removal of existing pavement and installation of bituminous concrete base course patch.
 2. Surface preparation, and installation of bituminous concrete base course (BCBC).
 3. Surface preparation, and installation of Type B, binder course pavement, where applicable.
 4. Installation of Type C, wearing surface course for pavement patching, and for overlay of existing bituminous pavement including patched and repaired areas.
 5. Pavement markings

1.02 STANDARDS

- A. The quality of materials and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016, latest revision (hereinafter referred to as the "Standard Specifications").
1. Section 401: Bituminous Pavement
 2. Section 402: Bituminous Pavement Materials, Patching
 3. Section 817: Pavement Markings
 4. Section 760: Pavement Milling and Rumble Strips

1.03 DEFINITIONS

- A. Subgrade: Surface upon which pavements will be constructed.
- B. Base Course: That portion of the pavement cross section consisting of graded aggregate base course or bituminous concrete deep lift.

1.04 QUALITY ASSURANCE

- A. Bituminous concrete producer shall be regularly engaged in the production of hot-mix, hot-laid bituminous concrete, and shall be approved by the Delaware Department of Transportation.

1.05 SUBMITTALS

- A. Job mix formula.
- B. Provide copies of delivery slips at the end of each working day.

PART 2 PRODUCTS**2.01 GENERAL**

- A. Materials and mixtures shall comply with the following sections of Delaware Department of Transportation Standard Specifications. All bituminous concrete paving shall be obtained from a DelDOT approved plant.

2.02 PAVING MATERIALS AND MIXTURES

- A. Graded Aggregate Base Course
 - 1. Materials: Section 301.
- B. Hot Mix, Hot Laid Bituminous Concrete Pavement
 - 1. Materials: Section 401.
 - 2. Mixture: Section 1014 Asphalt Materials Production
- C. Emulsified Asphalt: Section 1016
- D. Coarse Aggregate: Section 1004
- E. Tack Coat: Section 1011

2.03 JOB MIX FORMULA REQUIREMENTS

- A. Provide job mix formulas for each required bituminous concrete mixture as specified in Section 1014 of the Standard Specifications.
- B. Submit for approval prior to beginning paving operations.

2.04 MIX DESIGN AND CONTROL REQUIREMENTS

- A. The design and control requirements for all paving mixtures shall conform to Section 1014 of the Standard Specifications.

2.05 SAMPLES AND TESTING

- A. Methods and rates of sampling bituminous mixtures shall conform to Section 1014 of the Standard Specifications with the following exceptions:
 - 1. Sampling shall be performed by the producer's quality control technician.
 - 2. For small scale projects where it is possible to attain the minimum lot size specified, a total of five (5) samples shall be taken at random for each type of mix specified, per each day's production.
- B. Testing of bituminous concrete mixtures to determine the quantity of bitumen, gradation of aggregate, and conformance to mix design requirements shall be as specified in Section 1014 of the Standard Specifications.

- C. Submit results of tests on forms signed by producer's quality control technician.

2.06 PREPARATION OF MIXTURES

- A. The preparation of all bituminous mixtures shall conform to Section 1014 of the Standard Specifications.

2.07 PAVEMENT MARKINGS

- A. All paint shall be of materials approved by the Delaware Department of Transportation per Section 817 of the Standard Specifications.
- B. Thermoplastic material, where required, shall meet the requirements of Section 817 of the Standard Specifications.

PART 3 EXECUTION

3.01 GENERAL

- A. The method of construction, including bituminous concrete plant and equipment, bituminous concrete pavers, vehicles for transporting bituminous mixtures, rollers, and all construction methods shall conform to Sections 1014 and 401 of the Standard Specifications except as modified by the Supplemental Requirements below.

3.02 PAVEMENT MILLING

- A. Construction methods for pavement milling shall conform to Section 760 of the Standard Specifications.

3.03 PAVEMENT PATCHING

- A. Construction methods for patching pavement shall conform to Sections 402 of the Standard Specifications. A milling machine may be use for pavement and base course removal.

3.04 PROOF ROLL

- A. Proof roll subgrade surfaces using a loaded dump truck in accordance with Section 202.03.10.J of the Standard Specifications. Proof roll in the presence of the Owner's Representative.
 - 1. Subgrades shall be firm and unyielding.
 - 2. Compact areas showing deflection and instability.
- B. Notify the Engineer or the Inspector of unsatisfactory conditions.
- C. Do not begin paving work until any such unsatisfactory conditions have been corrected.

3.05 SURFACE PREPARATION

- A. Earth and Base Course Surface
 - 1. Remove loose and foreign material from compacted subgrade surface immediately before application as required.
 - 2. Use power broom or blowers and hand brooming as required.
 - 3. Do not displace subgrade material.
- B. Existing Pavement Surfaces
 - 1. Remove loose and foreign material from existing pavement surfaces immediately before application of paving
 - 2. Use self-propelled mechanical sweepers. Supplement with hand brooming as required.
 - 3. Pay particular attention to cleaning of gutter lines and outer edges of pavement areas.
 - 4. Remove all weeds, grass or other vegetative matter growing in pavement areas, particularly along joints and curbs.
- C. Minor Patching
 - 1. Existing pavement surfaces: Fill in depressions, and patch pavement in overlay areas that are not marked out for base repairs.

3.06 TACK COAT

- A. Apply to cleaned surfaces of all pavements to be overlaid or slurry seal coated.
- B. Apply to cleaned surfaces of newly constructed base pavement if coated with dust, dirt, foreign materials in sufficient amount to prevent bond with surface course.
- C. Apply to edges of paving where base repairs are to be made.
- D. Apply tack coat material at rates and temperatures specified in Section 401.03.H of the Standard Specifications.
- F. Apply tack coat by brush to contact surfaces of pavement cold joints, curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.
- G. Allow surfaces to dry until material is in a condition of tackiness to receive pavement.
- H. Take precautions to insure tack coat is not applied to exposed surfaces of curbs or other exposed surfaces. Tack coat so applied shall be removed by Contractor at no additional cost to Owner.

3.07 GENERAL SURFACE REQUIREMENTS

- A. Test finished surface of each bituminous concrete course for smoothness using a ten (10) foot straightedge.
- B. The straightedge shall have projections on the bottom at each end, either built-in or firmly attached, so that it is supported six (6") inches above the pavement surface at the ends. It shall be free from warp and deflection, and furnished by the Contractor without additional compensation.

- C. Check surfaced areas at intervals and in directions specified.
- D. Check surfaces for pavement smoothness immediately after initial compaction, and correct variations by removing or adding material as may be necessary. Then rolling shall be continued as specified.
- E. Immediately after final rolling and while the pavement is still hot, the smoothness of the course shall be checked again and all projections or depressions exceeding the specified tolerances shall be corrected by removing defective work and replacing it with new surface course as specified. Portions of the surface otherwise unsatisfactory shall be replaced.
- F. Finished surfaces shall be free of all roller marks, ridges and voids.

3.08 FIELD QUALITY CONTROL

- A. Taking of pavement cores and testing for the determination of conformance to control air voids and pavement thickness shall be performed in accordance with Section 401 of the Standard Specifications.
- B. When required per the General or Special Provisions, the Contractor shall employ and pay for the services of an Independent Testing Laboratory acceptable to the Engineer to perform additional field quality control sampling and testing when initial tests indicate work does not comply with the Contract Documents. All sampling and testing shall be performed as specified in section 401 of the Standard Specifications.
- C. Areas of pavement removed for field quality control testing shall be replaced by the Contractor as follows:
 - 1. Clean debris from core area. Cut all exposed pavement edges vertical.
 - 2. Apply tack coat to exposed surfaces before installing replacement pavement.
 - 3. Fill core area with surface course mixture for the full depth of the core.
 - 4. Compact and grade mixture; seal repaired area with tack coat; and apply thin layer of sand over tack coat.

