DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT DOCUMENTS

FOR

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

December 2020

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * * * * *

TABLE OF CONTENTS

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * * * * *

ADVERTISEMENT FOR BIDS

December 4, 2020

Sealed Bids for the above project will be accepted during normal business hours by the Delaware River and Bay Authority (the "Authority"), located in the Administration Building, Delaware Memorial Bridge Administration Building, I-295 & New Castle Ave, New Castle, Delaware, until 11:30 a.m. local time on December 29, 2020 at which time and place said Bids will be opened.

Weather permitting, the public bid opening will occur outside in front of the main walk-in entrance of the DRBA Administration Building located in New Castle, Delaware. Attendees must strictly follow the personal protective equipment requirements and social distance regulations that are in place at the time and in accordance with state mandate and DRBA policy.

ELECTRONIC BIDDING IS STRONGLY ENCOURAGED. To reduce calculating errors, bidders are strongly encouraged to submit the numeric portion of their bid electronically via CapEx and then mail or hand-deliver the additional required hardcopy bid documents to the Authority. Electronic numeric bid submissions may be entered, revised, and resubmitted until bids are due.

The Authority's Administrative Offices are currently open to the public on a "By Appointment" basis. Please call Caroline Walker at 302-571-6414 if you wish to schedule an appointment to drop off hardcopy bid documents.

Project work generally consists of site work and delivery and installation of a pre-manufactured kitchen, including but not limited to, selective demolition, utility work, concrete pad construction, delivery, installation, and commissioning of the pre-manufactured kitchen and for all work as shown in the specifications and construction documents.

All work on the Project must be completed within one hundred fifty (150) calendar days after the initial "Notice to Proceed" has been authorized by the Authority. **TIME IS OF THE ESSENCE.**

A non-mandatory pre-bid meeting and site visit will be held on December 14, 2020 at 1:00 p.m. local time at the Cape May-Lewes Ferry Terminal Building, 1200 Charles Sandman Blvd., Cape

May, New Jersey 08204. The pre-bid meeting will be held outside, weather permitting. Attendees of the pre-bid meeting are limited to a maximum of two (2) representative per business in attendance and must strictly follow the personal protective equipment requirements and social distance regulations in accordance with state mandate and DRBA policy. Unsupervised access to the project site is prohibited.

Prospective bidders may obtain contract documents from CapEx Manager ("CapEx"), the Authority's online project management system. A link to CapEx is available at www.drba.net by following the tab labeled "Working with the Authority", then selecting the tab labeled "Current Solicitations".

Bidders may submit the numeric portion of the bid electronically via CapEx or may incorporate a hard copy of the numeric portion of the bid. In addition to the numeric portion of the bid (whether submitted electronically or via hard copy), all bidders must submit the applicable approved bid forms identified within the Contract Documents.

Each bid must be accompanied by a Bid Bond, on the form furnished by the Authority and included in the Contract Documents, for a sum of not less than ten percent (10%) of the total price bid.

Bidders must be registered as a vendor and subscribe to this project in CapEx in order to be eligible to submit a bid. If a bidder has the ability to submit a bid under more than one company name, the company that actually submits the bid must be registered as a bidder in CapEx. If submitting a bid as a joint venture, the joint venture must be registered in CapEx and subscribed to this project. Any Bid submitted by a firm who has not subscribed to this project in CapEx will be rejected.

All questions concerning the plans or specifications must be forwarded to the Authority in writing via CapEx. Questions must be received by 1:00 p.m. local time, not later than six (6) business days prior to the bid opening date. The Authority has no obligation to answer any question received after the above-stated time. Questions and corresponding answers will be included as Contract Addenda and released to all subscribed parties.

Bidders must submit their bid (other than the numeric portion of the bid if submitted via CapEx) within a sealed envelope. The envelope containing the bid forms must be marked: "Bid for Contract No. CMLF-C20-08, CAPE MAY FERRY TERMINAL PRODUCTION KITCHEN". If the bidder has submitted its numeric bid via CapEx the envelope shall be marked: "NUMERIC BID SUBMITTED VIA CAPEX."

Together, parts (i) and (ii) below, as modified by any special provision(s) or by documents of any description furnished by the DRBA as part of this project, shall form the "Standard Specifications" and shall govern the execution of this project:

(i) Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014; and

(ii) Divisions 200 through 1000 of the Delaware Department of Transportation ("DelDOT") Standard Specifications for Road and Bridge Construction, dated August 2016, including any Supplemental Specifications, Additions or Revisions issued prior

to the date of the Advertisement for Bids, as published on the DelDOT website ("DelDOT Standard Specifications").

****NOTE:** The Description for each Pay Item on the Authority-furnished Bid Page(s) includes an alpha-numeric designator. The first two characters of each designator are either "**SS**" to designate a *Standard Technical Specification* item, or "**AS**" to designate an *Additional Technical Specification* item:

- An "**SS**" designation indicates that the Pay Item references a DelDOT Standard Specification (defined in (ii) above), and the numbers in the designator specify the applicable DelDOT standard Pay Item (as may be amended by a DRBA Special Provision, Part III).

- An "**AS**" designation indicates that the Pay Item references the DRBA Special Provisions, Part IV, included herein, and the number in the designator references the applicable Pay Item specified therein.

Registered Bidders who subscribe to this project will be provided a digital edition of Division 100 – General Provisions of the DRBA's Standard Specifications. To access the DelDOT Standard Specifications, Bidders may visit www.deldot.gov, click the Quick Link labeled "Publications", then scroll down to the section marked "Manuals", select "Standard Specifications" and lastly select "Standard Specifications 2016".

Bidders are advised that, pursuant to DRBA Resolution 15-12, this project is *not* subject to the DRBA's Prevailing Wage Policy.

DELAWARE RIVER AND BAY AUTHORITY

By: Samuel E. Lathem, Chairman
Thomas J. Cook, Executive Director

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * * * * *

BID

To: Delaware River and Bay Authority
I-295 & New Castle Avenue
New Castle, Delaware 19720

Sirs:

The undersigned bidder has carefully examined the site and location of the proposed work, the proposed form of Contract to be known as Contract No. CMLF-C20-08, Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014, Divisions 200 through 1000 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2016, including any Supplemental Specifications, Additions or Revisions issued prior to the date of the Advertisement for Bids, as published on the DelDOT website (together, the "Standard Specifications"), and any Special Provisions, and binds himself on award to him by the Delaware River and Bay Authority (herein called "Authority") under this Bid to execute a Contract in accordance with such award, of which Contract this Bid and said Plans, Standard Specifications and Special Provisions shall be part, to provide all necessary machinery, tools, labor, and other means of construction, and to do all work and furnish all materials necessary to perform and complete the requirements of said Authority at the following named unit and/or lump sum prices for the various scheduled items:

ATTENTION: In accordance with General Provision 102.09 *'Delivery of Bids'*, if you have subscribed to a project and wish to submit a Bid, you may submit the numeric portion of your Bid <u>either</u>: 1) Online via CapEx; <u>or</u> 2) In hard copy along with all of the other required Bid forms as provided by the Authority. See below instructions:

1) If you choose to submit your numeric Bid online, you must complete the Bid pages using CapEx. Once you have selected the project from the *'Project List'*, you will be redirected to the *'RFB Summary'* page. Near the bottom of the page, under the '*Bid Detail'* section, click the *'Take Bidder Role'* button, which will unlock the *'Bid'* tab at the top of the page. Next, click the *'Bid'* tab and enter your Bid information under the *'Line Items Specified'* section. Note, when submitting a numeric Bid online, the envelope containing the additional required Bid Forms in hard copy shall be marked "BID SUBMITTED ONLINE".

   <u>OR</u>

2) If you choose to submit a hard copy of your numeric Bid, you must print a copy of the Bid pages from CapEx. Once you have selected the project from the *'Project List'*, you will be redirected to the *'RFB Summary'* page. Scroll down to the '*Procurement Detail'* section, and click the link marked *'Proposal Pages'*. This link will open a .pdf of the numeric Bid page(s) for the Bidder to print (one-sided), complete and submit along with all of the other required Bid Forms in hard copy.

<u>Bidders are cautioned to choose only ONE of the numeric Bid submission methods above.</u> Note that in accordance with the General Provisions, "*if a Bidder has submitted the numerical portion of its Bid both online and in hard copy format, the hard copy shall supersede the online submission unless the hard copy version has been specifically withdrawn by the Bidder in accordance with Subsection 102.10.*"

This page will be removed and replaced with the awarded Bidder's numeric Bid Page in the final executable Contract Documents.

NOTE: **All Pay Item fields must be completed or the Bid will be disqualified.** Unless a bid is rejected pursuant to subsection 102.07, or the bidder is disqualified pursuant to subsection 102.12 of the General Provisions of the DRBA Standard Specifications for Road and Bridge Construction, award will be made to the responsible bidder who submits the lowest responsive base bid. If, during the tabulation of bids, the price on any bid is found to be incorrectly computed, the Authority reserves the right to make such corrections in computation as are necessary in the extended amounts and price on the basis of the unit and lump sum prices given and the approximate quantities stated for the scheduled items herein.

Together, parts (i) and (ii) below, as modified by any Special Provision(s) or by documents of any description furnished by the DRBA as part of this Project, shall form the "Standard Specifications" and shall govern the execution of this project:

(i) Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014; and

(ii) Divisions 200 through 1000 of the Delaware Department of Transportation ("DelDOT") Standard Specifications for Road and Bridge Construction, dated August 2016, including any Supplemental Specifications, Additions or Revisions issued prior to the date of the Advertisement for Bids, as published on the DelDOT website ("DelDOT Standard Specifications").

****NOTE:** The Description for each Pay Item on the Authority-furnished Bid Page(s) includes an alpha-numeric designator. The first two characters of each designator are either "**SS**" to designate a *Standard Technical Specification* item, or "**AS**" to designate an *Additional Technical Specification* item:

- An "**SS**" designation indicates that the Pay Item references a DelDOT Standard Specification (defined in (ii) above), and the numbers in the designator specify the applicable DelDOT standard Pay Item (as may be amended by a DRBA Special Provision, Part III).

- An "**AS**" designation indicates that the Pay Item references the DRBA Special Provisions, Part IV, included herein, and the number in the designator references the applicable Pay Item specified therein.

Registered Bidders who subscribe to this project are provided with a digital edition of Division 100 – General Provisions of the DRBA's Standard Specifications via CapEx. To access the DelDOT Standard Specifications, Bidders may visit www.deldot.gov, click the Quick Link labeled "Publications", then scroll down to the section marked "Manuals", select "Standard Specifications" and lastly select "Standard Specifications 2016".

Capitalized terms used in these Bid Pages and not otherwise defined shall have the meaning set forth in the Standard Specifications.

All work on the Project must be completed within one hundred fifty (150) calendar days after the initial "Notice to Proceed" has been authorized by the Authority. **TIME IS OF THE ESSENCE.**

Within ten (10) calendar days of the final execution of the Contract, the Contractor shall furnish to the Authority a progress schedule including all relevant activities, including shop drawing submittals and long-lead delivery materials and dates. It is the intent of the Authority to issue the "Notice to Proceed" upon the Authority's acceptance of the scheduled construction start date.

The work schedule shall accommodate the time necessary to acquire materials, including any long-lead items, and to complete all Work as described in the Contract Documents. Days shall be charged against the schedule upon the first day of actual Work per the approved progress schedule regardless of the Contractor's continued presence on the site. Neither weather delays nor material delivery delays will be considered grounds for extension of the schedule.

The foregoing quantities and durations are considered to be approximate only and are given as the basis for comparison of Bids. The Authority may increase or decrease the amount of any item or portion of the Work as may be deemed necessary or expedient in the sole discretion of the Authority. An increase or decrease in the quantity for any item will not be regarded as a sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the Work, except as provided for in the Contract.

The cost of any Work performed, materials furnished, services provided or expenses incurred, which are not specifically delineated in the Contract Documents but which are inferable from or incidental to the scope, intent and completion of the Contract, shall be deemed to have been included in the prices bid for the various items scheduled hereinabove. What constitutes "inferable" or "incidental" work, materials, services, or expenses, shall be decided by the Authority in its sole discretion.

Each bid must be accompanied by the following form of bid guaranty:

(i) A Bid Bond, on the form furnished by the Authority and included in the Contract Documents, for a sum of not less than ten percent (10%) of the total price bid.

Failure upon the part of the Bidder to whom the Contract has been awarded to execute and deliver the Contract Agreement and all other documents listed in Subsection 103.06 in the Standard Specifications and in the manner and within the time prescribed therein shall be just cause for annulment of the Award and just cause for the exclusion of the offending Bidder from bidding on subsequent projects for such period as the Authority may deem appropriate, in its sole discretion.

