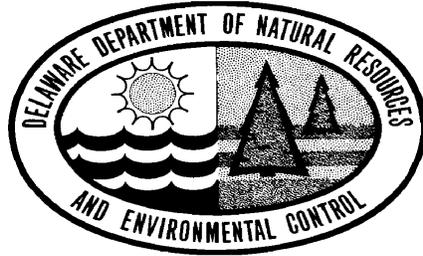


STATE OF DELAWARE

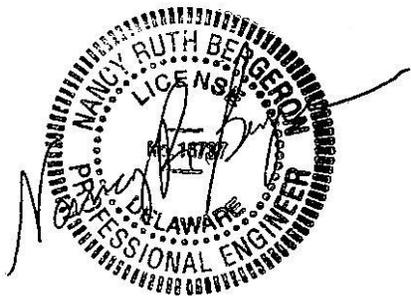
DEPARTMENT OF NATURAL RESOURCES  
AND ENVIRONMENTAL CONTROL

DIVISION OF PARKS AND RECREATION



CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT NO. 2013-CH-300

July 3, 2013



Appendix B: Helicap Summary Report and  
Buckling Report Prepared By: CHANCE  
Civil Construction and are provided for  
**INFORMATION ONLY.**

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**CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT NO. 2013-CH-300**

TABLE OF CONTENTS

Division 0- Bidding and Contract Requirements

00010	Invitation to Bid
00100	Instructions to Bidders
00300	Bid Form
00500	Agreement Form
00600	Bonds, Certificates and Administrative Forms
00700	General Conditions
00710	General Requirements
00800	Supplementary General Conditions
00850	Drawing Index

Division 1 - General Requirements

01005	Administrative Provisions
01010	Summary of Work
01020	Allowances <b>(Not Used)</b>
01026	Unit Prices
01030	Alternates
01040	Project Coordination
01050	Field Engineering
01090	Definitions & Standards
01200	Project Meetings
01300	Submittals
01400	Quality Control
01500	Construction Facilities and Temporary Controls
01600	Materials & Equipment
01650	Starting of Systems <b>(Not Used)</b>
01700	Contract Closeout
01720	Project Record Documents
017419	Construction Waste Management

**TECHNICAL SPECIFICATIONS**

T-401645	Superpave, Type C Hot-Mix, 160 Gyrations, PG 64-22
T-401648	Superpave, Type B Hot-Mix, 160 Gyrations, PG 64-22
T-618500	Helical Anchor Foundation

**DeIDOT STANDARD SPECIFICATIONS** (The following Delaware Department of Transportation Standard Specifications (latest revision) are included by reference only and are not reprinted in this Project Manual)

**Section 200000**

201	Clearing and Grubbing
202	Excavation and Embankment
207	Excavation and Backfilling for Structures
209	Borrow
212	Undercut Excavation

**Section 300000**

302	Graded Aggregate Base Course
-----	------------------------------

**Section 400000**

401	Hot-Mix, Hot-Laid Bituminous Concrete Pavement
-----	--

**Section 600000**

602	Concrete Structures
603	Bar Reinforcement
612	Reinforced Concrete Pipe
617	Flared End Section

**Section 700000**

712	RipRap
713	Geotextiles
741	Tree Removal
748	Pavement Markings

**Section 800000**

803	Water for Finishing Portland Cement Concrete
804	Fine Aggregate
805	Coarse Aggregate
812	Portland Cement Concrete
813	Grading Requirements Minimum and Maximum Percentages Passing
821	Graded Aggregates

**APPENDIX A**

Boring Location Plans  
Boring Logs

**APPENDEX B**

HeliCAP – v2.0 Summary Report (By: Chance Civil Construction)  
Boring B-1

HeliCAP – v2.0 Summary Report (By: Chance Civil Construction)  
Boring B-2

HeliCAP – v2.0 Summary Report (By: Chance Civil Construction)  
Boring B-3

HeliCAP – v2.0 Summary Report (By: Chance Civil Construction)  
Boring B-4

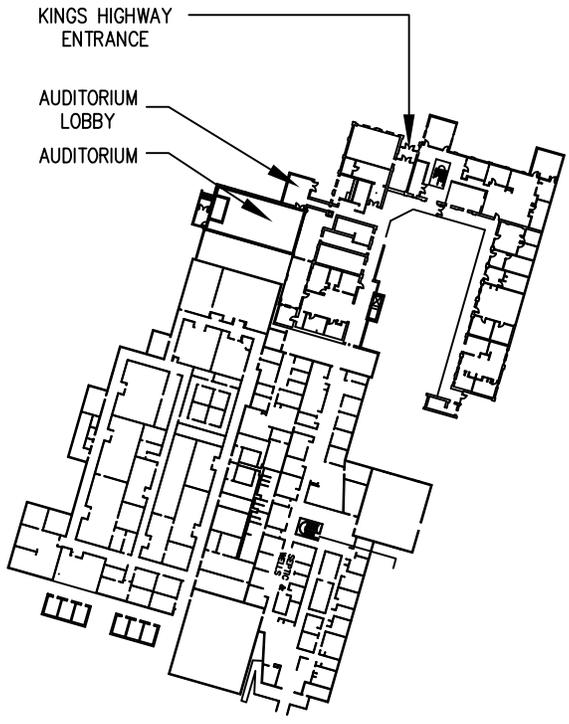
HeliCAP – v2.0 Summary Report (By: Chance Civil Construction)  
Boring B-5

HeliCAP – v2.0 Summary Report (By: Chance Civil Construction)  
Boring B-6

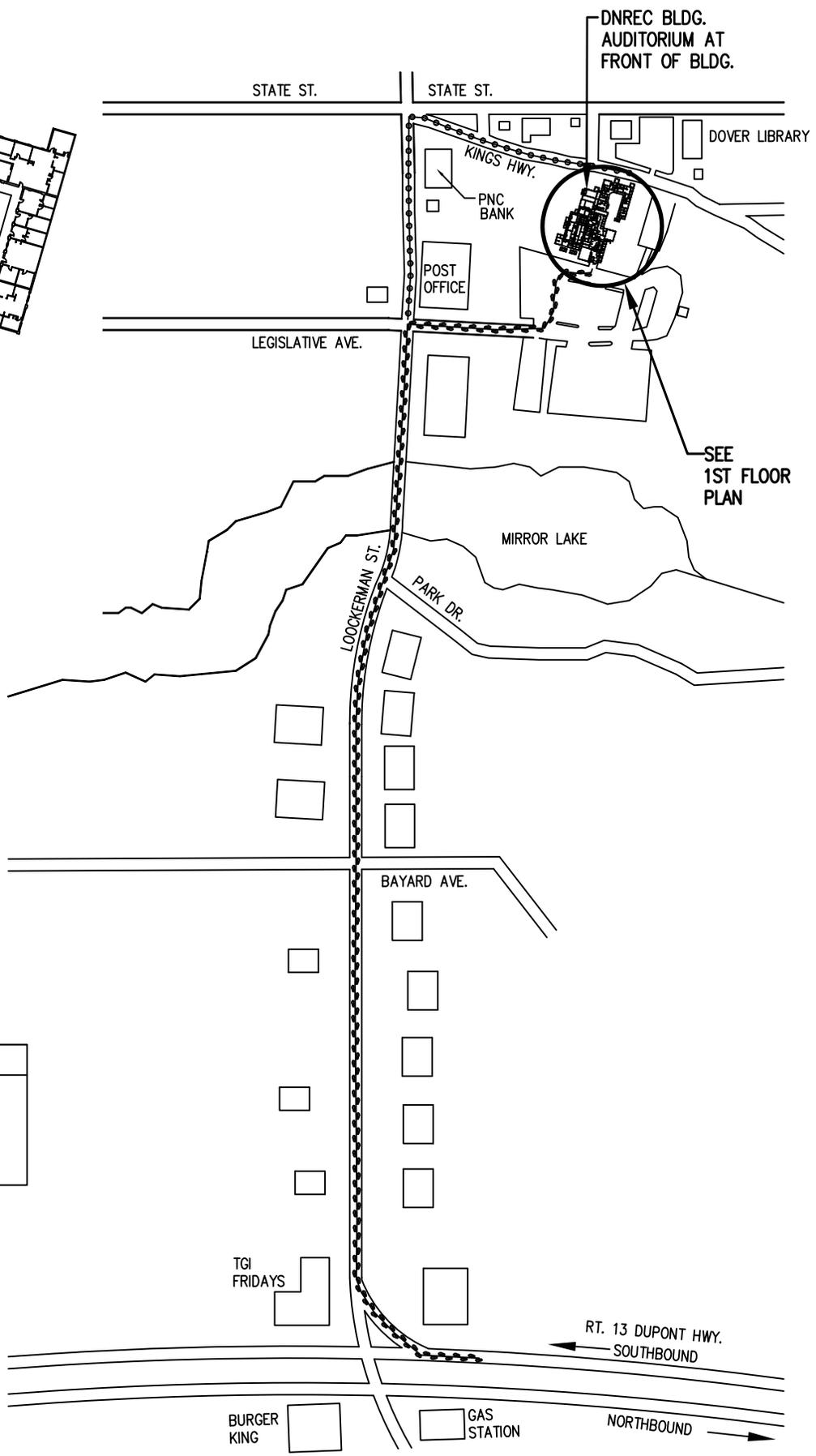
Buckling Analysis per Davisson Method (By: Chance Civil Construction)

END OF TABLE OF CONTENTS

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1ST FLOOR PLAN



LEGEND	
	ROUTE TO DNREC PARKING LOT FROM RT. 13 DUPONT HWY.
	ALTERNATE ROUTE TO STREET PARKING ( 2 HOUR LIMIT )

DNREC BUILDING (RICHARDSON & ROBBINS BUILDING) LOCATION MAP

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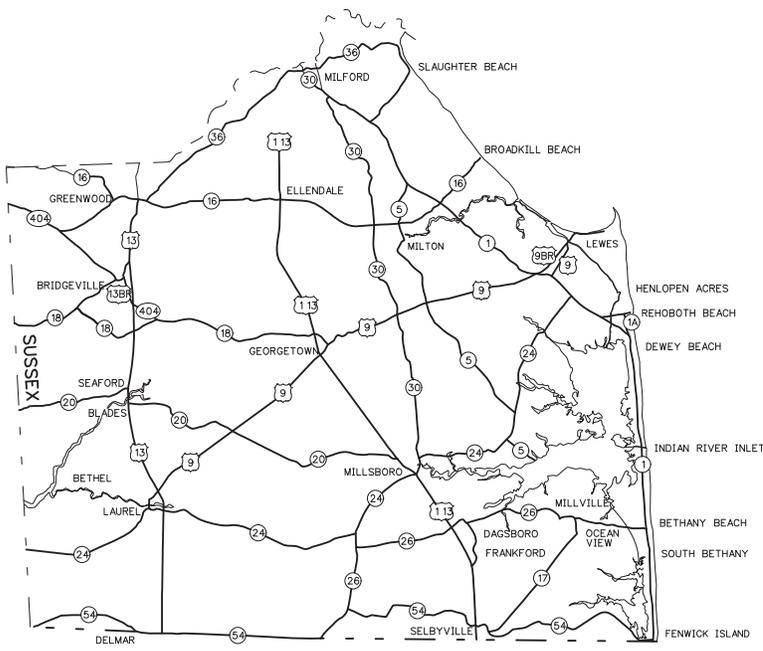
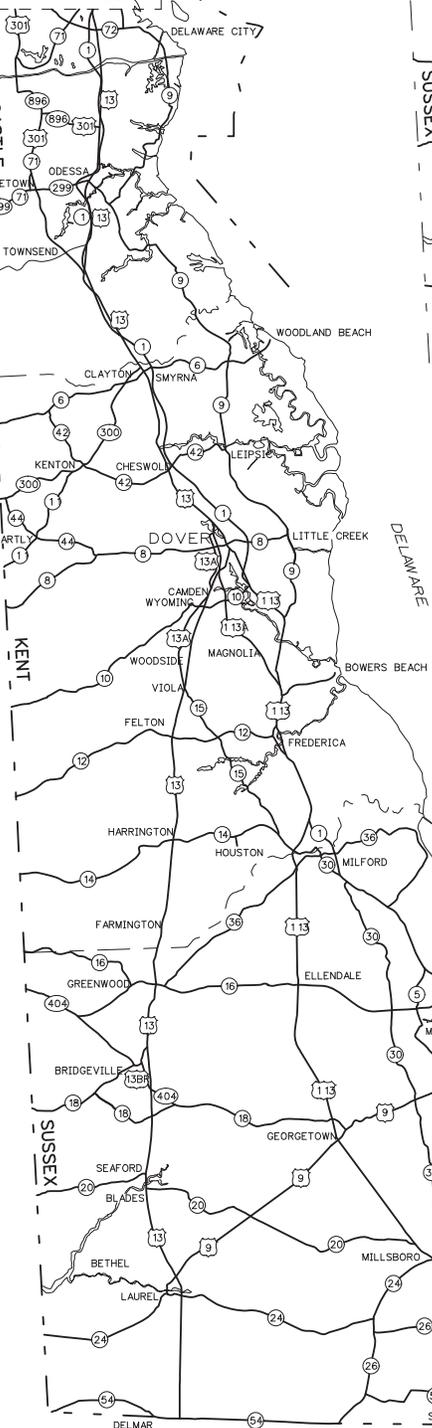
PENNSYLVANIA



NEW JERSEY

NEW CASTLE

MARYLAND



ATLANTIC OCEAN

PROJECT SITE

ATLANTIC OCEAN

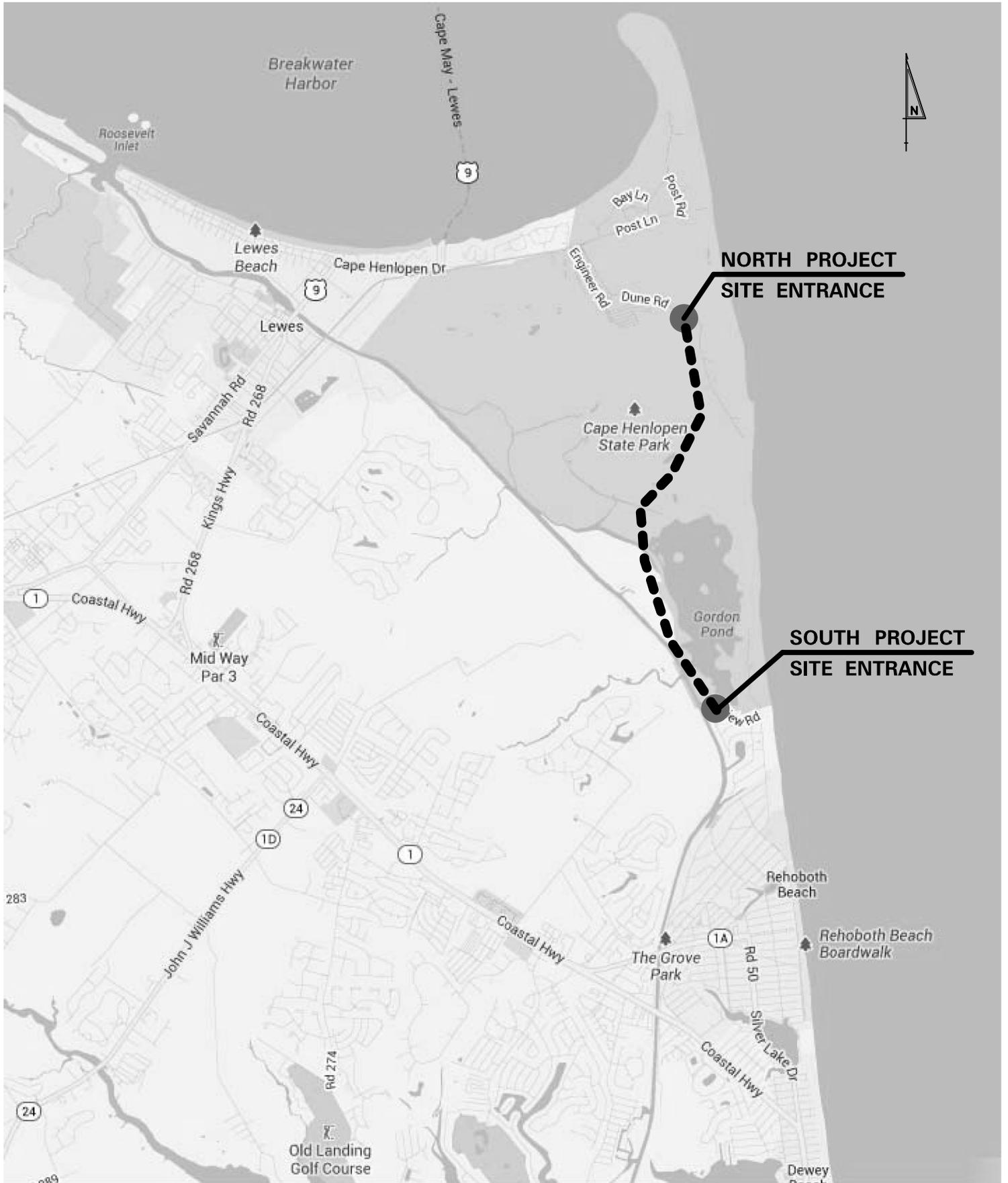


MARYLAND

STATE OF DELAWARE

# LOCATION MAP

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**NORTH PROJECT  
SITE ENTRANCE**

**SOUTH PROJECT  
SITE ENTRANCE**

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**Bid Opening Date: 08/28/13**

## SECTION 00010 - INVITATION TO BID

The Department of Natural Resources and Environmental Control, Division of Parks and Recreation, Office of Design and Development, will receive sealed bids in the Auditorium, DNREC Building, 89 Kings Highway, Dover, Delaware 19901, until 3:00 p.m., August 28, 2013, at which time they will be publicly opened for the following project: GORDONS POND TRAIL IMPROVEMENTS

This project includes a 10-foot wide stone shared use path, stone parking lot, pedestrian bridge supported by helical anchors, miscellaneous site amenities, and associated work.

A pre-bid meeting will be held at 10:00 a.m. August 13, 2013 at the project site within Cape Henlopen State Park, Lewes DE. The meeting location will be at the northern staging area across from the Herring Point Parking Lot, south of the Biden Center. Attendance at this meeting is mandatory for all prospective bidders and will be a pre-requisite for submitting a bid.

Proposals shall be placed in a sealed envelope clearly marked BID ENCLOSED, Contract No. 2013-CH-300 and addressed to:

Dept. of Natural Resources & Environmental Control  
Division of Parks and Recreation  
Office of Design and Development  
89 Kings Highway Dover, De 19901  
Attn: Wayne Rust Phone No. 302-739-9231

Prospective bidders may obtain a CD containing electronic copies of bidding documents upon payment of \$25.00 for each CD at the above address. Checks are to be made payable to the Division of Parks and Recreation. This payment is non-refundable and the documents need not be returned.

Each bid must be accompanied by a bid guarantee equivalent to ten percent (10%) of the amount of the base bid and all add alternates. The bid guarantee may be a certified check or a bid bond secured by a surety authorized to do business in Delaware. The bid guarantee shall be made payable to the Department of Natural Resources and Environmental Control.

A copy of the bidding documents can be reviewed at the Delaware Contractors Association, 527 Stanton Christiana Road, Newark, Delaware 19713.

The Department of Natural Resources and Environmental Control, Division of Parks and Recreation, Office of Design and Development reserves the right to waive irregularities and reject any or all bids, and to waive any informalities therein. The Department also reserves the right to extend the time and place for bid opening from that described in this advertisement, with not less than 2 calendar days notice by certified mail, facsimile transmission or other verifiable electronic means to those bidders who have obtained copies of the plans and specifications. An Equal Opportunity Employer.

Collin P. O'Mara, Secretary

END OF SECTION 00010 - INVITATION TO BID

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**SECTION 00100 - INSTRUCTIONS TO BIDDERS****TABLE OF ARTICLES**

1. GENERAL
2. BIDDER'S REPRESENTATIONS
3. BIDDING DOCUMENTS
4. BIDDING PROCEDURES
5. CONSIDERATION OF BIDS
6. POST-BID INFORMATION
7. PERFORMANCE BOND AND PAYMENT BOND
8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

**ARTICLE 1: GENERAL**

## 1.1 DEFINITIONS

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

1.2 STATE: The State of Delaware.

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

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

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

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

1.7 AGREEMENT: The form of the Agreement shall be AIA Document A101, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a STIPULATED SUM. In the case of conflict between the instructions contained therein and the General Requirements herein, these General Requirements shall prevail.

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

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

- 1.10 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the Bid opening which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.
- 1.11 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.
- 1.12 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.
- 1.13 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- 1.14 BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).
- 1.15 ALTERNATE BID (or ALTERNATE): An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
- 1.16 UNIT PRICE: An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.
- 1.17 SURETY: The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.
- 1.18 BIDDER'S DEPOSIT: The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.
- 1.19 CONTRACT: The written agreement covering the furnishing and delivery of material or work to be performed.
- 1.20 CONTRACTOR: Any individual, firm or corporation with whom a contract is made by the Agency.
- 1.21 SUBCONTRACTOR: An individual, partnership or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.
- 1.22 CONTRACT BOND: The approved form of security furnished by the Contractor and his surety as a guaranty of good faith on the part of the Contractor to execute the Work in accordance with the terms of the Contract.

## **ARTICLE 2: BIDDER'S REPRESENTATIONS**

### **2.1 PRE-BID MEETING**

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

- 2.2 By submitting a Bid, the Bidder represents that:
- 2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.
  - 2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.
  - 2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.
- 2.3 JOINT VENTURE REQUIREMENTS
- 2.3.1 For Public Works Contracts, each Joint Venturer shall be qualified and capable to complete the Work with their own forces.
  - 2.3.2 Included with the Bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Venturers involved.
  - 2.3.3 All required Bid Bonds, Performance Bonds, Material and Labor Payment Bonds must be executed by both Joint Venturers and be placed in both of their names.
  - 2.3.4 All required insurance certificates shall name both Joint Venturers.
  - 2.3.5 Both Joint Venturers shall sign the Bid Form and shall submit a valid Delaware Business License Number with their Bid or shall state that the process of application for a Delaware Business License has been initiated.
  - 2.3.6 Both Joint Venturers shall include their Federal E.I. Number with the Bid.
  - 2.3.7 In the event of a mandatory Pre-bid Meeting, each Joint Venturer shall have a representative in attendance.
  - 2.3.8 Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the State.
- 2.4 ASSIGNMENT OF ANTITRUST CLAIMS
- 2.4.1 As consideration for the award and execution by the Owner of this Contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this Contract.

### **ARTICLE 3: BIDDING DOCUMENTS**

- 3.1 COPIES OF BID DOCUMENTS
- 3.1.1 Prospective Bidders may obtain a CD containing electronic copies of the Bidding Documents at the Department of Natural Resources & Environmental Control, Division of Parks & Recreation, Office of Design and Development, 89 Kings Highway, Dover, Delaware 19901. The cost for these documents is listed in the Invitation to Bid. This payment is non-refundable and the documents need not be returned.