3.09 PAVEMENT MARKINGS

- A. Paint equipment and installation shall conform to Section 817 of the Standard Specifications.
- B. Application of Thermoplastic materials, where required, shall conform to Sections 817 of the Standard Specifications.
- C. All markings shall comply with the Manual on Uniform Traffic Control Devices, the Delaware Manual on Traffic Controls for Street and Highway Construction and Maintenance, the Delaware State Fire Prevention Regulations, and the Delaware State Accessibility Board.

END OF SECTION

SECTION 321313
CONCRETE PAVING**PART 1 GENERAL****1.01 DESCRIPTION**

- A. Sawcut and remove existing concrete paving, sidewalk, ramps, and pads as shown on the plan, marked in the field, or as directed by the Engineer.
- B. Patch or provide new concrete paving, sidewalk, ramps, and pads in areas designated on Plans, marked in the field, or as directed by the Engineer.
- C. Place Graded Aggregate Base Course below proposed concrete paving and sidewalks.

1.02 STANDARDS

- A. The quality of materials and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016, latest revision (hereinafter referred to as the "Standard Specifications").

Section 301: Graded Aggregate Base Course

Section 501: Portland Cement Concrete Pavement (PCCP)

Section 705: Portland Cement Concrete Sidewalk, Curb Ramps, and Sidewalk Detectable Warning System

Section 762: Saw Cutting and Butt Joints

Section 1005: Graded Aggregates

Section 1022: Portland Cement Concrete Production

1.03 SUBMITTALS

- A. Certificates: All deliveries of concrete shall be accompanied by delivery slips.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Allowable Concrete Temperatures
 - 1. Cold weather: 60 degrees Fahrenheit. (18° C) when discharged from the mixer.
 - 2. Hot weather: Maximum concrete temperature is 80 degrees Fahrenheit. (30° C).
- B. Do not place concrete during rain, when atmospheric temperature is at or below 36 degrees Fahrenheit (2° C), or when conditions are otherwise unfavorable.

1.05 PROTECTION

- A. Protect concrete from pedestrian and vehicular traffic until concrete has been sufficiently cured.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Concrete
 - 1. Use concrete developing a compressive strength at twenty-eight (28) days of 4,500 p.s.i. for concrete paving and 3,000 p.s.i. for sidewalk.
 - 2. Use air-entrained concrete.
- B. Cement aggregates, water and air-entrainment methods and materials conforming to Section 1022 of the Standard Specifications.
- C. Joint filler: Pre-formed expansion joint material, conforming to Section 1042.01.2 of the Standard Specifications.
- D. Curing compound: White pigmented liquid, conforming to AASHTO M 148 for Type 2, Class A or B.
- E. Vapor barrier: Where called for on Plans shall be 6 mil. polyethylene.
- F. Wire mesh reinforcement shall conform to the requirements of AASHTO M 31M.
- G. Spalled areas shall be repaired with a pre-blended, pre-packaged cement based mortar requiring only the addition of potable water. The material shall not contain any chlorides or lime other than the amounts contained within the hydraulic composition. The concrete repair material shall have a minimum strength of 5000 psi after 28 days. Concrete repair material shall be as manufactured by Five Star Products, Inc., or approved equal.
- H. Newly constructed concrete sidewalks shall be sealed with a concrete treating oil. The treating oil shall be a solution of boiled linseed oil and mineral spirits in accordance with ASTM D 260. Concrete treating oil shall be TK-3102, as manufactured by TK Products, or Lin-Seal, as distributed by W.R. Meadows, Inc., or approved equal.

PART 3 EXECUTION**3.01 REMOVING EXISTING PAVING AND SIDEWALK**

- A. All portions of existing concrete paving or sidewalk to be removed shall be isolated from pavements, curb, or buildings to remain by saw cutting or by the presence of an existing expansion joint. Care shall be exercised by the Contractor to insure that no damage occurs to any elements to remain and any damage to items to remain shall be replaced or repaired by the Contractor at no additional cost to the Owner.
- B. Concrete shall be broken up by an approved power breaking machine. All concrete removed shall be taken off the project site and disposed of lawfully.

3.02 PREPARATION FOR NEW PAVING AND SIDEWALK

- A. Excavate subgrade and set forms so that finished paving and sidewalk conforms to lines and grades shown on Plans.
- B. Prepare paving and sidewalk subgrade as specified in Sections 501 and 705 of the Standard Specifications.
- C. Verify that earthwork is completed to correct line and grade.
- D. Verify that forms conform to line, grade and dimensions shown on Plans.
- E. Check that subgrade is smooth, compacted and free of excessive moisture.
- F. Do not commence work until conditions are satisfactory.

3.03 CONSTRUCTION METHODS

- A. Concrete paving shall be constructed in accordance with the requirements of Section 501 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction.
- B. Concrete sidewalks and aprons shall be constructed in accordance with the requirements of Section 705 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction.
- B. Use vibration or tamping to consolidate the rapid set concrete patching material. Work material into saw cuts, extending beyond the corners of the repair area. Strike-off and shape the material to match the surrounding concrete.
- C. Concrete treating oil for sidewalks shall be sprayed or rolled onto clean and dry concrete in accordance with the manufacturer's written instructions.

END OF SECTION

SECTION 321613
CONCRETE CURB

PART 1 GENERAL

1.01 DESCRIPTION

- A. Remove and dispose off site existing concrete or bituminous curb as shown on the Plans, marked in the field, or as directed by the Engineer.
- B. Install new poured Portland cement concrete curb in the locations designated on the Plans, marked in the field, or as directed by the Engineer.

1.02 STANDARDS

- A. The quality of materials and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016 (hereinafter referred to as the "Standard Specifications").

Section 701: PCC Curb, Integral PCC Curb, PCC Monolithic Median and Curb Openings
Section 1022: Portland Cement Concrete Production

1.03 SUBMITTALS

- A. Certificates: All deliveries of concrete shall be accompanied by delivery slips.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Allowable Concrete Temperatures
 - 1. Cold weather: 60 degrees Fahrenheit. (18° C) when discharged from the mixer.
 - 2. Hot weather: Maximum concrete temperature is 80 degrees Fahrenheit. (30° C).
- B. Do not place concrete during rain, when atmospheric temperature is at or below 36 degrees Fahrenheit (2° C), or when conditions are otherwise unfavorable.

1.05 PROTECTION

- A. Protect new concrete curb from traffic for a minimum of seven (7) days.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete
 - 1. Use concrete developing a compressive strength of 3,000 p.s.i. at twenty-eight (28) days.
 - 2. Use air-entrained concrete.

- B. Cement, aggregates, water and air-entrainment methods and materials conforming to Section 1022 of the Standard Specifications for Class B concrete.
- C. Joint filler: Pre-formed expansion joint material, conforming to Section 1042 of the Standard Specifications.
- D. Curing compound: White pigmented liquid, conforming to AASHTO M 148 for Type 2, Class A or B.
- E. Bituminous Joint Sealant: Conforming to the requirements of section 1042 of the Standard Specifications:

PART 3 EXECUTION

3.01 PREPARATION

- A. When encountered, cut existing pavements vertically with a sharp tool on a straight line prior to excavating for curb. Cut shall be made twelve inches (12") to twenty-four inches (24") beyond the limits of excavation, and maintained straight and neat, or re-cut and dressed as required.
- B. Excavate subgrade and set forms so that finished curb conforms to required lines and grades.
- C. Prepare curb subgrade as specified in Section 701 of the Standard Specifications.
- D. Verify that earthwork is completed to correct line and grade.
- E. Verify that forms conform to proposed line, grade and curb cross section.
- F. Check that subgrade is smooth, compacted and free of frost and excessive moisture.
- G. Do not commence work until conditions are satisfactory.