It is understood and agreed by said Bidder that if the Award is annulled for the above reasons that the Authority may proceed to recover under the terms and provisions of the Bid Bond at the discretion of the Chairman.

The provisions of Resolution No. 98-31 Part 2, Subparagraphs (b), (c), (d) and (e) of the Delaware River and Bay Authority govern the procedures for the solicitation and award of the above-mentioned Subparagraphs as follows:

2. b. All construction management contracts and all construction contracts entered into by the Authority for construction, reconstruction, demolition, alteration, and repair work and

maintenance work with any person, partnership, corporation, company association or similar entity or any affiliate thereof, which contract individually exceeds $50,000, shall be pursuant to a contract entered into by the Authority after competitive bidding. The advertisement for such bids shall be published at least once a week for two consecutive weeks in one newspaper of general circulation in each of the States of Delaware and New Jersey. The advertisement shall indicate the character, quantity, and location of the work, the time and place where the plans and specifications or descriptions may be obtained and where proposals are to be received.

c. Any person proposing to bid on such contract may be required by the Authority to complete a questionnaire and file a financial statement containing a complete statement of that person's financial ability and experience in performing such work. If the Authority is not satisfied with the sufficiency of the answers to the questionnaire or the financial statement, it may refuse to furnish the person submitting such unsatisfactory answers or financial statement any request for proposals or any plans or specifications for the work and the bid of any such person may be disregarded.

d. Any person to whom a construction management contract or construction contract is awarded must be bondable in the full amount of the construction contract and any request for proposals disseminated by the Authority for such a contract shall include a copy of the Authority's form of construction contract which shall be part of the proposal to be reviewed by prospective bidders. In addition, with respect to any construction management contract, the construction manager will be required to obtain at least three bids for each subcontractor category (unless it is determined by the Authority not to be in the best interest of the Authority to so require) and no work shall be awarded to any subcontractor without the prior approval of the Authority.

e. All materiel and supply contracts, non-professional service contracts and all construction management contracts or construction contracts are to be awarded to the lowest responsible bidder unless, in the opinion of the Authority or its delegated representative, the interest of the Authority is better served by awarding the contract to another bidder and, in addition, the Authority reserves the right to reject any or all bids, to advertise for new bids, to proceed to do the work otherwise, or to abandon the work if in the judgment of the Authority its best interest will be promoted thereby. In determining how the interest of the Authority is better served in making an award to other than the lowest responsible bidder, the Authority may take into consideration all relevant factors, including, but not limited to (i) the unsatisfactory performances on any previously awarded contracts by the bidder being rejected, (ii) lack of relevant experience on similar projects, (iii) lack of adequate manpower or supervisory staff; (iv) poor track record of timely completion within the industry or for the Authority; (v) track record of requesting unreasonable change orders, (vi) bonding capacity, (vii) low or no percentage of DBE, (viii) past claims or current legal problems or (ix) questionable subcontractor list.

Remainder of page intentionally left blank

Acknowledgment is hereby made that the undersigned Bidder has visited the work site and has examined the condition of the area to be renovated under the Contract. Failure to visit the work site does not excuse any error or omission contained in the Bid.

Acknowledgment is hereby made of the receipt of the following Addenda: (List each Addendum received. If no Addenda were issued, please write "None").

_____

_____

Name of Bidding Organization:_____

Address: _____

_____

By: _____
(Signature)

By: _____
(Print Name)

Title: _____

Phone Number: _____

(If Corporation, add Corporate Seal)

Witness or Attest: _____ Date: _____

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

BID BOND

We, the undersigned, _____

as principal (herein called the "Principal"), and

_____

a _____ of the State of _____, which is legally authorized to do business in the State of New Jersey where the work is to be performed, as surety (herein called the "Surety"), do hereby agree to be held and bound unto the Delaware River and Bay Authority (herein called the "Authority") for the sum of _____ _____Dollars and _____Cents ($_____), which sum is to be paid to the Authority for its use and benefit. Further, for such payment well and truly to be made, we do hereby bind ourselves and our heirs, executors, administrators, successors, and assigns, jointly and severally.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH that the obligation hereby undertaken shall not vest and become binding unless the Principal, who has submitted to the Authority a bid to enter into Contract No. CMLF-C20-08 for the performance of certain work for the Authority (herein called the "Contract"), shall be awarded the Contract. If the Contract is so awarded, the obligation hereby undertaken shall be and remain in full force and effect until discharged unless the Principal enters into and executes the Contract and furnishes such surety bond and proof of required insurance coverage as may be required by the terms of the Contract Documents and approved by the Authority, all within ten (10) calendar days after the date of official notice of the award thereof in accordance with the terms of the bid for the Contract.

IN WITNESS WHEREOF, the Principal and Surety have duly executed this Bid Bond as of _____, 20__.

[PRINCIPAL]

Name: _____

Address: _____

_____

Witness or Attest:

By: _____

_____

(Corporate Seal)

Title: _____

[SURETY]

Name: _____

Address: _____

_____

Witness or Attest:

By: _____

_____

(Corporate Seal)

Title: _____

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

CONSENT OF SURETY

Delaware River and Bay Authority:

We have reviewed the Bid of _____
(Name of Contractor)

of_____
(Contractor Address)

for Contract No. CMLF-C20-08 and wish to advise that should this Bid of the Contractor be accepted and the Contract awarded to said Contractor, this company agrees to become the surety on the Contract Bond and Maintenance Bond required by the Contract Documents.

We are duly authorized to do business in the State of New Jersey as required by the project location:

Surety Company Name/Address:

_____

_____

_____
(Authorized Signature)

ATTEST:

_____

[Attach Power of Attorney, Surety Disclosure Statement, and Statement of Financial Condition of Surety]

[Add Corporate Seal, if any. If no seal, write "No Seal" across this place and sign]

STOCKHOLDERS AND/OR PARTNERS
OWNING MORE THAN TEN PERCENT OF BIDDING ORGANIZATION

If Bidder is a Corporation, Partnership, or Limited Liability Company, this form must be completed and submitted with the Bid. *If no stockholder or partner owns ten percent or more of the Bidding organization, place a checkmark in the following box and skip to the signature line below:* ☐

List the name and address of each stockholder, partner, or member owning ten percent (10%) or more of any class of corporate stock, partnership interest, or LLC interest of the Bidding organization:

		PERCENT OF OWNERSHIP
NAME_____	ADDRESS_____	
	_____	_____
NAME_____	ADDRESS_____	
	_____	_____
NAME_____	ADDRESS_____	
	_____	_____

If any stockholder, partner, or member named above is itself a Corporation, Partnership, or LLC, list the name and address of each stockholder, partner, or member owning ten percent (10%) or more of any class of corporate stock, partnership interest, or LLC interest therein.

		PERCENT OF OWNERSHIP
NAME_____	ADDRESS_____	
	_____	_____
NAME_____	ADDRESS_____	
	_____	_____
NAME_____	ADDRESS_____	
	_____	_____

I certify that the foregoing information is correct:

_____
Signature

_____
Print Name and Title

of

_____
Name of Bidding Organization

(This form must be completed and submitted with the Bid if Bidder is a Corporation or Partnership.)

CERTIFIED CORPORATE RESOLUTION

(CORPORATE BIDDERS ONLY)

RESOLVED, that _____ be authorized to sign and submit the
(Name of Officer)
bid of this corporation and be authorized to execute a contract and any other instrument of whatever nature entered into by this corporation for the following project:

DRBA Contract No. CMLF-C20-08: CAPE MAY FERRY TERMINAL PRODUCTION KITCHEN.

The foregoing is a true and correct copy of the resolution adopted by _____

_____Corporation at a meeting of its Board of Directors held

on the _____day of _____, 20___.

_____
(Secretary)

_____
(Seal)

(This form must be completed and submitted with the Bid if Bidder is a Corporation)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL PRODUCTION KITCHEN

* * * * * * *

NON-COLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

I, _____ of the City

of _____, County of _____ and State of

_____, being of full age and duly sworn according to law on my oath dispose and say:

That I, on behalf of _____, submitted and executed a Bid for Contract No. CMLF-C20-08 to the Delaware River and Bay Authority with full authority to do so, and that said Bidder has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the said Contract; and that all statements contained in said Bid and in this Affidavit are true and correct and made with full knowledge that the said Authority relies upon the truth of the statements contained in said Bid and in this Affidavit in awarding the said Contract. I further warrant that no person or selling agency has been employed or retained to solicit or secure the said Contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide full-time employees.

By: _____

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

_____
Notary Public

My commission expires _____, 20_____.

CONTRACTOR'S STORM WATER POLLUTION PREVENTION CERTIFICATION FORM

Project Name: CAPE MAY FERRY TERMINAL PRODUCTION KITCHEN

Project Location: Lower Township, New Jersey

Contractor's Official Name: _____

Address: _____

Telephone Number: _____

Contractor's Responsibilities: _____

Contractor is expected to follow all Best Practices outlined by Occupational Safety and Health Administration regulations and Authority standards, and hereby certifies that it will execute all work under the contract in a manner that eliminates or limits storm water run-off of chemicals or debris through storm drains or ditches.

Contractor shall be responsible for providing all erosion and sedimentation control measures necessary to comply with the state of New Jersey regulations.

Contractor shall refrain from dumping or disposing of used oil, grease or fluids onto the ground, from dumping or disposing of used batteries, oils, antifreeze or other toxic fluids into a storm drain or watercourse and Contractors will not collect waste fluids that are not properly disposed of.

Contractor must promptly notify the DRBA Project Engineer in the case of all spills and must contain and/or clean-up such spills immediately utilizing dry clean-up methods and must collect and dispose of all waste properly.

Certification Statement:

> *"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the pollution prevention plan for the construction site identified in this plan as a condition of authorization to discharge storm water and that it is unlawful for any person to cause or contribute to a violation of water quality standards. I also shall comply with all applicable State of New Jersey Pollutant Discharge Elimination System ("NJPDES") Rules as applicable."*

_____

Printed Name and Title

_____ _____

Signature Date

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

JOINT VENTURE STATEMENT

STATE OF _____

COUNTY OF _____

We, the undersigned, being duly sworn according to law, upon our respective oaths depose and say that:

1. The following named contractors have entered into a Joint Venture for the purpose of carrying out all the provisions of Contract No. CMLF-C20-08:

(a) _____ () An Individual () A Partnership () A Corporation

(b) _____ () An Individual () A Partnership () A Corporation

(c) _____ () An Individual () A Partnership () A Corporation

2. The contractors, under whose names we have affixed our respective signatures, have duly authorized and empowered us to execute this Joint Venture Statement in the name of and on behalf of such contractors for the purpose hereinabove stated.

3. Under the provisions of such Joint Venture, the assets of each of the contractors named in Paragraph 1 hereof, and in case any contractor so named above is a partnership, the assets of the individual members of such partnership, will be available for the performance of such Joint Venture and liable therefore and for all obligations incurred in connection therewith.

4. The assets and liabilities of the named contractors for whom we respectively execute this Joint Venture Statement are set forth in the financial statement requirement of the "Qualification Questionnaire" for each contractor.

5. This Joint Venture Statement is executed so that the named contractors as one organization may under such Joint Venture, bid upon said Contract and be awarded the Contract if they should become the successful bidder therefor. Any bid, bond and agreement relating to said Contract shall be executed by any of the undersigned, and when so executed shall bind this Joint Venture and each and every contractor named herein, severally and jointly. Simultaneous with the execution of the Contract, the contractors entering into this Joint Venture shall designate and appoint a Project Supervisor to act as their true and lawful agent with full power and authority to do and perform any and all acts of things necessary to carry out the work set forth in said Contract.

6. We bind the contractors for whom we respectively execute this Joint Venture Statement in firm agreement with the Delaware River and Bay Authority that each of the representations herein set forth is true.

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

My commission expires _____

_____
Notary Public

(a) _____
Name of Contractor

By _____
Print Name:

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

My commission expires _____

_____
Notary Public

(b) _____
Name of Contractor

By _____
Print Name:

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

My commission expires _____

_____
Notary Public

(c) _____
Name of Contractor

By _____
Print Name:

(If Bidder is a Joint Venture, this form must be completed and submitted with the Bid.)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

QUALIFICATION QUESTIONNAIRE – *Use additional sheets as necessary*

Must be completed and submitted with Bid

Form submitted by _____, an
(Name of Bidder or Subcontractor)

☐ Sole Proprietorship (Individual)
☐ Partnership
☐ Limited Liability Company
☐ Corporation of _____ (State).

Principal Office Address and Telephone Number:
_____

1. How many years has your organization been in business as a Contractor under your present business name? _____

2. How many years of experience does your organization have performing the work as shown on the Project plans:

   as a Contractor? _____ as a Subcontractor? _____

3. List on a separate piece of paper and attach to this Qualification Questionnaire any information which would indicate the size and capacity of your organization, such as number of employees, equipment owned by your organization, etc.