- 3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. Neither the issuing Agency nor the Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Architect immediately.
- 3.1.4 The Agency and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

### 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Architect.
- 3.2.2 Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Owner at least seven (7) days prior to the date for receipt of Bids. Interpretations, corrections and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.
- 3.2.3 The apparent silence of the Specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of Specification compliance will be the responsibility of the Bidder.
- 3.2.4 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all permits, labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.
- 3.2.5 The Owner will bear the costs for all impact and user fees associated with the Project.

### 3.3 SUBSTITUTIONS

- 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.
- 3.3.2 Requests for substitutions shall be made in writing to, and received by, the Owner before 4:30 p.m., at least ten (10) days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due to the substitution, and any other information necessary for an evaluation. (Refer to Section

01600 for additional requirements) The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.

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

3.3.4 The Architect shall have no obligation to consider any substitutions after the time specified in 3.3.2 of this Section.

#### 3.4 ADDENDA

3.4.1 Addenda will be sent by mail, fax, or other verifiable electronic means to all who are known by the Architect to have received a complete set of the Bidding Documents.

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

3.4.3 No Addenda will be issued later than 4 days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of Bids.

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

### ARTICLE 4: BIDDING PROCEDURES

#### 4.1 PREPARATION OF BIDS

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

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

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

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

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

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

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

4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement as to whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity,

and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.

- 4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.
- 4.1.10 In the construction of all Public Works Projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.

#### 4.2 BID SECURITY

- 4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the Agency for the benefit of the Agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the Agency, or a security of the bidder assigned to the Agency, for a sum equal to at least 10% of the base bid plus all add alternates, or in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be the standard Office of Management and Budget (OMB) form (attached).
- 4.2.2 The Agency has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.
- 4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within 20 days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.

#### 4.3 SUBCONTRACTOR LIST

- 4.3.1 As required by Delaware Code, Title 29, section 6962(d)(10)b, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE. The List of Sub-Contractor categories, established at, or subsequent to, the Pre-Bid Meeting, will be issued by the Owner and mailed to all prospective bidders who have obtained bidding documents. A Bid will be considered non-responsive unless the completed list is included.
- 4.3.2 Provide the Name and Address for each listed Subcontractor. Addresses by City, Town or Locality, plus State, will be acceptable.
- 4.3.3 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and be able to document their capability to act as Subcontractor in that category in accordance with this law.

#### 4.4 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

4.4.1 During the performance of this Contract, the Contractor agrees as follows:

- .1 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.
- .2 The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that "all qualified applicants will receive consideration for employment without regard to race, creed, color, sex or national origin."

#### 4.5 PREVAILING WAGE REQUIREMENT

- 4.5.1 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.
- 4.5.2 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.
- 4.5.3 The employer shall pay all mechanics and labors employed directly upon the site of work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.
- 4.5.4 The scale of the wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work.
- 4.5.5 Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

#### 4.6 SUBMISSION OF BIDS

- 4.6.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, contract number, bid opening date and time, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the

face thereof. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.

- 4.6.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked "LATE BID" and returned.
- 4.6.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.
- 4.6.4 Oral, telephonic or telegraphic Bids are invalid and will not receive consideration.
- 4.6.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.

#### 4.7 MODIFICATION OR WITHDRAW OF BIDS

- 4.7.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.
- 4.7.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.
- 4.7.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a thirty (30) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 30 days after the date of the Bid opening.

### ARTICLE 5: CONSIDERATION OF BIDS

#### 5.1 OPENING/REJECTION OF BIDS

- 5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.
- 5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.
- 5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar days of the Bid opening.

#### 5.2 COMPARISON OF BIDS

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

- 5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.
- 5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.
- 5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.
- 5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

### 5.3 DISQUALIFICATION OF BIDDERS

- 5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:
  - .1 The Bidder's financial, physical, personnel or other resources including Subcontracts;
  - .2 The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication or admission of violations of the Prevailing Wage Laws in Delaware or any other state;
  - .3 The Bidder's written safety plan;
  - .4 Whether the Bidder is qualified legally to contract with the State;
  - .5 Whether the Bidder supplied all necessary information concerning its responsibility; and,
  - .6 Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the invitation to bid and is otherwise in conformity with State and/or Federal law.
- 5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of the determination shall be sent to the affected Bidder within five (5) working days of said determination.
- 5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.
  - .1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.
  - .2 Evidence of collusion among Bidders.
  - .3 Unsatisfactory performance record as evidenced by past experience.

- .4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.
- .5 If there are any unauthorized additions, interlineation, conditional or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite or ambiguous as to its meaning.
- .6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.
- .7 If any exceptions or qualifications of the Bid are noted on the Bid Form.

#### 5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT

- 5.4.1 A formal Contract shall be executed with the successful Bidder within twenty (20) calendar days after the award of the Contract.
- 5.4.2 Per Section 6962(d)(13) a., Title 29, Delaware Code, The contracting agency shall award any Public Works Contract within thirty (30) days of the bid opening to the lowest responsive and responsible Bidder, provided the amount of the low bid does not exceed the amount of funds available to the Owner to finance the contract, unless the Agency elects to award on the basis of best value, in which case the election to award on the basis of best value shall be stated in the invitation to bid.
- 5.4.3 Each Bid on any Public Works Contract must be deemed responsive by the Agency to be considered for award. A responsive Bid shall conform in all material respects to the requirements and criteria set forth in the Contract Documents and specifications.
- 5.4.4 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.
- 5.4.5 The successful Bidder shall execute a formal Contract, submit the required Insurance Certificate, and furnish good and sufficient Bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within twenty (20) days of official notice of contract award. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the Contract. Bonds shall remain in effect for a period of two years after the date of Substantial Completion.
- 5.4.6 If the successful Bidder fails to execute the required Contract and Bond, as aforesaid, within twenty (20) calendar days after the date of official Notice of the Award of the Contract, their Bid Guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or readvertised, as the Agency may decide.
- 5.4.7 Prior to receiving an award, the successful Bidder shall furnish to the Agency proof of State of Delaware Business Licensure. If the Bidder does not currently have a Business License, they may obtain an application by writing to: Division of Revenue, Carvel State Office Building, 820 French Street, Wilmington, DE 19899. A copy of the letter written to the Division of Revenue, sent with your Bid will be adequate proof for your firm to be considered for award until such time as you receive your license.

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

**ARTICLE 6: POST-BID INFORMATION**

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

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

6.2 BUSINESS DESIGNATION FORM

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

**ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND**

7.1 BOND REQUIREMENTS

- 7.1.1 The cost of furnishing the required Bonds, that are stipulated in the Bidding Documents, shall be included in the Bid.
- 7.1.2 If the Bidder is required by the Agency to secure a Bond from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.
- 7.1.3 The Performance and Payment Bond forms used shall be the standard Office of Management and Budget (OMB) forms (attached).

7.2 TIME OF DELIVERY AND FORM OF BONDS

- 7.2.1 The Bonds shall be dated on or after the date of the Contract.
- 7.2.2 The Bidder shall require the attorney-in-fact who executes the required Bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

**ARTICLE 8: FORM OF AGREEMENT BETWEEN OWNER (AGENCY) AND CONTRACTOR**

- 8.1 Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum.

END OF SECTION 00100 - INSTRUCTIONS TO BIDDERS

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CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

For Bids Due: August 22, 2013

To: Dept. of Natural Resources & Environmental Control  
Division of Parks & Recreation  
Office of Design and Development  
89 Kings Highway Dover, DE 19901

Name of Bidder: \_\_\_\_\_

Delaware Business License No.: \_\_\_\_\_

Employers Identification No.: \_\_\_\_\_

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, that he has familiarized himself with all conditions affecting the prosecution of the work including the availability of materials and labor, 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:

**LUMP SUM BID :**

\$ \_\_\_\_\_  
**(Words)**

\$ \_\_\_\_\_  
**(Figures)**



CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

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

I/We agree that any changes in the scope of the work extra to the Contract requirements will be paid for pursuant to AIA Document A201, Article 7.

The bid shall remain valid and cannot be withdrawn for a period of thirty (30) days from the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

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

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

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work of the Contract in accordance with the Construction Schedule and/or completion dates included with the 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.

I/We agree that all applicable Federal, State, and local taxes and cost of required insurance are included in the proposed prices.

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. This Proposal shall be attached as Exhibit A and made part of the Agreement executed by the Bidder.

I/We are licensed, or have initiated the license application as required by Section 2502, Chapter 25, Title 30, of the Delaware Code.

CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

I am / We are (Check one):

\_\_\_\_\_ **An Individual.**

\_\_\_\_\_ **A Partnership** duly recorded in the Prothonotary's Office in \_\_\_\_\_ County pursuant to Title 6 Delaware Code, Chapter 31.

\_\_\_\_\_ **A Corporation** registered with the State of Delaware pursuant to Title 8 Delaware Code.

By \_\_\_\_\_  
(Individual's / General Partner's / Corporate Name)

Trading as \_\_\_\_\_

State of Corporation \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Witness:** \_\_\_\_\_ **By:** \_\_\_\_\_  
(Authorized Signature)

(CORPORATE SEAL, if applicable) \_\_\_\_\_  
Typed or printed name

\_\_\_\_\_  
(Title)

**Date:** \_\_\_\_\_

CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

STATE OF \_\_\_\_\_)

\_\_\_\_\_ COUNTY) ss,

I hereby certify that before me this \_\_\_\_\_ day of \_\_\_\_\_,  
20 \_\_\_\_\_, personally appeared \_\_\_\_\_, in  
his official capacity as President/Principal, and acknowledged the aforesaid before me.

Given under by hand and notarial seal.

\_\_\_\_\_  
Notary Public

**ATTACHMENTS**

Non-Collusion Statement  
Sub-Contractor List  
Bid Security (certified check or bid bond issued on mandatory form)  
(Others as Required by Project Manual)

CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

**NON-COLLUSION STATEMENT**

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date to the Department of Natural Resources and Environmental Control, Division of Parks and Recreation.

All the terms and conditions of Contract No. \_\_\_\_\_ have been thoroughly examined and understood.

**Name of Bidder:** \_\_\_\_\_

**Authorized Representative  
(Typed or Printed):** \_\_\_\_\_

**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.**

CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

**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 (City and State) 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.

The bid may be considered non-responsive if this form is incomplete.

**Subcontractor Category**

**Subcontractor Information**

(Address: City & State- no street address required)

- |          |                |
|----------|----------------|
| 1. _____ | Name: _____    |
|          | Address: _____ |
| 2. _____ | Name: _____    |
|          | Address: _____ |
| 3. _____ | Name: _____    |
|          | Address: _____ |
| 4. _____ | Name: _____    |
|          | Address: _____ |
| 5. _____ | Name: _____    |
|          | Address: _____ |

**SAMPLE**

CAPE HENLOPEN STATE PARK  
GORDONS POND TRAIL IMPROVEMENTS  
CONTRACT No. 2013-CH-300

**BID FORM**

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**AGREEMENT FORM A101-2007**

The following supplements modify the "Standard Form of Agreement Between Owner and Contractor," AIA Document A101-2007. Where a portion of the Standard Form of Agreement is modified or deleted by the following, the unaltered portions of the Standard Form of Agreement shall remain in effect.

**ARTICLE 5: PAYMENTS**

5.1 PROGRESS PAYMENTS

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

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

**ARTICLE 6: DISPUTE RESOLUTION**

6.2 BINDING DISPUTE RESOLUTION

Check "Other" – and add the following sentence:

"Any remedies available in law or in equity."

**ARTICLE 8: MISCELLANEOUS PROVISIONS**

8.2 Insert the following:

"Payments are due 30 days after receipt of a valid Application for Payment. After that 30 day period, interest may be charged at the rate of 1% per month not to exceed 12% per annum."

8.5 Delete paragraph 8.5 in its entirety and replace with the following:

"The Contractor's representative shall not be changed without ten days written notice to the Owner."

END OF SECTION 00500 - AGREEMENT FORM

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STATE OF DELAWARE  
OFFICE OF MANAGEMENT AND BUDGET

**PERFORMANCE BOND**

Bond Number: \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that we, \_\_\_\_\_, as principal ("**Principal**"), and \_\_\_\_\_, a \_\_\_\_\_ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the State of Delaware, Department of Natural Resources and Environmental Control, Division of Parks and Recreation ("**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, administrators, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

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

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

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

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

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

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

PRINCIPAL

Name: \_\_\_\_\_

Witness or Attest: Address: \_\_\_\_\_

\_\_\_\_\_  
Name:  
  
(Corporate Seal)

By: \_\_\_\_\_(SEAL)  
Name:  
Title:

SURETY

Name: \_\_\_\_\_

Witness or Attest: Address: \_\_\_\_\_

\_\_\_\_\_  
Name:  
  
(Corporate Seal)

By: \_\_\_\_\_(SEAL)  
Name:  
Title:

STATE OF DELAWARE  
OFFICE OF MANAGEMENT AND BUDGET

**PAYMENT BOND**

Bond Number: \_\_\_\_\_

KNOW ALL PERSONS BY THESE PRESENTS, that we, \_\_\_\_\_, as principal ("**Principal**"), and \_\_\_\_\_, a \_\_\_\_\_ corporation, legally authorized to do business in the State of Delaware, as surety ("**Surety**"), are held and firmly bound unto the State of Delaware, Department of Natural Resources and Environmental Control, Division of Parks and Recreation ("**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, administrators, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

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

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

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

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

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

PRINCIPAL

Name: \_\_\_\_\_

Witness or Attest: Address: \_\_\_\_\_

\_\_\_\_\_  
Name:  
  
(Corporate Seal)

By: \_\_\_\_\_(SEAL)  
Name:  
Title:

SURETY

Name: \_\_\_\_\_

Witness or Attest: Address: \_\_\_\_\_

\_\_\_\_\_  
Name:  
  
(Corporate Seal)

By: \_\_\_\_\_(SEAL)  
Name:  
Title:

**SECTION 00600 - BONDS, CERTIFICATES AND ADMINISTRATIVE FORMS****TABLE OF ARTICLES**

1. Related Work Specified Elsewhere
2. Forms Submitted By Contractor
3. Forms Prepared by Owner

**ARTICLE 1: Related Work Specified Elsewhere:**

Section 00100 Instructions to Bidders  
Section 00300 Bid Form  
Section 00500 Agreement Form  
Section 00700 General Conditions  
Section 00710 General Requirements  
Section 00800 Supplementary General Conditions

**ARTICLE 2: Forms Submitted By Contractor:**

- 2.1 Reference is made throughout this Project Manual to a number of standard forms which the Contractor is required to submit to the Owner prior to and during the execution of Work of this Project.
- 2.2 The Contractor shall be responsible for obtaining and submitting the following forms to the Owner when the forms are completed as specified.
- 2.3 Prior to commencing work, submit forms:
  - .1 AIA Document G715 "Acord Certificate of Insurance" (Latest Edition).
  - .2 "Performance Bond" and "Payment Bond" (Samples enclosed) Use of these forms is mandatory.
- 2.4 During the execution of the work, as appropriate, and prior to final payment, submit forms:
  - .1 AIA Document G702 "Application and Certificate for Payment".
  - .2 AIA Document G703 "Continuation Sheet" for G702, "Application and Certificate for Payment".
  - .3 AIA Document G706 "Contractor's Affidavit of Payment of Debts and Claims" (Latest Edition).
  - .4 AIA Document G706A "Contractor's Affidavit of Release of Liens" (Latest Edition).
  - .5 AIA Document G707 "Consent of Surety to Final Payment" (Latest Edition).
  - .6 AIA Document G707A "Consent of Surety to Reduction in or Partial Release of Retainage" (Latest Edition).
  - .7 Payroll Report (Sample Enclosed).
- 2.5 The forms specified above are available for examination in the Owner's office by prospective Bidders. Failure to examine the specified documents and to make allowances for them in his Bid,

shall not relieve the Contractor from using the forms and complying with their requirements.

**ARTICLE 3: Forms Prepared by Owner:**

- 3.1 The Owner shall prepare the following standard forms, as appropriate:
- .1 AIA Document A101-2007 "Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum".
  - .2 AIA Document G701 "Change Order" (Latest Edition).
  - .3 AIA Document G704 "Certificate of Substantial Completion" (Latest Edition).
  - .4 AIA Document G714 "Construction Change Directive" (Latest Edition).

END OF SECTION 00600 – BONDS CERTIFICATES AND ADMINISTRATIVE FORMS



DATE \_\_\_\_\_

I, \_\_\_\_\_ (Name of signatory party) \_\_\_\_\_ (Title)

do hereby state:

1. That I pay or supervise the payment of persons employed by

\_\_\_\_\_, \_\_\_\_\_ on the \_\_\_\_\_

(Contractor or Subcontractor)

(public project)

that during the payroll period commencing on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ and ending on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ all persons employed on said project

\_\_\_\_\_ have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of the contractor or subcontractor from the full weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in the prevailing wage regulations of the State of Delaware.

2. That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work performed.

3. That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a state apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, and that the worksite ratio of apprentices to mechanics does not exceed the ratio permitted by the prevailing wage regulations of the State of Delaware.

**An employer who fails to submit sworn payroll information to the Department of Labor weekly shall be subject to fines of \$1,000.00 and \$5,000.00 for each violation.**

List only those fringe benefits:

For which the employer has paid, and Which have been used to offset the full prevailing wage rate.

(See Delaware Prevailing Wage Regulations for explanation of how hourly value of benefits is to be computed.)

HOURLY COST OF BENEFITS	
(List in same order shown on front of record)	
Employee	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

I hereby certify that the foregoing information is true and correct to the best of my knowledge and belief. I realize that making a false statement under oath is a crime in State of Delaware

Signature \_\_\_\_\_

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

SWORN TO AND SUBSCRIBED BEFORE ME, A NOTARY PUBLIC,

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, A.D. 20\_\_\_\_\_

\_\_\_\_\_  
Notary Public

STATE OF DELAWARE  
DEPARTMENT OF LABOR  
DIVISION OF INDUSTRIAL AFFAIRS  
OFFICE OF LABOR LAW ENFORCEMENT  
PHONE: (302) 451-3423

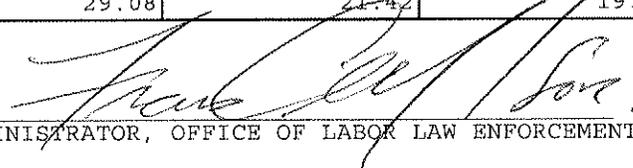
Mailing Address:  
225 CORPORATE BOULEVARD  
SUITE 104  
NEWARK, DE 19702

Located at:  
225 CORPORATE BOULEVARD  
SUITE 104  
NEWARK, DE 19702

PREVAILING WAGES FOR HIGHWAY CONSTRUCTION EFFECTIVE MARCH 15, 2013

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
BRICKLAYERS	46.83	46.83	14.51
CARPENTERS	42.64	50.06	39.82
CEMENT FINISHERS	28.79	26.13	23.29
ELECTRICAL LINE WORKERS	22.50	43.42	21.25
ELECTRICIANS	60.60	60.60	60.60
IRON WORKERS	42.20	23.87	25.35
LABORERS	28.95	26.97	26.82
MILLWRIGHTS	16.11	15.63	13.49
PAINTERS	58.07	58.07	58.07
PILEDRIVERS	66.42	23.75	26.95
POWER EQUIPMENT OPERATORS	37.00	29.47	27.16
SHEET METAL WORKERS	22.75	20.31	18.40
TRUCK DRIVERS	29.08	21.42	19.13

CERTIFIED: 5/31/13

BY: 

ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 451-3423.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: 2013-CH-300 Cape Henlopen St. Park, Gordon Pond Trail Improvements, Sussex County

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## **SECTION 00700 - GENERAL CONDITIONS**

### General Conditions:

The General Conditions of this Contract are as stated in The American Institute of Architects' AIA Document A201 (2007 Edition) entitled General Conditions of the Contract for Construction and is part of this Project Manual as if herein written in full.

Copies of the Document are available through the Owner.

END OF SECTION 00700 – GENERAL CONDITIONS

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**SECTION 00710 - GENERAL REQUIREMENTS**

The following GENERAL REQUIREMENTS supplement AIA Document A201 (2007 Edition). In the event of conflict or discrepancies among the Contract Documents, the Documents prepared by the State of Delaware, Division of Parks and Recreation shall take precedence over all other documents.

**TABLE OF ARTICLES**

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ARCHITECT
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

**ARTICLE 1: GENERAL PROVISIONS****1.1 CONTRACT DOCUMENTS**

1.1.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all. Performance by the Contractor shall be required to an extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.1.2 Work including material purchases shall not begin until the Contractor is in receipt of a bonafide State of Delaware Purchase Order. Any work performed or material purchases prior to the issuance of the Purchase Order is done at the Contractor's own risk and cost.

**1.2 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS**

1.2.1 For Public Works Projects financed in whole or in part by State appropriation, the Contractor agrees that during the performance of this Contract:

- .1 The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sexual orientation, gender identity or national origin. The Contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following:

employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting Agency setting forth this nondiscrimination clause.

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

## **ARTICLE 2: OWNER**

(NO ADDITIONAL GENERAL REQUIREMENTS – SEE SECTION 00800, SUPPLEMENTARY GENERAL CONDITIONS)

## **ARTICLE 3: CONTRACTOR**

- 3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the Work, furnish to the Owner a complete schedule of values on the various items comprising the Work.
- 3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own Contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the Work will not be delayed by failure of materials to arrive on time.
- 3.3 Before commencing any work or construction, the General Contractor is to consult with the Owner as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.
- 3.4 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions.
- 3.5 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the Work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.
- 3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.
- 3.8 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The

Contractor shall promptly notify the Owner if the Drawings and Specifications are observed to be at variance therewith.

3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.

3.10 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.

### 3.11 STATE LICENSE AND TAX REQUIREMENTS

3.11.1 In conformance with Chapter 25, Title 30, Section 2502, any person desiring to engage in business in the State of Delaware shall obtain a license upon making application to the Division of Revenue. This license must be obtained and proof of license compliance must be made prior to, or in conjunction with, the execution of a contract to such person. In the case of contracts in excess of \$50,000 which are competitively bid, such person shall have initiated the license application procedure required by this subsection with the Division of Revenue prior to, or in conjunction with, the submission of a bid on a contract, or, in the case of a Subcontractor, prior to the submission of a bid by the General Contractor.

3.11.2 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, the Contractor "shall furnish the 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."

3.11.3 The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.

## ARTICLE 4: ARCHITECT

### 4.1 CONTRACT SURETY

#### 4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.

4.1.3 Contents of Performance Bonds – The bond shall be in the form approved by the Office of Management and Budget. The bond shall be conditioned upon the faithful compliance and performance by the successful Bidder of each and every term and condition of the Contract and the proposal, Plans, Specifications, and Bid Documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid Documents and the Specifications, including the payment in full to every person furnishing materiel or performing labor in the performance of the Contract, of all sums of money due the person for such labor and materiel. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the State and the Agency from all costs, damages

and expenses growing out of or by reason of the Contract in accordance with the Contract.)

- 4.1.4 Invoking a Performance Bond – The Agency may, when it considers that the interest of the State so requires, cause judgment to be confessed upon the bond.
- 4.1.5 Within twenty (20) days after the date of notice of award of Contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate. In the event a change order is issued which affects total contract price issued, the Contractor shall notify the Surety of the change in contract price and shall show proof of approval to the Agency.
- 4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his Work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand proof that the parties signing the bonds are duly authorized to do so.