3.02 PERFORMANCE

- A. Method of curb construction shall conform with Section 701 of the Standard Specifications
 - 1. Install 1/2-inch wide expansion joints at equal intervals, not to exceed forty feet (40'). Install additional expansion joints where curb abuts structures, and install expansion joints or bond breaker where curb abuts sidewalk. Fill expansion joints with joint filler, 1/2-inch thick. Insert joint filler 1/4-inch from the top and face of curb.
 - 2. Construct contraction joints (transverse joints) at 10' intervals, except where shorter sections are necessary for closures; but no section shall be less than four feet (4').
 - 3. Finish concrete surfaces of curb to match existing adjacent curbs. Curb cross section shall be as shown on the Plans.

END OF SECTION

SECTION 323113

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes
 - 1. Fence/Gate framework, fabric, and accessories.
 - 2. Excavation for post bases; concrete foundation for posts, and center drop for gates.
 - 3. Manual gates and related hardware.
 - 4. Baseball and softball backstops

1.02 SUBMITTALS

- A. Product Data: Provide data on fabric, gate frame, posts, reinforcement, accessories, fittings, hardware, and gates.
- B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.

1.03 QUALITY ASSURANCE

- A. The quality of materials and performance of work specified in this section shall be in accordance with the Delaware Departments of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016 (hereinafter referred to as the "Standard Specifications") except as modified herein or as shown on the Plans
 - 1. Section 727: Fence
 - 2. Section 1061: Fence

1.04 QUALIFICATIONS

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

PART 2 PRODUCTS

2.01 CHAINLINK FENCE FABRIC

- A. Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual."
 - 1. Fabric shall be galvanized steel, 9 gauge.
 - 2. Fabric shall be Type 2 zinc coated in accordance with ASTM A 392.
 - 3. Mesh size shall be two inches.

2.02 MATERIALS AND COMPONENTS

- A. Materials and Components: Conform to CLFMI Product Manual.
- B. Fence post and rail shall be round steel pipe in accordance with ASTM F 1083.
- C. Tension wire, fence hardware, fittings, and caps shall be in accordance with Sections 727 and 1061 of the Standard Specifications.
- D. Gates shall be swing type with zinc-coated steel posts, frames, and bracing. Hardware, hinges, and latches shall permit inward or outward swing for both sides of the gate.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all chain link fence in accordance with Section 727 of the Standard Specifications and the details shown on the Plans.
- B. Drill or hand-excavate holes for posts to diameters and spacing indicated on the Plans in firm, undisturbed soil.
- C. Place post plumb, aligned, at correct height and spacing, and in the center of the foundation.
- D. Place Portland cement concrete, Type B, in hole around the post. Thoroughly compact the concrete by tamping or vibrating. Do not place attachments to posts or disturb posts in any way for 72 hours after concrete is poured.
- E. Install chain-link fabric on the field side, court side, or play side of the posts. Fabric shall be true to line, taut, and in compliance with the best practice for fence construction. Attach wire and fence fabric in accordance with Section 727 of the Standard Specifications.
- F. Install gates in accordance with manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

END OF SECTION

SECTION 323119 - ORNAMENTAL ALUMINUM FENCE AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary, and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

1.2 DESCRIPTION

- A. Furnish and install Ornamental Aluminum Fence, including foundations and appurtenances as shown on the Plans and described herein.
- B. Furnish and install aluminum swing gates, including foundations and appurtenances as described herein.
- C. Furnish and install cantilever slide aluminum gates, including foundations and appurtenances as described herein.

1.3 QUALITY ASSURANCE

- A. Submit shop drawings and product literature in accordance with the conditions of the Contract. Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangements, mounting, and grounding provisions.
- B. The Contractor shall provide laborers and supervisors who are experienced and thoroughly familiar with the construction involved and the materials and techniques specified. Upon request, the Contractor shall demonstrate the successful installation of five (5) similar fences within the last three years.
- C. The manufacturer or fabricator shall warrant the ornamental aluminum fence for ten (10) years against defects in workmanship or materials. The finish shall also be warranted for ten (10) years against cracking, peeling, chipping, and blistering under normal usage.
- D. Fence and gates must be products of the same manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Extrusions: All posts and rails used in the fence system shall be extruded aluminum alloy having a minimum yield strength of 35,000 psi. All pickets shall have a minimum yield strength of 25,000 psi.

- B. Fasteners: All fasteners shall be stainless steel. Hidden spring clips shall be used to connect the pickets to the horizontal rails. Rail to post connections shall be made using self-drilling screws.
- C. Accessories: Aluminum sand and die castings shall be used for all scrolls, posts caps, finials, and miscellaneous hardware.

2.2 FABRICATION

- A. Pickets, rails, and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets. Pickets shall be predrilled to accept retaining rods.
- B. Pickets shall be installed into the pre-punched holes in the rails and shall be aligned to standard spacing using a specifically calibrated alignment. The aligned pickets and rails shall be joined at each intersection through fusion welding.
- C. Pretreatment: A three-stage non-chrome pretreatment shall be applied. The first step shall be a chemical cleaning, followed by a water rinse, and a dry-in-place activator.
- D. Coating: Fence materials shall be coated with a polyester powder-coat finish system applied by the manufacturing company. The finish shall have a cured film thickness of at least 2.0 mils. Screw heads shall be painted to match the color of the fence.
- E. The coated panels and posts shall be capable of meeting the performance requirements of ASTM D247 for humidity resistance, ASTM B117 for corrosion, and ASTM D822 for weathering resistance.

2.3 SWING GATES

- A. Swing gates shall be fabricated using welded ornamental panel material and gate ends of the size as shown on the Plans. All rail and upright intersections shall be joined by welding, as shall all picket and rail intersections.
- B. Hardware shall be provided by the gate manufacturer. Hinges shall grip post and frame firmly to prevent slippage. Hinges shall have a minimum load capacity of 1,000 pounds. Hinges shall allow gate leaf to swing 180-degrees.
- C. Card activated gates shall be equipped with a panic bar and electronic strike. Coordinate requirements with building wireless access control system.

2.4 SLIDE GATES

- A. Provide an internal roller aluminum cantilever slide gate made in accordance with ASTM F 1184, for Type II Class 2.
- B. Overhead track assembly shall be the manufacturer's standard track, with overhead framing supports, bracing, and accessories, engineered to support the size, weight, width, operation, and design of gate and roller assemblies.

2.5 GATE OPERATORS

- A. Provide factory-assembled automatic operating system designed for gate size, type, weight, and operational frequency. Provide operation control system with remote control, safety devices, and weatherproof enclosures. Coordinate electrical requirements with building electrical system.
 - 1. Provide operator designed so motor may be removed without disturbing limit-switch adjustment and without affecting auxiliary emergency operator.
 - 2. Provide operator with UL-approved components.
 - 3. Provide electronic components with built-in troubleshooting diagnostic feature.
 - 4. Provide unit designed and wired for both right-hand/left-hand opening, permitting universal installation.
- B. Motor shall be sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding the nameplate rating or considering service factor.
- C. Provide adjustable limit switches, interlocked with motor control and set to automatically stop the gate at the fully retracted and fully extended positions.

2.6 MANUFACTURER

- A. Manufacturer: The fencing system shall be Commercial Grade Barcelona Style Ornamental Aluminum fence as manufactured by Iron World, Howard County, Maryland, or approved equal. Fence should match existing size and type.
- B. Fences, gates, and operators shall be obtained from a single source.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect them from damage and weather. Damaged or weathered fence and materials shall not be installed.
- B. All new installations shall be laid out by the contractor in accordance with the Plans.