4. The Bidder must submit the most recently completed audited financial statements, including all schedules, notes and the opinions, of the independent accounting firm, for the organization's two most recently completed fiscal years. Each Bidder shall also submit interim statements of the organization's financial condition at the latest closing period, with a statement attesting to the accuracy of the information signed by the Chief Financial Officer of the organization. All financial statements must represent the entity submitting the bid which will be responsible for the performance of all services, not a subsidiary or parent of the bidder. The Bidder shall include evidence of its ability to provide the required

bonding and insurance. The Bidder shall also submit with its Bid the most recently completed audited financial statements for the two most recently completed fiscal years and the interim financial statements for the closing period for any subcontractor who will be performing twenty percent (20%) or more of the work on this project.

5. List below the name, address, contact person and telephone number for **each subcontractor that your organization will use on this Project**, including any Minority-owned Business ("MBE"), Women-owned Businesses ("WBE") or Disadvantaged Business Enterprises ("DBE"). List the type of work and the percent (%) of the total dollar value of the Work that **each subcontractor on this Project will perform**.

_____

_____

6. List below the requested information concerning projects your organization has completed in the last five (5) years for the type of work which were comparable to the type of work required in the Contract. (If additional space is required, the requested information may be listed on sheets prepared by the Bidder and attached to this form.)

Project Title and Location	Contract Amount	Required Completion Date	Actual Completion Date	Name, Address, Contact Person and Phone of Owner

7. List below the requested information concerning projects of all types your organization will have underway as of the date Bids are to be received on the Project:

Project Title and Location	Brief Description	Contract Amount	% Complete	% Sublet	Name, Address, Contact Person and Phone of Owner

8. During the previous ten (10) calendar years to the present time, has your organization failed to complete any work (including subcontractor work) awarded to you? _____ If YES, describe the incident(s), date(s) and location of work on a separate piece of paper and attach to this form.

9. Has any officer or partner of your organization ever been an officer or partner of some other organization that failed to complete a construction contract? _____ If YES, state name of individual(s), name(s) of the other organization and reason(s) therefor on a separate piece of paper and attach to this form.

10. Has any officer or partner of your organization ever failed to complete a construction contract handled in his or her own name? _____ If YES, state name of individual(s), name of owner(s) or client(s) and the reason(s) therefor on a separate piece of paper and attach to this form.

11. Has any lien been filed against a construction project handled by your organization? _____ If YES, state the name of the company filing the lien, the amount of the lien, whether or not the lien was discharged, and any additional relevant details on a separate piece of paper and attach to this form

12. In the last five (5) years, have liquidated damages been assessed against your organization? _____ If YES, provide information regarding every reason for the liquidated damages and the amount on a separate piece of paper and attach to this form.

13. During the previous five (5) calendar years to the present time, has your organization been a party to a lawsuit concerning your performance of a contract? _____ If YES, with

respect to each litigation, list the name of every adversary, each party, a description of every contract at issue in the litigation, the status and result(s) of each litigation and the jurisdiction(s), court(s) and docket number(s), on a separate piece of paper and attach to this form.

14. During the previous five (5) calendar years to the present time, has your organization failed to pay a subcontractor or supplier for work satisfactorily performed within thirty (30) days of receiving payment from the owner or client for that work? _____ If YES, provide information regarding all payment delays on a separate piece of paper and attach to this form.

15. During the previous five (5) calendar years to the present time, has your organization incurred a work-related fatality to your workforce? _____ If YES, describe the incident(s), date(s) and location of work related fatality(s) on a separate piece of paper and attach to this form.

16. During the previous five (5) calendar years to the present time, has any owner, client, government or other public entity requested or required enforcement of any of its rights under a surety agreement on the basis of default or in lieu of declaring your organization to be in default? _____ If YES, describe each event on a separate piece of paper and attach to this form.

17. Has your organization received any regulatory government agency (i.e., OSHA, EPA, DOT) citation during the previous five (5) calendar years to the present time regardless of the nature of alleged violation and outcome? _____ If YES, list the agency, the total number of citations and the nature of each alleged violation on a on a separate piece of paper and attach to this form.

18. Are your organization's field supervisors certified in any accredited safety courses (i.e. OSHA 10-hour Construction Safety, OSHA 30-hour Construction Safety, Asbestos Abatement, First Aid/CPR/AED)? _____ If YES, attach to this form a list of all field supervisors by last and first name, title, and a copy of their safety-related certifications received within the past three (3) years.

19. During the previous five (5) calendar years to the present time, has your organization been debarred, suspended, proposed for debarment, declared ineligible, voluntarily excluded, or otherwise disqualified from bidding, proposing or contracting by any local, city, state or federal agency or government? _____ If YES, please provide details of each incident on a separate piece of paper and attach to this form.

20. Have any construction projects that your organization was, or continues to be involved in, received any regulatory government agency (i.e., OSHA, EPA, DOT) citations during the previous five (5) calendar years to the present time regardless of the nature of alleged violation or outcome? _____ If YES, list the agency, the total number of citations and the nature of the alleged violations on a separate piece of paper and attach to this form.

Based upon the Bidder's answers to this Qualification Questionnaire, the Authority may reject the Bid on grounds of failure to provide adequate information, previous failure to maintain safe working conditions, insufficient financial ability to perform the contract, inadequate experience to undertake the project, documented failure to perform on prior contracts, prior judgments for breach of contract, criminal conviction, fraud, inadequate labor supply available to complete the project in a timely manner, previous debarment, previous revocation of a license, or previous bankruptcy proceedings, or other indication that the contractor may not be capable of performing the work or completing the project to the satisfaction of the Authority.

The Authority reserves the right to inquire further with respect to the Bidder's responses; and the Bidder consents to such further inquiry and agrees to furnish all relevant documents and information as requested by the Authority. With the exception of willful falsification of or failure to report an answer, a response to this form which is or may be construed as unfavorable to the Bidder will not automatically result in a negative finding on the question of the Bidder's responsibility.

As an authorized representative of the Bidder/Subcontractor, the undersigned certifies that the information provided on this Qualification Questionnaire is true and accurate:

Name of Bidder/Subcontractor: _____

By: _____

Title: _____

Witness or Attest

_____
(Corporate Seal)

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

_____
Notary Public

My commission expires _____, 20_____.

Note to Bidders: Below is the standard form of contract approved for use by the DRBA which shall serve as the model contract that the DRBA and the Contractor will enter into. It is the responsibility of the Bidder to carefully review the below standard form of contract before submitting a Bid.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

CONTRACT

This Contract ("Contract"), is made and executed in several counterparts, by and between the DELAWARE RIVER AND BAY AUTHORITY, P.O. Box 71, New Castle, Delaware 19720, a body politic duly created by Compact and an agency for the State of Delaware and the State of New Jersey (herein called the "Authority"), party of the first part; and NAME OF CONTRACTOR, ADDRESS OF CONTRACTOR (herein called the "Contractor"), party of the second part.

WITNESSETH, that the Contractor, for and in consideration of the payments hereinafter specified and agreed to be made by the Authority, hereby covenants and agrees as follows:

ARTICLE ONE. The Contractor shall and will provide and furnish all materials, machinery, implements, appliances and tools and perform all the work and labor required to complete Contract No. CMLF-C20-08 upon the property within the jurisdiction and control of the Authority, in strict conformity with this Contract, including the executed Contract, Advertisement for Bids, Bid, Consent of Surety, Bid Bond, Non-Collusion Affidavit, Qualification Questionnaire, Joint Venture Statement (if applicable), Contract Bond, Standard Specifications, Special Provisions, Plans and any Addenda, Change Orders, Supplemental Agreements and other documents specifically issued in connection with this Project, all of which are to be treated as one instrument, and are hereby made a part of this Contract as fully and with the same effect as if the same had been set forth at length in the body of this Contract.

ARTICLE TWO. It is understood and agreed by and between the parties hereto that all the work included in this Contract is to be done under the direction of the Executive Director of the Authority and that his decision as to the true and accurate meaning of said Bid, Plans, Standard Specifications and Special Provisions shall be final. It is further understood and agreed by and between the parties hereto that any additional drawings and specifications as may be necessary to

detail and illustrate the work to be done are to be furnished by said Executive Director of the Authority, and the parties hereto agree to conform to and abide by the same so far as it may be consistent with the purpose and intent of the original Bid, Plans, Standard Specifications and Special Provisions referred to in Article One. It is further agreed by and between the parties that the Contractor is responsible to perform work which is necessary for, reasonably inferable from or incidental to the Specifications, Special Provisions, Plans and Drawings, whether or not such work is explicitly stated.

ARTICLE THREE. The Contractor agrees to make payment of all proper charges for labor and materials required in the aforementioned work, and to indemnify, defend and save harmless the Authority, its commissioners, officers, agents, employees and servants, and each and every one of them, against and from all suits and costs of every name and description, and from all damages to which the Authority, or any of its commissioners, officers, agents or servants may be subjected by reason of injury to the person or property of others resulting from the performance of said work, or through the negligence of said Contractor, or through any improper or defective machinery, implements or appliances used by the Contractor in the aforesaid work, or through any act or omission on the part of said Contractor or his agents, employees or servants.

ARTICLE FOUR. If the construction or work to be done under this Contract shall be abandoned for any reason, or if this Contract, or any part thereof, shall be sublet without the previous written consent of the Authority, or if the Contract shall be assigned by the Contractor, without the previous written consent of the Authority, or if at any time the Executive Director shall be of the opinion, and shall so certify in writing to the Authority, that the work, or any part thereof, is unnecessarily or unreasonably delayed, or that the Contractor has violated any provision of this Contract, the Authority may notify the Contractor to discontinue all work or any part thereof; and thereupon the Contractor shall discontinue such work or such part thereof as the Authority may designate, and the Authority may thereupon, by a Contract or otherwise, as it may determine, complete the work or part thereof and charge the entire expense of so completing the work or part thereof to the Contractor; and for such completion the Authority for itself or its contractors, may take possession of or use or cause to be used in the completion of the work or any part thereof, any of such machinery, implements, tools, or materials of any description as shall be found upon the line of said work, and thereafter accounting for, or paying to the Contractor a reasonable compensation for the use of said machinery, implements, tools, or materials.

All costs and charges that may be incurred under this Article or any damages that should be borne by the Contractor shall be withheld or deducted from any monies then due, or to become due to the Contractor, under this Contract, or any part thereof; and in such accounting the Authority shall not be held to obtain the lowest cost for the work of completing the Contract or any part thereof, but all sums actually paid therefor shall be charged to the Contractor. In case the costs and charges incurred are less than the sum which would have been payable under the Contract, if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference and in case such costs and charges shall exceed the said sum, the Contractor shall pay the amount of excess to the Authority for the completion of the work.

ARTICLE FIVE. The Authority agrees to pay the Contractor for such work, when completed in accordance with this Contract, the total amount of _____ Dollars and

_____ Cents ($). Estimated payments will be made according to the Unit Prices and the lump sum prices (if any) specified in the Contractor's Bid in the manner and upon the conditions set forth in the Standard Specifications and Special Provisions. It is understood and agreed that the amount paid shall be the sum of the Lump Sum and Unit Prices named in the Contractor's Bid, each multiplied by the number of corresponding Pay Item Units actually completed by the Contractor and accepted by the Authority, rather than the Total Price named in the Contractor's Bid, which is calculated using an estimated quantity of Pay Item Units.

ARTICLE SIX. It is further mutually agreed between the parties hereto that no estimate given or payment made under this Contract shall be evidence of the performance of this Contract either wholly or in part, and that no payment shall be construed to be an acceptance of defective work or improper materials.

ARTICLE SEVEN. This Contract shall be binding upon the successors of both parties.

ARTICLE EIGHT. This Contract shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware. The Contractor hereby irrevocably consents, for itself and its heirs, legal representatives, partners, successors and assigns, to the exclusive jurisdiction of the Courts of the State of Delaware and of the United States District Court for the District of Delaware for all purposes in connection with any action or proceeding that arises from or relates to this Contract and hereby waives any rights it may have to personal service of summons, complaint or other process in connection therewith, and agrees that service may be made by registered or certified mail addressed to Contractor at the address set forth in the bid documents.

ARTICLE NINE. Except as otherwise herein provided, any notices under or pursuant to this Contract or any of the documents incorporated herein shall be in writing and shall be delivered by personal delivery, by nationally recognized overnight courier or by certified or registered mail, return receipt requested, using the address set forth in the first paragraph above or at such other address as the party affected shall designate, subsequent to the date of the Contract, by written notice given in the manner hereinabove set forth. Notices shall be deemed given when delivered and receipted for (or upon the date of attempted delivery where delivery is refused), if hand-delivered; or when receipted for (or upon the date of attempted delivery where delivery is refused or a properly addressed and mailed notice is returned as undeliverable or unclaimed), if sent by certified or registered mail.