#### 4.2 FAILURE TO COMPLY WITH CONTRACT

- 4.2.1 If any firm entering into a contract with the State, or Agency neglects or refuses to perform or fails to comply with the terms thereof, the Agency which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond. Nothing herein shall preclude the Agency from pursuing additional remedies as otherwise provided by law.

#### 4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY

- 4.3.1 In addition to the bond requirements stated in the Bid Documents, each successful Bidder shall purchase adequate insurance for the performance of the Contract and, by submission of a Bid, agrees to indemnify and save harmless and to defend all legal or equitable actions brought against the State, any Agency, officer and/or employee of the State, for and from all claims of liability which is or may be the result of the successful Bidder's actions during the performance of the Contract.
- 4.3.2 The purchase or nonpurchase of such insurance or the involvement of the successful Bidder in any legal or equitable defense of any action brought against the successful Bidder based upon work performed pursuant to the Contract will not waive any defense which the State, its agencies and their respective officers, employees and agents might otherwise have against such claims, specifically including the defense of sovereign immunity, where applicable, and by the terms of this section, the State and all agencies, officers and employees thereof shall not be

financially responsible for the consequences of work performed, pursuant to said contract.

#### 4.4 RIGHT TO AUDIT RECORDS

4.4.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

4.4.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

### ARTICLE 5: SUBCONTRACTORS

#### 5.1 SUBCONTRACTING REQUIREMENTS

5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:

.1 A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the Subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.

.2 A Bid will not be accepted nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:

.1 It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;

.2 That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and

.3 That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.

5.1.2 The decision of the awarding Agency as to whether a Bidder who lists itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding Agency or its employees or officers because of its decision in this regard.

5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

- .1 Is unqualified to perform the work required;
- .2 Has failed to execute a timely reasonable Subcontract;
- .3 Has defaulted in the performance on the portion of the work covered by the Subcontract; or
- .4 Is no longer engaged in such business.

## 5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount\*). The Agency may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the Contractor shall be reverted to the State.

\*one (1) percent of contract amount not to exceed \$10,000

## 5.3 ASBESTOS ABATEMENT

5.3.1 The selection of any Contractor to perform asbestos abatement for State-funded projects shall be approved by the Office of Management and Budget, Division of Facilities Management pursuant to Chapter 78 of Title 16.

## 5.4 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED

5.4.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.

## 5.5 CONTRACT PERFORMANCE

5.5.1 If any firm entering into a Public Works Contract neglects or refuses to perform or fails to comply with its terms, the Agency may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

## **ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

6.1 The Owner reserves the right to simultaneously perform other construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other projects at the same site.

- 6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities, and shall connect and coordinate their activities with other forces as required by the Contract Documents.

#### **ARTICLE 7: CHANGES IN THE WORK**

- 7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract Completion Date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Architect, as the duly authorized agent, the Contractor and the Owner.
- 7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.
- 7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the 'DPE' wages required and the "invoice price" of the materials/equipment needed.
- 7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes direct salary plus customary fringe benefits (prevailing wage rates) and documented statutory costs such as workman's compensation insurance, Social Security/Medicare, and unemployment insurance (a maximum multiplier of 1.35 times DPE).
- 7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.
- 7.3.3 In addition to the above, the General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces. For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on Change Order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven and one half percent (7.5%) on the subcontractors work. These mark-ups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc. No markup is permitted on the work of the subcontractor's subcontractor. No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the Change Order.
- 7.3.4 Additional work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, except for emergencies as outlined in AIA Document A201, Paragraph 10.4 EMERGENCIES.

**ARTICLE 8: TIME**

- 8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.
- 8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.
- 8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility.
- 8.4 **SUSPENSION AND DEBARMENT**
- 8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a Public Works Contract or complete a Public Works Project within the time schedule established by the Agency in the invitation to bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."
- 8.4.2 Upon such failure for any of the above stated reasons, the Agency that contracted for the Public Works Project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition. The Agency shall have the burden of proving, by a preponderance of the evidence, that the Contractor failed to perform or complete the Public Works Project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record.
- 8.5 **RETAINAGE**
- 8.5.1 Per Section 6962(d)(5), Title 29, Delaware Code: The Agency may at the beginning of each Public Works Project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.
- 8.5.2 This forfeiture of retainage also applies to the timely completion of the punchlist. A punchlist will only be prepared upon the mutual agreement of the Owner, Architect

and Contractor. Once the punchlist is prepared, all three parties will by mutual agreement, establish a schedule for its completion. Should completion of the punchlist be delayed beyond the established date due to the Contractor's failure to meet their responsibilities, the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

## **ARTICLE 9: PAYMENTS AND COMPLETION**

### **9.1 APPLICATION FOR PAYMENT**

9.1.1 Applications for payment shall be made upon AIA Document G702.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 Section 6516, Title 29 of the Delaware Code annualized interest is not to exceed 12% per annum beginning thirty (30) days after the "presentment" (as opposed to the date) of the invoice.

### **9.2 PARTIAL PAYMENTS**

9.2.1 Any Public Works Contract executed by any Agency may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the Contract.

9.2.2 When approved by the Agency, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been produced or furnished for incorporation as a permanent part of the Work yet to be completed, provided acceptable provisions have been made for storage.

.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Agency, receipted bills from all Contractors, Subcontractors, and materialmen, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

### **9.3 SUBSTANTIAL COMPLETION**

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the Project has been Substantially Completed.

9.3.2 If, after the Work has been Substantially Completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of Substantial Completion.

#### 9.4 FINAL PAYMENT

9.4.1 Final payment, including the retainage if determined appropriate, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):

- .1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the Work have been paid,
- .2 An acceptable RELEASE OF LIENS,
- .3 Copies of all applicable warranties,
- .4 As-built drawings,
- .5 Operations and Maintenance Manuals,
- .6 Instruction Manuals,
- .7 Consent of Surety to final payment.
- .8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

### **ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY**

10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

10.2 The Contractor shall notify the Owner in the event any existing hazardous material such as lead, PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval.

10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous, must provide Material Safety Data Sheets

for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.

- 10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS) provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

#### **ARTICLE 11: INSURANCE AND BONDS**

- 11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.
- 11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein, and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.
- 11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.
- 11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control damaged in any way by the Contractor or their Subcontractors during the entire construction period on this Project.
- 11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, shall not be provided by the Contractor under this Contract. The Owner shall insure the existing building and all of its contents and all this new alteration work under this Contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.
- 11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.
- 11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

## 11.7.1 Contractor's Contractual Liability Insurance

Minimum coverage to be:

Bodily Injury	\$ 500,000 \$1,000,000 \$1,000,000	for each person for each occurrence aggregate
Property Damage	\$ 500,000 \$1,000,000	for each occurrence aggregate

## 11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	\$ 500,000 \$1,000,000 \$1,000,000	for each person for each occurrence aggregate
Property Damage	\$ 500,000 \$ 500,000	for each occurrence aggregate

## 11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	\$1,000,000 \$1,000,000	for each person for each occurrence
Property Damage	\$ 500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

## 11.7.5 Workmen's Compensation (including Employer's Liability):

- .1 Minimum Limit on employer's liability to be as required by law.
- .2 Minimum Limit for all employees working at one site.

11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates.

## 11.7.7 Social Security Liability

- .1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.

- .2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.
- .3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

#### **ARTICLE 12: UNCOVERING AND CORRECTION OF WORK**

- 12.1 The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of two years from the date of Substantial Completion, or by terms of an applicable special warranty required by the Contract Documents. The provisions of this Article apply to work done by Subcontractors as well as to Work done by direct employees of the Contractor.
- 12.2 At any time during the progress of the Work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the Contract as they consider justified to adjust the difference in value between the defective work and that required under Contract including any damage to the structure.

#### **ARTICLE 13: MISCELLANEOUS PROVISIONS**

##### 13.1 CUTTING AND PATCHING

- 13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.

##### 13.2 DIMENSIONS

- 13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the Project site. Any discrepancies between the Drawings and Specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.

##### 13.3 LABORATORY TESTS

- 13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the Work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.
- 13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.

##### 13.4 ARCHAEOLOGICAL EVIDENCE

- 13.4.1 Whenever in the course of construction any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the Owner and the authorities of the State Historic Preservation Office and suspend

work in the immediate area for a reasonable time to permit those authorities or persons designated by the Owner, to ascertain its historic and cultural significance and to determine the need for compliance with the relevant State and Federal law and policies.

### 13.5 GLASS REPLACEMENT AND CLEANING

13.5.1 The General Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the General Contractor shall have all glass cleaned and polished.

### 13.6 WARRANTY

13.6.1 For a period of two (2) years from the date of Substantial Completion, as evidenced by the date of final acceptance of the work, the Contractor warrants that work performed under this Contract conforms to the Contract requirements and is free of any defect of equipment, material or workmanship performed by the Contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The Contractor shall remedy, at his own expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

## ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery thereon owned by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.

14.2 If the continuation of this Agreement is contingent upon the appropriation of adequate State, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement.

END OF SECTION 00710 - GENERAL REQUIREMENTS

**SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS**

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A201-2007. Where a portion of the General Conditions is modified or deleted by the Supplementary General Conditions, the unaltered portions of the General Conditions shall remain in effect.

**TABLE OF ARTICLES**

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ARCHITECT
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
15. CLAIMS AND DISPUTES

**ARTICLE 1: GENERAL PROVISIONS**

## 1.1 BASIC DEFINITIONS

## 1.1.1 THE CONTRACT DOCUMENTS

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

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

Add the following clause:

- 1.1.1.1 In the event of conflict or discrepancies among the Contract Documents, the Documents prepared by the State of Delaware, Division of Parks and Recreation shall take precedence over all other documents.

## 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following subparagraphs:

- 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 subparagraph 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. Prior to re-use of construction documents for a project in which the Architect is not also involved, the Owner will remove from such documents all identification of the original Architect, including name, address and professional seal or stamp."

Delete subparagraph 1.5.2 in its entirety.

**ARTICLE 2: OWNER**

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

To subparagraph 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."

Delete subparagraph 2.2.5 in its entirety and substitute the following:

- 2.2.5 The Contractor will be furnished, free of charge, a specified number of copies of Drawings and Project Manuals. Refer to Section 01005, ADMINISTRATIVE PROVISIONS. Additional sets will be furnished at the cost of reproduction, postage and handling.

**ARTICLE 3: CONTRACTOR**

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Amend subparagraph 3.2.2 to state that any errors, inconsistencies or omissions discovered shall be reported to the Architect and Owner immediately.

Delete the third sentence in subparagraph 3.2.4.

### 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following clause to subparagraph 3.3.2:

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 so 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.

Add the following subparagraphs:

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 subparagraphs:

3.4.4 Before starting the Work, each Contractor, or Subcontractor, 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 subparagraphs:

3.5.1 The Contractor will guarantee all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two years after Acceptance by the Owner, and will maintain all items in perfect condition during the period of guarantee.

- 3.5.2 Defects appearing during the period of guarantee will be made good by the Contractor at his expense upon demand of the Owner, it being required that all Work will be in perfect condition when the period of guarantee will have elapsed.
- 3.5.3 In addition to the General Guarantee there are other guarantees required for certain items for different periods of time than the two years as above, and are particularly so stated in that part of the specifications referring to same. The said guarantees will commence at the same time as the General Guarantee.
- 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 expense of the Contractor and/or his surety.

### 3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following subparagraphs:

- 3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all appurtenances that will be concealed once construction is complete, etc., including all invert elevations.
- 3.11.2 At the completion of the Project, the Contractor shall obtain a set of reproducible drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions.
- 3.11.3 The Contractor shall provide two (2) prints of the as-built conditions, along with the reproducible drawings themselves, to the Owner and one (1) set to the Architect. In addition, attach one complete set to each of the Operating and Maintenance Instructions/Manuals.

### 3.13 USE OF SITE

Add the following new subparagraphs:

- 3.13.1 The Contractor will not load nor permit any part of the structure to be loaded with weight that will endanger the structure.
- 3.13.2 Storage areas will be defined for the storage of the Contractor's materials and equipment and he shall confine his materials, equipment, and operations of his workmen to such limits as indicated by the Owner. Unless otherwise indicated in the Specifications, the storage areas will be outdoors, and the contractor shall provide whatever shelter is necessary for his storage and fabricating needs. No workmen shall trespass within areas or buildings of the Owner other than those related to the Work of the Contract. The Contractor shall rigidly enforce this regulation. Any materials, equipment or temporary structures belonging to the Contractor shall be moved when so directed by the Owner to permit the execution of the work of others in connection with the Project.

### 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

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

**ARTICLE 4: ARCHITECT**

## 4.2 ADMINISTRATION OF THE CONTRACT

Delete the first sentence of subparagraph 4.2.7 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 subparagraph 4.2.7 and replace with the following:

The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work or 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 clause to subparagraph 4.2.10:

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

Add to subparagraph 4.2.13 "and in compliance with all local requirements." to the end of the sentence.

**ARTICLE 5: SUBCONTRACTORS**

## 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Delete subparagraph 5.2.3 in its entirety and replace with the following:

5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection, subject to the statutory requirements of 29 Delaware Code § 6962(d)(10)b.3 and 4.

**ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

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

Delete Paragraph 6.1.4 in its entirety.

## 6.2 MUTUAL RESPONSIBILITY

6.2.3 In the second sentence, strike the word "shall" and insert the word "may".

Add the following Paragraph to Article 6:

## 6.4 DEPARTMENT FURNISHED MATERIALS AND EQUIPMENT

6.4.1 If any materials or equipment are to be furnished by the Owner for the Work, they will be so specified in the Contract Documents. Unless otherwise specified, it shall be the Contractor's responsibility to locate, receive, handle and store, if necessary,

any item of Owner furnished material or equipment which he is required by the Contract to install, erect or handle in any way, from the time it is received by the Contractor at the jobsite or other Owner approved location until completion of the Work in accordance with the Contract Documents. Damaged or lost Owner furnished items shall be repaired or replaced by the Contractor without additional cost to the Owner. See Section 01005, ADMINISTRATIVE PROVISIONS for list of Owner furnished materials and equipment.

## **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 clause to subparagraph 8.2.1:

8.2.1.1 Refer to Specification Section 01005, ADMINISTRATIVE PROVISIONS for Contract time requirements.

Add the following new subparagraph:

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 EXTENSIONS OF TIME**

8.3.1 Strike "arbitration" and insert "remedies at law or in equity".

Add the following clause to subparagraph 8.3.2:

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 subparagraph 8.3.3 in its entirety and replace with the following:

8.3.3 Except in the case of a suspension of the Work directed by the Owner, an extension of time under the provisions of Paragraph 8.3.1 shall be the Contractor's sole remedy in the progress of the Work and there shall be no payment or compensation to the Contractor for any expense or damage resulting from the delay.

Add the following subparagraph:

8.3.4 By permitting the Contractor to work after the expired time for completion of the Project, the Owner does not waive their rights under the Contract.

**ARTICLE 9: PAYMENTS AND COMPLETION**

## 9.2 SCHEDULE OF VALUES

Add the following subparagraphs:

9.2.1 The Schedule of Values shall be submitted using AIA Document G703, Continuation Sheet to G702.

9.2.2 The Schedule of Values is to include a line item for Project Closeout Document Submittal. The value of this item is to be no less than 1% of the initial contract amount.

## 9.3 APPLICATIONS FOR PAYMENT

Add the following clause to subparagraph 9.3.1:

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 subparagraphs:

9.3.4 Until the Work is 90% complete, the owner will pay 95% of the value of completed Work, based on the Contract prices of labor and materials incorporated in the Work and of materials suitably stored at the site thereof up to the last day of the preceding month as estimated by the Architect, less the aggregate of previous payments. At the time the Work is 90% complete, if the manner of completion of the Work and its progress are and remain satisfactory to the Architect, and in the absence of other good and sufficient reasons, as provided in GENERAL REQUIREMENTS 8.5 RETAINAGE, the Architect shall, on presentation by the Contractor of Consent of Surety, certify for payment to the Contractor half the funds being held as retainage by the Owner. Thereafter, the Owner will pay 97.5% of the amount due the Contractor on account of remaining 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 clauses to subparagraph 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 subparagraph 9.6.1 in its entirety and replace with the following:

9.6.1 After the Architect has 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 "seven" and insert "thirty (30)". Also strike "binding dispute resolution" and insert "remedies at law or in equity".

**9.8 SUBSTANTIAL COMPLETION**

Add the following sentence to Subparagraph 9.8.3:

"If the Architect is required to make more than 2 inspections of the same portion of Work, the Contractor shall be responsible for all costs associated with subsequent inspections including but not limited to any Architect's fees."

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 subparagraphs:

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.

**10.3 HAZARDOUS MATERIALS**

Delete subparagraph 10.3.3 in its entirety.

Delete subparagraph 10.3.6 in its entirety.

**ARTICLE 11: INSURANCE AND BONDS****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 in its entirety and replace with the following:

11.3 The State 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

Add the following sentence to subparagraph 11.4.1:

"The bonds will conform to those forms approved by the Office of Management and Budget."

**ARTICLE 12: UNCOVERING AND CORRECTION OF WORK**

12.2 CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.2.1 Strike "one year" and insert "two years".  
Strike "one-year" and insert "two-year".

Add the following subclause to clause 12.2.2.1:

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."

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 subparagraph 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 CLAIMS**

- 15.1.2 Throughout the Paragraph strike "21" and insert "45".

Delete subparagraph 15.1.6 in its entirety.

**15.2 INITIAL DECISION**

Delete subparagraph 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 subparagraph 15.2.6 and its clauses in their entirety.

**15.3 MEDIATION**

- 15.3.1 Strike "binding dispute resolution" and insert "any or all remedies at law or in equity".

- 15.3.2 In the first sentence, delete "administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement," Strike "binding dispute resolution" and insert "remedies at law and in equity".

**15.4 ARBITRATION**

Delete subparagraph 15.4 and its subparagraphs in their entirety.

END OF SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

**SECTION 00850 - DRAWING INDEX**

*(List all Drawing numbers and titles below)*

<u>Sheet No</u>	<u>Title</u>
0-0	Cover Sheet-Sheet Index
C-1	General Notes & Legend
C-2 to C-6	Horizontal Stakeout Information
C-7	Typical Sections
C-8	Project Overview Plan
C-9 to C-21	Construction Plans & Profiles
C-22 to C-24	Construction Details
C-25 to C-27	Culvert Repair Plans and Details
C-28	Parking Lot Grading Plan
C-29	Parking Lot Stakeout Plan
C-30	Bench Replacement Plan and Details
S-1	Structural General Notes
S-2 to S-5	Pedestrian Bridge & Observation Area Pier Layout Plans
S-6 to S-13	Pedestrian Bridge & Observation Area Details
ES-1 to ES-6	Erosion And Sediment Control Plans and Details
SWM-01	Stormwater Management Plan – Parking Lot

END OF SECTION 00850 – DRAWING INDEX

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**SECTION 01005 - ADMINISTRATIVE PROVISIONS****TABLE OF ARTICLES**

1. WORK COVERED BY THE CONTRACT DOCUMENTS
2. CONTRACT METHOD
3. WORK SEQUENCE
4. CONTRACTOR USE OF PREMISES
5. OWNER OCCUPANCY
6. OWNER-FURNISHED PRODUCTS
7. ALLOWANCES
8. ALTERNATES
9. UNIT PRICES
10. APPLICATIONS FOR PAYMENT
11. OWNER SUPPLIED CONSTRUCTION DOCUMENTS
12. COORDINATION
13. FIELD ENGINEERING
14. REFERENCE STANDARDS

**ARTICLE 1: WORK COVERED BY CONTRACT DOCUMENTS**

1.1 The work includes, but is not necessarily limited to, a 10-foot wide stone shared use path, stone parking lot, pedestrian bridge supported by helical anchors, miscellaneous site amenities, and all else required to complete the Project in accordance with the Drawings and Specifications.

**ARTICLE 2: CONTRACT METHOD**

- 2.1 Construct the Work under a single, Lump Sum Contract.
- 2.2 Items noted "NIC" (Not in Contract), will be furnished and installed by others.

**ARTICLE 3: WORK SEQUENCE**

- 3.1 Construct Work in stages to accommodate Owner's occupancy requirements during the construction period; coordinate construction schedule and operations.
- 3.2 Begin Work within seven (7) days after issuance of a State purchase order and Notice to Proceed and be Substantially Completed by May 8, 2014.

**ARTICLE 4: CONTRACTOR USE OF PREMISES**

- 4.1 Limit use of premises for work and for construction operations to allow for Owner occupancy.
- 4.2 Coordinate use of premises under direction of Owner.

**ARTICLE 5: OWNER OCCUPANCY**

- 5.1 Owner will occupy premises during entire period of construction for the conduct of his normal operations. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

**ARTICLE 6: OWNER-FURNISHED PRODUCTS**

- 6.1 None

**ARTICLE 7: ALLOWANCES** None

- 7.1 None

**ARTICLE 8: ALTERNATES**

- 8.1 Alternates quoted on Bid Forms will be exercised as Owner option. Accepted Alternates will be listed in Owner-Contractor agreement.
- 8.2 Coordinate related work and modify surrounding work affected by accepted Alternates as required to complete the work.
- 8.3 Schedule of Alternates: (Refer to Bid Form and Section 01030 - Alternates)

**ARTICLE 9: UNIT PRICES**

- 9.1 Unit Prices quoted on Bid Forms will be exercised as Owner option.
- 9.2 Coordinate related work and modify surrounding work affected by accepted Unit Prices as required to complete the Work.
- 9.3 Schedule of Unit Prices: (Refer to Bid Form and Section 01026 - Unit Prices)

**ARTICLE 10: APPLICATIONS FOR PAYMENT**

- 10.1 Submit 3 copies of each application under procedures of Sections 00710 and 00800.
- 10.2 Content and Format: Use table of contents of Project Manual.

**ARTICLE 11: OWNER SUPPLIED CONSTRUCTION DOCUMENTS**

- 11.1 The Contractor will be furnished, free of charge, ten (10) copies of Drawings and Project Manuals (or less if requested). Additional sets will be furnished at the cost of reproduction, postage and handling.

**ARTICLE 12: COORDINATION**

- 12.1 Coordinate Work of the various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.
- 12.2 Verify characteristics of elements of interrelated operating equipment are compatible; coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- 12.3 Coordinate space requirements and installation of mechanical, electrical and plumbing work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits, as closely as practicable; make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- 12.4 In finished areas (except as otherwise shown), conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- 12.5 Execute cutting and patching to integrate elements of Work, uncover ill-timed defective and non-conforming work, provide openings for penetrations of existing surfaces, and provide samples for testing. Seal penetrations through floors, walls, and ceilings.

**ARTICLE 13: FIELD ENGINEERING**

- 13.1 Provide field engineering services; establish grades, lines, and levels, by use of recognized engineering survey practices.
- 13.2 Control datum for survey is that shown on drawings. Locate and protect control and reference points.