3.2 FENCE AND GATE INSTALLATION

- A. Fence posts shall be spaced as shown on the Plans or as recommended by the manufacturer. Fence posts shall be set in concrete footers having a minimum depth of 36 inches. Fence panels shall be attached to posts with brackets supplied by the manufacturer.
- B. Install gates according to the manufacturer's written instructions, level, plumb, and secure for full opening without interference. Make sure that the gate rolls free of binding. Adjust hardware for

smooth operation and lubricate where necessary.

- C. Install gate operators according to manufacturer's written instructions, aligned and true to the fence line and grade. Comply with NFPA and manufacturer's written instruction for grounding of electric-powered motors, controls, and other devices.
- D. Fence shall be installed in accordance with the manufacturer's written instructions. Exposed steel surfaces shall be sealed with primer and paint furnished by the manufacturer.
- E. Gates shall be installed in accordance with the manufacturer's written instructions.
- F. It shall be the responsibility of the Contractor to work with the fence company, or other design professional, to furnish and install all gate components, including openers, card readers, power, communications, ground loops, etc.

END OF SECTION

SECTION 323913
METAL BOLLARDS

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section shall include the supply and installation of removable steel bollards with plastic security post covers.

1.02 STANDARDS

- A. The quality of materials and performance of work specified in this section shall be in accordance with the following sections of the American Society of Testing Materials (ASTM):

ASTM A36: Standard Specification for Carbon Structural Steel

ASTM A500: Standard Specifications for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

1.03 SUBMITTALS

- A. Submit product data for each type of bollard, component, finish, and accessory specified.
- B. Submit manufacturer's standard colors for selection.
- C. Submit manufacturer's maintenance instructions, including field touch-up and cleaning.

1.04 WARRANTY

- A. Bollards shall be warranted against defects in materials and workmanship. Warranty period shall be five years from the date of delivery. Coatings shall be warranted against peeling, cracking, or significant color change for two years.

PART 2 PRODUCTS

2.01 BOLLARDS

- A. Bollard shall be Model R-7902 as manufactured by Reliance Foundry, Model 400-36 as manufactured by Dumor, Inc., or approved equal.
- B. Bollard shall be steel meeting the requirements of ASTM A36 with black powder coat over epoxy primer. The bollard shall be designed for removable installation and be installed with steel receiver and galvanized steel cover.

2.02 BOLLARD COVERS

- A. Plastic bollard covers shall be high density polyethylene (HDPE) with a minimum tensile strength of 4,000 psi.
- B. Bollard cover shall be Model R-7109 as manufactured by Reliance Foundry, or approved equal.
- C. Bollard covers shall be supplied with self-adhesive foam strips, self-adhesive neoprene tape, and reflective tape. All accessories shall be supplied by the manufacturer of the cover.

PART 3 EXECUTION

3.01 PREPARATION

- A. Examine concrete for compliance with manufacturer's requirements for placement and location of embedded items, condition of substrate, and other conditions affecting the installation of the bollards.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Comply with manufacturer's installation instructions and setting drawings.
- B. Do not install damaged, cracked, chipped, deformed, or marred bollards. Field touch-up minor imperfections in accordance with manufacturer's instructions. Replace bollards that cannot be field repaired.
- C. Install plastic bollard covers over foam strips in pattern indicated in manufacturer's instructions.

3.03 CLEANING AND PROTECTION

- A. Protect bollards and bollard covers against damage.
- B. Clean bollards and bollard covers in accordance with manufacturer's instructions to remove dust, dirt, adhesives, and other foreign materials. Touch up damaged finishes according to manufacturer's instructions.

END OF SECTION

SECTION 334200

SANITARY AND STORM DRAINAGE FRAME ADJUSTMENTS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Repair and adjust catch basins and catch basin tops as shown on the Plans.

1.02 STANDARDS

- A. City of Wilmington Department of Public Works
- B. Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2001, latest revision:
 - 1. Section 602: Drainage Structures

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Storage and Materials
 - 1. Store materials to prevent physical damage.
- B. Handling of Materials
 - 1. Protect materials during transportation and installation to avoid physical damage.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All materials used in repairing or adjusting elevations of catch basins shall be as specified in Section 602.02 of the Standard Specifications.

PART 3 EXECUTION

- A. Sawcut and remove existing cement or asphalt paving as required to allow excavation.
- B. Excavate as required to expose any damaged or deteriorated masonry.
- C. Reset any loose block or brick in mortar, and parge inside and outside of inlet.
- D. Provide and install pre-cast grade adjustment ring to change grate elevation as shown on the Plans.
- E. Pour a collar of Class B concrete to fully encompass any repaired masonry, grade adjustment ring, and inlet frame. Collar is to be at finished grade for a distance of 4" around the exterior of the inlet frame, before being stepped down to allow installation of adjacent paving.

SANITARY AND STORM DRAINAGE FRAME ADJUSTMENTS

334100-1

- F. Backfill excavation with approved materials in lifts no greater than 8" in compacted thickness, and re-install grate.

END OF SECTION

RAS LANDSCAPE
HOWARD TECH BID PACKAGE N
TABLE OF CONTENTS
08 FEBRUARY 2019

| <u>SECTION NO.</u> | <u>SECTION TITLE</u> |
|--------------------|----------------------------------|
| 05 52 13 | Pipe Railings |
| 12 93 00 | Site Furnishings |
| 32 13 12 | Site Concrete |
| 32 13 73 | Concrete Pavement Joint Sealants |
| 32 14 16 | Brick Unit Paving |

SECTION 05 5213
PIPE RAILINGS**PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Wall mounted handrails at steps
- B. Ramp railings and guardrails.
- C. Free-standing railings at steps.

1.2 RELATED REQUIREMENTS

- A. Section 321312 Site Concrete
- B. Section 09 9000 -Painting and Coating: Paint finish. From Phase 1

1.3 PRICE AND PAYMENT PROCEDURES

- A. Additional Allowances: In addition to the scope of work shown, provide the following as an additional allowance.

- 1. Provide an allowance of 100 linear feet of railing.
 - a. This allowance includes purchase, delivery, and installation of railing with guard rail, pickets and handrail, in multiple locations, as directed by the Architect.
 - b. This allowance shall be included as a separate line item and adjusted by a Unit Price.

- B. Unit Prices:

- 1. Unit price for providing railing with guard rail, pickets and handrail, as specified in this section.
 - a. Unit of measure: Per linear foot of railing installed.

1.4 REFERENCE STANDARDS

- A. ADA Standards -Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ASTM A53/A53M -Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- C. ASTM A123/A123M -Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.
- D. ASTM A500/A500M -Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- E. ASTM A501/A501M -Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.
- F. ASTM E894 -Standard Test Methods for Anchorage of Permanent Metal Railing Systems and Rails for Buildings.
- G. ASTM E935 -Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2013.
- L. ASTM E985 -Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).

- M. AWS D1.1 -Structural Welding Code Steel.
- N. AWS D1.6 -Structural Welding Code Stainless Steel.
- O. SSPC-Paint 15 -Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).
- P. SSPC-Paint 20 -Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

1.5 SUBMITTALS

- A. See Section 01 3000 -Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- C. Product Data: Provide product data for rail system and finishes.
- D. Welder Certifications.
- E. Samples: Submit two, 12 inch long samples of handrail. Submit two samples of elbow, wall bracket, and end stop.

1.6 QUALITY ASSURANCE

- A. Obtain railing through one source through a single manufacturer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Materials to be delivered to site crated and packaged to prevent damage.
- B. Store materials on site in manufacturer's unopened packaging until ready to install.
- C. Store material in a clean, dry location, avoiding exposure to uncured concrete, masonry and acidic cleaning agents.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Tube and Pipe Handrails and Railings:
 - 1. C.R. Laurence Company, Inc: www.crl-arch.com/sle.
 - 2. Tri-Tech, Inc.: www.tri-tech-inc.com.
 - 3. Substitutions: See Section 01 6000 -Product Requirements.