ARTICLE TEN. Should any part of this Contract be held to be invalid, illegal or unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Contract (including without limitation, each portion of any Article of this Contract containing any such part held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by law; (b) such part shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties hereto; and (c) to the fullest extent possible, the Articles of this Contract (including, without limitation, each portion of any Article of this Contract containing any such part held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

ARTICLE ELEVEN. It is expressly understood and agreed that the Contractor, in performing its obligations under this Contract, shall be deemed an independent contractor and not an agent or employee of the Authority. In furtherance of the foregoing, and not in limitation, the Contractor has no authority to enter into any contracts or other agreements with any person or entity on behalf of the Authority or to otherwise bind the Authority. Furthermore, nothing contained in this Contract shall either be construed to mean that the Authority and the Contractor are joint venturers, partners or the like, or to establish any contractual relationship between the Authority and any Subcontractor of the Contractor.

ARTICLE TWELVE. The effective date of this Contract shall be the date the Assistant Secretary of the Authority attests that all parties to this Contract have executed the Contract, as shown on the signature page below.

[Signatures on following page]

IN WITNESS WHEREOF, the undersigned have duly executed this Contract, effective upon the day and year below as attested by the Assistant Secretary of the Authority.

[CONTRACTOR]

By: _____

Name: _____

Title: _____

Date: _____

DELAWARE RIVER AND BAY AUTHORITY

By: _____
Chairman

By: _____
Vice Chairman

By: _____
Executive Director

Attest: _____
Assistant Secretary

Date: _____

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

CONTRACT BOND

We, the undersigned, _____

as principal (herein called the "Principal"), and _____

_____

a _____ of the State of _____, which is legally authorized to do business in the State(s) of New Jersey, where the work is to be performed, as surety (herein called the "Surety"), do hereby agree to be held and bound unto the Delaware River and Bay

Authority (herein called the "Authority") for the sum of _____

Dollars and _____Cents ($_____), which sum is to be paid to the Authority for its use and benefit. Further, for such payment well and truly to be made, we do hereby bind ourselves and our heirs, executors, administrators, successors, and assigns, jointly and severally.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal, to whom the Authority has awarded Contract No. CMLF-C20-08 (herein called the "Contract"), for the performance of certain work for the Authority, which Contract is incorporated herein by reference, shall well and truly provide and furnish all the materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and of the Bid, Plans, Standard Specifications, Special Provisions and Technical Specifications contained therein, or any changes or modifications thereto made as therein provided, and shall also indemnify, defend and save harmless the Authority from all costs, damages and expenses growing out of or by reason of the performance of the Contract and shall well and truly pay all and every person furnishing material or performing labor in and about the performance of the work under the Contract, all and every sum or sums of money due him, them or any of them, for all such labor and materials for which the Principal is liable; then this obligation shall be void; otherwise it shall be and remain in full force and effect.

If for any cause the Principal fails or neglects to so fully perform and complete such work, the Surety, for value received, hereby stipulates and agrees, if requested by the Authority:

(i) to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof; or

(ii) to pay to the Authority upon demand amounts necessary to pay all costs incurred by the Authority (including appropriately allocated internal costs of the Authority and professional fees) to enable the Authority to fully perform and complete the work to be performed under the Contract (but not exceeding the amount set forth in the first paragraph hereof);

If the Authority requests option (i) above, the Surety further agrees to commence such work of completion within twenty (20) calendar days after written notice thereof from the Authority and to complete such work within such reasonable time as the Authority may determine.

The Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of the Surety and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, change, delay or disruption 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 the Surety does hereby waive notice of any and all of 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 the Surety as though done or omitted to be done by or in relation to the Principal.

The Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract, or in or to the Plans, Standard Specifications, Special Provisions and Technical Specifications therefor, shall in any way affect its obligation under this Contract Bond.

Remainder of page intentionally left blank

IN WITNESS WHEREOF, the Principal and Surety have duly executed this Contract Bond as of _____ ___, 20___.

[PRINCIPAL]

Name: _____

Witness or Attest:

Address: _____

_____

By: _____

_____

Title: _____

(Corporate Seal)

[SURETY]

Name: _____

Address: _____

_____

Witness or Attest:

By: _____

_____

Title: _____

_____

(Corporate Seal)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

MAINTENANCE BOND

We, the undersigned, _____

_____

as principal (herein called the "Principal"), and _____

_____

a _____ of the State of _____, which is legally authorized to do business in the State of New Jersey, where the work has been performed, as surety (herein called the "Surety"), do hereby agree to be held and bound unto the Delaware River and Bay

Authority (herein called the "Authority") for the sum of _____

Dollars and _____Cents ($_____), which sum is to be paid to the Authority for its use and benefit. Further, for such payment well and truly to be made, we do hereby bind ourselves and our heirs, executors, administrators, successors, and assigns, jointly and severally.

WHEREAS the Principal entered into a contract with the Authority known as Contract No. CMLF-C20-08 (herein called the "Contract"), which Contract is incorporated herein by reference; and

WHEREAS the Principal has represented that it has completed the Contract in strict and entire conformity with the Plans and Specifications therefor on file at the office of the Authority;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if, within one (1) year from the date of final written acceptance of the work by the Authority, no faulty workmanship shall be disclosed in the performance of the Contract, including any Change Orders or Supplemental Agreements thereto, and if it shall appear that no defective materials were furnished thereunder, and if it shall appear that all work was performed and all materials were furnished thereunder in strict and entire conformity with the terms of the Contract, including any Change Orders or Supplemental Agreements thereto, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

If, within said period of one (1) year, faulty workmanship is disclosed or it appears that defective materials were furnished, or it appears that the work was not performed or the materials were not furnished in strict and entire conformity with the terms of the Contract documents, then the Authority shall so notify the Principal in writing and the Principal shall promptly repair, replace and make good all defective work or materials. In the event that the Principal, after having been so notified, shall refuse or neglect to repair, replace or make good such work or materials within five (5) days from the receipt of such notice (or within such other time as the Executive Director of the Authority may direct), or shall fail to complete such work within the time prescribed by said Executive Director, then the Authority will proceed to have the work done by others, and the Principal and Surety hereunder shall jointly and severally be liable to pay the cost thereof, subject to the monetary limitation first written above. In case of an emergency, as determined by said Executive Director, the Authority reserves the right to immediately effect both temporary and permanent repairs, or to arrange for others to effect such repairs, without immediate notification to the Principal, and the Principal and Surety hereunder shall jointly and severally be liable to pay the cost thereof.

Further, if in the event no faulty workmanship, defective materials or nonconforming work, is disclosed or discovered within the one-year period, this shall in no way bar, or be used as a defense to the Authority's ability to bring a cause of action for breach, negligence, or other theory, within the term allowed by law, against Contractor and other responsible parties.

Remainder of page intentionally left blank

IN WITNESS WHEREOF, the Principal and Surety have duly executed this Maintenance Bond as of _____, 20___.

[PRINCIPAL]

Name: _____

Witness or Attest:

Address: _____

_____

By: _____

_____

Title: _____

(Corporate Seal)

[SURETY]

Name: _____

Address: _____

_____

Witness or Attest:

By: _____

_____

Title: _____

_____

(Corporate Seal)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

CONTRACTOR'S RELEASE OF LIENS

Date: _____

Delaware River and Bay Authority
P.O. Box 71
New Castle, Delaware 19720

Re: Contract No. CMLF-C20-08
CAPE MAY FERRY TERMINAL PRODUCTION KITCHEN

Gentlemen:

This is to certify that all just liens, claims and demands for labor, materials and rental of equipment arising out of the prosecution of the work under the above-named contract are fully paid and satisfied and that all of the work is fully released, freed and discharged from all liens, claims and demands, whatsoever, whether just or otherwise of any contractors, subcontractors, materialmen, suppliers, laborers, artisans or architects.

In consideration of the final payment of said contract, we hereby remise, release and forever discharge the Delaware River and Bay Authority, its commissioners, officers, representatives, employees, agents, employees and servants from any and all manner of actions and cause of actions, suits, debts, accounts, bonds, covenants, contracts, agreements, judgments, liens, demands and liability of whatever nature in law and in equity from anything done or furnished or in any manner growing out of the doing of the work under the above-named contract including any and all extra or reduction orders issued thereunder and any agreements supplementary thereto, and anything whether known or unknown, suspected or unsuspected or which we ever had, now have or which our heirs, executors, administrators, successors or assigns shall or may have; and we hereby agree to indemnify and hold harmless the Delaware River and Bay Authority against any and all claims which hereafter may be made or instituted against it by any contractors, subcontractors, materialmen, suppliers, laborers, artisans or architects for the purpose of enforcing a lien, claim or demand arising out of the prosecution of the work under the above-named contract.

Compliance with the foregoing, as related to statutory liens, is a matter of administrative convenience. It is the Delaware River and Bay Authority's position that the property of the Authority, as an agency of the States of Delaware and New Jersey, is not subject to the filing of statutory liens as a matter of law.

Contractor: _____

Address: _____

_____

Witness or Attest:

By: _____

Title: _____

_____
(Corporate Seal)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

STANDARD SPECIFICATIONS

Together, parts (i) and (ii) below, as modified by any Special Provisions or by documents of any description furnished by the DRBA as part of the Contract, form the "Standard Specifications" and shall govern the execution of the Contract:

(i) Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014; and

(ii) Divisions 200 through 1000 of the Delaware Department of Transportation ("DelDOT") Standard Specifications for Road and Bridge Construction, dated August 2016 including any Supplemental Specifications, Additions or revisions issued prior to the Advertisement for Bids, as published on the DelDOT website ("DelDOT Standard Specifications").

The Standard Specifications, as defined above, are hereby made a part of the Contract as fully and with the same effect as if set forth at length herein.

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * *

SPECIAL PROVISIONS - PART I

AMENDMENTS TO GENERAL PROVISIONS OF THE STANDARD SPECIFICATIONS

The following clauses represent modifications to Division 100 - General Provisions of the *Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction*, dated December 15, 2014 (the "General Provisions").

Any modifications given herein will specifically identify the Section or Subsection of the General Provisions within which the modification is to occur and whether that particular modification is an insertion, deletion or replacement of the original provision.

Any provision set forth in the General Provisions that is not modified by or in conflict with the Special Provisions of this Part I shall be understood to remain in full force and effect.

101.75.2 Standard Specifications.

Delete the provisions of Subsection 101.75.2 and replace with the following:

Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014; and Divisions 200 through 1000 of the DelDOT Standard Specifications for Road and Bridge Construction, dated August 2016, including any Supplemental Specifications, additions or revisions issued prior to the date of the Advertisement for Bids, as published on the DelDOT website.

101.83.2 Supplemental Specifications (DelDOT Supplemental Specifications).

Delete the provisions of Subsection 101.83.2 and replace with the following:

Approved DelDOT additions or revisions to Sections 200 through 1000 of the DelDOT Standard Specifications for Road and Bridge Construction, dated August 2016, issued prior to the date of the Advertisement for Bids, as published on the DelDOT website.

102.05 Examination of Plans, Specifications, Contract Documents, and Site of Work.

Insert the following:

A non-mandatory pre-bid meeting and site visit will be held on December 14, 2020 at 1:00 p.m. local time at the Cape May-Lewes Ferry Terminal Building, 1200 Charles Sandman Blvd., Cape May, New Jersey 08204. The pre-bid meeting will be held outside, weather permitting. Attendees of the pre-bid meeting are limited to a maximum of two (2) representatives per business in attendance and must strictly follow the personal protective equipment requirements and social distance regulations in accordance with state mandate and DRBA policy. Unsupervised access to the project site will not be permitted.

102.07 Irregular Bids.

Delete part (e) and replace with the following:

(e) If any documents necessary for bidding purposes are not completed, are improperly executed or are missing (including the Bid Bond) or if the Bid is submitted by Bidders whose names are not recorded by the Authority as having secured the Contract Documents by subscribing to the project via CapEx.

102.08 Bid Guaranty.

Delete all and replace with the following:

The Bid, when submitted, shall be accompanied by the following form of Bid Guaranty as follows:

(a) A Bid Bond, on the form furnished by the Authority and included in the Contract Documents, for a sum of not less than ten percent (10%) of the Total Price.

103.04 Return of Bid Guaranty.

Delete all and replace with the following:

In the event the award of the Contract is annulled because the Bidder to whom the award is made fails to execute and have delivered on time the Contract and other prescribed documents, that Bidder's Bid Bond shall become operative, as provided in Subsection 103.07.