**ARTICLE 14: REFERENCE STANDARDS**

- 14.1 For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- 14.2 The date of the standard is that in effect as of the Bid date, except when a specific date is specified.
- 14.3 Obtain copies of standards when required by Contract Documents. Maintain copy at job site during progress of the specific work.

END OF SECTION 01005 – ADMINISTRATIVE PROVISIONS

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## **SECTION 01010 - SUMMARY OF WORK**

### **TABLE OF ARTICLES**

1. PROJECT DESCRIPTION
2. WORK SEQUENCE
3. CONTRACTOR USE OF PREMISES

### **ARTICLE 1: PROJECT DESCRIPTION**

- 1.1 The Contractor for this Project shall furnish all labor, materials, equipment and services necessary for and reasonably incidental to fully perform all the Work indicated as their responsibility and as shown on the Drawings and specified in the Specifications.
- 1.2 The Work shall include the following:  
Gordons Pond Trail Improvements, as shown on the Drawings and as specified in the Specification Manual, including, but not necessarily limited to the following.
  - .1 Ten feet (10') wide stone shared use path.
  - .2 Helical anchor supported pedestrian bridge
  - .3 Stone parking lot
  - .4 Miscellaneous site amenities
  - .5 Grading, drainage and soil stabilization
  - .6 Storm Water Management improvements.

### **ARTICLE 2: WORK SEQUENCE**

- 2.1 The Work will be conducted in one phase to provide the least possible interference to the activities of the Owner's personnel and to permit an orderly transfer of personnel and equipment to the new facilities.

### **ARTICLE 3: CONTRACTOR USE OF PREMISES**

- 3.1 General: Limit use of the premises to construction activities in areas indicated.
  - .1 Confine operations to areas within Contract limits indicated.

END OF SECTION 01010 - SUMMARY OF WORK

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**SECTION 01026 - UNIT PRICES****TABLE OF ARTICLES**

1. RELATED DOCUMENTS
2. SUMMARY
3. UNIT PRICE SCHEDULE

**ARTICLE 1: RELATED DOCUMENTS**

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

**ARTICLE 2: SUMMARY**

- 2.1 This Section specifies administrative and procedural requirements for Unit Prices.
  - .1 A Unit Price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to, or deducted from, the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.
  - .2 Unit Prices include all necessary material, labor, overhead, profit and applicable taxes.
  - .3 Refer to individual Specification Sections for construction activities requiring the establishment of Unit Prices. Methods of measurement and payment for Unit Prices are specified in those Sections.
- 2.2 Schedule: A "Unit Price Schedule" is included at the end of this Section. Specification Sections in the Project Manual contain requirements for materials and methods necessary to achieve the Work described under each Unit Price.
  - .1 The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established Unit Prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

**ARTICLE 3: UNIT PRICE SCHEDULE****UNIT PRICE No. 1:**

Description: Helical Anchors

Unit of Measure: Linear Foot (LF)

(Estimated Quantity of Helical Anchors = 42,000 LF x Unit Price \$ \_\_\_\_\_ /LF = \$ \_\_\_\_\_  
Amount to be included in Lump Sum Bid)

Should the actual linear footage of Helical Anchor Type 1 provided be more or less than the estimated quantity, the Contract Amount will be adjusted based on this price.

END OF SECTION 01026 - UNIT PRICES

**SECTION 01030 - ALTERNATES****TABLE OF ARTICLES**

1. RELATED DOCUMENTS
2. SUMMARY
3. SCHEDULE OF ALTERNATES

**ARTICLE 1: RELATED DOCUMENTS**

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

**ARTICLE 2: SUMMARY**

- 2.1 This Section specifies administrative and procedural requirements for Alternates.
- 2.2 Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the bidding requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept the corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
- 2.3 Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the Project.
- 2.4 Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.
- 2.5 Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections in the Project Manual contain requirements for materials and methods necessary to achieve the Work described under each Alternate.
  - .1 Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

**ARTICLE 3: SCHEDULE OF ALTERNATES:**

**Alternate No. 1:** Construct hot-mix paving Types C and B in the proposed parking lot.

END OF SECTION 01030 – ALTERNATES

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**SECTION 01040 - PROJECT COORDINATION****TABLE OF ARTICLES**

1. RELATED DOCUMENTS
2. SUMMARY
3. COORDINATION
4. SUBMITTALS
5. GENERAL INSTALLATION PROVISIONS
6. CLEANING AND PROTECTION

**ARTICLE 1: RELATED DOCUMENTS**

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

**ARTICLE 2: SUMMARY**

- 2.1 This Section specifies administrative and supervisory requirements necessary for Project Coordination including, but not necessarily limited to:
  - .1 Coordination.
  - .2 Administrative and Supervisory Personnel.
  - .3 General Installation Provisions.
  - .4 Cleaning and Protection.
- 2.2 Field engineering is included in Section "Field Engineering".
- 2.3. Progress meetings, coordination meetings and pre-installation conferences are included in Section "Project Meetings".
- 2.4. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

**ARTICLE 3: COORDINATION**

- 3.1 Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
  - .1 Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
  - .2 Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
  - .3 Make adequate provisions to accommodate items scheduled for later installation.
- 3.2 Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

- .1 Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- 3.3 Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - .1 Preparation of schedules.
  - .2 Installation and removal of temporary facilities.
  - .3 Delivery and processing of submittals.
  - .4 Progress meetings.
  - .5 Project Close-out activities.
- 3.4 Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
  - .1 Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

#### **ARTICLE 4: SUBMITTALS**

- 4.1 Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

#### **ARTICLE 5: GENERAL INSTALLATION PROVISIONS**

- 5.1 Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- 5.2 Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- 5.3 Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- 5.4 Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- 5.5 Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- 5.6 Recheck measurements and dimensions, before starting each installation.
- 5.7 Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- 5.8 Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- 5.9 Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated.

Refer questionable mounting height decisions to the Architect for final decision.

#### **ARTICLE 6: CLEANING AND PROTECTION**

- 6.1 During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- 6.2 Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- 6.3 Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
  - .1 Excessive static or dynamic loading.
  - .2 Excessive internal or external pressures.
  - .3 Excessively high or low temperatures.
  - .4 Thermal shock.
  - .5 Excessively high or low humidity.
  - .6 Air contamination or pollution.
  - .7 Water or ice.
  - .8 Solvents.
  - .9 Chemicals.
  - .10 Light.
  - .11 Radiation.
  - .12 Puncture.
  - .13 Abrasion.
  - .14 Heavy traffic.
  - .15 Soiling, staining and corrosion.
  - .16 Bacteria.
  - .17 Rodent and insect infestation.
  - .18 Combustion.
  - .19 Electrical current.
  - .20 High speed operation.
  - .21 Improper lubrication.
  - .22 Unusual wear or other misuse.
  - .23 Contact between incompatible materials.
  - .24 Destructive testing.
  - .25 Misalignment.
  - .26 Excessive weathering.
  - .27 Unprotected storage.
  - .28 Improper shipping or handling.
  - .29 Theft.
  - .30 Vandalism.
  - .31 Wind damage.

END OF SECTION 01040 - PROJECT COORDINATION

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**SECTION 01050 - FIELD ENGINEERING****TABLE OF ARTICLES**

1. RELATED DOCUMENTS
2. SUMMARY
3. SUBMITTALS
4. QUALITY ASSURANCE
5. EXAMINATION
6. PERFORMANCE

**ARTICLE 1: RELATED DOCUMENTS**

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

**ARTICLE 2: SUMMARY**

- 2.1 General: This Section specifies administrative and procedural requirements for Field Engineering services, including, but not necessarily limited to, the following:
  - .1 Land Survey Work
  - .2 Engineering Services

**ARTICLE 3: SUBMITTALS**

- 3.1 Certificates: Submit a certificate signed by the Land Surveyor certifying that the location and elevation of improvements comply with the Contract Documents.
- 3.2 Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Sections "Submittals" and "Project Closeout".

**ARTICLE 4: QUALITY ASSURANCE**

- 4.1 Surveyor: Engage a Professional Land Surveyor, licensed in the State of Delaware, to perform required surveying services to ensure that grades, lines, levels, and locations of the Work are in compliance with the Contract Documents.
- 4.2 Engineer: Engage a Professional Engineer of the discipline required, registered in the State of Delaware, to perform required engineering services.

**ARTICLE 5: EXAMINATION**

- 5.1 The Owner will identify existing control points and property line corner stakes.
- 5.2 Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
  - .1 Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference

points because of necessary changes in grades or locations.

- .2 Promptly replace lost or destroyed Project control points. Base replacements on the original survey control points.
- 5.3 Establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.
- .1 Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- 5.4 Existing utilities and equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.

#### **ARTICLE 6: PERFORMANCE**

- 6.1 Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
- .1 Advise entities engaged in construction activities, of marked lines and levels provided for their use.
  - .2 As construction proceeds, check every major element for line, level and plumb.
- 6.2 Surveyor's Log: Maintain a surveyor's log of control and other survey Work. Make this log available for reference.
- .1 Record deviations from required lines and levels, and advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.
  - .2 On completion of foundation walls, major site improvements, and other Work requiring field engineering services, prepare a certified survey showing dimensions, locations, angles and elevations of construction and sitework.
- 6.3 Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.
- 6.4 Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical work.

END OF SECTION 01050 - FIELD ENGINEERING

**SECTION 01090 - DEFINITIONS AND STANDARDS****TABLE OF ARTICLES**

1. DEFINITIONS
2. SPECIFICATION FORMAT AND CONTENT EXPLANATION
3. DRAWING OF SYMBOLS
4. INDUSTRY STANDARDS

**ARTICLE 1: DEFINITIONS:**

- 1.1 Basic Contract definitions are included in the General Conditions, Supplementary General Conditions, General Requirements, and Instructions to Bidders.
- 1.2 INDICATED refers to graphic representations, notes or schedules on Drawings, or Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used, it is to help locate the reference.
- 1.3 DIRECTED: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Engineer", "requested by the Engineer", and similar phrases. No implied meaning shall be interpreted to extend the Owner's Representative's responsibility into the Contractor's supervision of construction.
- 1.4 APPROVE, used in conjunction with action on submittals, applications, and requests, is limited to the Owner's Representative's duties and responsibilities stated in General Conditions and Supplementary General Conditions. Approval shall not release the Contractor from responsibility to fulfill Contract requirements.
- 1.5 REGULATION includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.
- 1.6 FURNISH means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations."
- 1.7 INSTALL describes operations at the site including "unloading, unpacking, assembly, erection, anchoring, applying, working to dimension, protecting, cleaning and similar operations."
- 1.8 PROVIDE means "furnish and install, complete and ready for use."
- 1.9 INSTALLER: "Installer" is the Contractor or an entity engaged by the Contractor, as an employee, subcontractor or sub-subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - .1 The term "experienced", when used with "Installer" means having a minimum of 5 previous projects similar in size to this Project, and familiar with the precautions required, and with requirements of the authority having jurisdiction.
- 1.10 PROJECT SITE is the space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site shall be as directed by the Owner's Representative, and may or may not be identical with the description of the land upon which the Project is to be built.

- 1.11 TESTING LABORATORIES: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret results of those inspections or tests.
- 1.12 WORKING DAY: Any calendar day, except: 1) Saturdays, Sundays, and holidays; 2) days where conditions identified in the Contract require the Contractor to suspend construction operations; 3) days with inclement weather that prevents prosecution of the scheduled work. On inclement weather days that result in partial prosecution of the work, partial working days will be charged as determined by the Engineer. Partial working days will be charged in one-quarter day increments. If the Contractor receives permission from the Engineer to work on a Sunday or holiday, full working days will be charged, weather permitting. No time charge will be assessed if the Contractor elects to work on Saturdays. Should the Contractor prepare to begin work on any day on which inclement weather prevents the work from beginning at the usual starting time and the crew is dismissed as a result, the Contractor will not be charged for a working day whether or not conditions change during the day and the rest of the day becomes suitable for construction operations.

## **ARTICLE 2: SPECIFICATION FORMAT AND CONTENT EXPLANATION**

- 2.1 SPECIFICATION FORMAT: These specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTER FORMAT numbering system.
- 2.2 Language used in the Specifications is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the context so indicates.
- .1 IMPERATIVE LANGUAGE is used generally. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.
- .2 The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.
- 2.3 ASSIGNMENT OF SPECIALISTS: Certain construction activities shall be performed by specialists, recognized experts in the operations to be performed. Specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

## **ARTICLE 3: DRAWING OF SYMBOLS**

- 3.1 GENERAL: Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., ninth edition.
- 3.2 MECHANICAL/ELECTRICAL DRAWINGS: Graphic symbols on mechanical and electrical Drawings are aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by symbols recommended by technical associations. Refer instances of uncertainty to the Engineer for clarification before proceeding.

## **ARTICLE 4: INDUSTRY STANDARDS**

- 4.1 APPLICABILITY OF STANDARDS: Except where the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound

or copied into Contract Documents. Such standards are part of the Contract Documents by reference. Individual Sections indicate standards the Contractor must keep available at the Project Site.

- 4.2 PUBLICATION DATES: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
- .1 UPDATED STANDARDS: Submit a Change Order proposal where an applicable standard has been revised and reissued after the date of the Contract Documents and before performance of Work. The Engineer will decide whether to issue a Change Order to proceed with the updated standard.
- 4.3 CONFLICTING REQUIREMENTS: Where compliance with two or more standards that establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced. Refer uncertainties as to which quality level is more stringent to the Engineer for a decision before proceeding.
- .1 MINIMUM QUANTITIES OR QUALITY LEVELS: The quantity or quality shown or specified is the minimum to be provided or performed. Indicated values are minimum or maximum values, as appropriate for the requirements. Refer instances of uncertainty to the Engineer for decision before proceeding.
- 4.4 COPIES OF STANDARDS: Each entity engaged on the Project shall be familiar with standards applicable to that activity. Copies of applicable standards are not bound with the Contract Documents.
- .1 Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
- .2 Although copies of standards needed for enforcement of requirements may be part of submittals, the Owner's Representative reserves the right to require submittal of additional copies for enforcement of requirements.
- 4.5 ABBREVIATIONS AND NAMES: Where acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable. Refer to the "Encyclopedia of Associations", published by Gale, available in most libraries.
- 4.6 PERMITS, LICENSES, AND CERTIFICATES: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

END OF SECTION 01090 - DEFINITIONS AND STANDARDS

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## 2013 HOLIDAYS

<b>STATE OF DELAWARE 2013 Holidays</b>		
In accordance with Title 1, Chapter 5, §501, Delaware Code, as amended, the following are legal holidays in the State of Delaware for Calendar Year <b>2013</b> :		
<b>New Years Day</b>	January 1	Tuesday
<b>Martin Luther King Jr. Day</b>	January 21	Monday
<b>Good Friday</b>	March 29	Friday
<b>Memorial Day</b>	May 27	Monday
<b>Independence Day</b>	July 4	Thursday
<b>Labor Day</b>	September 2	Monday
<b>Veterans Day</b>	November 11	Monday
<b>Thanksgiving Day</b>	November 28	Thursday
<b>Day After Thanksgiving</b>	November 29	Friday
<b>Christmas Day</b>	December 25	Wednesday

Note: The State of Delaware 2014 Holidays will be the same as those listed above, however the dates will be different.

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**SECTION 01200 - PROJECT MEETINGS****TABLE OF ARTICLES**

1. RELATED DOCUMENTS
2. SUMMARY
3. PRE-CONSTRUCTION CONFERENCE
4. PRE-INSTALLATION CONFERENCES
5. COORDINATION MEETINGS
6. PROGRESS MEETINGS

**ARTICLE 1: RELATED DOCUMENTS**

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

**ARTICLE 2: SUMMARY**

- 2.1 This Section specifies administrative and procedural requirements for Project Meetings including but not limited to:
  - .1 Pre-Construction Conference.
  - .2 Pre-Installation Conferences.
  - .3 Coordination Meetings.
  - .4 Progress Meetings.
- 2.2 Construction schedules are specified in another Division-1 Section.

**ARTICLE 3: PRE-CONSTRUCTION CONFERENCE**

- 3.1 Schedule a pre-construction conference and organizational meeting at the Project Site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- 3.2 Attendees: The Owner, Engineer and their consultants, the Contractor and their superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- 3.3 Agenda: Discuss items of significance that could affect progress including such topics as:
  - .1 Tentative construction schedule.
  - .2 Critical work sequencing.
  - .3 Designation of responsible personnel.
  - .4 Procedures for processing field decisions and Change Orders.
  - .5 Procedures for processing Applications for Payment.
  - .6 Distribution of Contract Documents.
  - .7 Submittal of Shop Drawings, Product Data and Samples.
  - .8 Preparation of record documents.
  - .9 Use of the premises.
  - .10 Parking availability
  - .11 Office, work and storage areas.
  - .12 Equipment deliveries and priorities.

- .13 Safety procedures.
- .14 First aid.
- .15 Security.
- .16 Housekeeping.
- .17 Working hours.

#### **ARTICLE 4: PRE-INSTALLATION CONFERENCES**

- 4.1 Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Engineer of scheduled meeting dates.
  - .1 Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
    - .1 Contract Documents.
    - .2 Options.
    - .3 Related Change Orders.
    - .4 Purchases
    - .5 Deliveries.
    - .6 Shop Drawings, Product Data and quality control Samples.
    - .7 Review of mockups
    - .8 Possible conflicts.
    - .9 Compatibility problems.
    - .10 Time schedules.
    - .11 Weather limitations.
    - .12 Manufacturer's recommendations.
    - .13 Warranty requirements.
    - .14 Compatibility of materials.
    - .15 Acceptability of substrates.
    - .16 Temporary facilities.
    - .17 Space and access limitations.
    - .18 Governing regulations.
    - .19 Safety.
    - .20 Inspection and testing requirements.
    - .21 Required performance results.
    - .22 Recording requirements.
    - .23 Protection.
- 4.2 Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Engineer.
- 4.3 Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

#### **ARTICLE 5: COORDINATION MEETINGS**

- 5.1 Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

- 5.2 Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- 5.3 Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

#### **ARTICLE 6: PROGRESS MEETINGS**

- 6.1 Conduct progress meetings at the Project Site at regularly scheduled intervals. Notify the Owner and Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- 6.2 Attendees: In addition to representatives of the Owner and Engineer, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- 6.3 Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
  - .1 Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
  - .2 Review the present and future needs of each entity present, including such items as:
    - .1 Interface requirements.
    - .2 Time.
    - .3 Sequences.
    - .4 Deliveries.
    - .5 Off-site fabrication problems.
    - .6 Access.
    - .7 Site utilization.
    - .8 Temporary facilities and services.
    - .9 Hours of work.
    - .10 Hazards and risks.
    - .11 Housekeeping.
    - .12 Quality and work standards.
    - .13 Change Orders.
    - .14 Documentation of information for payment requests.
    - .15 Submittals and other items affecting progress of work.
- 6.4 Reporting: No later than 5 days after each progress meeting date, the Owner will distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
  - .1 Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

END OF SECTION 01200 - PROJECT MEETINGS

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**SECTION 01300 - SUBMITTALS****TABLE OF ARTICLES**

1. REQUIREMENTS INCLUDED
2. PROCEDURES
3. CONSTRUCTION PROGRESS SCHEDULES
4. SCHEDULE OF VALUES
5. SHOP DRAWINGS
6. PRODUCT DATA
7. MANUFACTURERS' INSTRUCTIONS
8. SAMPLES
9. FIELD SAMPLES
10. ITEMS TO BE SUBMITTED AT CONTRACT SIGNING
11. COLOR SELECTION
12. SUBMITTAL SCHEDULE

**ARTICLE 1: REQUIREMENTS INCLUDED**

- 1.1 Procedures.
- 1.2 Construction Progress Schedules.
- 1.3 Schedule of Values.
- 1.4 Shop Drawings.
- 1.5 Product Data.
- 1.6 Samples.
- 1.7 Manufacturers' Instructions.
- 1.8 Manufacturers' Certificates.
- 1.9 Submittal Schedule.

**ARTICLE 2: PROCEDURES**

- 2.1 Deliver submittals to Owner at 89 Kings Highway, Dover, Delaware.
- 2.2 Transmit each item under a transmittal. Identify Project, Contractor, subcontractor, major supplier; identify pertinent Drawing sheet and detail number, and Specification section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Engineer review stamps. Allow 2 weeks for Engineer's initial processing of submittals requiring review and return. Submittals will be returned without action when received indirectly (not through the Contractor).
- 2.3 Submit initial progress schedules and schedule of values in duplicate within fourteen (14) days after award of Contract. After review by Engineer, revise and resubmit as required. Submit revised schedules reflecting changes since previous submittal.
- 2.4 Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- 2.5 After Engineer's review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- 2.6 Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
- 2.7 Submit a complete schedule of submittals in duplicate within (20) days after award of Contract.

After review by Engineer, revise and resubmit as required. Submit revised schedules reflecting changes since previous submittal.

**ARTICLE 3: CONSTRUCTION PROGRESS SCHEDULES**

- 3.1 Submit horizontal bar chart with separate bar for each major trade or operation identifying first work day of each week.

**ARTICLE 4: SCHEDULE OF VALUES**

- 4.1 Submit typed schedule on AIA Form G703. Contractor's standard form or media-driven printout will be considered on request.
- 4.2 Format: Table of Contents of this Project Manual. Identify each line item with number and title of the major Specification sections.
- 4.3 Include in each line item amount of Allowances specified in Section 01020. For Unit Cost Allowances, give quantities measured from Contract Documents multiplied by the unit cost equal to the total for the item.
- 4.4 Include in each line item a directly proportional amount of Contractor's overhead and profit.
- 4.5 Revise schedule to list Change Orders, for each application for payment.

**ARTICLE 5: SHOP DRAWINGS**

- 5.1 Submit the number of opaque reproduces which Contractor requires, plus four (4) copies which will be retained by Engineer.

**ARTICLE 6: PRODUCT DATA**

- 6.1 Mark each copy to identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work. Include manufacturers' installation instructions when required by the Specification Section.
- 6.2 Submit the number of copies which Contractor requires, plus four (4) copies which will be retained by Engineer.

**ARTICLE 7: MANUFACTURERS' INSTRUCTIONS**

- 7.1 When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, in quantities specified for product data.

**ARTICLE 8: SAMPLES**

- 8.1 Submit full range of manufacturers' standard colors, textures, and patterns for Architect's selection. Submit samples for selection of finishes within thirty (30) days after date of Contract.
- 8.2 Submit Samples to illustrate functional characteristics of the Product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
- 8.3 Include identification of each Sample, giving full information.

- 8.4 Submit the number specified in respective Specification Section; one will be retained by Engineer. Reviewed Samples which may be used in the Work are indicated in the Specification Section.

**ARTICLE 9: FIELD SAMPLES**

- 9.1 Provide field samples of finishes at Project as required by individual Specifications Section. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

**ARTICLE 10: ITEMS TO BE SUBMITTED AT CONTRACT SIGNING**

- 10.1 Performance and Labor and Material Payment Bonds: One (1) copy of each bond for each copy of the Agreement, submit simultaneously with the signed Agreement.
- 10.2 Policies or Certificates of Insurance: One (1) copy of each policy or certificate for each copy of the Agreement, submit simultaneously with the signed Agreement.