2.2 RAILINGS -GENERAL REQUIREMENTS

- A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E985 and applicable local code.
- B. Distributed Loads: Design railing assembly, wall rails, and attachments to resist distributed force of 50 pounds per linear foot applied to the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.
- C. Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.
- D. Allow for expansion and contraction of members and building movement without damage to connections or members.
- E. Dimensions: See drawings for configurations and heights.
- F. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
 - 1. For anchorage to stud walls, provide backing plates, for bolting anchors.
- G. Provide welding fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.3 STEEL RAILING SYSTEM

- A. Steel Tube: ASTM A500/A500M, Grade B cold-formed structural tubing.
- B. Welding Fittings: Factory-or shop-welded from matching material; seams continuously welded; joints and seams ground smooth.

2.4 FABRICATION

- A. Accurately form components in accordance with approved shop drawings and to suit specific project conditions and field dimensions for proper connection to building structure.
- B. Fit and shop assemble components in largest practical sizes for delivery to site.
- C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- D. Welded Joints:
 - 1. Exterior Components: Continuously seal joined pieces by continuous welds without undercut and distortion of rail material. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
 - 2. Interior Components: Continuously seal joined pieces by continuous welds without undercut and distortion of rail material.

3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Install railings in compliance with ADA Standards for accessible design at applicable locations.
- D. Anchor railings securely to structure.
- E. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.
- F. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

3.4 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

**SECTION 129300
SITE FURNISHINGS****PART 1 - GENERAL****1.1 WORK INCLUDED**

- A. Drawings and general provisions of Contract, including general conditions and Division – One Specifications sections, apply to work of this section.

- 1. BENCHES
- 2. TRASH RECEPTACLES
- 3. BOLLARDS

1.2 RELATED SECTIONS

- A. Section 321312 – Site Concrete

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications, installation instructions and general recommendations for each item.
- B. Samples: Submit samples of materials and finishes for all metal products in color chosen by Owner Representative.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Obtain required products from a single manufacturer.
- B. Accessories: Provide accessory items only as produced or recommended by manufacturer of primary products.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Packing and Shipping: Pack and otherwise protect each unit to avoid damage during shipping and handling.
- B. Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and against contact with damp or wet surfaces.

1.6 JOB CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation.

PART 2 – PRODUCTS**2.1 MATERIALS**

- A. Anchors, Fasteners, Fittings, and Hardware: Provide Stainless steel; commercial quality, tamperproof, vandal and theft resistant, unless indicated otherwise on the Drawings.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound; resistant to erosion from water exposure without needing protection by a sealer or waterproof coating; recommended in writing by

Manufacturer, for exterior applications.

2.2 EXTERIOR FURNISHINGS

A. BENCHES

1. Manufacturer: Canterbury Bowery Bench.
Model: BNBW-6-BR-M
Quantity: Fourteen (14)
Color: Black
Length: 6 feet

B. TRASH RECEPTACLES

1. Manufacturer: Canterbury Bowery Receptacle with Rain Top.
Model: TRBW-40-DO-RTP
Quantity: Two (2)
Color: Black

C. FIXED BOLLARDS

1. Manufacturer: Calpipe Security Bollards
Model: IBF04080 SCH 80 ASTM A-53 carbon steel – 4” diameter
Viking Cap Style
Height: As specified on drawings
Quantity: 11
Color: Black

D. CONCRETE FOOTINGS

1. Refer to Section 32 13 12 – Site Concrete.

PART 3 – EXECUTION

3.1 FABRICATION

- A. All fabrications and finishes shall take place in the factory by personnel experienced in the manufacture of site components. All edges, corners and ends are eased, radiused or chamfered.

3.2 PREPARATION

- A. Coordinate work of this section with all other site improvement work.
- B. Coordinate and furnish anchorages with templates, diagrams, and instructions for all specified

furnishings. Coordinate delivery of specified items and protect from damage and theft until installation.

- C. Clean substrate, removing projections and substances detrimental to the work: comply with recommendations of manufacturer of products to be installed for proper preparation procedures.

3.3 EXAMINATION

- A. Inspect substrates and conditions under which the work of this section will be performed, and verify that installation may commence properly. Do not proceed with the work until unsatisfactory conditions have been fully resolved.

3.4 INSTALLATION

- A. Obtain Owner's Representative's approval on location of Benches and Flagpole prior to installations.
- B. Install items in accordance to Manufacturer's instructions and Mounting Detail using fasteners, which are appropriate to substrate as recommended by Manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.
- C. Attach straight benches to anchors as shown in the drawings.
- D. Post Set with Concrete Footing: refer to Section 321312 – Site Concrete for concrete requirements.
 - 1. Set equipment posts in concrete footing. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at the correct angle, alignment, height, and spacing.
 - a. Place concrete around posts and vibrate or tamp for consolidation. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
 - 2. Embedded Items: Smooth top of concrete, and shape to shed water. Use setting drawings and manufacturer's written instructions to ensure correct installation of anchorages for equipment.

3.5 ADJUSTING AND CLEANING

- A. Adjust items for proper operation and verify smooth functioning of all mechanisms. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces after removing labels and protective coatings.
- C. Repair any damage to finish.

END OF SECTION

**SECTION 321312
SITE CONCRETE****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes exterior concrete pavement for the following:
 - 1. Ramps
 - 2. Steps
 - 3. Curbs
- B. Related Sections include the following:
 - 1. Division 32 "Concrete Paving Joint Sealants" for joint sealants within concrete pavement and at isolation joints of concrete pavement with adjacent construction.

1.3 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixes: For each concrete pavement mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Samples: 10-lb (4.5-kg) sample of exposed aggregate.
- D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
- E. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:
 - 1. Cementitious materials and aggregates.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.
 - 4. Coloring materials
 - 5. Curing compounds.
 - 6. Applied finish materials.
 - 7. Bonding agent or adhesive.
 - 8. Joint fillers.
- F. Minutes of pre-installation conference.

- G. The contractor shall furnish a 3' x 3' sample panel for approval by the Owner's Representative prior to construction of the designated areas. This panel shall be made from samples of the specified material using the methods and workmanship proposed for the project. Source, type, color, and range of gradation of the select seeding aggregates shall be submitted to the Owner's Representative prior to construction of the sample panel. The approved panel shall constitute an example of minimum workmanship for all work specified under the section. If the sample panel is disapproved, additional sample panels shall be made until approval is obtained. The approved sample panels shall be kept at the job site for comparison with the finished work.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** An experienced installer who has completed pavement work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. **Manufacturer Qualifications:** Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
 - 1. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.
- C. **Testing Agency Qualifications:** An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- D. **Source Limitations:** Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
- E. **ACI Publications:** Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
- F. **Concrete Testing Service:** Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixes.
- G. **Mockups:** Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.
 - 1. Build 8 feet by 8 feet mockups in the location as directed by Landscape Architect.
 - 2. Notify Landscape Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Obtain Landscape Architect's approval of mockups before starting construction.
 - 4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
 - 5. Demolish and remove approved mockups from the site when directed by Landscape Architect.
- H. **Pre-installation Conference:** Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1. Before submitting design mixes, review concrete pavement mix design and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with concrete pavement to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixes.
 - c. Ready-mix concrete producer.
 - d. Concrete subcontractor.

1.5 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Storage of Materials: follow Division One requirements.
- C. Underground Utilities: Do not proceed with concrete construction until underground construction is complete.

PART 2 - PRODUCTS

2.1 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, exposed surfaces.
 1. Use flexible or curved forms for curves of a radius 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Deformed-Steel Welded Wire Fabric: ASTM A 497, flat sheet.
- B. Epoxy-Coated Wire: ASTM A 884/A 884M, Class A coated, plain steel.
- C. Epoxy-Coated Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60 , plain steel bars.
- D. Tie Bars: ASTM A 615/A 615M, Grade 60 , deformed.
- E. Hook Bolts: ASTM A 307, Grade A , internally and externally threaded. Design hook-bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

- F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer coated wire bar supports.
- G. Epoxy Repair Coating: Liquid two-part epoxy repair coating, compatible with epoxy coating on reinforcement.