103.07 Failure to Execute Contract.

Delete the second paragraph and replace with the following:

It is understood and agreed by said Bidder that if the Award is annulled for the above reasons, the Authority may proceed to recover under the terms and provisions of the Bid Bond, at the discretion of the Chairperson.

103.09 Withdrawal of Bid.

Delete the following sentence:

The Authority reserves the right to retain the Bid Guaranty in full or in part as Liquidated Damages.

103.10 Insurance.

Insert the following after final paragraph of Subsection:

The minimum requirements of insurance to be carried by the Contractor and any sub-contractor shall be as follows:

A. Workers' Compensation and Employer's Liability Insurance

Statutory Workers' Compensation Insurance - as required by the Workers' Compensation Laws of the state in which the work is being accomplished. Employers Liability limits to be $1,000,000/$1,000,000/$1,000,000. The insurer shall waive, and the Contractor shall be responsible for confirming that the insurer has waived, any right of subrogation against the Authority to the maximum extent permitted by law. Any deductible is the responsibility of the Contractor, and will not be claimed against the Authority.

B. Commercial General Liability

Commercial General Liability policy with limits of not less than One Million Dollars ($1,000,000) each occurrence, Two Million Dollars ($2,000,000) products liability/completed operations aggregate and Two Million Dollars ($2,000,000) general

aggregate (applicable per project). After the work has been completed, the products/completed operations coverage to remain in effect for a period not less than the statute of repose as determined by the State(s) in which the work has been completed. Any aggregate to be applicable per project and the policy shall not contain any XCU exclusions.

C. Contractor's Pollution Liability and Clean-up Costs

A Contractor's Pollution Liability and Clean-up Costs policy with limits of not less than Five Million Dollars ($5,000,000) each claim and Five Million Dollars ($5,000,000) aggregate. The Policy Retroactive Date shall be concurrent with or prior to the Contract date. Coverage to remain in effect for not less than three (3) years after work has been completed.

D. Business Automobile Liability Insurance

Business Automobile Liability to provide the following coverage for all owned, non-owned, hired or borrowed and vehicles and registered equipment:

i. Bodily Injury and Property Damage Liability with a Combined Single Limit of not less than One Million Dollars ($1,000,000) for all damages because of bodily injury and property damage suffered by one or more persons as the result of any one accident.

E. Umbrella or Excess Liability

An Umbrella or Excess Liability policy with a limit of not less than Five Million Dollars ($5,000,000) (applicable per project) in excess of and including the coverage stipulated in the primary policies as stated above under sections A, B and D.

F. Installation Floater

The Contractor shall provide and pay the premium for an installation floater covering the full insurable value of the Contract for "special perils including flood and earthquake" with the valuation on a replacement cost basis. The contractor will add the Authority as Loss Payee. In addition, the contractor shall ensure that all levels of sub-sub-contractors as are covered as their interests may appear and furthermore, should waive any right of subrogation against the Authority. The installation floater policy shall also include coverage for any project materials:

i. While they are being stored at a temporary location;
ii. While in transit to the project site; while being staged or awaiting installation; while being installed; and/or
iii. While pending acceptance by the Authority.

Any deductible shall be the responsibility of the Contractor and will not be claimed against the Authority regardless of the cause of loss. The policy is to remain in full force until the final payment is made by the Authority to the Contractor.

G. Additional Insured

With respect to the minimum insurance requirements outlined above, the Contractor and all sub-contractors are to name the Authority as additional insured under Section B on a primary and non-contributory basis using forms #CG 2010, #CG 2037 and #CG 2038. Furthermore, the Authority is to be added as an additional insured under Sections C, D and E on a primary and non-contributory basis. The umbrella outlined in Section E should be written to follow form of the coverages afforded in Sections B and D. In addition, the insurer for the Contractor and all sub-contractors shall waive, and the Contractor and the sub-contractors shall be responsible for confirming that the insurer has waived, any right of subrogation against the Authority to the maximum extent permitted by law. The Contractor and all sub-contractors agree to indemnify the Authority from any costs or liabilities arising in the Court if the Contractor's insurer fails to waive subrogation as required under the specifications. Any deductible is the responsibility of the Contractor, and will not be claimed against the Authority.

If any policy as above has a deductible or self-insured retention, the Contractor will not claim against the DRBA for any reimbursement of said deductible or self-insured retention, regardless of the cause of loss. The insurance certificate(s) shall indicate all deductibles and/or self-insured retentions.

H. Proof of Insurance.

All required insurance shall be maintained with insurance carriers licensed or approved to do business in the States of New Jersey and Delaware. All companies shall be rated by Best's at least A-VIII or approved in writing by the DRBA. Within ten (10) days following execution of this Agreement, the Contractor shall deposit with the DRBA certificates evidencing the required insurance coverage. Thereafter, renewal certificates of insurance shall be deposited with the DRBA not less than ten (10) days before the expiration dates of the related policies or upon renewal. The Contractor will provide the DRBA 30 days' written notice of cancellation of any required policy, and furnish replacement certificate prior to the end of the 30-day period.

I. Duration of Insurance.

The insurance policies as required by sections A, B, C, D and E shall be kept in full force and effect during the performance of this Contract and until the Contractor has fully performed all work hereunder. In addition, under section B after the work is completed/accepted by the Authority, the products/completed operations coverage is to remain in effect for a period not less than the statute of repose as determined by the State(s) in which the work has been completed. Regarding the insurance required by section C, the

coverage is to remain in effect for not less than three (3) years after work has been completed.

ATTENTION: For ease of reference, the following restatement of Subsection 103.10, Insurance is provided:

103.10 Insurance. *The Bidder to whom the Contract is awarded will be required to provide insurance of the prescribed types and minimum amounts as set forth in the Special Provisions of the Contract Documents to provide adequate protection for the various parties involved in the Contract. To the extent permitted by law, all policies are to have a waiver of subrogation in favor of the Authority.*

Within ten (10) Days after the date of official notice of Award of the Contract, the Contractor shall furnish to the Authority insurance certificates for all the insurance required under the Contract and subrogation waivers related thereto. Thereafter, renewal certificates of insurance shall be deposited with the Authority not less than ten (10) Days before the expiration dates of the related policies. The Contractor also agrees to provide the Authority with current certificates of insurance every six (6) months during the term of the Contract. Notwithstanding the foregoing, the Authority reserves the right to request evidence of insurance at such additional intervals as it determines in its sole discretion. In the event of cancellation or termination (whether by the insurer or the Contractor) of such policy(ies) or in the event the coverage thereof is altered below the limits required by the Contract, Contractor shall provide the Authority with ten (10) Days prior written notice of such expiration, termination or alteration. In addition, the Contractor shall procure new or additional insurance, as applicable, satisfying the requirements set forth in the Special Provisions and shall supply the Authority with certificates of insurance for such new or additional insurance not less than five (5) Business Days before the expiration, termination or alteration of the prior policy(ies).

All required insurance shall be maintained with insurance carriers licensed or approved to do business in the states of New Jersey or Delaware, as required by the location of the Project, or as otherwise approved by the Authority. All companies are to be rated by Best's at least A-VIII, unless otherwise approved by the Authority.

Neither approval by the Authority nor a failure to disapprove insurance certificates furnished by the Contractor shall release the Contractor from full responsibility for all liability as set forth in the indemnification clause stated in Subsection 107.10.

The Contractor is responsible for any loss or damage to the Work from any cause whatsoever, until final acceptance by the Authority. If the Contractor has any property insurance covering the Work, the policy is to include a waiver of subrogation in favor of the Authority, and the Authority is to be named loss payee. The Contractor is responsible for any deductible, and holds the Authority harmless for any deductible. If the Contractor is self-insured, the Contractor will not claim against the Authority for any loss or damage.

If Coverage is on a "claims made" form, the retro date must be prior to or concurrent with the date of execution of the Contract; and certification must continue for at least one year after termination or expiration of the Contract.

105.08 Cooperation Between Contractors.

Add the following after the last paragraph:

The Contractor is advised that work by Authority maintenance and operations personnel will be in progress simultaneously with the work required under the Contract. Contractor is expected to accommodate Authority maintenance and operations personnel while performing its duties under the Contract. In addition, there may be other contractors working at the site and all traffic closures and work associated with the Contract shall be coordinated with other ongoing contracts. Should Contractor become aware of any problems coordinating with other contractors or Authority personnel, Contractor is required to notify the Authority in writing, immediately upon becoming aware of the potential for coordination issues or problems.

106.07 Storage and Handling of Materials

Insert the following after the last paragraph of Subsection 106.07:

Recycling and Processing Facility Records: The Contractor shall provide the Authority with documentation that indicates the receipt and acceptance of recyclable waste by recycling and processing facilities permitted to accept recyclable waste. The Contractor shall provide manifests, weight tickets, receipts, and invoices. All regulated materials sent on a manifest must be signed by a representative of the Authority's Environmental, Health and Safety ("EHS") Department.

107.02 Permits, Licenses and Taxes

Insert the following after the last paragraph of Subsection 107.02:

The Contractor shall submit and obtain a written permit prior to performing "Hot Work" (i.e., welding or cutting) or operating other flame-producing/spark-producing devices, from a representative of the Authority's Environmental, Health and Safety ("EHS") Department. The Contractor shall provide at least two 9 kg 20-pound 4A:20 BC-rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged and contain an approved safety pin and tamper-resistant seal. It is also mandatory to have a designated fire watch for any "Hot Work" done at this activity. The fire watch must be trained in accordance with NFPA 51B and must remain on-site for a minimum of one (1) hour after completion of the task or as specified on the "Hot Work" permit.

Before starting work in any Authority facility, the Contractor personnel shall familiarize themselves with the location of the nearest fire alarm boxes and have ready access to the local fire department emergency phone number. THE CONTRACTOR MUST REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE AUTHORITY REPRESENTATIVE IMMEDIATELY.

107.06 Construction Safety, Health, and Sanitary Standards

Insert the following after the first paragraph of Subsection 107.06:

Prior to beginning Work, the Contractor shall prepare a Health & Safety Plan for the review and approval of the Authority's Environmental, Health and Safety ("EHS") Department. The Health & Safety Plan should address the following areas, including but not limited to: hot work, crane lifts, working at heights, emergency response, hazardous materials management and disposal, respiratory protection and storm water management. The Health & Safety Plan shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The Health & Safety Plan shall interface with the Contractor's overall safety and health program. Any portion of the Contractor's overall safety and health program that is referenced in the Health & Safety Plan shall be included as appropriate. The Health & Safety Plan must include the following:

1. SIGNATURE SHEET. Title, signature, and phone number of the following:

    a. Plan preparer (qualified person such as Contractor's safety personnel).
    b. Plan must be approved, by company/corporate officers authorized to obligate the company (e.g., owner, company president, regional vice president, etc.).
    c. Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC).

2. BACKGROUND INFORMATION. List the following:

    a. Contractor
    b. Contract number
    c. Project name
    d. Brief project description, description of work to be performed, and location (map)
    e. Contractor accident experience (provide information such as experience modification rate ("EMR"), Occupational Safety and Health Administration ("OSHA") 300 Forms, corporate safety trend analyses, etc.).

3. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of current corporate/company Safety and Health Policy Statement.

4. RESPONSIBILITIES AND LINES OF AUTHORITIES.

    a. Identification and accountability of personnel responsible for safety - at both corporate and project level. (Contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume as part of the Qualifications Questionnaire)
    b. Lines of authority.

5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:

    a. Identification of subcontractors and suppliers (if known);
    b. Means for controlling and coordinating subcontractors and suppliers; and
    c. Safety responsibilities of subcontractors and suppliers.
    d. Waste haulers must supply their EPA ID number and relevant RCRA/DOT training to the EHS Department.
        i. Only authorized members of the EHS Department may sign regulated waste manifests.

6. TRAINING.

    a. List subjects to be discussed with employees in safety indoctrination.
    b. List mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, PPE) and any requirements for periodic retraining/recertification.
    c. Outline requirements (who attends, when given, who will conduct, etc.) for supervisory and employee safety meetings.

7. SAFETY AND HEALTH INSPECTIONS. Provide details on:

    a. Who will conduct safety inspections (e.g., PM, safety professional, QC, supervisors, employees), proof of inspector's training/qualifications, when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc. The names of competent and/or qualified person(s) and proof of competency/ qualification to meet specific OSHA-competent/qualified person(s) requirements must be attached.
    b. Any external inspections/certifications that may be required.
    c. "Hot work" permits must be signed-off by the EHS Department (template will be provided during pre-construction meeting).
    d. All crane lifts must be reviewed by the EHS Department (template will be provided during pre-construction meeting).