**ARTICLE 11: COLOR SELECTION**

- 11.1 Submit all items requiring color selection together (at one time) to facilitate color coordination by Architect.

**ARTICLE 12: SUBMITTAL SCHEDULE**

- 12.1 Provide the following information:
- .1 Scheduled date for the first submittal.
  - .2 Related Section number.
  - .3 Submittal category (Shop Drawings, Product Data, or Samples).
  - .4 Name of Subcontractor.
  - .5 Description of the part of the Work covered.

END OF SECTION 01300 - SUBMITTALS

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**SECTION 01400 - QUALITY CONTROL****TABLE OF ARTICLES**

1. REQUIREMENTS INCLUDED
2. RELATED REQUIREMENTS
3. QUALITY CONTROL, GENERAL
4. WORKMANSHIP
5. MANUFACTURER'S INSTRUCTIONS
6. MANUFACTURER'S CERTIFICATES
7. MOCK-UPS
8. MANUFACTURER'S FIELD SERVICES
9. TESTING LABORATORY SERVICES

**ARTICLE 1: REQUIREMENTS INCLUDED**

- 1.1 General Quality Control.
- 1.2 Workmanship.
- 1.3 Manufacturer's Instructions.
- 1.4 Manufacturer's Certificates.
- 1.5 Mock-ups.
- 1.6 Manufacturer's Field Services.
- 1.7 Testing Laboratory Services.

**ARTICLE 2: RELATED REQUIREMENTS**

- 2.1 Section 00700 - General Conditions and Section 00710 - General Requirements: Inspection and testing required by governing authorities.

**ARTICLE 3: QUALITY CONTROL, GENERAL**

- 3.1 Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

**ARTICLE 4: WORKMANSHIP**

- 4.1 Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- 4.2 Perform Work by persons qualified to produce workmanship of specified quality.
- 4.3 Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

**ARTICLE 5: MANUFACTURER'S INSTRUCTIONS**

- 5.1 Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Architect before proceeding.

**ARTICLE 6: MANUFACTURER'S CERTIFICATES**

- 6.1 When required by individual Specifications Section, submit manufacturer's certificate, in duplicate, that products meet or exceed specified requirements.

**ARTICLE 7: MOCK-UPS**

- 7.1 When required by individual Specifications Section, erect complete, full-scale mockup of assembly at Project Site.

**ARTICLE 8: MANUFACTURER'S FIELD SERVICES**

- 8.1 When specified in respective Specification Sections, require manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to make appropriate recommendations.
- 8.2 Representative shall submit written report to Owner listing observations and recommendations.

**ARTICLE 9: TESTING LABORATORY SERVICES**

- 9.1 Contractor shall employ and pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services required by various Specification Sections.
- 9.2 Services will be performed in accordance with requirements of governing authorities and with specified standards.
- 9.3 Reports will be submitted to Owner in triplicate giving observations and results of tests, indicating compliance or noncompliance with specified standards and with Contract Documents.
- 9.4 Contractor shall cooperate with Testing Laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.
- .1 Notify Owner and Testing Laboratory 24 hours prior to expected time for operations requiring testing services.
- .2 Make arrangements with Testing Laboratory and pay for additional samples and tests for Contractor's convenience.
- 9.5 Any item found unsatisfactory by the testing agency shall be removed, replaced and retested at no additional cost to the Owner.

END OF SECTION 01400 - QUALITY CONTROL

**SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS****TABLE OF ARTICLES**

1. GENERAL PROVISIONS
2. REQUIREMENTS INCLUDED
3. GENERAL
4. MATERIALS
5. TEMPORARY ELECTRICITY AND LIGHTING
6. TEMPORARY TELEPHONE SERVICE
7. TEMPORARY WATER
8. TEMPORARY SANITARY FACILITIES
9. CONSTRUCTION AIDS
10. BARRIERS
11. HEAT, VENTILATION
12. ENCLOSURES
13. PROTECTION OF INSTALLED WORK
14. WATER CONTROL
15. CLEANING DURING CONSTRUCTION
16. PROJECT IDENTIFICATION
17. FIELD OFFICES AND SHEDS
18. REMOVAL OF CONSTRUCTION FACILITIES AND RESTORATION OF SITE
19. SECURITY
20. ACCESS ROADS AND PARKING AREAS
21. TEMPORARY CONTROLS
22. TRAFFIC REGULATION

**ARTICLE 1: GENERAL PROVISIONS**

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

**ARTICLE 2: REQUIREMENTS INCLUDED**

- 2.1 Temporary Electricity and Lighting
- 2.2 Temporary Telephone Service
- 2.3 Temporary Water
- 2.4 Temporary Sanitary Facilities
- 2.5 Construction Aids
- 2.6 Barriers
- 2.7 Temporary Heat and Ventilation
- 2.8 Temporary Enclosures
- 2.9 Protection of Installed Work
- 2.10 Water Control
- 2.11 Cleaning During Construction
- 2.12 Project Identification
- 2.13 Field Offices and Sheds
- 2.14 Removal of Construction Facilities and Restoration of Site
- 2.15 Security
- 2.16 Access Roads and Parking Areas
- 2.17 Temporary Controls
- 2.18 Traffic Regulation

**ARTICLE 3: GENERAL**

- 3.1 Comply with National Electric Code.
- 3.2 Comply with Federal, State and local codes and regulations and with utility company requirements.
- 3.3 Coordinate Work with Owner's requirements.

**ARTICLE 4: MATERIALS**

- 4.1 Materials must be new and must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

**ARTICLE 5: TEMPORARY ELECTRICITY AND LIGHTING**

- 5.1 Provide temporary electric power and power distribution system as needed to perform the Work.

**ARTICLE 6: TEMPORARY TELEPHONE SERVICE**

- 6.1 Provide telephone service as necessary to properly conduct the Work and to comply with applicable regulations.
- 6.2 At each telephone, post a list of important telephone numbers.

**ARTICLE 7: TEMPORARY WATER**

- 7.1 Provide potable water for drinking and construction purposes.
- 7.2 The Contractor shall make all necessary arrangements for temporary water service for construction purposes, and furnish at his own expense all piping and accessories required.
- 7.3 Take positive measures to preclude cross-connections and backflow.

**ARTICLE 8: TEMPORARY SANITARY FACILITIES**

- 8.1 Provide sanitary facilities in compliance with laws and regulations.
- 8.2 Service, clean and maintain facilities and enclosures.

**ARTICLE 9: CONSTRUCTION AIDS**

- 9.1 Each Subcontractor shall provide construction aids and equipment required by his personnel and to facilitate execution of his Work. Examples are scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes and other such facilities and equipment.
- 9.2 Mutual use may be arranged by the Contractor where applicable.

**ARTICLE 10: BARRIERS**

- 10.1 Materials at Contractor's option, as appropriate to serve required purpose.

**ARTICLE 11: HEAT, VENTILATION**

(Not Used)

**ARTICLE 12: ENCLOSURES**

(Not Used)

**ARTICLE 13: PROTECTION OF INSTALLED WORK**

- 13.1 Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- 13.2 Prohibit traffic and storage on waterproofed and roofed surfaces, on lawn and landscaped areas.

**ARTICLE 14: WATER CONTROL**

- 14.1 Maintain excavations free of water. Provide and operate pumping equipment. Grade site to drain.

**ARTICLE 15: CLEANING DURING CONSTRUCTION**

- 15.1 Control accumulation of waste materials and rubbish; periodically dispose of legally off site.
- 15.2 Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

**ARTICLE 16: PROJECT IDENTIFICATION**

(Not Used)

**ARTICLE 17: FIELD OFFICES AND SHEDS**

- 17.1 Field offices and sheds are to be provided by the Contractor as necessary to properly conduct the Work and associated activities such as progress meetings, maintaining as-built drawings, and storage of materials.

**ARTICLE 18: REMOVAL OF CONSTRUCTION FACILITIES AND RESTORATION OF SITE**

- 18.1 Remove temporary materials, equipment, services, and construction prior to Substantial Completion Inspection.
- 18.2 Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of two (2) feet; grade site as indicated.

**ARTICLE 19: SECURITY**

- 19.1 Security of persons and property in areas under control of the Contractor shall be the Contractor's exclusive responsibility.
- 19.2 The Contractor, at this own expense, shall initiate whatever programs that are necessary to execute his responsibility.
- 19.3 Control of access to the areas under his control shall be maintained. Visitors shall be required to report immediately to the Contractor's Superintendent and to produce full identification which will be recorded in the Contractor's Daily Log, along with the purpose of the visit.

**ARTICLE 20: ACCESS ROADS AND PARKING AREAS**

- 20.1 Provide and maintain uninterrupted vehicular access to site and within it:
- .1 To temporary construction facilities, storage and work areas.
  - .2 For use by persons and equipment involved in construction of project.
- 20.2 Maintain traffic areas free as possible of excavated materials, construction equipment, products, snow, ice and debris.
- 20.3 Keep fire hydrants and water control valves free from obstruction and accessible for use.
- 20.4 Designated areas of existing parking facilities may be used for parking of construction personnel's private vehicles and of Contractor's light-weight vehicles.

**ARTICLE 21: TEMPORARY CONTROLS**

- 21.1 Provide the following Temporary Controls:
- .1 Control of noise.
  - .2 Control of dust, both on site and within building.
  - .3 Control of surface water to prevent damage to the project, the site or adjacent properties.
  - .4 Control of pests and rodents to prevent infestation of construction or storage areas.
  - .5 Control of debris.
  - .6 Control of pollution of soil, water or atmosphere in accordance with applicable laws.
  - .7 Control of erosion in accordance with applicable laws.
  - .8 Control of mud and snow, including removal where necessary to construction operations.  
Remove any mud tracked from site onto public roads or streets.

**ARTICLE 22: TRAFFIC REGULATION**

- 22.1 Obtain all temporary permits for access to, and use of public roads and streets for construction and hauling purposes. Comply with traffic control regulations applying to permit issuance.
- 22.2 Provide all markers, signs, lights and barriers on, and near the site to safely control construction traffic and public access.

END OF SECTION 01500 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROL

**SECTION 01600 - MATERIALS AND EQUIPMENT****TABLE OF ARTICLES**

1. GENERAL CONDITIONS
2. REQUIREMENTS INCLUDED
3. MANUFACTURER'S INSTRUCTIONS
4. TRANSPORTATION AND HANDLING
5. STORAGE AND PROTECTION
6. SUBSTITUTIONS AND PRODUCT OPTIONS

**ARTICLE 1: GENERAL CONDITIONS**

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

**ARTICLE 2: REQUIREMENTS INCLUDED**

- 2.1 All material and equipment incorporated into the Work shall:
  - .1 Conform to applicable specifications and standards.
  - .2 Comply with size, make, type and quality specified, or as specifically approved in writing by the Architect.
- 2.2 Manufactured and Fabricated Products shall conform to the following requirements:
  - .1 Design, fabricate and assemble in accordance with the best engineering and shop practices.
  - .2 Manufacture 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.
- 2.3 Do not use material or equipment for any purpose other than that for which it is designated or is specified.
- 2.4 Materials removed from existing structures shall not be re-used in the completed Work unless specifically indicated or specified.
- 2.5 For material and equipment specifically indicated or specified to be re-used in the Work:
  - .1 Use special care in 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.

### **ARTICLE 3: MANUFACTURER'S INSTRUCTIONS**

- 3.1 When Contract Documents require that installation of Work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Engineer.
  - .1 Maintain one set of complete instructions at the job site during installation and until completion.
- 3.2 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, consult with Architect for further instructions.
  - .2 Do not proceed with Work without clear instructions.
- 3.3 Perform Work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

### **ARTICLE 4: TRANSPORTATION AND HANDLING**

- 4.1 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 Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
- 4.2 Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

### **ARTICLE 5: STORAGE AND PROTECTION**

- 5.1 Store products in accord with manufacturer's instructions, with seals and labels intact and legible.
  - .1 Store products subject to damage by the elements in weather-tight enclosures.
  - .2 Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- 5.2 Exterior Storage.
  - .1 Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

- .2 Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- 5.3 Arrange storage in a manner to provide easy access for inspection. Make periodic inspection of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.
- 5.4 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 Paint materials.
  - .2 Cleaning and other solvents.
  - .3 Fuels.
- 5.5 Protection After Installation:
  - .1 Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

## **ARTICLE 6: SUBSTITUTIONS AND PRODUCT OPTIONS**

- 6.1 Product List.
  - .1 Within 14 days after date of Owner-Contractor Agreement, submit a complete list of major products proposed for use, with the name of the manufacturer, trade name, and model number of each product and the installing subcontractor.
- 6.2 Contractor's Options.
  - .1 For products specified only by reference standard, select any product meeting that standard.
  - .2 For products specified by naming several products or manufacturers, 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 Article 6, paragraph 6.3.
  - .4 For products specified by naming only one product and manufacturer, there is no option.
- 6.3 Substitutions.
  - .1 Requests for substitutions shall be made in writing and received by the Owner before 4:30 p.m., 10 calendar days prior to bid opening. Subsequently, substitutions will be considered only when a Product becomes unavailable due to no fault of the Contractor. The Architect will review requests and will notify bidders in an Addendum if the requested substitution is acceptable.
  - .2 Submit a separate request for each product, supported with complete data, with drawings and samples as appropriate, including:
    - .1 Comparison of the qualities of the proposed substitution with that specified.
    - .2 Changes required in other elements of the work because of the substitution.
    - .3 Effect on the construction schedule.
    - .4 Cost data comparing the proposed substitution with the product specified.

- .5 Any required license fees or royalties.
- .6 Availability of maintenance service, and source of replacement materials.
- .3 Engineer shall be the judge of the acceptability of the proposed substitution.
- .4 A request for a substitution constitutes a representation that Bidder:
  - .1 Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
  - .2 Will provide the same warranties or bonds for the substitution as for the product specified.
  - .3 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.
  - .4 Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.

END OF SECTION 01600 – MATERIALS AND EQUIPMENT

**SECTION 01700 - CONTRACT CLOSEOUT****TABLE OF ARTICLES**

1. REQUIREMENTS INCLUDED
2. RELATED REQUIREMENTS
3. CLOSEOUT PROCEDURES
4. FINAL CLEANING
5. OPERATION AND MAINTENANCE DATA
6. WARRANTIES AND BONDS
7. SPARE PARTS AND MAINTENANCE MATERIALS

**ARTICLE 1: REQUIREMENTS INCLUDED**

- 1.1 Closeout Procedures.
- 1.2 Final Cleaning.
- 1.3 Operation and Maintenance Data.
- 1.4 Warranties and Bonds.
- 1.5 Spare Parts and Maintenance Materials.

**ARTICLE 2: RELATED REQUIREMENTS**

- 2.1 Drawings and general provisions of the Contract, including General Conditions, Supplementary General Conditions, General Requirements, and other Division-1 Specification Sections, apply to this Section.
  - .1 Fiscal provisions, legal submittals, and other administrative requirements.
- 2.2 Section 00600 - Bonds, Certificates and Administrative Forms (AIA Documents), applies to this Section.

**ARTICLE 3: CLOSEOUT PROCEDURES**

- 3.1 Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.
- 3.2 When Contractor considers Work has reached final completion, submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owner's inspection.
- 3.3 In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
- 3.4 Owner will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

**ARTICLE 4: FINAL CLEANING**

- 4.1 Execute prior to final inspection.
- 4.2 Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum soft surfaces. Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment.

Clean roofs, gutters, downspouts, and drainage systems.

- 4.3 Clean site: Sweep paved areas, rake clean other surfaces.
- 4.4 Remove waste and surplus materials, rubbish, and construction facilities from the Project and from the Site. Provide final cleaning.

#### **ARTICLE 5: OPERATION AND MAINTENANCE DATA**

- 5.1 Provide data for:
  - .1 Mechanical equipment and controls.
  - .2 Electrical equipment and controls.
- 5.2 Submit three (3) sets prior to final inspection, bound in 8-1/2 x 11 inch (216 x 279 mm) three-ring side binders with durable plastic covers.
- 5.3 Provide a separate volume for each system, with a table of contents and index tabs for each volume.
- 5.4 Part 1: Directory, listing names, addresses, and telephone number of: Suppliers and Contractor.
- 5.5 Part 2: Operation and maintenance instructions, arranged by Specification Division. For each Specification give names, addresses, and telephone number of Subcontractors and Suppliers.

List:

- .1 Appropriate design criteria.
- .2 List of equipment.
- .3 Parts list.
- .4 Operating instructions.
- .5 Maintenance instructions, equipment.
- .6 Maintenance instructions, finishes.
- .7 Shop Drawings and Product Data.
- .8 Warranties.

#### **ARTICLE 6: WARRANTIES AND BONDS**

- 6.1 Provide duplicate, notarized copies. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.
- 6.2 Submit material prior to final application for payment. For equipment put into use with Owner's written permission during construction, submit within seven (7) days after first operation. For items of work delayed materially beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

#### **ARTICLE 7: SPARE PARTS AND MAINTENANCE MATERIALS**

- 7.1 Provide products, spare parts, and maintenance materials in quantities specified in each Section, in addition to that used for construction of Work. Coordinate with Owner, deliver to Project Site and obtain receipt prior to final payment.

END OF SECTION 01700 - CONTRACT CLOSEOUT

**SECTION 01720 - PROJECT RECORD DOCUMENTS****TABLE OF ARTICLES**

1. REQUIREMENTS INCLUDED
2. MAINTENANCE OF DOCUMENTS AND SAMPLES
3. MARKING DEVICES
4. RECORDING
5. SUBMITTAL

**ARTICLE 1: REQUIREMENTS INCLUDED**

- 1.1 Maintain at the site for the Owner one (1) record copy of:
  - .1 Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other Modifications to the Contract.
  - .5 Engineer Field Orders or Written Instructions.
  - .6 Approved Shop Drawings, Product Data and Samples.
  - .7 Field Test Records.

**ARTICLE 2: MAINTENANCE OF DOCUMENTS AND SAMPLES**

- 2.1 Store documents and samples in Contractor's field office apart from documents used for construction.
- 2.2 File documents and samples in accordance with CSI format.
- 2.3 Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- 2.4 Make documents and samples available at all times for inspection by Owner's representative.

**ARTICLE 3: MARKING DEVICES**

- 3.1 Provide felt tip marking pens for recording information in the code designated by Owner's representative.

**ARTICLE 4: RECORDING**

- 4.1 Label each document "PROJECT RECORD" in neat large printed letters.
- 4.2 Record information concurrently with construction progress.
  - .1 Do not conceal any work until required information is recorded.
- 4.3 Drawings: Legibly mark to record actual construction:
  - .1 Depths of various elements of foundation in relation to finish first floor datum.
  - .2 Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

- .3 Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by Change Order.
  - .6 Details not on original Contract Drawings.
- 4.4 Specifications and Addenda: Legibly mark each Section to record:
- .1 Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  - .2 Changes made by Change Order.

**ARTICLE 5: SUBMITTAL**

- 5.1 Prior to contract close-out, Contractor shall submit record documents as specified for Owner's review and acceptance, Contractor shall submit a set of reproducible sepias for Owner's use.
- 5.2 Accompany submittal with transmittal letter in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Title and number of each record document.
  - .5 Signature of Contractor or his authorized representative.

END OF SECTION 01720 – PROJECT RECORD DOCUMENTS

## CONSTRUCTION WASTE MANAGEMENT

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. Section includes: Administrative and procedural requirements for construction waste management activities.

#### 1.2 DEFINITIONS

- A. Construction, Demolition, and Land clearing (CDL) Waste: Includes all non-hazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.
- B. Salvage: Recovery of materials for on-site reuse, sale or donation to a third party.
- C. Reuse: Making use of a material without altering its form. Materials can be reused on-site or reused on other projects off-site. Examples include, but are not limited to the following: Crushing or grinding of concrete for use as sub-base material. Chipping of land clearing debris for use as mulch.
- D. Recycling: The process of sorting, cleaning, treating, and reconstituting materials for the purpose of using the material in the manufacture of a new product.
- E. Source-Separated CDL Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.
- F. Co-mingled CDL Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.
- G. Approved Recycling Facility: Any of the following:
  - 1. A facility that can legally accept CDL waste materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
  - 2. Material Recovery Facility: A general term used to describe a waste-sorting facility. Mechanical, hand-separation, or a combination of both procedures, are used to recover recyclable materials.

#### 1.3 SUBMITTALS

- A. Contractor shall develop a Waste Management Plan: Submit 3 copies of plan within 14 days of date established for the **Notice to Proceed**.
- B. Contractor shall provide Waste Management Report: Concurrent with each Application for Payment, submit **3** copies of report.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Divert a minimum of **75%** CDL waste, by weight, from the landfill by one, or a combination of the following activities:
1. Salvage
  2. Reuse
  3. Source-Separated CDL Recycling
  4. Co-mingled CDL Recycling
- B. CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:
1. Acoustical ceiling tiles
  2. Asphalt
  3. Asphalt shingles
  4. Cardboard packaging
  5. Carpet and carpet pad
  6. Concrete
  7. Drywall
  8. Fluorescent lights and ballasts
  9. Land clearing debris (vegetation, stumpage, dirt)
  10. Metals
  11. Paint (through hazardous waste outlets)
  12. Wood
  13. Plastic film (sheeting, shrink wrap, packaging)
  14. Window glass
  15. Wood
  16. Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard.

#### 1.4 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED Accredited Professional, certified by the USGBC as waste management coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Conduct construction waste management activities in accordance with hauling and disposal regulations of all authorities having jurisdiction and all other applicable laws and ordinances.
- D. Preconstruction Conference: Schedule and conduct meeting at Project site prior to construction activities.
1. Attendees: Inform the following individuals, whose presence is required, of date and time of meeting.
    - a. Owner
    - b. Architect
    - c. Contractor's superintendent
    - d. Major subcontractors
    - e. Waste Management Coordinator
    - f. Other concerned parties

2. Agenda Items: Review methods and procedures related to waste management including, but not limited to, the following:
  - a. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
  - b. Review requirements for documenting quantities of each type of waste and its disposition.
  - c. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - d. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - e. Review waste management requirements for each trade.
3. Minutes: Record discussion. Distribute meeting minutes to all participants.  
Note: If there is a Project Architect, they will perform this role.

1.5 WASTE MANAGEMENT PLAN – Contractor shall develop and document the following:

- A. Develop a plan to meet the requirements listed in this section at a minimum. Plan shall consist of waste identification, waste reduction plan and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight throughout the plan.
- B. Indicate anticipated types and quantities of demolition, site-cleaning and construction waste generated by the project. List all assumptions made for the quantities estimates.
- C. List each type of waste and whether it will be salvaged, recycled, or disposed of in a landfill. The plan should include the following information:
  1. Types and estimated quantities, by weight, of CDL waste expected to be generated during demolition and construction.
  2. Proposed methods for CDL waste salvage, reuse, recycling and disposal during demolition including, but not limited to, one or more of the following:
    - a. Contracting with a deconstruction specialist to salvage materials generated,
    - b. Selective salvage as part of demolition contractor's work,
    - c. Reuse of materials on-site or sale or donation to a third party.
  3. Proposed methods for salvage, reuse, recycling and disposal during construction including, but not limited to, one or more of the following:
    - a. Requiring subcontractors to take their CDL waste to a recycling facility;
    - b. Contracting with a recycling hauler to haul recyclable CDL waste to an approved recycling or material recovery facility;
    - c. Processing and reusing materials on-site;
    - d. Self-hauling to a recycling or material recovery facility.
  4. Name of recycling or material recovery facility receiving the CDL wastes.
  5. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.

- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
  2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
  3. Total cost of disposal (with no waste management).
  4. Revenue from salvaged materials.
  5. Revenue from recycled materials.
  6. Savings in hauling and tipping fees by donating materials.
  7. Savings in hauling and tipping fees that are avoided.
  8. Handling and transportation costs. Including cost of collection containers for each type of waste.
  9. Net additional cost or net savings from waste management plan.

## PART 2 - PRODUCTS (Not Used)

## PART 3 – EXECUTION

### 3.1 CONSTRUCTION WASTE MANAGEMENT, GENERAL

- A. Provide containers for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
- B. The collection containers for recyclable CDL waste must contain no more than 10% non-recyclable material, by volume.
- C. Provide containers for CDL waste that is disposed in a landfill clearly labeled as such.
- D. Use detailed material estimates to reduce risk of unplanned and potentially wasteful cuts.
- E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Insure that subcontractors require the same provisions in their purchase agreements.
- F. Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

### 3.2 SOURCE SEPARATION

- A. General: Contractor shall separate recyclable materials from CDL waste to the maximum extent possible.

Separate recyclable materials by type.

1. Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water and to minimize pest attraction. Cover to prevent windblown dust.\

3. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from weather.

### 3.3 CO-MINGLED RECYCLING

- A. General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

### REMOVAL OF CONSTRUCTION WASTE MATERIALS

- A. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
- B. Transport CDL waste materials off Owner's property and legally dispose of them.
- C. Burning of CDL waste is not permitted.

END OF SECTION

<b>WASTE MANAGEMENT PROGRESS REPORT</b>				
<b>MATERIAL CATEGORY</b>	<b>DISPOSED IN MUNICIPAL SOLID WASTE LANDFILL</b>	<b>DIVERTED FROM LANDFILL BY RECYCLING, SALVAGE OR REUSE</b>		
		Recycled	Salvaged	Reused
1. Acoustical Ceiling Tiles				
2. Asphalt				
3. Asphalt Shingles				
4. Cardboard Packaging				
5. Carpet and Carpet Pad				
6. Concrete				
7. Drywall				
8. Fluorescent Lights and Ballasts				
9. Land Clearing Debris (vegetation, stumpage, dirt)				
10. Metals				
11. Paint (through hazardous waste outlets)				
12. Wood				
13. Plastic Film (sheeting, shrink wrap, packaging)				
14. Window Glass				
15. Field Office Waste (office paper, aluminum cans, glass, plastic, and coffee cardboard)				
16. Other (insert description)				
17. Other (insert description)				
Total (In Weight)		(TOTAL OF ALL ABOVE VALUES – IN WEIGHT)		
		Percentage of Waste Diverted	(TOTAL WASTE DIVIDED BY TOTAL DIVERTED)	

**SECTION T-401645  
SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 64-22**

**SECTION T-401648  
SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 64-22**

**Description:**

The following Subsections of the Standard Specifications shall be applicable: 401.01, 401.03 - 401.10, 401.12, and 401.13. All other subsections have been modified herein.

The Contractor shall read and thoroughly understand the requirements of the QA/QC specification as defined in item 401699. It is the responsibility of the Contractor to determine all costs associated with meeting these requirements and to include them in the per ton bids for the various Superpave bituminous concrete items.

**Materials:**

Materials for hot-mix, hot-laid bituminous concrete shall conform to the requirements of Subsections 823.01, 823.05- 823.17, and 823.25 - 823.28 of the Standard Specifications and the following.

**Asphalt Binder:**

The asphalt binder shall meet the requirements of Superpave PG 64-22, PG 70-22, or PG 76-22 performance grade asphalt, as referenced in the Plans, according to M-320, Table 1 and tested according to AASHTO PP6 with the following test ranges:

TEST PROCEDURE	AASHTO REFERENCE	SPECIFICATION LIMITS
Temperature, °C	M-320	Per Grade
Original DSR, $G^*/\sin(\delta)$	T-315	1.00 - 2.00 kPa
RTFO DSR, $G^*/\sin(\delta)$	T-315	2.20 - 5.00 kPa
PAV DSR, $G^*/\sin(\delta)$	T-315	1400 - 5000 kPa
BBR Creep Stiffness	T-313	90.0 - 300.0 kPa
BBR — value	T-313	0.300 - 0.440

Substitution of a higher temperature grade will require prior approval by the Engineer. If

PG 76-22 is the specified binder, recycled asphalt pavement(RAP) and natural sand shall not be allowed in the mixture. If a producer would like to submit a mixture with natural sand, the Engineer will perform a deformation test using the Asphalt Pavement Analyzer (APA). The sample will be tested per AASHTO TP xxx "Determining Rutting Susceptibility of Asphalt Paving Mixtures Using the Asphalt Pavement Analyzer (APA)". If the depth of measured permanent deformation is 2 mm or less after 8000 strokes and a fatigue criteria of less than 1.0 mm/stroke after at least 50000 strokes, the mixture may be approved for use.

### **Shingles:**

Only shingles reclaimed from shingle manufacturer's such as tabs, punch-outs, and damaged new shingles shall be allowed in the mixture. Post-consumer shingles or used shingles shall not be permitted in the mixture and all shingles shall be free of all foreign material and moisture. Fiberglass-backed and organic felt-backed shingles shall be kept separately and both materials shall not be used in the same mixture at the same time. The shingles shall be broken down in the mixing process with 100% passing the ½ in (12.5 mm) sieve. Shipping, handling, and shredding cost are incidental to the price of Superpave bituminous concrete.

The overall percentage of RAP and recycled shingles (5% maximum) shall not exceed 20% of the mixture. The RAP and recycled shingles mixture are not permitted on wearing course.

### **Mineral Aggregate:**

The mineral aggregate employed in the target gradation of the job mix formula (JMF) shall conform to Section 805 and the following criteria. These criteria apply to the combined aggregate blend.

DESIGN ESAL'S (MILLIONS)	COARSE AGGREGATE ANGULARITY <sup>1</sup> (% MIN)		FINE AGGREGATE ANGULARITY <sup>2</sup> (% MIN)		CLAY CONTENT <sup>3</sup> (% - MIN)	FLAT AND ELONGATED <sup>4</sup> (% - MAX)
	≤ 100 MM	> 100 MM	≤ 100 MM	> 100 MM		
< 0.3	55/-	-/-	-	-	40	-
0.3 to < 3	75/-	50/-	40	40	40	10
3 to <10	85/80 <sup>5</sup>	60/-	45	40	45	
10 < 30	95/90	80/75	45	40	45	
≥30	100/100	100/100	45	45	50	

<sup>1</sup>Coarse Aggregate Angularity is tested according to ASTM D5821.

<sup>2</sup>Fine Aggregate Angularity is tested according to AASHTO TP-33.

<sup>3</sup>Clay Content is tested according to AASHTO T176.

<sup>4</sup>Flat and Elongated is tested according to ASTM 4791 with a 5:1 aspect ratio.

<sup>5</sup> 85/80 denotes that 85% of the coarse aggregate has one fractured face and 80% has two or more fractured faces.

The following source properties apply to the individual aggregates in the aggregate blend for the proposed JMF.

TEST METHOD	SPECIFICATION LIMITS
<b>Toughness, AASHTO T96</b> Percent Loss, Maximum	40
<b>Soundness, AASHTO T104</b> Percent Loss, Maximum for five cycles	20
<b>Deleterious Materials, AASHTO T112</b> Percent, Maximum	10
<b>Moisture Sensitivity, AASHTO T283</b> Percent, Minimum	80

For any roadway with a minimum average daily traffic volume (ADT) of 8000 vehicles and a posted speed of 35 mph (60 kph) or greater, the polish value of the composite aggregate blend shall be greater than 8.0 when tested according to Maryland State Highway Administration MSMT 411 – “Laboratory Method of Predicting Frictional Resistance of Polished Aggregates and Pavement Surfaces.” RAP shall be assigned a value of 4.0. The contractor shall supply all polish values to the Engineer upon request.

### **Mineral Filler:**

The mineral filler shall conform to AASHTO M17.

### **Mixture Requirements:**

**Gradation:** The FHWA Superpave 0.45 Power Chart with the recommended restricted zone shall be used to define permissible gradations for the specified mixture. Type C shall be either a No.4 (4.75 mm), 3/8” (9.5 mm), or 1/2” (12.5 mm) Nominal Maximum Aggregate Size Hot-Mix. Unless otherwise noted in the Plans, the Type C shall meet the 3/8” (9.5 mm) Nominal Maximum Aggregate Size. Type B Hot-Mix shall be the 3/4” (19.0 mm) Nominal Maximum Aggregate Size and the Bituminous Concrete Base Course (BCBC) shall be the 1” (25.0 mm) Nominal Maximum Aggregate Size. Target values for percent passing each standard sieve for the design aggregate structure shall comply with the Superpave control points and should avoid the restricted zone. Percentages shall be based on the washed gradation of the aggregate

according to AASHTO T11.

In addition to the results of the material requirements specified above, the following material properties shall be provided by the contractor: bulk specific gravity  $G_{sb}$ , apparent specific gravity  $G_{sa}$ , and the absorption of the individual aggregate stockpiles to be used, tested according to AASHTO T84 and AASHTO T85 and reported to three decimal places along with the specific gravity of the mineral filler to be used, tested according to AASHTO T100 and reported to three decimal places.

**Superpave Gyrotory Compactive (SGC) Effort:**

The Superpave Gyrotory Compaction effort employed throughout mixture design, field quality control, or field quality assurance shall be as indicated below. All mixture specimens tested in the SGC shall be compacted to  $N_M$  Height data provided by the SGC shall be employed to calculate volumetric properties at  $N_I$ ,  $N_D$ , and  $N_M$

**Superpave Gyrotory Compactive (SGC) Effort:**

DESIGN TRAFFIC LEVEL (MILLION ESAL'S)	$N_{INITIAL}$	$N_{DESIGN}$	$N_{MAXIMUM}$
0.3 to < 3	7	75	115
3 to < 30	8	100	160
$\geq 30$	9	125	205

**Volumetric Design Parameters.** The design aggregate structure at the target asphalt cement content shall satisfy the volumetric criteria below:

DESIGN ESAL'S (MILLION)	REQUIRED DENSITY (% OF THEORETICAL MAXIMUM SPECIFIC GRAVITY)			VOIDS-IN-MINERAL AGGREGATE (% - MINIMUM) NOMINAL MAX. AGGREGATE (MM)					VOIDS FILLED WITH ASPHALT (% - MINIMUM)
	$N_{INITIAL}$ L	$N_{DESIGN}$	$N_{MAX}$	25.0	19.0	9.5	12.5	4.75	
0.3 to < 3	$\leq 90.5$	96.0	$\leq 98.0$	12.0	13.0	15.0	14.0	16.0	65.0 - 78.0
3 to < 10	$\leq 89.0$								65.0 - 75.0 <sup>1</sup>
10 < 30									
$\geq 30$									

Air voids ( $V_a$ ) at  $N_{design}$  shall be 4.0% for all ESAL designs. Air voids ( $V_a$ ) at  $N_{max}$  shall be a minimum of 2.0% for all ESAL designs

The dust to binder ratio for the mix having aggregate gradations above the PCS Control Points shall be 0.6-1.2. For aggregate gradations below the PCS Control Points, the dust to binder ratio shall be 0.8-1.6. For the No. 4 (4.75 mm) mix, the dust to binder ratio shall be 0.9-2.0 whether above or below the PCS Control Points.

For 3/8" (9.5 mm) Nominal Maximum Aggregate Size mixtures, the specified VFA range shall be 73.0% to 76.0% and for 4.75 mm Nominal Maximum Size mixtures, the range shall be 75 % to 78% for design traffic levels  $\geq 3$  million ESALs.

### **Gradation Control Points:**

The combined aggregates shall conform to the gradation requirement specified in the follow table when tested according to T-11 and T-27.

<b>Nominal Maximum Aggregates Size Control Points, Percent Passing</b>										
	<b>25.0 MM</b>		<b>19.0 MM</b>		<b>12.5 MM</b>		<b>9.5 MM</b>		<b>4.75 MM</b>	
<b>SIEVE SIZE</b>	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>
37.5 MM	100	-	-	-	-	-	-	-	-	-
25.0 MM	90	100	100	-	-	-	-	-	-	-
19.0 MM	-	90	90	100	100	-	-	-	-	-
12.5 MM	-	-	-	90	90	100	100	-	100	-
9.5 MM	-	-	-	-	-	90	90	100	95	100
4.75 MM	-	-	-	-	-	-	-	90	90	100
2.36 MM	19	45	23	49	28	58	32	67	-	-
1.18 MM	-	-	-	-	-	-	-	-	30	60
0.075 MM	1	7	2	8	2	10	2	10	6	12

Note: The aggregates gradation for each sieve must fall within the minimum and maximum limits.

### **Gradation Classification:**

The Primary Control Sieve (PCS) defines the break point of fine and coarse mixtures. The combined aggregates shall be classified as coarse graded when it passes below the Primary Control Sieve (PCS) control point as defined below. All other gradations shall be classified as

fine graded.

<b>PCS CONTROL POINT FOR MIXTURE NOMINAL MAXIMUM AGGREGATES SIZE (% PASSING)</b>					
Nominal maximum Aggregates Size	25.0 mm	19.0 mm	12.5 mm	9.5 mm	4.5 mm
Primary Control Sieve	4.75 mm	4.75 mm	2.36 mm	2.36 mm	1.18 mm
PCS Control Point	40	47	39	47	30-60

**Plant Production Tolerances:**

Volumetric Property	Superpave Criteria
Air Voids ( $V_a$ ) at (%) $N_m$	2.0 (min)
Air Voids ( $V_a$ ) at $N_{design}$ (%)	5.5 (max)
Voids in Mineral Aggregate (VMA) at $N_{design}$	
25.0 mm Bituminous Concrete Base Course	-1.2
19.0 mm Type B Hot-Mix	+2.0
12.5 mm Type C Hot-Mix	
9.5 mm Type C Hot-Mix	
4.5 mm Type C Hot-Mix	

**Design Evaluation:**

The contractor shall furnish a Job Mix Formula (JMF) for review and approval. The Engineer may elect to evaluate the proposed JMF and suitability of all materials. All materials requested by the Engineer shall be provided at the contractors expense to the Central Laboratory in Dover in a timely manner upon request. To verify the complete mixture design and evaluate the suitability of all materials, the following approximate quantities are required:

- 5.25 gal (20 liters) of the asphalt binder,
- 0.13 gal (0.5 liter) sample of liquid heat-stable anti-strip additive,
- 254 lb (115 kg) of each coarse aggregate,
- 154 lb (70 kg) of each intermediate and fine aggregate,
- 22 lb (10 kg) of mineral filler, and
- 254 lb (115 kg) of RAP, when applicable.

**The proposed JMF shall include the following:**

Plot of the design aggregate structure on the FHWA Superpave 0.45 power chart showing the maximum density line, Superpave control points, and recommended restricted zone.

Plot of the three trial asphalt binder contents at +/- 0.5% gyratory compaction curves where the percent of maximum specific gravity (% of  $G_{mm}$ ) is plotted against the log base ten of the number of gyrations ( $\log(N)$ ) showing the applicable criteria for  $N_i$ ,  $N_d$ , and  $N_m$ .

Plot of the percent asphalt binder by total weight of the mix ( $P_b$ ) versus the following:

% of  $G_{mm}$  at  $N_d$ , VMA at  $N_d$ , VFA at  $N_d$ , Fines to effective asphalt binder ( $P_{be}$ ) ratio, and unit weight ( $\text{kg/m}^3$ ) at both  $N_d$  and  $N_m$ .

Summary of the consensus property standards test results for the design aggregate structure, summary of the source property standards test results for the individual aggregates in the design aggregate structure, target value of the asphalt binder content, and a table of  $G_{mm}$  of the asphalt mixture for the four trial asphalt binder contents determined according to AASHTO T209.

The JMF shall also include the NCAT Ignition Oven calibration for the specific materials utilized for this mix.

**Compaction:**

Compaction shall be tested and paid per Item 401699 - Quality Control/Quality Assurance of Bituminous Concrete .05 (b) Pavement Construction - Tests and Evaluations.

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**T-618500**  
**HELICAL ANCHOR FOUNDATION**

**(A) GENERAL** - Work under these items consists of furnishing all materials for and installation of helical anchors to support pedestrian bridges and boardwalks according to the specifications contained herein, including the installation of all necessary connections to the supported structures. The terms “anchor” and “pile” are used interchangeably in these Contract Documents.

The Contractor shall be responsible for the design of the helical anchor system from the connection to the pier cap down. Design elements shall include the connection to the pier cap, battered piles in both the longitudinal and transverse directions relative to the baseline, and bracing of the pile free length above grade. The Contractor shall select the helical anchor type, size, installation means and methods, and means and methods of connecting the helical anchor caps to the supported structures. The Contractor shall perform all geotechnical and structural design and will install helical anchors that will develop the load capacities required in accordance with AASHTO Guide Specifications for Design of Pedestrian Bridges, dated December 2009; anticipated loads are shown on the plans. The helical anchors shall be designed with a minimum Factor of Safety equal to 2.0 for bearing capacity.

Attached for informational purposes only are HeliCAP Summary Reports for the proposed helical anchors, provided by Chance Anchor. The engineer assumes no responsibility or liability for the information and interpretation made in these reports. These reports do not relieve the contractor from any required submittals as detailed below. In addition the contractor will refer to the plans for the minimum depth of top helix.

**(B) SUBMITTALS** – Prior to commencement of construction, verification of the following requirements and documents shall be submitted for approval.

1. Qualifications.

- a. The Contractor shall have experience designing and installing helical anchors with similar site access, loading, and subsurface conditions. The Contractor shall submit descriptions of projects completed including construction and structural details and point of contact information for at least three previous successful projects utilizing helical anchor foundations of similar scope to this project completed in the last five years.
- b. The Contractor shall assign an Engineer to supervise the work with experience on at least two projects of similar scope to this project completed over the past five years. The Engineer shall be licensed to practice engineering in the State of Delaware. The Contractor shall not use a manufacturer's representatives to satisfy the supervising Engineer requirement of this section. A manufacturer's representative, shall be on-site during installation of at least the first helical anchor.

- c. The on-site foreman, who will be in charge full time of all operations, shall also have experience on at least two projects over the past five years installing helical anchor foundations of similar scope to this project.
- d. The helical anchors shall be designed by a licensed Professional Engineer, licensed in the State of Delaware, with experience in the design of at least three successfully completed helical anchor foundation projects over the past five years. The helical anchors designer may be either an employee of the Contractor or a separate Consultant designer meeting the stated experience requirements.
- e. The Contractor shall submit the completed project reference list and personnel list with resumes. The project reference list shall include a brief project description with the owner's name and current phone number. The personnel list shall identify the supervising Project Engineer, Registered Professional Engineer, and on-site foremen to be assigned to the project. The personnel list shall contain a summary of each individual's experience and be complete so the Engineer can determine whether each individual satisfies the required qualifications. Additional time required due to incomplete or unacceptable submittals will not be cause for time extension or impact or delay claims. All costs and delays associated with incomplete or unacceptable submittals shall be borne by the Contractor.

## 2. Working Drawing Submittals.

- a. The Contractor shall submit complete engineering calculations and Shop Drawings for review and approval. The calculations and drawings shall be signed and sealed by a Registered Professional Engineer licensed in the State of Delaware.
- b. Provide shop drawings indicating product components and accessories, and indicating the following:
  - 1) Helical screw anchor number.
  - 2) Location and pattern by assigned identification number.
  - 3) Helical screw anchors design load.
  - 4) Type and size of central steel shaft.
  - 5) Helix configuration (number, vertical spacing, and diameter of helix plates).
  - 6) Required minimum effective installation torque.
  - 7) Displacement plates/ centralizers and their location.
  - 8) Minimum overall length.
  - 9) Inclination of helical screw anchors.
  - 10) Grout column length.
  - 11) Minimum cased length.
  - 12) Grout column diameter(s).
  - 13) Cutoff elevation.
  - 14) Detail showing helical screw anchor attachment to structure relative to grade beam, column pad, etc.

## 15) Bracing of pile free length

- c. General notes for constructing and installing the structures with a helical anchor foundation including construction sequencing, acceptance criteria, or other special construction requirements.
- d. A listing of the summary of quantities on the elevation drawing of each structure with a helical anchor foundation showing pay item estimated quantities.
- e. Within twenty four (24) hours after installation, submit to the Engineer the installation record(s).

## 3. Construction Submittal.

- a. The Contractor shall prepare and submit for review and approval a detailed step-by-step description of the proposed helical anchor installation procedure, including personnel, and equipment to assure quality control. This step-by-step procedure shall be indicated on the working drawings in sufficient detail to allow the Engineer to monitor construction and quality.

## 4. Quality Assurance/Control Submittals.

- a. Certified test reports showing compliance with specified characteristics and physical properties.
- b. Manufacturer's certificate that products meet or exceed specified requirements.
- c. Mill test reports.
- d. Accurately record the type, size and actual locations of helical screw anchors, torque installation records on all helical screw anchors and torque monitoring calibration data.
- e. Grout mix design.

## 5. Final Location Drawings.

- a. Within thirty (30) days after completion of required work, the Contractor shall submit an accurate print or prints showing the locations and top and bottom elevations of all installed helical anchors.
- b. Within thirty (30) days after completion of required work, the Contractor shall submit as-built drawings, including installation records. Provide revised design calculations signed by the approved Licensed Professional Engineer for all design changes made during the construction and installation of the helical anchors.

**(C) MATERIALS** - All materials for this work shall be new and without defect. Defective materials shall be removed from the jobsite at no additional cost. All helical anchors shall be hot dipped galvanized for corrosion protection.

1. Central Steel Shaft:

- a. Consists of lead sections, helical extensions and plain extensions. Hot rolled round or round-cornered-square solid steel bars meeting dimensional and workmanship requirements of ASTM A29. The bar shall be either modified medium carbon steel grade with a minimum yield strength of 70 ksi, or high strength low alloy, low to medium carbon steel grade with a minimum yield strength of 90 ksi.

2. Helix Bearing Plate:

- a. Hot rolled carbon steel sheet, strip or plate formed on matching metal dies to true helical shape and uniform pitch. Bearing plate material shall conform to the following ASTM specifications:
  - 1) ASTM A572, or ASTM A1018 or ASTM A656 with minimum yield strength of 50 ksi. Plate thickness  $\frac{3}{8}$ -inch.
  - 2) ASTM A656 or ASTM A1018 with minimum yield strength of 80 ksi. Plate thickness  $\frac{3}{8}$ -inch.
  - 3) ASTM S656 or ASTM A1018 with minimum yield strength of 80 ksi. Plate thickness  $\frac{1}{2}$ -inch.
  - 4) ASTM A36, or ASTM A572, or ASTM A1018 or ASTM A656 depending on helix diameter, per the minimum yield strength requirement cited above. Plate thickness  $\frac{3}{8}$ -inch.