2.3 CONCRETE MATERIALS

- A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.
- B. Portland Cement: ASTM C 150, Type I.
- C. Aggregate: ASTM C 33, uniformly graded, from a single source, with coarse aggregate as follows:
 - 1. Class: 4M.
 - 2. Maximum Aggregate Size: 1 inch nominal.
- D. Water: ASTM C 94.

2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494, Type A.

2.5 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

2.6 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1752, cork or self-expanding cork.
- B. Coloring Agent: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.
 - 1. Color : As selected by Landscape Architect from manufacturer's full range.
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements, and as follows:
 - 1. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- E. Colored-Powder Release Agent: Factory-packaged dry combination of surface conditioning and dispersing agents interground with coloring pigments that facilitates release of stamp mats. Use coloring pigments that are finely ground, nonfading mineral oxides interground with cement.
 - 1. Color: Light Brown as selected by Landscape Architect from manufacturer's full range.
 - 2. Manufacturer : LM Scofield Company
 - 3. Colors
 - a. As indicated on contract drawings
- F. Clear Acrylic Sealer: Manufacturer's standard waterborne, membrane-forming, medium-gloss, acrylic copolymer emulsion solution containing not less than 15 percent solids by volume; non-yellowing and UV resistant.

2.7 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the trial batch method.
 - 1. Do not use Owner's field quality-control testing agency as the independent testing agency.
- C. Proportion mixes to provide concrete with the following properties:
 - 1. Compressive Strength (28 Days): 4000 psi .
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 4 inches .
 - 4. Minimum cement content : 520 lb / cy
- D. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement according to ACI 301 requirements for concrete exposed to deicing chemicals.
- E. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus or minus 1.0 percent:

1. Air Content: 6.0 percent for 3/4-inch maximum aggregate.

- F. Coloring Agent: Add coloring agent to mix according to manufacturer's written instructions.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94 and ASTM C 1116.

1. When air temperature is between 85 deg F and 90 deg F , reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F , reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- B. Remove loose material from compacted subbase surface immediately before placing concrete.
- C. Aggregate Preparation -Prior to the concrete placing operation, all select exposed aggregate shall be washed thoroughly so that it is free of all dust, dirt, and clay particles. The aggregate shall be in a damp condition but without free surface water at the time of mixing. There shall be sufficient select exposed aggregate on hand to complete the topping course once it has started.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars" for placing and supporting reinforcement.
 1. Apply epoxy repair coating to uncoated or damaged surfaces of epoxy-coated reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.4 JOINTS

- A. General: Construct construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
 - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 - 1. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 - 2. Provide tie bars at sides of pavement strips where indicated.
 - 3. Use epoxy bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Isolation Joints (Expansion joints): Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 20 feet max., unless otherwise indicated.
 - 2. Terminate joint filler less than 1/2 inch from top finished surface
 - 3. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - 4. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Install precoated dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Contraction Joints(Control Joints): Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to the following radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 - a. Depth : as shown on drawings

- F. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

- 1. Radius: 1/4 inch

3.5 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.
- D. Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery, at Project site, or during placement.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- H. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.
- I. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength.
- J. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.

2. Do not use frozen materials or materials containing ice or snow.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- K. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover reinforcement steel with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, reinforcement steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
 4. Do not place concrete in case of rain.

3.6 CONCRETE FINISHING

- A. General: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.
- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.
1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture at ramp and step treads.

3.7 CONCRETE PROTECTION, CURING, AND SEALING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

- a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
- E. Sealer: Apply uniformly in two coats in continuous operations according to manufacturer's written instructions. Allow first coat to dry before applying second coat.
1. Begin sealing dry surface no sooner than 14 days after concrete placement.

3.8 PAVEMENT TOLERANCES

- A. Sealer: Apply uniformly in two coats in continuous operations according to manufacturer's written instructions. Allow first coat to dry before applying second coat.

3.9 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
1. Elevation: 1/4 inch.
 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 3. Surface: Gap below 10-foot- long, unlevelled straightedge not to exceed 1/4 inch.
 4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
 5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch
 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
 8. Joint Spacing: as shown on drawing.
 9. Contraction Joint Depth: Plus 3/8 inch, no minus.
 10. Joint Width: Plus 3/8 inch no minus.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
- B. Testing Services: Testing shall be performed according to the following requirements:

1. Sampling Fresh Concrete: Representative samples of fresh concrete shall be obtained according to ASTM C 172, except modified for slump to comply with ASTM C 94.
 2. Slump: ASTM C 143; one test at point of placement for each compressive-strength test, but not less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.
 3. Air Content: ASTM C 231, pressure method; one test for each compressive-strength test, but not less than one test for each day's pour of each type of air-entrained concrete.
 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
 5. Compression Test Specimens: ASTM C 31/C 31M; one set of four standard cylinders for each compressive-strength test, unless otherwise indicated. Cylinders shall be molded and stored for laboratory-cured test specimens unless field-cured test specimens are required.
 6. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd.. One specimen shall be tested at 7 days and two specimens at 28 days; one specimen shall be retained in reserve for later testing if required.
 7. When frequency of testing will provide fewer than five compressive-strength tests for a given class of concrete, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 8. When total quantity of a given class of concrete is less than 50 cu. yd., Landscape Architect may waive compressive-strength testing if adequate evidence of satisfactory strength is provided.
 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, current operations shall be evaluated and corrective procedures shall be provided for protecting and curing in-place concrete.
 10. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive compressive-strength test results equal or exceed specified compressive strength and no individual compressive-strength test result falls below specified compressive strength by more than 500 psi .
- C. Test results shall be reported in writing to Landscape Architect, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in pavement, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Landscape Architect but will not be used as the sole basis for approval or rejection.
- E. Additional Tests: Testing agency shall make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Landscape Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.11 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.
- B. Drill test cores where directed by Landscape Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 321373
CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes joint sealants for exterior pavement joints.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

1.4 SUBMITTALS

- A. Product data from manufacturers for each joint sealant product required.
 - 1. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.
- B. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.
- C. Certificates from manufacturers of joint sealants attesting that their products comply with specification requirements and are suitable for the use indicated.
- D. Qualification data complying with requirements specified in "Quality Assurance" article. Include list of completed projects with project names addresses, names of Landscape Architects and Owners, plus other information specified.
- E. Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
- F. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.
- G. Preconstruction field test reports indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.5 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
- B. **Single Source Responsibility for Joint Sealant Materials:** Obtain joint sealant materials from a single manufacturer for each different product required.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. **Environmental Conditions:** Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.
 - 2. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 deg F (4 deg C).
 - 3. When joint substrates are wet.
- B. **Joint Width Conditions:** Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- C. **Joint Substrate Conditions:** Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. **Compatibility:** Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. **Colors:** Provide color of exposed joint sealants to comply with the following:
 - 1. Provide selections made by Landscape Architect from manufacturer's full range of standard colors for products of type indicated.

2.2 URETHANE SEALANTS

- A. Multi-Component Modified Polyurethane Sealant: Provide manufacturer's standard, polyurethane-based elastomeric sealant, complying with either ASTM C 920 Type M Class 25; self-leveling, otherwise nonsag.

2.3 MISCELLANEOUS MATERIALS

- A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.
- D. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants

or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

END OF SECTION

**SECTION 321416
BRICK UNIT PAVING****PART 1 GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and Division 1 Specification Sections apply to this Section.