8. SAFETY AND HEALTH EXPECTATIONS AND COMPLIANCE.

    a. The company's written safety program goals, objectives, and accident experience goals for this contract shall be provided.
    b. Policies and procedures regarding noncompliance with safety or environmental requirements (to include disciplinary actions for violation of requirements) shall be identified.
    c. Provide written company procedures for holding managers and supervisors accountable for safety.
    d. Chemicals must be stored appropriately and securely in containers that are in good condition (e.g., no rust, dents, etc.).
    e. 55-gallon drums of flammable liquids are not permitted to be stored at Authority

properties.

f. All containers and equipment must be covered to prevent runoff into the Stormwater system.
g. Spill response equipment must be readily available in the event of a release.

9. INCIDENT REPORTING. The Contractor shall identify who, how, and when the following will be completed:

    a. Exposure data (man-hours worked);
    b. Incident investigations, reports, and logs;
    c. Immediate notification of major accidents;
    d. Environmental incidents must be reported to the NRC/DNREC/NJDEP within 15 minutes of the release;
        i. DRBA Project Engineer and EHS Department must be notified immediately after notification to responding agency.

10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements including rescue and medical duties for those employees who are to perform them, and the name(s) of on-site Contractor personnel trained in first aid and CPR. Must also identify which medical facilities will be contacted in the event of an incident.

11. PERSONAL PROTECTIVE EQUIPMENT ("PPE"). Outline procedures (who, when, how) for conducting hazard assessments and written certifications for use of PPE. Outline procedures to be followed to assure the proper use, selection, and maintenance of personal protective and lifesaving equipment (e.g., protective footwear, protective gloves, hard hats, safety glasses, hearing protection, body harnesses, lanyards). PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes the following:

    a. Hard Hat;
    b. Long Pants
    c. Appropriate Safety Shoes
    d. Class III Reflective Vests
    e. Fall protection must be worn within 6 feet of the edge of a building if no railing is present.
    f. Fall protection must be worn in all man lifts (scissor lifts, bucket trucks, etc.).

12. FALL PROTECTION PROGRAM:

    a. Establish a site-specific fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation.

b. Training: Institute a fall protection training program. As part of the fall protection and prevention plan, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection. Document training and practical application of the competent person in accordance with

c. Fall Protection Equipment and Systems: Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the site-specific fall protection and prevention plan at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards.

13. CONTRACTOR INFORMATION. The Contractor shall provide information on how they will meet the requirements of applicable items within the plan. As a minimum, excavations, scaffolding, medical and first-aid requirements, sanitation, PPE, fire prevention, electrical safety, public safety requirements shall be addressed as applicable.

107.07 Public Convenience and Safety.

Insert the following after the first sentence of Subsection 107.07:

The Contractor shall provide emergency contact information at the pre-construction meeting. The information shall include the following and be posted at the job site:

EMERGENCY CONTACT INFORMATION

CONTRACT _____

Contact the following in the event of an emergency or hazardous condition on this construction project

Contractor Superintendent

Name_____
Cell Phone Number _____
Emergency Contact Number _____

Contractor Information

Firm Name _____
Home Office Address _____
City, State _____
Home Office Phone _____

107.14 Hazardous Material.

Insert the following after the fourth paragraph of Subsection 107.14:

Hazardous Material Use: Each hazardous material must receive approval from the Authority's Environmental, Health and Safety ("EHS") Department prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of ten (10) working days for processing of the request for use of a hazardous material.

Hazardous Material Exclusions: Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls ("PCBs"), di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Authority, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low-mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further approval. Notify the EHS Department prior to excepted items of radioactive material and devices being brought on Authority property.

Unforeseen Hazardous Material: Materials such as PCBs, lead paint, and friable and non-friable asbestos and other Occupational Safety and Health Administration (OSHA)-regulated chemicals (i.e., 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during construction operations, stop that portion of work and notify the Authority immediately. Within fourteen (14) calendar days the Authority will determine if the material is hazardous. If material is not hazardous or poses no danger, the Authority will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Authority will issue a modification pursuant to Differing Site Conditions as specified in subsection 104.06.

108.01 Subletting of the Contract.

Delete the third and fourth paragraphs and replace with the following paragraphs:

Except by special written consent of the Authority to do otherwise, the Contractor shall perform Work of a value of no less than thirty percent (30%) of the awarded Contract with the Contractor's own organization and with the assistance of workers under the Contractor's immediate supervision.

Contract Award shall not be construed to be an approval of any subcontract, supply contract or any associated terms. Each Subcontractor agrees, as a condition of entering into a subcontract on the Project, to make no claim whatsoever against the Authority or its commissioners, officers, servants, agents or employees for any Work performed or thing done by reason of said subcontract or for any other cause whatsoever that may arise by reason of the relationship created between the Contractor and Subcontractor by the subcontract. Contractor shall indemnify, defend, and hold harmless the Authority, its commissioners, officers, servants, agents, and employees against any claim filed by a Subcontractor. Prior to the issuance of the Notice to Proceed, the Contractor shall provide to the Authority a complete list of all Subcontractors anticipated to work on Authority property and, for the Contractor and all Subcontractors, a valid copy of the current state business license appropriate to the location of the Work. This list shall also include certified statements that

each Subcontractor is acquainted with all the provisions of the Contract and agrees thereto. The Contractor shall be responsible for keeping to-date the Subcontractor list and all associated state business licenses throughout the duration of the Project.

108.02 Notice to Proceed.
Delete all and replace with the following:

Following the Contract execution, the Engineer may schedule a preconstruction meeting. Before a Notice to Proceed is issued, the Contractor shall submit to the Engineer:

(a) A list of anticipated Subcontractors;
(b) For both the Contractor and all Subcontractors, proof of a valid state business license appropriate to the State of Delaware per Subsection 108.01;
(c) Progress schedule per Subsection 108.04.

The Engineer will issue to the Contractor a Notice to Proceed which will stipulate the date on or before which the Contractor is expected to begin Work. The date specified in the Notice to Proceed will be at least ten (10) Calendar Days subsequent to the date of issuance of the Notice to Proceed. No Work is to be started before receipt of the Notice to Proceed. The specified Contract Time shall begin on the Day the Work actually starts or on the date stipulated in the Notice to Proceed, whichever is earlier.

108.08 Failure to Complete on Time.

Delete the first sentence of the first paragraph and replace with the following:

All work on the Project must be completed within one hundred fifty (150) calendar days after the Day the Work actually starts or the date stipulated in the Notice to Proceed, whichever is earlier. **TIME IS OF THE ESSENCE.**

108.09 Schedule of Liquidated Damages.

Delete the first sentence of the first paragraph and replace with the following:

For each day that the Contractor is in default following the passing of the completion date(s) as stipulated in Subsection 108.08, the Contractor shall pay the Authority Liquidated Damages of one thousand dollars ($1,000.00) per day.

109.10 Final Payment.

Delete part 109.10(e)

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * * * * *

SPECIAL PROVISIONS - PART II

ADDITIONAL GENERAL PROVISIONS

The following clauses represent general provisions which shall be added to Division 100 - General Provisions of the *Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction*, dated December 15, 2014. In a case of conflicting requirements, this Part II shall govern over:

(i) Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014; and
(ii) Part I of the Special Provisions provided herein.

Any applicable provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of Parts I-II, shall be understood to remain in full force and effect. In any case where there exists an inconsistency among the additional General Provisions and the Standard Specifications, the additional General Provisions of this Part II shall govern.

NO ADDITIONAL GENERAL PROVISIONS

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * * * * *

SPECIAL PROVISIONS - PART III

AMENDMENTS TO STANDARD TECHNICAL SPECIFICATIONS

The following clauses represent modifications certain technical specifications of Divisions 200 through 1000 of the Delaware Department of Transportation ("DelDOT") Standard Specifications for Road and Bridge Construction, dated August 2016, including any Supplemental Specifications, Additions or Revisions issued prior to the date of the Advertisement for Bids, as published on the DelDOT website ("DelDOT Standard Specifications").

In case of conflicting requirements, the Special Provisions of this Part III shall govern over:

(i) The DelDOT Standard Specifications, as defined above; and
(ii) Division 100 – General Provisions of the Delaware River and Bay Authority Standard Specifications for Road and Bridge Construction, dated December 15, 2014; and
(iii) Special Provisions Part I provided herein; and
(iv) Special Provisions Part II provided herein.

Any Special Provision of this Part III will specifically identify the Division, Section and Subsection within which the amendment is to occur and whether that particular modification is an insertion, a deletion, or a replacement for the designated DelDOT Standard Specification.

Any applicable provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of Parts I-III shall be understood to remain in full force and effect.

The following are broad modifications to be made to Divisions 200-1000 of the DelDOT Standard Specifications:

Chief Traffic Engineer. The term "Chief Traffic Engineer" shall mean "Engineer" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Delaware MUTCD or DE MUTCD. Any reference to "Delaware MUTCD" or "DE MUTCD" shall mean "MUTCD" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

DelDOT Contact. Any reference to a "DelDOT Contact" shall mean an "Authority Contact".

DelDOT Owned. Any reference to "DelDOT Owned" shall mean "Authority-owned".

DelDOT Personnel. Any reference to "DelDOT Personnel" shall mean "Authority Personnel".

DelDOT Project. Any reference to "DelDOT Project" shall mean "Authority Project".

DelDOT Project Resident. Any reference to "DelDOT Project Resident" shall mean "Engineer".

DelDOT's Safety Section. Any reference to "DelDOT's Safety Section" shall mean the "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

DelDOT Transportation Management Center (TMC). The term "DelDOT Transportation Management Center" or "TMC" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Department. The term "Department" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Department's District Maintenance Yard. Any reference to the "Department's District Maintenance Yard" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

District Engineer. Any reference to "District Engineer" shall mean the "Engineer" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

District Maintenance Yard. Any reference to the "District Maintenance Yard" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Materials and Research Section. Reference to the "Materials and Research Section" or the "Department's Materials and Research Section" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Materials and Research Laboratory. Any reference to "Materials and Research Laboratory" shall mean the "Authority's Laboratory".

Stormwater Section. Any reference to "Stormwater Section" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Traffic Safety Section. Any reference to "Traffic Safety Section" shall mean "Authority" as defined in Division 100 – General Provisions, of the DRBA Standard Specifications.

Any reference to **Section 104.08** shall be deleted and revised to indicate **Subsection 104.07**, **Suspension of Work/Annulment of Contract.**

Any reference to **Section 106.08** shall be deleted and revised to indicate **Subsection 106.09**, **Disposal of Unacceptable Materials**.

……

NOTE: Any reference to a one hundred-level Section or Subsection expressed within the DelDOT Standard Specifications (e.g. Section 110, Subsection 101.39, 104.07, 105.02, 105.04, 105.12, 105.13, 106.01, 106.09, 107.02, 107.10, 109.01, 109.05, 110.17, etc.) shall be defined as that Section or Subsection of the General Provisions (Section 100) of the DRBA Standard Specifications.

NO ADDITIONAL AMENDMENTS TO STANDARD TECHNICAL SPECIFICATIONS

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY - LEWES FERRY

CONTRACT NO. CMLF-C20-08

CAPE MAY FERRY TERMINAL
PRODUCTION KITCHEN

* * * * * * * * * *

SPECIAL PROVISIONS - PART IV

ADDITIONAL TECHNICAL SPECIFICATIONS

The following clauses represent new provisions which shall be added to *Divisions 200 through 1000 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction*, dated August 2016, including any Supplemental Specifications, Additions or revisions issued prior to the Advertisement for Bids, as published on the DelDOT website ("DelDOT Standard Specifications"), which are to be added for purposes of the above contract.

Should a case of inconsistency or conflict arise between provision(s) applicable to this Contract, the Special Provisions of this Part IV shall supersede the following:

(i) The DelDOT Standard Specifications; and
(ii) The General Provisions; and
(iii) Part I of the Special Provisions provided herein; and
(iv) Part II of the Special Provisions provided herein; and
(v) Part III of the Special Provisions provided herein.

Any applicable provision set forth in the Standard Specifications that is not modified by or in conflict with the Special Provisions of Parts I-IV shall be understood to remain in full force and effect.

SECTION 01-7419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 14 days of date established for commencement of the Work.

1.4 INFORMATIONAL SUBMITTALS

A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:

1. Material category.
2. Generation points of waste.
3. Total quantity of waste in tons.
4. Quantity of waste salvaged, both estimated and actual in tons.
5. Quantity of waste recycled, both estimated and actual in tons.
6. Total quantity of waste recovered (salvaged plus recycled) in tons.
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.5 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.

END OF SECTION 01-7419

SECTION 02-4119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner as determined by the Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of selective demolition activities with starting and ending dates for each activity.