3. Bolts:

- a. The size and shape of bolts used to connect the central steel shaft section together shall conform to the following ASTM specification:
  - 1)  $\frac{3}{4}$ -inch diameter bolt per ASTM A320 Grade L7.
  - 2)  $\frac{7}{8}$ -inch diameter bolt per ASTM A193 Grade B7.
  - 3)  $1\frac{1}{8}$ -inch diameter bolt per ASTM A193 Grade B7.
  - 4)  $1\frac{1}{4}$ -inch diameter bolt per ASTM A 193 Grade B7.
  - 5)  $\frac{3}{4}$ -inch diameter bolts (3 per coupling) per SAE J429 Grade 5.

4. Couplings shall be formed as integral part of the plain and helical extension material.

5. Fabricate displacement plates from steel or other material that will not affect the structural integrity of the central steel shaft or grout column. Do not use wood for this purpose.

6. For structural steel plates and shape for helical screw anchors top attachments, conform to ASTM A36 or ASTM A572, Grade 50 (Grade 345).
7. Steel casing shall conform to requirements of ASTM A53 Type E or S Grade B, ASTM A252 Grade 2, ASTM A500 Grade B or ASTM A618.
8. For PVC casing relied upon for grout containment, fissured or void-filled solid, or as a bond breaker, the pipe shall conform to ASTM D1784, ASTM D1785 and ASTM D3034.
9. Corrosion Protection shall be provided in accordance with helical screw anchor manufacturer's recommendations.
10. Accessories:
  - a. Cement for Helical screw anchors grout shall be Portland cement conforming to ASTM C150 Type I or Type II.
  - b. Admixtures and Chemical Admixtures shall conform to the requirements of ASTM C494. Do not use accelerators. Chemical admixtures shall be compatible with the central steel and mixed in accordance with the grout manufacturer's recommendations.
  - c. Mineral Admixtures shall conform to the requirements of ASTM C618 (coal fly ash) or C1240 (silica fume).
  - d. Mineral Admixtures shall be compatible with the central steel shaft and mixed in accordance with the grout manufacturer's recommendations.
11. Mixes:
  - a. The grout mix shall be designed by the Contractor and submitted for approval. The grout mix shall be proportioned to produce a hardened grout which will achieve the design Compressive Strength of at least 4,000 psi within 28 days.

**(D) CONSTRUCTION METHODS** - The following minimum procedures shall be performed.

Work shall not be started, nor materials ordered until the Engineer's written approval of the Contractor's experience qualifications is given. The Engineer may suspend work if the Contractor uses non-approved personnel. If work is suspended, the Contractor shall be fully liable for all resulting costs and no adjustment in contract time or cost will result from the suspension.

The Contractor shall visit the site to assess the site geometry, equipment access conditions, and location of existing structures and utilities. The Contractor is responsible for field location and verifying the locations of all utilities shown on the plans prior to starting work.

All helical anchor material shall be handled and transported carefully to prevent any deformation or damage. Care should be taken to prevent the accumulation of dirt, mud or other foreign matter on the steel materials. Such accumulation shall be completely removed prior to the installation.

1. General:

- a. Comply with the instructions and recommendations of the power installed helical screw anchors manufacturer.
- b. Verify that site conditions are acceptable and installation of power installed helical screw anchors are in accordance with all pertinent codes and regulations regarding such items as underground obstructions, right-of-way limitations, utilities, etc.
- c. The helical screw anchors installation technique shall be consistent with the geotechnical, site access, logistical, environmental and load carrying conditions of the project.
- d. Installation equipment shall be rotary type, hydraulic power driven torque motor with clockwise and counterclockwise rotation capabilities.
- e. Utilize a torque motor capable of continuous adjustment to number of revolutions per minute (RPM) during installation and with a torque capacity 15% greater than the torsional strength rating of the central steel shaft to be installed. Do not use percussion drilling equipment.
- f. Utilize equipment capable of applying adequate downward pressure and torque simultaneously to suit project soil conditions and load requirements, and capable of continuous position adjustment to maintain proper helical screw anchors alignment.
- g. A calibrated torque indicator shall be used during helical screw anchors installation. The torque indicator may be an integral part of the installation equipment or mounted inline with the installation tooling.

2. Installation:

- a. Engage and advance helical screw anchors into soil in a smooth, continuous manner at a rate of 5-20 RPM. Provide extension sections to obtain the required minimum overall length and installation torque as shown on the shop drawings. Connect sections together using coupling bolt and nut tightened to torque of 40 ft-lb or as specified in approved shop drawings.

- b. Apply sufficient down pressure to uniformly advance the helical screw anchor sections approximately 3 inches per revolution or as stated on the approved shop drawings. Adjust rate of rotation and magnitude of down pressure for different soil conditions and depths.
- c. Position a lead displacement plate of appropriate diameter on the central steel shaft at the location necessary to install the grout column as shown on the shop drawings. Do not position the lead displacement plate closer than 12 inches above the top helix plate. Position additional lead displacement plates or extension displacement plates no more than 7 feet apart. Displacement plates shall permit the free flow of grout without misalignment of the central steel shaft.
- d. Contractor shall place grout to achieve minimum grout column length as shown on the approved shop drawings. Allow grout to attain the minimum design strength prior to being loaded.
- e. If required, install casing in segments corresponding to the section of the central steel shaft. Advance casing into the soil by direct connection with lead and extension displacement plates. Fill each casing segment with grout immediately after placement.
- f. Satisfy the minimum installation torque and minimum overall length criteria as shown on the shop drawings prior to terminating the helical screw anchors. The torque as measured during the installation shall not exceed the torsional strength rating of the central steel shaft.
- g. The uppermost helix shall be installed at least three diameters into competent load-bearing soil.
- h. Center-to-center spacing of adjacent piles shall be greater than or equal to five diameters of the largest helix.
- i. If the helical screw anchors is refused or deflected by a subsurface obstruction, Contractor shall terminate the installation and remove the pile. Remove the obstruction, if feasible, and reinstall the helical screw anchors. If not feasible to remove the obstruction, install the helical screw anchor at an adjacent location, subject to review and acceptance by the Professional Engineer that was responsible for the helical screw anchor system design, and approved by the Engineer.
- j. Install helical screw anchors to the following allowable tolerances:
  - a. Centerline of piling shall not be more than 3 inches from the indicated plan location.
  - b. Pile plumbness shall be within 2 degrees of design alignment.

- c. Top elevation of pile shall be within +1 inch to -2 inches of the design vertical elevation.
- d. Centerline of central steel shaft shall not be more than  $\frac{3}{4}$  inch from the centerline of the pile.

3. Testing:

- a. Perform helical screw anchors load test in accordance with ASTM D1143 Quick Procedure. Load tests shall be performed for representative helical anchors supporting loads greater than or equal to 40 kips. At least one helical anchor shall be load tested in each area of uniform subsoil conditions.
- b. Site Test Records: Provide the Engineer copies of field test reports within 24 hours after completion of the load tests. Include, at a minimum, the following information.
  - 1) Name of project and Contractor.
  - 2) Name of Contractor's supervisor during installation.
  - 3) Name of third party test agency, if applicable.
  - 4) Date, time and duration of test.
  - 5) Location of helical screw anchors by assigned identification number.
  - 6) Type of test (i.e., tension or compression).
  - 7) Description of calibrated testing equipment and test setup.
  - 8) Actual helical screw anchor type and configuration, including lead section, number and type of extension sections.
  - 9) Steps and duration of each load increment.
  - 10) Cumulative pile-head movement at each load step.
  - 11) Comments pertaining to interruptions, obstructions or other relevant information.
  - 12) Signed by third party test agency representative, registered Professional Engineer or as required by local jurisdiction.

4. Protection:

- a. Protect installed work from damage due to subsequent construction activity on the site.

**(E) MEASUREMENT AND PAYMENT** - The payment will be full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work.

The unit of measure will be linear foot as installed from the tip of the anchor to the bottom of the beam seat saddle. Payment for HELICAL ANCHOR FOUNDATION will include full compensation for designing, furnishing, transporting, installing, and testing the materials and for all labor, equipment, tools and necessary incidentals.

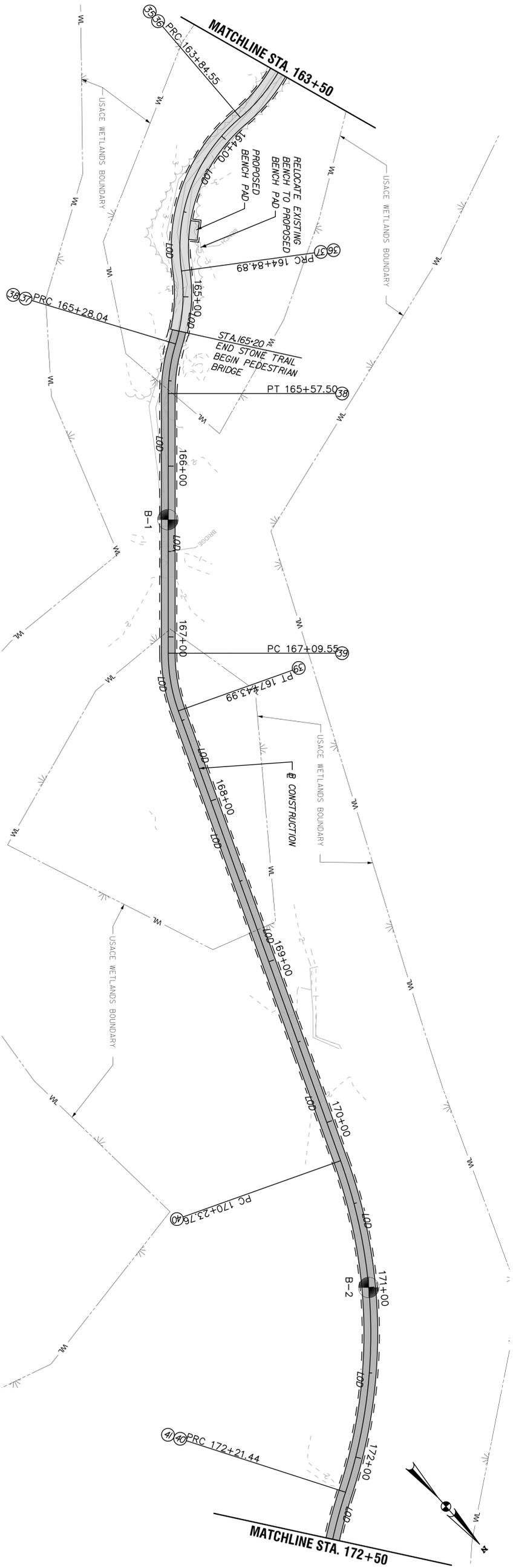
No separate payment shall be made for salvaging, abandoning or removing and disposing of existing facilities and cost for such required work shall be incidental to the installation of the item.

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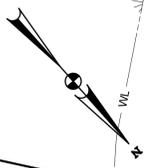
**APPENDIX A**

BORING LOCATION PLANS

BORING LOGS



PLAN  
 SCALE 1"=30'



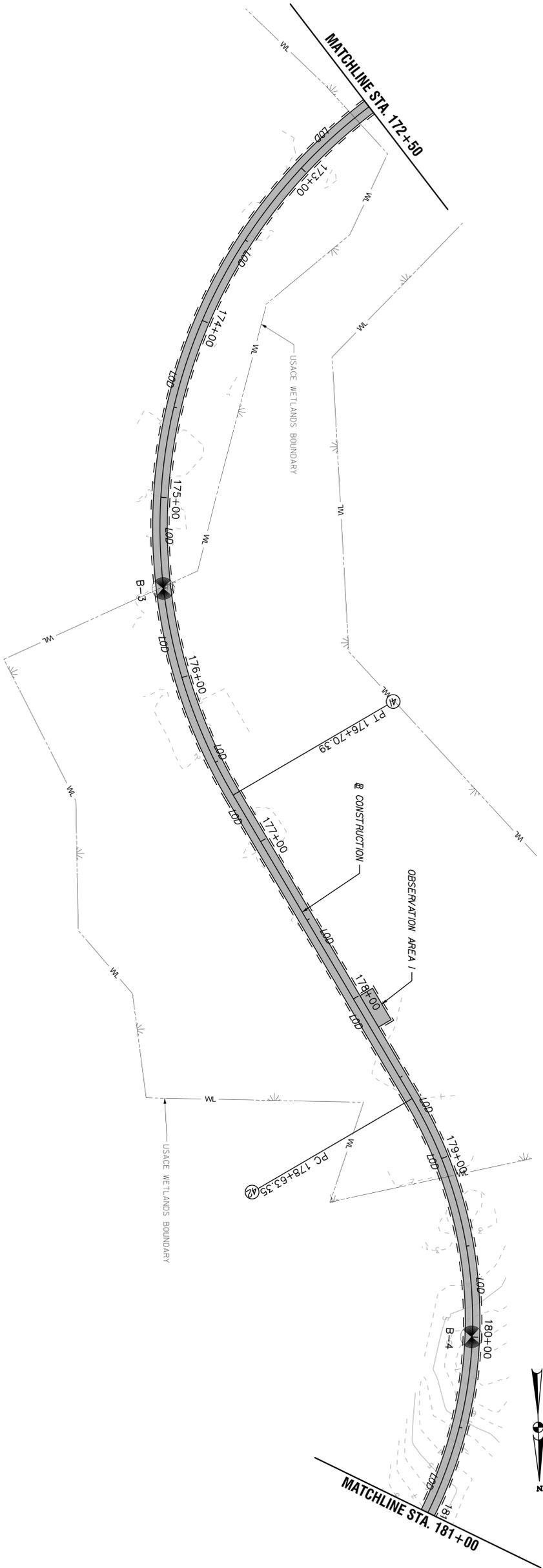
**CAPE HENLOPEN STATE PARK  
 GORDONS POND TRAIL IMPROVEMENTS**

**BORING LOCATION PLAN**

DATE:	DESCRIPTION:	BY:



DESIGNED BY:	RKK
DRAWN BY:	RKK
BUILDING NO.:	N/A
DATE:	OCTOBER, 2012
SCALE:	1" = 30'
SHEET NO.:	<b>S-1</b>
PARKS PROJECT #:	
CONTRACT #:	



PLAN  
 SCALE 1"=30'

**CAPE HENLOPEN STATE PARK  
 GORDONS POND TRAIL IMPROVEMENTS**

**BORING LOCATION PLAN**



DESIGNED BY:  
RKK

DRAWN BY:  
RKK

BUILDING NO.:  
N/A

DATE:  
OCTOBER, 2012

SCALE:  
1" = 30'

SHEET NO.:  
S-2

PARKS PROJECT #:

CONTRACT #:

DATE: DESCRIPTION: BY:

DATE:	DESCRIPTION:	BY:





# TEST BORING LOG



**PROJECT:** Gordons Pond Trail Improvements

**SITE:** Lewes, Delaware

**DRILLING CO.:** Hillis-Carnes      **RIG/HAMMER:** Tripod

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION <small>(moisture, density, color, proportions, etc.)</small>	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-10	X	18	WOH WOH WOH				35		Wet, Very Soft, Gray-Green CLAY, Little Fine Sand (CH) {A-7-6(34)}		
S-11	X	18	WOH WOH WOH	68.1%			40		Sample S-11: No Sand		
S-12	X	18	2 4 6				45	EL -43.0 43.0 EL -45.0 45.0	Wet, Loose, Gray, Medium to Fine SAND, Trace Fine Gravel (sp) {a-3}		
									Bottom of Boring @ 45.0 ft	Boring Grouted With Hole Plug Bentonite	
							50				
							55				
							60				
							65				

RKK NORTH/EAST (DEFAULT) 12054\_GORDONS POND TRAIL.GPJ\_RKK\_CURRENT.GDT 7/29/13

# TEST BORING LOG

Boring No. B-2  
Page 1 of 1

	<b>PROJECT:</b> Gordons Pond Trail Improvements				<b>COMMISSION NO.:</b> 112-054-01E				
	<b>SITE:</b> Lewes, Delaware				<b>NORTH:</b> 276441				
	<b>DRILLING CO.:</b> Hillis-Carnes <b>RIG/HAMMER:</b> Tripod				<b>EAST:</b> 750113				
<b>GROUNDWATER DATA (ft)</b>					<b>EQUIPMENT</b>	<b>CASING</b>	<b>SAMPLER</b>	<b>CORE</b>	<b>ELEVATION:</b> 0 - ft
Date	Time	Water	Casing	Cave-In	TYPE	DC	S		<b>START DATE:</b> 11/21/2012
11/21/2012	8:50:00 AM	1			SIZE, ID (in)	3.25	1.375		<b>END DATE:</b> 11/21/2012
					HAMMER WT. (lb)	140	140	-	<b>DRILLER:</b> Keith
					HAMMER FALL (in)	Varies	30	-	<b>LOGGED BY:</b> AVS

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% ROD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	6	2 1 2				∇		Wet, Very Loose, Gray, Medium to Fine SAND (sp) {a-3}	6-in Peat	
S-2	X	16	3 7 9	22.2%					Sample S-2: Medium Dense		
S-3	X	2	1 1 1				5	EL -4.5 4.5	Wet, Very Soft, Green-Gray CLAY, Trace Medium to Fine Sand, Trace Peat (CH) {A-7-6(38)}		
S-4	X	18	WOH WOH WOH						Sample S-4: No Peat		
S-5	X	18	WOH WOH WOH				10		Sample S-5: No Peat		
S-6	X	18	WOH WOH WOH	71%	58	34	15		Sample S-6: No Peat		
S-7	X	12	2 1 2				20	EL -17.0 17.0	Wet, Very Loose, Gray, Coarse to Fine SAND (sp) {a-3}	Running Sands From 17 to 22-ft	
S-8	X	18	9 13 14	12.2%			25		Sample S-8: Medium Dense, Light Gray		
S-9	X	4	12 15 14				30	EL -30.0 30.0	Sample S-9: Medium Dense, Light Gray		
									Bottom of Boring @ 30.0 ft	Boring Grouted With Hole Plug Bentonite	

RKK NORTH/EAST (DEFAULT) 12054\_GORDONS POND TRAIL.GPJ\_RKK\_CURRENT.GDT 7/29/13

SAMPLE IDENTIFICATION		DRILLING METHOD		BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
	- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS		0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
	- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS		5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
	- SS - 3" SPLIT SPOON	DC - DRIVING CASING		11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
	- D - DENISON	MD - MUD DRILLING		31-50	DENSE	9-15	STIFF	AND	36 TO 50
	- RC - ROCK CORE	HA - HAND AUGER		OVER 50	VERY DENSE	16-30	VERY STIFF		
						OVER 30	HARD		

Boring No. B-2

# TEST BORING LOG

Boring No. B-3  
Page 1 of 1

	<b>PROJECT:</b> Gordons Pond Trail Improvements				<b>COMMISSION NO.:</b> 112-054-01E				
	<b>SITE:</b> Lewes, Delaware				<b>NORTH:</b> 276799				
	<b>DRILLING CO.:</b> Hillis-Carnes <b>RIG/HAMMER:</b> Tripod				<b>EAST:</b> 750345				
<b>GROUNDWATER DATA (ft)</b>					<b>EQUIPMENT</b>	<b>CASING</b>	<b>SAMPLER</b>	<b>CORE</b>	<b>ELEVATION:</b> 0 - ft
Date	Time	Water	Casing	Cave-In	TYPE	DC	S		<b>START DATE:</b> 11/26/2012
11/26/2012	9:30:00 AM	1			SIZE, ID (in)	3.25	1.375		<b>END DATE:</b> 11/26/2012
					HAMMER WT. (lb)	140	140	-	<b>DRILLER:</b> Keith
					HAMMER FALL (in)	Varies	30	-	<b>LOGGED BY:</b> AVS

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% ROD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	8	1 2 2				▽			Wet, Very Loose, Grey, Medium to Fine SAND (sp) {a-3}	6-in Organic Material
S-2	X	18	2 4 6							Sample S-2: Loose	
S-3	X	18	WOH WOH WOH	94.8%	96	63	5	EL -4.5 4.5		Wet, Very Soft, Gray-Green CLAY, Trace Fine Sand (CH) {A-7-5(72)}	
S-4	X	18	WOH WOH WOH					EL -7.0 7.0		Wet, Very Loose, Dark Gray-Green, Fine SAND AND CLAY (sc) {a-2-4}	
S-5	X	9	6 5 4				10	EL -9.5 9.5		Wet, Loose, Gray, Medium to Fine SAND (sp) {a-3} Sample S-5: Light Gray, Trace Clay	
S-6	X	12	4 5 7	18.8%			15			Sample S-6: Medium Dense, Coarse to Fine	
S-7	X	10	8 13 15				20			Sample S-7: Medium Dense, Coarse	
S-8	X	2	11 7 6				25	EL -25.0 25.0		Sample S-8: Medium Dense, Fine	No Recovery on First Attempt
										Bottom of Boring @ 25.0 ft	Boring Grouted With Hole Plug Bentonite

RKK NORTHEAST (DEFAULT) 12054\_GORDONS POND TRAIL.GPJ\_RKK\_CURRENT.GDT 7/29/13

SAMPLE IDENTIFICATION		DRILLING METHOD		BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
	- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS		0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
	- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS		5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
	- SS - 3" SPLIT SPOON	DC - DRIVING CASING		11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
	- D - DENISON	MD - MUD DRILLING		31-50	DENSE	9-15	STIFF	AND	36 TO 50
	- RC - ROCK CORE	HA - HAND AUGER		OVER 50	VERY DENSE	16-30	VERY STIFF		
						OVER 30	HARD		

Boring No. B-3

# TEST BORING LOG

Boring No. B-4  
Page 1 of 1

	<b>PROJECT:</b> Gordons Pond Trail Improvements				<b>COMMISSION NO.:</b> 112-054-01E				
	<b>SITE:</b> Lewes, Delaware				<b>NORTH:</b> 277213				
	<b>DRILLING CO.:</b> Hillis-Carnes <b>RIG/HAMMER:</b> Tripod				<b>EAST:</b> 750185				
<b>GROUNDWATER DATA (ft)</b>					<b>EQUIPMENT</b>	<b>CASING</b>	<b>SAMPLER</b>	<b>CORE</b>	<b>ELEVATION:</b> 0 - ft
Date	Time	Water	Casing	Cave-In	TYPE	DC	S		<b>START DATE:</b> 11/13/2012
11/14/2012	11:20:00 AM	5.4	23.5		SIZE, ID (in)	3.25	1.375		<b>END DATE:</b> 11/14/2012
					HAMMER WT. (lb)	140	140	-	<b>DRILLER:</b> Keith
					HAMMER FALL (in)	Varies	30	-	<b>LOGGED BY:</b> AVS