1.02 SECTION INCLUDES

- A. Work includes, but is not limited to, the following:
 - 1. Provide new paving and edging as indicated on the Drawings.
 - 2. Provide brick paving pads under trash receptacles and benches.
 - 3. Provide tactile pavers as indicated on the drawings

1.03 RELATED WORK

Division 31 – Site Concrete

Division 12 – Site Furnishings

1.04 REFERENCES

- A. Masonry work shall comply with ACI 530.1-95/ASCE 6-95 Specifications for Masonry Structures. Contractor shall maintain at least one copy of ACI 530.1-95/ASCE 6-95 on site.

1.05 QUALITY ASSURANCE

- A. The Contractor performing the work of this Section shall have at least ten (10) years experience in new masonry paving installation and shall have completed at least three (3) projects of similar scope and scale within the previous five (5) years.

1.06 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: submit manufacturers technical data for each manufactured product in the categories listed below, including certification that each product complies with specified requirements. Indicate that Installer has received copy of manufacturers' instructions. Product data shall include technical specification data, instructions for handling and use, and Material Safety Data Sheets.
 - 1. Paving materials
 - 2. Setting, pointing, and mortar materials.
 - 3. Cleaning products.

- C. Shop Drawings: The Contractor shall submit the following shop drawings for new masonry components. Shop drawings shall show unit dimensions, material indications, finish and fabrication information.
 - 1. Layouts drawings for paving at areas shown on drawings.
- D. Maintenance data to include in the Maintenance Manual specified in Division 1 Section "Project Closeout."
- E. Samples: submit samples for each color, grade, finish, type, and variety of paver consisting of:
 - 1. 12-inch-square units for paving.
 - 2. Include a minimum of three units in each set showing the full range of visual characteristics to be expected in the completed Work. Sample submittals will be reviewed for visual characteristics only. Compliance with all other requirements is the exclusive responsibility of the Contractor.
 - 3. Pointing mortar. Submit cured samples of pointing mortar to match that of the existing installation.
 - 4. Edging material as shown on drawing.

1.07 QUALITY ASSURANCE

- A. Single Source Responsibility for Paver: Obtain each color, grade, finish, type, and variety of paver from a single source with resources to provide materials of consistent quality in appearance and physical properties, including capacity to cut and finish material without delaying the progress of the paver installation.
- B. Single Source Responsibility for Setting Materials: Obtain mortar, grout, and dry-mix ingredients of uniform quality, and from one manufacturer for each cementitious and admixture component, and from one source or producer for each aggregate.
- C. Field-Constructed Mockups: Build mockups, of full thickness, to comply with the following requirements:
 - 1. Locate mockups on site to show the following:
 - a. Paver paving (each type) with related curbs, of a size not less than four (4) feet by four (4) feet and that clearly shows typical arrangements of pavers, and any special features for expansion joints and adjacent work. Provide range of color, texture, and workmanship to be expected in the completed work.
 - 2. Mockups are not to be part of actual work or incorporated into the final installation.
 - 3. Notify Landscape Architect 1 week in advance of each mockup construction.
 - 4. Obtain Landscape Architect's acceptance of mockup before proceeding with installation.
 - 5. Retain mockups during construction as a standard for judging installed paving and curbs. Do not alter, move, or destroy mockup until date of Final Acceptance.
 - a. When directed by Landscape Architect, demolish and remove mockup from Project site.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered to the site in original packaging, unopened, with manufacturer's name and product identification thereon. Cementitious materials shall be protected from

contamination by foreign matter and deterioration by moisture or temperature. Contaminated or deteriorated material shall not be used. Products stored longer than six months shall not be used.

1. Store pavers on protected wood skids or pallets, covered with nonstaining, water-protective membrane. Place skids and stack pavers to distribute weight evenly and to prevent pavers from breaking or cracking.
 2. Allow air to circulate around pavers.
 3. Store cementitious materials off ground, under cover, and in a dry location.
 4. Store aggregate materials covered and in a dry location.
- B. Masonry materials shall be stored in such a manner as not to interfere with the operation and daily maintenance of the facility. The Owner shall approve proposed material storage locations prior to the delivery of materials. Masonry materials shall not be stored inside the building.
- C. Transport and store new paver materials in such a manner as to minimize handling prior to installation. Units that are cracked, chipped or otherwise damaged during Handling and storage shall not be installed in the work.
- D. Handling: Handle paver to prevent chipping, breakage, soiling, or other damage. Do not use pinch or wrecking bars without protecting edges of paver with wood or other rigid materials. Lift with wide-belt type slings wherever possible; do not use wire ropes or ropes containing tar or other substances, which might cause staining. If required, use wood rollers and provide cushion at end of wood slides.

1.09 PROJECT CONDITIONS

- A. The Contractor is responsible for protecting existing adjacent materials during the execution of the work. Provide all necessary protection and work procedures to avoid damage to existing material assemblies not a part of the work of this Section.
- B. Provide visible barriers and / or warning tape around the perimeter of the work area.
- C. Waste material, packaging and other debris associated with the work shall be disposed of in accordance with local, state and federal environmental regulations. Remove debris from work from the site and at the completion of the work.
- D. The Contractor shall coordinate the work of this Section with other trades directly or indirectly affected by his work.
- E. The Contractor is responsible for protecting existing adjacent materials during the execution of the work. Provide all necessary protection and work procedures to avoid damage to existing material assemblies not a part of the work of this Section. At a minimum, the Contractor shall:
1. Protect existing masonry components to remain in place from abrasion and
 2. Prevent staining of pavers from other sources. Immediately remove such materials without damage to stonework.

- F. Cold Weather Protection:
 - 1. Do not set paver when air temperature or material temperature is below 50 deg F (10 deg C).
 - 2. Maintain minimum ambient temperatures of 50 deg F (10 deg C) during installation and for 7 days after completion, unless higher temperatures are required by fabricator or supplier instructions.
- G. Hot Weather Protection:
 - 1. Protect masonry in hot weather to prevent excessive evaporation of cooling beds. provide artificial shade, wind breaks, and use cooled materials as required.

1.10 COORDINATION

- A. The specialty nature of this project requires coordination of all trades necessary to complete the work. Construction of garden systems such as, but not limited to, structure, mechanical, and plumbing must be coordinated with the construction of fabrications and systems included in this Section.

1.11 SEQUENCING AND SCHEDULING

- A. Sequence paving installation with adjoining and related work to avoid damage and soiling during construction.

PART 2 PRODUCTS

2.01 GENERAL

- A. Comply with referenced standards and product requirements indicated and applicable to each paver type required.
- C. Cut pavers to produce pieces of thickness, size and shape indicated or required and within fabrication tolerances recommended by applicable paver association.
- D. Provide paver that is free of cracks, seams, and starts impairing structural integrity or function.

2.02 COMPACTED AGGREGATE BASE COURSE

- A. Comply with referenced standards in Earthwork Section and product requirements indicated and applicable to each paver type required.

2.03 PEDESTRIAN BRICK PAVING

- A. Type: Paver Brick Type I
 - 1. Manufacturer: Pine Hall
 - 2. Name: Paver Series- English Edge
 - 3. Size: 4" x 8" x 2 1/4"
 - 4. Colors: Type FIELD – Full English
Type A BAND - Red
Type B BAND- Rose

2.04 VEHICULAR BRICK PAVING

- A. Type: Paver Brick Type II
 - 1. Manufacturer: Pine Hall
 - 2. Name: Paver Series- English Edge
 - 3. Size: 4" x 8" x 2 3/4"
 - 4. Colors: Type FIELD – Full English
Type A BANDS - Red
Type B BANDS– Rose

2.05 PEDESTRIAN ADA TACTILE PAVERS

- A. Type: Paver with ADA truncated domes.
 - 1. Manufacturer: Hanover 717-637-0500
 - 2. Name: Detectable Warning Paver
 - 3. Size: 11 3/4" x 11 3/4" x 2"
 - 4. Colors: Charcoal

2.06 BRICK PAVER EDGING

- A. Edging Material – Durawall edge restraint with mortar bed.