1.5 CLOSEOUT SUBMITTALS

A. Inventory of items that have been removed and salvaged.

1.6 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

F. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.7 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Inventory and record the condition of items to be removed and salvaged.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Arrange to shut off utilities with utility companies.
   2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

   1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.

2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
5. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 CLEANING

A. Remove demolition waste materials from Project site and recycle or dispose of them according to Section 017419 "Construction Waste Management and Disposal."

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.6 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.7 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 02-4119

SECTION 03-3000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, and other pozzolans materials subject to compliance with requirements.

B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Aggregates.
6. Admixtures:

    a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.

7. Vapor retarders.
8. Liquid floor treatments.
9. Curing materials.
10. Joint fillers.

B. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Curing compounds.
4. Vapor retarders.
5. Joint-filler strips.

B. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Aggregates.
6. Admixtures:

C. Research Reports: For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.

D. Preconstruction Test Reports: For each mix design.

E. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

1.7 PRECONSTRUCTION TESTING

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

1. Include the following information in each test report:

a. Admixture dosage rates.
b. Slump.
c. Air content.
d. Seven-day compressive strength.
e. 28-day compressive strength.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94/C94M and ACI 301.

1.9 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I white.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
4. Blended Hydraulic Cement: ASTM C595/C595M, Type IP, Portland-pozzolan

B. Normal-Weight Aggregates: ASTM C33/C33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

1. Alkali-Silica Reaction: Comply with one of the following:

a. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
c. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.

2. Maximum Coarse-Aggregate Size: 1-inch nominal.
3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: 1/2-inch nominal maximum aggregate size.

D. Air-Entraining Admixture: ASTM C260/C260M.

E. Water and Water Used to Make Ice: ASTM C94/C94M, potable [or] [complying with ASTM C1602/C1602M, including all limits listed in Table 2 and the requirements of paragraph 5.4]

2.3 CURING MATERIALS

A. Clear, Waterborne, Membrane-Forming, Dissipating Curing Compound: ASTM C309, Type 1, Class B.

B. Clear, Waterborne, Membrane-Forming, Nondissipating Curing Compound: ASTM C309, Type 1, Class B [certified by curing compound manufacturer to not interfere with bonding of floor covering].

C. Clear, Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

2.4 CONCRETE MIXTURES, GENERAL

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

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.

2. Slag Cement: 50 percent by mass.
3. Total of Fly Ash or Other Pozzolans, Slag Cement: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass.
4. Total of Fly Ash or Other Pozzolans: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.5 CONCRETE MIXTURES

A. Class **A**: Normal-weight concrete used for footings, grade beams, and tie beams.

1. Exposure Class: ACI 318 F2 Retain strength from first five options in "Minimum Compressive Strength" Subparagraph below, or revise to suit Project. Coordinate compressive strength with w/cm if concrete is subject to special exposure conditions or sulfate exposure, as identified in ACI 318 (ACI 318M).
2. Minimum Compressive Strength: 4,500 psi at 28 days.
3. Maximum w/cm: 0.45.
4. Slump Limit: 4 inches, plus or minus 1 inch for concrete with verified slump of 3 inches plus or minus 1 inch before adding high-range water-reducing admixture or plasticizing admixture at Project site.
5. Slump Flow Limit: 22 inches plus or minus 1.5 inches.
6. Air Content:
    a. Exposure Classes F2 and F3: 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-inch nominal maximum aggregate size

2.6 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and furnish batch ticket information.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 JOINTS

A. Construct joints true to line, with faces perpendicular to surface plane of concrete.

B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.

1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
2. Place joints perpendicular to main reinforcement.

    a. Continue reinforcement across construction joints unless otherwise indicated.
    b. Do not continue reinforcement through sides of strip placements of floors and slabs.

3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least **one-fourth** of concrete thickness as follows:

1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate grooved tool marks on concrete surfaces.
2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.

3.2 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.

1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.

B. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.

C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer in writing, but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

1. If a section cannot be placed continuously, provide construction joints as indicated.
2. Deposit concrete to avoid segregation.
3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.

    a. Do not use vibrators to transport concrete inside forms.
    b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
    c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
    d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Do not place concrete floors and slabs in a checkerboard sequence.
2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

3. Maintain reinforcement in position on chairs during concrete placement.
4. Screed slab surfaces with a straightedge and strike off to correct elevations.
5. Level concrete, cut high areas, and fill low areas.
6. Slope surfaces uniformly to drains where required.
7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
8. Do not further disturb slab surfaces before starting finishing operations.

3.3 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
2. Coordinate required final finish with Architect before application.

3.4 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.5 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.

B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.

2. Testing agency shall immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
3. Testing agency shall report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.

    a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:

        1) Project name.
        2) Name of testing agency.
        3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
        4) Name of concrete manufacturer.
        5) Date and time of inspection, sampling, and field testing.
        6) Date and time of concrete placement.
        7) Location in Work of concrete represented by samples.
        8) Date and time sample was obtained.
        9) Truck and batch ticket numbers.
        10) Design compressive strength at 28 days.
        11) Concrete mixture designation, proportions, and materials.
        12) Field test results.
        13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
        14) Type of fracture and compressive break strengths at seven days and 28 days.

C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.

D. Inspections:

1. Headed bolts and studs.
2. Verification of use of required design mixture.
3. Concrete placement, including conveying and depositing.
4. Curing procedures and maintenance of curing temperature.
5. Verification of concrete strength before removal of shores and forms from beams and slabs.
6. Batch Plant Inspections: On a random basis, as determined by Architect.

E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

    a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C143/C143M:

    a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    b. Perform additional tests when concrete consistency appears to change.

3. Slump Flow: ASTM C1611/C1611M:

    a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    b. Perform additional tests when concrete consistency appears to change.

4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete; [**ASTM C173/C173M volumetric method, for structural lightweight concrete**].

    a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

5. Concrete Temperature: ASTM C1064/C1064M:

    a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.

6. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.

    a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

7. Compression Test Specimens: ASTM C31/C31M:
    a. Cast, initial cure, and field cure two sets of two standard cylinder specimens for each composite sample.

8. Compressive-Strength Tests: ASTM C39/C39M.

    a. Test one set of two laboratory-cured specimens at seven days and one set of two specimens at 28 days.
    b. Test one set of two field-cured specimens at seven days and one set of two specimens at 28 days.

c. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests:

    a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
    b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.

        1) Acceptance criteria for concrete strength shall be in accordance with ACI 301, section 1.6.6.3.

13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

F. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 24 hours of completion of floor finishing and promptly report test results to Architect.

3.6 PROTECTION

A. Protect concrete surfaces as follows:

1. Protect from petroleum stains.
2. Diaper hydraulic equipment used over concrete surfaces.
3. Prohibit vehicles from interior concrete slabs.
4. Prohibit use of pipe-cutting machinery over concrete surfaces.
5. Prohibit placement of steel items on concrete surfaces.
6. Prohibit use of acids or acidic detergents over concrete surfaces.

7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish using Floor Slab Protective Covering.

3.7 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.8 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 03-3000

SECTION 11-4000 – SHIPPING CONTAINER KITCHEN AND FOODSERVICE EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Modular prefab shipping container kitchen.
   2. Cooking equipment.
   3. Refrigeration equipment.
   4. Powered food-preparation equipment.
   5. Food waste machines.
   6. Food distribution and serving carts.
   7. Fabricated equipment.
   8. Utility distribution systems.
   9. Shelving.
   10. Janitorial equipment.

B. Verify Quantities of kitchen equipment with plans and project documents.

C. Retain "Owner-Furnished Equipment" Paragraph below if Owner furnishes foodservice equipment items, or revise to suit Project.

D. Owner-Furnished Equipment: Where indicated, Owner will furnish equipment for installation by Contractor.

1.3 COORDINATION

A. Coordinate modular kitchen installation with other work, including layout and installation of utilities, grease trap, oil management system, and site plan.

B. Coordinate locations and requirements of utility service connections.

C. Coordinate sizes, locations, and requirements of the following:

   1. Overhead equipment supports.
   2. Equipment bases.
   3. Wall supports for suspended or wall mounted equipment.

4. Floor depressions.
5. Insulated floors.
6. Floor areas with positive slopes to drains.
7. Floor sinks and drains serving foodservice equipment.
8. Roof curbs, equipment supports, and penetrations.

1.4 PREINSTALLATION MEETINGS

A. Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

B. Preinstallation Conference: Conduct conference at

Cape May Lewes Ferry Terminal

1200 Lincoln Boulevard

North Cape May, NJ 08204

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product. Include the following:

1. Manufacturer's model number.
2. Accessories and components that will be included for Project.
3. Clearance requirements for access and maintenance.
4. Utility service connections for water, drainage, power, and fuel; include roughing-in dimensions.

B. Retain "Shop Drawings" Paragraph below with "Fabricated Equipment" Article. The term "fabricated equipment" is commonly used to describe custom, shop-fabricated, stainless steel kitchen, bakery, pantry, and cafeteria units, and other food-handling and -processing equipment such as tables and components, counters, shelves, and sinks.

C. Shop Drawings: **For Modular prefab shipping container kitchen** – include plans, elevations, sections, attachment to concrete pad foundation to include grounding/lightning protection, utility service connections/requirements/locations for all utilities and communication services to the prefabricated facility. **For fabricated kitchen equipment -** Include plans, manufacturer specifications/cut-sheets, elevations, sections, roughing-in dimensions, fabrication details, utility service requirements, and attachments to other work.

D. Samples for Initial Selection: For units with factory-applied color finishes.

E. Delete "Samples for Initial Selection" Paragraph above if colors and other characteristics are preselected and specified or scheduled. Retain "Samples for Verification" Paragraph below with or without above.

F. Samples for Verification: For each factory-applied color finish required, in manufacturer's standard sizes.

1.6 INFORMATIONAL SUBMITTALS

A. Generally, retain "Coordination Drawings" Paragraph below to facilitate the coordination and installation of foodservice equipment with the work of other trades.

B. Coordination Drawings: For foodservice facilities.

1. Indicate locations of foodservice equipment and connections to utilities.
2. Key equipment using same designations as indicated on Drawings.
3. Include plans and elevations; clearance requirements for equipment access and maintenance; details of equipment supports; and utility service characteristics.
4. Include details of seismic bracing for equipment.

C. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For foodservice equipment to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Product Schedule: For each foodservice equipment item, include the following:

1) Designation indicated on Drawings.
2) Manufacturer's name and model number.
3) List of factory-authorized service agencies including addresses and telephone numbers.
4) Manufacturer warranty and training.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify actual dimensions of construction contiguous with foodservice equipment by field measurements before fabrication. Indicate measurements on Coordination Drawings.

1.9 WARRANTY

A. When warranties are required, verify with Owner's counsel that warranties stated in this article are not less than remedies available to Owner under prevailing local laws.

B. The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents and Manufacturer's Warranty. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

1.10 PERFORMANCE REQUIREMENTS

A. Always retain "NSF Standards" Paragraph below. See "Health and Sanitation Requirements" Article in the Evaluations for a discussion of equipment certification for compliance with NSF standards.

B. NSF Standards: Provide equipment that bears NSF Certification Mark or UL Classification Mark certifying compliance with applicable NSF standards.

C. For bakery equipment, retain "BISSC Standards" Paragraph below with paragraph above.

D. BISSC Standards: Provide bakery equipment that complies with BISSC/Z50.2.

1. Provide BISSC-certified equipment.

2. UL lists certified products on its website in the "Online Certifications Directory" section. Certified products include those that bear the "Listed" and "Classified" versions of the UL EPH Mark. If UL certification is not required for certain equipment or if another testing agency's certification is acceptable, revise "UL Certification" Paragraph below.

E. UL Certification: Provide electric and fuel-burning equipment and components that are evaluated by UL for fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.

F. Retain "Steam Equipment" Paragraph below for steam-generating and direct-steam heating equipment if any.

G. Steam Equipment: Provide steam-generating and direct-steam heating equipment that is fabricated and labeled to comply with 2013 ASME Boiler and Pressure Vessel Code.

H. Regulatory Requirements: Install equipment to comply with the following:

1. ASHRAE 15, "Safety Code for Mechanical Refrigeration."
2. NFPA 54, "National Fuel Gas Code."
3. NFPA 70, "National Electrical Code."
4. NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."

I. Retain "Seismic Restraints" Paragraph below if required. If retaining, verify requirements of authorities having jurisdiction, detail seismic restraints on Drawings, and revise to suit Project.

J. Seismic Restraints: Comply with SMACNA's "Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines," Appendix A, "Seismic Restraint Details," unless otherwise indicated.

1.11 PREFABRICATED MODULAR SHIPPING CONTAINER KITCHEN

A. Manufacturer: Contekpro Containerized Solutions or approved equal. Approved equal must be vetted through DRBA and approved.