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% ROD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	3	1 1 2							Dry, Very Loose, Pale Yellow, Fine SAND (sp) {a-3}	
S-2	X	16	3 4 5	3.1%						Sample S-2: Loose	
S-3	X	14	5 15 16				5			Sample S-3: Wet, Dense, Coarse to Fine	
S-4	X	0	8 8 9							Sample S-4: No Recovery	
S-5	X	4	4 3 4	20.4%			10			Sample S-5: Wet, Loose, Medium to Fine	
S-6	X	3	5 3 5				15			Sample S-6: Wet, Loose, Medium to Fine	
S-7	X	14	8 7 7	19.5%			20			Sample S-7: Wet, Medium Dense, Yellow-Gray, Coarse to Fine, Trace Fine Gravel	Beach Sand
S-8	X	18	14 15 18				25	EL -25.0 25.0		Sample S-8: Wet, Dense, Yellow-Gray, Coarse to Fine, Trace Fine Gravel	
										Bottom of Boring @ 25.0 ft	Boring Grouted With Hole Plug Bentonite

RKK NORTH/EAST (DEFAULT) 12054\_GORDONS POND TRAIL.GPJ\_RKK\_CURRENT.GDT 7/29/13

SAMPLE IDENTIFICATION		DRILLING METHOD		BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
	- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS		0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
	- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS		5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
	- SS - 3" SPLIT SPOON	DC - DRIVING CASING		11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
	- D - DENISON	MD - MUD DRILLING		31-50	DENSE	9-15	STIFF	AND	36 TO 50
	- RC - ROCK CORE	HA - HAND AUGER		OVER 50	VERY DENSE	16-30	VERY STIFF		
						OVER 30	HARD		

Boring No. B-4

# TEST BORING LOG

Boring No. B-5  
Page 1 of 1

	PROJECT: <u>Gordons Pond Trail Improvements</u>				COMMISSION NO.: 112-054-01E					
	SITE: <u>Lewes, Delaware</u>				NORTH: 277594					
	DRILLING CO.: <u>Hillis-Carnes</u> RIG/HAMMER: <u>Tripod</u>				EAST: 750414					
GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE	ELEVATION: 0 - ft	
Date	Time	Water	Casing	Cave-In	TYPE	DC	S	START DATE: 11/14/2012		
11/15/2012	8:20:00 AM	6.6	13.5		SIZE, ID (in)	3.25	1.375	END DATE: 11/15/2012		
					HAMMER WT. (lb)	140	140	DRILLER: Keith		
					HAMMER FALL (in)	Varies	30	LOGGED BY: AVS		

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% ROD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	12	1 1 2							Dry, Very Loose, Pale Yellow, Fine SAND (sp) {a-3}	
S-2	X	8	2 2 3							Sample S-2: Loose, Pale Yellow-Gray	
S-3	X	14	1 1 1				5			Sample S-3: Pale Yellow-Gray	
S-4	X	14	1 1 1							Sample S-4: Pale Gray-Brown	
S-5	X	14	2 1 1	21.3%			10			Sample S-5: Wet, Pale Gray-Brown	
S-6	X	12	6 9 11				15			Sample S-6: Wet, Medium Dense, Brown-Gray, Medium to Fine, Trace Root Material	
S-7	X	1	6 7 10				20			Sample S-7: Wet, Medium Dense, Gray, Medium to Fine	
S-8	X	3	6 4 6	18.5%			25	EL -25.0 25.0		Sample S-8: Wet, Loose, Brown, Medium to Fine, Little Medium Gravel	
										Bottom of Boring @ 25.0 ft	Boring Grouted With Hole Plug Bentonite

RKK NORTH/EAST (DEFAULT) 12054\_GORDONS POND TRAIL.GPJ\_RKK\_CURRENT.GDT 7/29/13

SAMPLE IDENTIFICATION		DRILLING METHOD		BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
X	- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS		0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
	- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS		5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
	- SS - 3" SPLIT SPOON	DC - DRIVING CASING		11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
X	- D - DENISON	MD - MUD DRILLING		31-50	DENSE	9-15	STIFF	AND	36 TO 50
■	- RC - ROCK CORE	HA - HAND AUGER		OVER 50	VERY DENSE	16-30	VERY STIFF		
						OVER 30	HARD		

Boring No. B-5

# TEST BORING LOG

Boring No. B-6  
Page 1 of 1

	<b>PROJECT:</b> Gordons Pond Trail Improvements <b>SITE:</b> Lewes, Delaware <b>DRILLING CO.:</b> Hillis-Carnes <b>RIG/HAMMER:</b> Tripod	<b>COMMISSION NO.:</b> 112-054-01E <b>NORTH:</b> 278003 <b>EAST:</b> 750447 <b>ELEVATION:</b> 0 - ft <b>START DATE:</b> 11/15/2012 <b>END DATE:</b> 11/15/2012 <b>DRILLER:</b> Keith <b>LOGGED BY:</b> AVS
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GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE			
11/15/2012	12:35:00 PM	2.9	7.5		SIZE, ID (in)	3.25	1.375	
11/16/2012	7:40:00 AM	2.6	22.5		HAMMER WT. (lb)	140	140	-
					HAMMER FALL (in)	Varies	30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% ROD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	10	1 2 2							Dry, Very Loose, Brown-Gray, Fine SAND, Trace Organic Material (sp) {a-3}	
S-2	X	14	6 5 6							Sample S-2: Wet, Medium Dense	
S-3	X	18	1 1 2	310.5%			5	EL -4.5 4.5	/ / /	Wet, Very Soft, Brown Peat, Trace Sand at Tip (pt) {a-8}	Peat In Hand Auger From 4.5-ft to 5.0-ft
S-4	X	14	4 10 10					EL -7.0 7.0	/ /	Wet, Medium Dense, Gray-Brown, Medium to Fine SAND (sp) {a-3}	
S-5	X	3	2 5 5	24.8%			10			Sample S-5: Loose	
S-6	X	14	3 6 10	20.8%			15			Sample S-6: Coarse to Fine	Beach Sand
S-7	X	9	15 32 37	13.4%			20			Sample S-7: Very Dense, Gray, Coarse to Fine, Trace Fine Gravel	
S-8	X	0	5 20 34				25	EL -24.0 24.0		Sample S-8: No Recovery Bottom of Boring @ 24.0 ft	Boring Grouted With Hole Plug Bentonite

RKK NORTHEAST (DEFAULT) 12054\_GORDONS POND TRAIL.GPJ\_RKK\_CURRENT.GDT 7/29/13

SAMPLE IDENTIFICATION	DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
 - S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
 - T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
 - SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
 - D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
 - RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
				OVER 30	HARD		

Boring No. B-6

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## **APPENDIX B**

HeliCAP SUMMARY REPORTS

BUCKLING ANALYSIS PER DAVISSON METHOD

(Prepared By: CHANCE CIVIL CONSTRUCTION)

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# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:31:49 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-1

**Water Table Depth:** 0

**Application:** Tension

**Critical Depth:** 30.0 ft

## Capacity Summary

Anchor Number	Helix Depth (ft)	Ult. Helix Bearing Capacity (kips)	Ultimate Recommended Helix Capacity (kips)	Installation Torque (ft-lbs)
Number:1				
Product: RS2875.262		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:55.0	Angle:90.0	
14" helix	45.5	4.8t 4.8c	4.8t 4.8c	
14" helix	49.0	4.8t 4.8c	4.8t 4.8c	
12" helix	52.0	3.5t 3.5c	3.5t 3.5c	
10" helix	54.5	2.4t 2.4c	2.4t 2.4c	
Total Ult. Helix Tension (Qbt\Qht)		15.7t	15.7t	1966
Total Ult. Helix Compression (Qbc\Qhc)		15.7c	15.7c	
Number:2				
Product: SS 5		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:80.0	Angle:45.0	
14" helix	46.7	4.8t 4.8c	4.8t 4.8c	
14" helix	49.1	4.8t 4.8c	4.8t 4.8c	
14" helix	51.6	4.8t 4.8c	4.8t 4.8c	
14" helix	54.1	4.8t 4.8c	4.8t 4.8c	
12" helix	56.2	3.5t	3.5t	

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:31:49 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-1

**Water Table Depth:** 0

**Application:** Tension

**Critical Depth:** 30.0 ft

	3.5c	3.5c	
Total Ult. Helix Tension (Qbt\Qht)	22.9t	22.9t	2299
Total Ult. Helix Compression (Qbc\Qhc)	22.9c	22.9c	

## Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (psf)	N	Angle of Internal Friction (Degrees)	Nc \ Nq	In-situ Unit Weight (pcf)	Effect. Unit Weight (pcf)
0.0	Sand	0	4	28.5	0 \ 11	80	17
2.5	Sand	0	16	31.8	0 \ 17	106	43
5.0	Sand	0	2	27.9	0 \ 10	70	7
7.5	Clay	0	0	0.0	9 \ 0	70	7
13.0	Sand	0	2	27.9	0 \ 10	70	7
17.5	Clay	0	0	0.0	9 \ 0	70	7
30.0	Clay	0	0	0.0	9 \ 0	70	7
43.0	Sand	0	10	30.2	0 \ 13	100	37

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:31:07 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-2

**Water Table Depth:** 0

**Application:** Tension

**Critical Depth:** 30.0 ft

## Capacity Summary

Anchor Number	Helix Depth (ft)	Ult. Helix Bearing Capacity (kips)	Ultimate Recommended Helix Capacity (kips)	Installation Torque (ft-lbs)
Number:1				
Product: RS2875.262		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:28.0	Angle:90.0	
12" helix	23.0	3.2t 5.0c	3.2t 5.0c	
10" helix	25.5	3.6t 6.7c	3.6t 6.7c	
8" helix	27.5	4.5t 5.1c	4.5t 5.1c	
Total Ult. Helix Tension (Qbt\Qht)		11.4t	11.4t	1798
Total Ult. Helix Compression (Qbc\Qhc)		17.0c	17.0c	
Number:2				
Product: SS 5		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:41.5	Angle:45.0	
14" helix	25.1	7.0t 12.8c	7.0t 12.8c	
12" helix	27.2	10.0t 11.4c	10.0t 11.4c	
10" helix	29.0	8.2t 9.5c	8.2t 9.5c	
Total Ult. Helix Tension (Qbt\Qht)		25.2t	25.2t	3104
Total Ult. Helix Compression (Qbc\Qhc)		33.8c	33.8c	

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:31:07 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-2

**Water Table Depth:** 0

**Application:** Tension

**Critical Depth:** 30.0 ft

## Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (psf)	N	Angle of Internal Friction (Degrees)	Nc \ Nq	In-situ Unit Weight (pcf)	Effect. Unit Weight (pcf)
0.0	Sand	0	16	31.8	0 \ 17	106	43
5.0	Clay	250	2	0.0	9 \ 0	84	21
7.5	Clay	0	0	0.0	9 \ 0	70	7
17.5	Sand	0	3	28.2	0 \ 10	75	12
25.0	Sand	0	27	34.9	0 \ 25	117	54
29.0	Sand	0	29	35.5	0 \ 27	119	56
30.0	Sand	0	29	35.5	0 \ 27	119	56

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:30:25 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-3

**Water Table Depth:** 0

**Application:** Tension

**Critical Depth:** 30.0 ft

## Capacity Summary

Anchor Number	Helix Depth (ft)	Ult. Helix Bearing Capacity (kips)	Ultimate Recommended Helix Capacity (kips)	Installation Torque (ft-lbs)
Number:1				
Product: RS2875.262		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:22.0	Angle:90.0	
12" helix	17.0	4.3t 5.2c	4.3t 5.2c	
10" helix	19.5	3.7t 6.7c	3.7t 6.7c	
8" helix	21.5	5.2t 5.8c	5.2t 5.8c	
Total Ult. Helix Tension (Qbt\Qht)		13.3t	13.3t	1792
Total Ult. Helix Compression (Qbc\Qhc)		17.7c	17.7c	
Number:2				
Product: SS 5		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:33.0	Angle:45.0	
14" helix	19.1	7.2t 10.6c	7.2t 10.6c	
12" helix	21.2	9.8t 13.0c	9.8t 13.0c	
10" helix	23.0	9.3t 10.2c	9.3t 10.2c	
Total Ult. Helix Tension (Qbt\Qht)		26.4t	26.4t	2973
Total Ult. Helix Compression (Qbc\Qhc)		33.8c	33.8c	

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:30:25 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-3

**Water Table Depth:** 0

**Application:** Tension

**Critical Depth:** 30.0 ft

## Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (psf)	N	Angle of Internal Friction (Degrees)	Nc \ Nq	In-situ Unit Weight (pcf)	Effect. Unit Weight (pcf)
0.0	Sand	0	4	28.5	0 \ 11	80	17
2.5	Sand	0	10	30.2	0 \ 13	100	37
5.0	Clay	0	0	0.0	9 \ 0	70	7
7.5	Sand	0	0	27.4	0 \ 9	65	2
10.0	Sand	0	9	29.9	0 \ 13	100	37
15.0	Sand	0	12	30.7	0 \ 14	102	39
20.0	Sand	0	28	35.2	0 \ 26	118	55
25.0	Sand	0	13	31.0	0 \ 15	103	40
30.0	Sand	0	13	31.0	0 \ 15	103	40

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:29:44 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-4

**Water Table Depth:** 5.0 ft

**Application:** Tension

**Critical Depth:** 30.0 ft

## Capacity Summary

Anchor Number	Helix Depth (ft)	Ult. Helix Bearing Capacity (kips)	Ultimate Recommended Helix Capacity (kips)	Installation Torque (ft-lbs)
Number:1				
Product: RS2875.262		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:13.0	Angle:90.0	
12" helix	8.0	7.8t 8.0c	7.8t 8.0c	
10" helix	10.5	5.7t 4.8c	5.7t 4.8c	
8" helix	12.5	3.2t 3.3c	3.2t 3.3c	
Total Ult. Helix Tension (Qbt\Qht)		16.7t	16.7t	2050
Total Ult. Helix Compression (Qbc\Qhc)		16.2c	16.2c	
Number:2				
Product: SS 5		Helix Gr:80	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:20.0	Angle:45.0	
14" helix	9.9	12.3t 10.7c	12.3t 10.7c	
12" helix	12.0	7.0t 7.5c	7.0t 7.5c	
10" helix	13.8	5.2t 5.5c	5.2t 5.5c	
Total Ult. Helix Tension (Qbt\Qht)		24.6t	24.6t	2568
Total Ult. Helix Compression (Qbc\Qhc)		23.7c	23.7c	

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:29:44 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-4

**Water Table Depth:** 5.0 ft

**Application:** Tension

**Critical Depth:** 30.0 ft

## Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (psf)	N	Angle of Internal Friction (Degrees)	Nc \ Nq	In-situ Unit Weight (pcf)	Effect. Unit Weight (pcf)
0.0	Sand	0	9	29.9	0 \ 13	100	100
5.0	Sand	0	17	32.1	0 \ 17	107	44
7.5	Sand	0	17	32.1	0 \ 17	107	44
10.0	Sand	0	7	29.3	0 \ 12	95	32
15.0	Sand	0	8	29.6	0 \ 13	100	37
20.0	Sand	0	14	31.3	0 \ 16	104	41
25.0	Sand	0	33	36.6	0 \ 31	123	60
30.0	Sand	0	33	36.6	0 \ 31	123	60

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:29:03 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-5

**Water Table Depth:** 7.0 ft

**Application:** Tension

**Critical Depth:** 30.0 ft

## Capacity Summary

Anchor Number	Helix Depth (ft)	Ult. Helix Bearing Capacity (kips)	Ultimate Recommended Helix Capacity (kips)	Installation Torque (ft-lbs)
Number:1				
Product: RS2875.262		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:18.0	Angle:90.0	
12" helix	13.0	4.4t 6.0c	4.4t 6.0c	
10" helix	15.5	4.2t 6.8c	4.2t 6.8c	
8" helix	17.5	4.5t 4.9c	4.5t 4.9c	
Total Ult. Helix Tension (Qbt\Qht)		13.2t	13.2t	1958
Total Ult. Helix Compression (Qbc\Qhc)		17.7c	17.7c	
Number:2				
Product: SS 150		Helix Gr:80	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:27.0	Angle:45.0	
14" helix	14.8	6.2t 10.9c	6.2t 10.9c	
12" helix	17.0	9.8t 10.8c	9.8t 10.8c	
10" helix	18.7	7.6t 8.2c	7.6t 8.2c	
Total Ult. Helix Tension (Qbt\Qht)		23.8t	23.8t	2465
Total Ult. Helix Compression (Qbc\Qhc)		30.0c	30.0c	

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:29:03 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-5

**Water Table Depth:** 7.0 ft

**Application:** Tension

**Critical Depth:** 30.0 ft

## Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (psf)	N	Angle of Internal Friction (Degrees)	Nc \ Nq	In-situ Unit Weight (pcf)	Effect. Unit Weight (pcf)
0.0	Sand	0	3	28.2	0 \ 10	75	75
2.5	Sand	0	5	28.8	0 \ 11	85	85
5.0	Sand	0	2	27.9	0 \ 10	70	70
7.0	Sand	0	2	27.9	0 \ 10	70	7
15.0	Sand	0	20	33.0	0 \ 19	110	47
20.0	Sand	0	17	32.1	0 \ 17	107	44
25.0	Sand	0	10	30.2	0 \ 13	100	37
30.0	Sand	0	10	30.2	0 \ 13	100	37

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:28:05 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-6

**Water Table Depth:** 2.5 ft

**Application:** Tension

**Critical Depth:** 30.0 ft

## Capacity Summary

Anchor Number	Helix Depth (ft)	Ult. Helix Bearing Capacity (kips)	Ultimate Recommended Helix Capacity (kips)	Installation Torque (ft-lbs)
Number:1				
Product: RS2875.262		Helix Gr:50	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:17.0	Angle:90.0	
12" helix	12.0	5.0t 5.8c	5.0t 5.8c	
10" helix	14.5	4.1t 5.3c	4.1t 5.3c	
8" helix	16.5	3.7t 4.1c	3.7t 4.1c	
Total Ult. Helix Tension (Qbt\Qht)		12.9t	12.9t	1721
Total Ult. Helix Compression (Qbc\Qhc)		15.2c	15.2c	
Number:2				
Product: SS 5		Helix Gr:80	Thk:3/8"	
Helix Strength:		40.0 kips		
Datum Depth:0.0		Length:27.0	Angle:45.0	
14" helix	14.8	8.4t 10.8c	8.4t 10.8c	
12" helix	17.0	8.7t 9.5c	8.7t 9.5c	
10" helix	18.7	6.7t 7.2c	6.7t 7.2c	
Total Ult. Helix Tension (Qbt\Qht)		24.0t	24.0t	2511
Total Ult. Helix Compression (Qbc\Qhc)		27.6c	27.6c	

# HeliCAP-v2.0 SUMMARY REPORT

**Job Name:** Gordons Pond

5/23/2013 4:28:05 PM

**Job Number:** C13165

W:\home\Specified Anchors\JOB LISTS\Centralia

**Boring Number:** B-6

**Water Table Depth:** 2.5 ft

**Application:** Tension

**Critical Depth:** 30.0 ft

## Soil Profile

Top of Layer Depth (ft)	Soil Type	Cohesion (psf)	N	Angle of Internal Friction (Degrees)	Nc \ Nq	In-situ Unit Weight (pcf)	Effect. Unit Weight (pcf)
0.0	Sand	0	4	28.5	0 \ 11	80	80
2.5	Sand	0	11	30.4	0 \ 14	101	38
5.0	Sand	0	3	28.2	0 \ 10	75	12
7.5	Sand	0	20	33.0	0 \ 19	110	47
10.0	Sand	0	10	30.2	0 \ 13	100	37
15.0	Sand	0	16	31.8	0 \ 17	106	43
20.0	Sand	0	69	46.7	0 \ 119	140	77
25.0	Sand	0	54	42.5	0 \ 68	140	77
30.0	Sand	0	54	42.5	0 \ 68	140	77

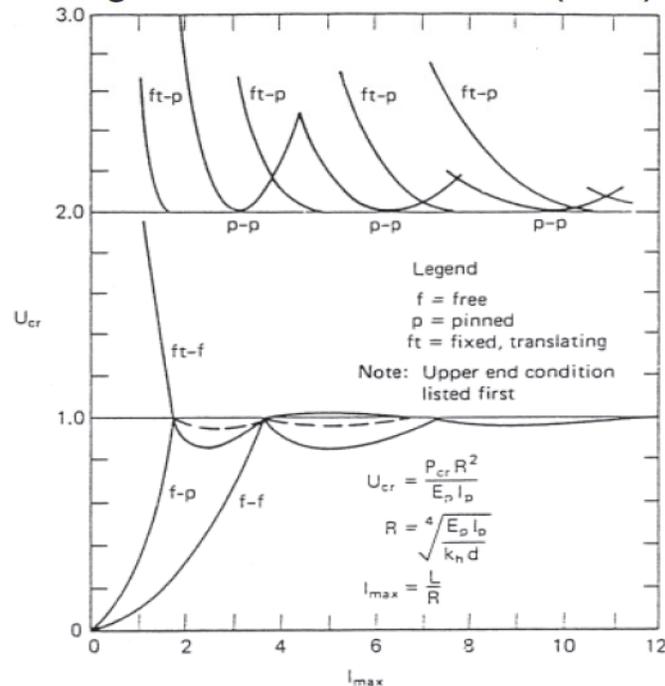
<b>JOB NAME:</b>	Gordons Pond
<b>JOB DESC:</b>	Walkway
<b>JOB NO:</b>	C13165

<b>Shaft</b>	<b>2</b>	Solid Square Shaft = 1, Round Pipe Shaft=2
<b>D</b>	<b>2.875</b>	D= DIAMETER/WIDTH OF SHAFT (IN)
<b>T</b>	<b>0.257</b>	T= WALL THICKNESS OF SHAFT (IN)
<b>I</b>	<b>1.828</b>	I=MOMENT OF INERTIA SHAFT (IN^4)
<b>E</b>	<b>29000000</b>	E= MODULUS OF ELASTICITY (PSI)
<b>K<sub>h</sub></b>	<b>15</b>	K <sub>h</sub> = MODULUS OF SUBGRADE REACTION

CHOOSE K <sub>h</sub> FROM CHART	SOIL DESCRIPTION	TYP K <sub>h</sub>
	VERY SOFT CLAY	15-20
	SOFT CLAY	30-75
	SOFT SAND	20

<b>R</b>	<b>33.30</b>	R= RESISTANCE= (EI/K <sub>h</sub> D)^(1/4)
<b>L</b>	<b>40</b>	L= FOUNDATION SHAFT LENGTH OVER WHICH K <sub>h</sub> IS TAKEN AS CONSTANT (FT)
<b>IMAX</b>	<b>14.41</b>	IMAX= MAXIMUM MOMENT OF INERTIA=L/R
<b>U<sub>CR</sub></b>	<b>1</b>	U <sub>CR</sub> = CRITICAL CAPACITY (INTERPRET FROM FIGURE 6.1 BELOW)

**Figure 6.1 Poulos and Davis (1980)**



<b>P<sub>CR</sub></b>	<b>47.82</b>	P <sub>CR</sub> =CRITICAL CAPACITY= U <sub>CR</sub> EI/R^2 (KIPS)
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- ASSUMPTIONS:**
- 1 K<sub>h</sub> IS CONSTANT WITH DEPTH.
  - 2 **FIXED-FREE** END CONDITION.
  - 3 The axial load is assumed to be constant in the pile – no load transfer due to skin friction.
  - 4 Pile is perfectly straight.

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