2.07 DRY-MIX MATERIALS

- A. The dry-mix setting bed shall be placed under all paving types included in this Section and shall be screeded to a thickness of two (2) inches. Dry-mix joints between paving units shall be to the thickness noted on the Drawings. Dry mix shall be mixed in proportions by volume of one (1) part Portland Cement and three (3) parts Sand.
- B. Portland Cement: ASTM C-150, Type I, except Type III may be used for cold weather construction. Provide gray or white cement as needed to produce mortar color as required.
- D. Aggregate: ASTM C-144, clean masonry
- E. Filter Fabric – As shown on drawings

2.08 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I, non-staining and without air entrainment. Gray and white Portland cement may be combined as required to match the desired color.
- B. Hydrated Lime: ASTM C 207, Type S and Type N.
- C. Sand: ASTM C 144, free of clay, silt, soluble salts and organic matter and shall match the color and texture of the original mortar sand. The Contractor may request from the Landscape Architect a sample of the original mortar sand for use in color and texture matching.

- D. Water: Potable, free from injurious amounts of oil, soluble salts, alkali, acids, organic impurities and other deleterious substances which impair mortar strength or bonding.
- E. Admixtures: No admixtures are permitted.
- F. Pigments: Commercial iron-oxide, manganese dioxide, ultramarine blue, chromium oxide, or carbon black, suitably compounded for use in mortar mixes.
- G. Mortar Mixes:
Edging Mortar
Type N mortar shall be mixed in the following proportions:
1 part hydrated lime by volume
1 part Portland cement by volume
6 parts sand by volume

2.09 MIXING PROCEDURES

- A. General: Comply with referenced standards and with manufacturer's instructions related to mix proportions, mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality and with optimum performance characteristics.
 - 1. Do not add admixtures including air-entraining agents, accelerators, retarders, water-repellent agents, anti-freeze compounds, or calcium chloride, unless specifically approved in writing by the Landscape Architect.
 - 2. Combine and thoroughly mix cementitious materials, water and aggregates in a mechanical batch mixer; comply with referenced ASTM or ANSI standard, as applicable, for mixing time and water content.
- B. Mix mortars in accordance with ASTM C 270. Measure materials by volume or equivalent weight. Do not measure by shovel.
- C. Mix ingredients in a clean mechanical batch mixer for a minimum of 3 to 5 minutes.
- D. Mortar shall be pre-hydrated to reduce shrinkage. Lime and sand shall be thoroughly mixed, adding only enough water to produce a damp, unworkable mix, which will retain its form when pressed into a ball. Mortar shall stand in this condition for 1 hour. Add Portland cement and remainder of water and mix to provide a workable mortar consistency. Place mortar in final position within two hours of mixing. Do not re-temper or use partially hardened mortar.

2.10 PAVER ACCESSORIES

- B. Cleaner: Provide paver cleaners specifically formulated for paver types, finishes, and applications indicated as recommended by paver producer. Do not use cleaning agents containing acid or cleaning compounds and solutions containing caustic or harsh fillers, except where expressed by written approval from paver producer for paver type condition.

PART 3 EXECUTION**3.01 GENERAL**

- A. Examine areas and conditions under which work is to be performed. Notify the Landscape Architect of any conditions detrimental to the proper and timely completion of the work. Do not commence work until all unsatisfactory conditions have been adequately corrected.
- B. Coordinate removal and replacement of drains, furnishings, and any other components.

3.02 INSTALLATION, GENERAL

- A. Do not use paving units with chips, cracks, voids, and other defects which might be visible or cause straining in the finished work.
- B. Do not use new paver units with discolorations, unless approved as natural variations in color by the Landscape Architect.
- C. Cut paving units with motor-driven saw equipment designed to cut masonry with clean, sharp, and un-chipped edges. Cut units as required to provide pattern shown and to fit adjoining work neatly. Use full units without cutting wherever possible.
- D. Clean and wet paving units prior to installation, to ensure integrity of mortar and grout bonds.
- E. Set paving units in the patterns shown and with uniform joints of width indicated on the Drawings.
- F. Tolerances: Maintain surface plane for finished unit paving not exceeding a tolerance of 1/8" in ten (10) feet when tested with a ten (10) foot straight-edge.
- G. Landscape Architect reserves the right to reject paver units not conforming to structural or visual characteristics outlined in this Section.
 - a. Contractor shall replace rejected paver units at no additional cost to the Owner.
 - b. Replaced paver units are subject to approval by the Landscape Architect.

3.03 INSPECTION & PREPARATION

- A. Verify compacted subgrade is dry and ready to receive work of this Section. The finished sub-base course shall be approved before placement of any base course
- B. Verify gradients and elevations of base course are correct. The base course shall be spread in layers which when compacted shall not exceed 4".
- C. The base course shall be compacted uniformly to the thickness indicated on the Drawings. Compact base course to 100% of ASTM D-1557 maximum laboratory density.
- D. The final elevations of the compacted base courses shall allow for thickness of setting beds and for curbing units to maintain the finished curbing elevations as noted on the Drawings.

- E. After installation of new base slab and topping slab are complete, inspect substrate for integrity of the surface and the presence of protrusions and/or depressions that may affect the placement of the unit curbing. Remove protrusions flush with surrounding surfaces. Fill depressions level with surrounding surfaces.
- F. Verify slope of underlying slab to ensure adequate drainage away from the building line and toward designated drainage points.
- G. Coordinate removal and replacement of drains, furnishings and other components.
- H. Beginning of installation means acceptance of existing conditions.

3.04 INSTALLATION OF PAVING UNITS ON DRY SETTING BED

- A. Place dry-mix setting bed where shown. Screed loose to depth required to allow for setting and tamping of paving units. Make sure bed remains loose until paving units are set and compacted.
- B. Take adequate precautions to prevent dry-mix setting bed from getting wet before or during installation of paving.
- B. Do not disturb leveling course while placing paving units. Use block-splitter to cut edges when full size paving units cannot be used. Select pavers from 4 or more units to blend color and texture variations.

3.05 REPAIR AND CLEANING

- A. Defects: Remove paver units with the following defects:
 - 1. Broken, chipped, stained, or otherwise damaged pavers.
 - 2. Defective joints.
 - 3. Pavers and joints not matching approved samples and field constructed mockup.
 - 4. Paver not complying with requirements indicated.
- B. Replacement: Replace damaged paver with new units to match approved samples and field constructed mockups without evidence of replacement. Patching or hiding defects in paver will not be permitted.
- C. Cleaning: Clean paver installations after setting, pointing, grouting, and curing are complete. Use procedures recommended by paver producers for types of application. Repoint any open joints with mortar specified for the particular application.

3.06 PROTECTION

- A. Protect paver surfaces, edges, and corners from damage during subsequent construction activities, and from other materials that would cause stains.
- B. Provide protection for all finished stonework liable to physical injury or staining. Protection shall include, but is not limited to, non-staining approved coverings, and clean non-staining

wood boxing. All fastenings or hold-back devices shall be galvanized steel. Fastening to stonework in any manner is prohibited.

- C. Before inspection for Final Acceptance, remove protective covering and clean surfaces using procedures, products, and materials recommended by paver producers.
- D. Examine all work and repair all damage. In the event damage is irreparable, or soiled or stained surface cannot be cleaned, then remove and replace such items at no additional cost to Owner.
- E. Protect paver surfaces, edges, and corners from damage during subsequent construction activities, and from other materials that would cause stains.
- F. Provide protection for all finished stonework liable to physical injury or staining. Protection shall include, but is not limited to, non-staining approved coverings, and clean non-staining wood boxing. All fastenings or hold-back devices shall be galvanized steel. Fastening to stonework in any manner is prohibited.

END OF SECTION