B. Description: Shipping container kitchen built to all life safety and local building codes certified and sealed shop drawings by professional engineer and/or architect.
1. Equipped with HVAC, exhaust hoods and fire suppression systems.
2. Antibacterial floors and walls with FRP and stainless-steel surfaces to keep kitchens sanitary.
3. Kitchen container shall be pre-plumbed and wired.
4. Shipping container shall be ISO 6346 compliant per the International Container Bureau.
5. Size: 16’ x 40’
6. Anchored to slab on grade foundation to meet all wind/uplift loads.
7. Lighting protection system.
8. Turnkey unit delivery will include all kitchen equipment unless stated other stated otherwise.

1.12 COOKING EQUIPMENT.

A. Griddle (Equipment Schedule 9):
1. Manufacturer: Vulcan, model number VCRG36-M1 or approved equal. Approved equal must be vetted through DRBA and approved.
2. 136,000 BTU Heavy-duty cast iron char-radiants
3. 8 burners with independent controls
4. “Cool Zone” grease drawer for easier clean up
5. Standing pilot ignition

B. D/D Gas Combi Oven + Stacking Kit (Equipment Schedule 5)

1. Manufacturer: Convotherm, model number C4ED6.20GB or approved equal. Approved equal must be vetted through DRBA and approved.
2. Large digital display and dial for easy menu navigation.
3. Holds 7 full size or 14 half size sheet pans, or 14 full size steam table pans.
4. Built -in retractable hand shower.
5. Storage for up to 250 recipes.

C. Water Filtration Products (Equipment Schedule 5A):
1. Manufacturer: C Pure, model number C Pure Oceanloch-L3 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: Water filtration system to provide consistent high-quality water for your Rational Combi by reducing the effects of sediment, chloramines, chlorine, taste and odor while providing required flow rates.
3. Carbon block technology.
4. NSF Standard 42 and FDA CFR-21 compliant materials.
5. Sanitary Quick Change (SQC) encapsulated cartridge allows for easy change-outs with ¼" turn.
6. ¾" MNPT horizontal inlet and outlet ports allow direct or easily adaptable connections to existing plumbing lines.
7. 60,000-gallon capacity. Service flow rate 5.0 gpm.

D. Heavy Duty Counter Model Gas Charbroiler (Equipment Schedule 7):
1. Manufacturer: Vulcan, model number VACB47 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: low profile, high volume gas charbroiler, with welded chassis with stainless steel front, sides, top trim and grease trough. Heavy cast iron char radiants, 5 ¼" wide cast iron diamond grates, supercharger burner dividers, one 17,000 BTU/hr. burner for each broiling grate, under burner deflector system reflects heat upwards, standing pilot ignition system, on high range infinite heat control valve for each burner, 4" adjustable legs.
3. ¾" rear natural gas connection, 136,000 BTU/hr. and gas pressure regulator – supply and install NSF and UL Listed quick disconnected with gas shut-off valves.
4. Dimensions: 46.85" W x 31" D x 15.30 overall height, 12" working height, 43" broiling area
5. 8 burners with 2 drip trays.

E. Heavy Duty Gas Hot Plate - Countertop four burner unit (Equipment Schedule 8):
1. Manufacturer: Vulcan, model number VHP424 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Supply and install NSF and UL Listed flexible disconnects with gas shut-off valve.
3. ¾" NPT rear gas connection and gas regulator gas line.
4. Dimensions: 24" W x 31 ¾" D x 12" Working Height
5. Stainless steel sides, control panel, top trim and backsplash.
6. Full width pull out crumb tray.
7. Heavy-duty cast-iron top grates.
8. 30,000 BTU/hr. open burners with lift-off heads.

9. Standing pilot ignition system.
10. One infinite heat control valve for each burner.
11. 4" adjustable legs.
12. 4 burners totaling with 120,000 BTU/hr.

F. Deep Fat Fryers (Equipment List 11):

1. Manufacturer: Vulcan model LG500-1 (quantity of 2) or approved equal.
2. Description: Free Standing Entry Level Natural Gas Fryer.
3. Oil Capacity: 65-70 lb. capacity.
4. Accessories:
   a. Revise list below to suit Project.
      1) Stainless steel sides.
      2) Stainless steel fry tank.
      3) Stainless steel fry tank cover.
      4) Casters: 6 inch adjustable .
      5) Twin Fry Baskets with plastic coated handles.
5. Quick gas-service disconnect and flexible hose.
6. Electrical Service: Equip unit for connection as indicated on drawings.
7. Gas Service: natural gas (two ¾" connections).

1.13 REFRIGERATION EQUIPMENT.

A. Single Door Reach-in Refrigerator Shallow Depth (Equipment List 3):
1. Manufacturer Continental; model Number 1RES-N or approved equal. Approved equal must be vetted through DRBA and approved.
2. Extra wide design with shallow depth.
3. Durable stainless steel body.
4. Self-closing door and automatic interior lighting.
5. ¼ hp refrigeration system uses eco-friendly R290 refrigerant; 115V

B. Center Island Refrigerated Base Worktables (Equipment List 33)
1. Manufacturer: Continental; model number BB50NGDPT or approved equal. Approved equal must be vetted through DRBA and approved.
2. Pass Through Glass Door Back Bar Refrigerator 50"
3. 50" Continental BB50NGDPT
4. Capacity: 16 cu. ft.
5. Pass-through design
6. High-density foamed-in-place polyurethane insulation
7. Automatic, energy-saving non-electric condensate disposal

C. Two Door Freezer (Equipment List 13)
1. Manufacturer: Continental model number 2FSES-SA or approved equal by DRBA.
2. 30 cu. ft. capacity.
3. Top mounted compressor.
4. Automatic electric defrost and condensate evaporator.

5. 10 heavy-duty, epoxy-coated steel shelves and LED interior lighting.

1.14 POWERED FOOD-PREPARATION EQUIPMENT

A. Food-Preparation Equipment – Slicer (Equipment List 29)

1. Manufacturer: Hobart model number EDGE-13 approved equal. Approved equal must be vetted through DRBA and approved.
2. Accessories: Manufacturer standard accessories.
3. Electrical Service: Equip unit with plug and cord for 120V, all day service.

B. Cryovac Unit – (Equipment List 30)

1. Manufacturer: Vacpak-it model number VMC32 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: Chamber vacuum packaging machine with oil pump and (2) 16-inch seal bars.
3. Stainless steel 304 body with transparent lid.
4. Digital displays.
5. Continuous use/Heavy duty use.

C. Food Processor (Equipment List 32)

1. Manufacturer: Robot Coupe model R2 (Stainless) Dice Ultra or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: Combination Processor (bowl cutter and vegetable preparation).
3. 3-quart stainless steel cutter bowl.
4. Plug; 120V.

D. Microwave Ovens (Equipment List 24)

1. Manufacturer: Solwave, Model 180MWHD21 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: Stainless steel exterior and .6 cu ft interior.
3. USB port to enable saving and accessing saved programmable memories.
4. 15 Power levels and 3 cooking stages.
5. Top level controls.
6. Dual magnetron (top and bottom).
7. See-through door and lighted interior.
8. Electric: 208/240V; 2100.

1.15 FOOD WASTE MACHINES

A. Garbage Disposal (Equipment List 17A):

1. Manufacturer: Insinkerator model number SS-200-27 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: 2 hp commercial garbage disposer.
3. Enclosed, air-cooled motor

B. Corner Dishwasher (Equipment List 18)
   1. Manufacturer: Ecolab, to be leased and owner-furnished.

C. Booster Heater (Equipment List 19)
   1. Manufacturer: Hatco; model number C-15 or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Dishwasher Booster Heater 15 kw
   3. 6 gallon storage capacity
   4. 86 gph (326 lph) rise at 70 degrees
   5. Space-saving compact design
   6. Fiberglass insulation to minimize heat loss
   7. Stainless steel front panel with 6" legs
   8. 208V, 1 Phase

D. Oil Recovery System (Equipment List 11A)
   1. Manufacturer: Restaurant Technologies, Model: Outdoor oil recovery tank or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Description: Components push cooking oil to fryer, allows onsite and remote monitoring of oil level, fresh cooking oil tank with fill box, hoses connect tanks to fryers and fill box, recirculation heating system keeps hoses and UCO tank warm using fluid pumped through tubing. Includes used cooking oil tank.
   3. Standard capacity 1,400 lbs.
   4. Dimensions 62.5" L x 44.5" W x 68.25" H; height includes 3" tall skid attached to bottom; fill box door will stick up an additional 3" when open.
   5. Vessel material is aluminum.
   6. 120 VAC power required (maximum draw is 25 amp).
   7. Net storage capacity, at overfill switch trip point:
      a. Fresh oil tank – 1,400 lbs. (183 gallons)
      b. Waste oil tank – 1,400 lbs. (183 gallons)
   8. Weight: empty – 976 lbs., full – 2,376 lbs., max – 3,776 lbs.
   9. Features include:
      a. Overfill switch provided on both tanks.
      b. Heated enclosure (600W max draw).
      c. Fresh oil tank provided with remote level gauge that reads in pounds of oil inside restaurant.
      d. Space inside enclosure for locating supporting equipment.
      e. Fresh oil tank certified by NSF to ANSI/NSF Standard 4.
      f. Assembly complies with applicable requirements of US 499.

1.16 FOOD DISTRIBUTION AND SERVING CARTS

A. Dry Stainless-Steel Equipment Stands (Equipment List 6):
   1. Manufacturer: Advance Tabco; model number ES-305C or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Supply on HD Casters with locking brakes.
   3. Top is furnished with 1" hemmed edge turned up at both sides; 1" turn up at rear.

4. Aluminum die cast “leg to shelf” clamp secures shelf to leg eliminating unsightly nuts and bolts.
5. Adjustable undershelf.
6. All TIG welded. Exposed weld areas finished to match adjacent surfaces.
7. Entire top is mechanically polished to a satin finish and is sound deadened.
8. Hot formed embossed galvanized hat channels are secured to top by means of structural adhesive and weld studs.
9. Gussets welded to support hot sections.
10. Top is 14-gauge stainless steel type “304” series with galvanized understructure.
11. Shelf is 18-gauge stainless steel.
12. Legs are 1 5/9” diameter heavy gauge tubular stainless steel with stainless steel gussets and heavy-duty casters.
13. Weight - 117 pounds.
14. 30” wide table with casters; worktop 24” working height with 10” clearance between ground and top of under-table shelf. Clearance between legs is 9 ½”.

B. Heated Holding Cabinet (Hot Top/Passive Bottom) (Equipment List 2):
1. Manufacturer Cambro; model number UPCHT800110 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Holds Temperatures for 4 or more hours.
3. Magnetic door opens 270 degrees of easy loading.
4. (4) 6” casters enable effortless mobility.
5. Digital thermometer
6. Fits up to 32 (2 ½” deep) full-size food pans.
7. Security package offers extra tamper resistance.

C. Enclosed portable rack (Equipment List 4)
1. Manufacturer: Advance Tabco, model number EPC-40 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: Front load aluminum enclosed pan cabinet.
3. 14-gauge aluminum heavy duty welded construction with enclosed extrusions.
4. 5” poly plate casters, 2 with brakes.
5. Low-profile door latch.
6. 37 pan capacity.
7. Shelf spacing 1-1/2”.
8. Overall size 20 ½” L x 27 ½” W x 66 ¼” H.
9. Weight - 110 lbs.
10. Optional bumpers available.
11. Optional pull handle for improved mobility; does not interfere with other side by side units.
12. Fully welded cabinet.
13. Door swing full 270 degrees.
14. Casters positioned within outer perimeter to avoid interferences.
15. 6063 extruded aluminum slides and uprights.
16. Heavy gauge aluminum top and bottom panels.
17. Heavy gauge aluminum door.
18. Manual pivot latch.

19. Aluminum crossbar.
20. 30” clear vertical spacing between interior bottom and top of aluminum crossbar.

D. Coated Wire Shelving Units (Equipment list 21)
1. Manufacturer: Advance Tabco, model numbers: (9) EG-2436 or approved equal and must be vetted through DRBA and approved; (10) “S” Hooks.
2. Description: Wire Shelving; Green Epoxy Posts with adjustable feet.
3. Each shelf holds up to 800 lbs. evenly distributed.
4. NSF approved for dry storage and wet environments only.
5. Construction: Unit assembles using tapered split sleeves; 5” swivel rubber or poly casters.
6. Material: Zinc plated wire with green epoxy coating.

E. Open Portable Rack (Equipment List 27)
1. Manufacturer: Advance Tabco model number PR20-3W or approved equal and must be vetted through DRBA and approved.
2. Description: Pan Racks – All welded curved top design.
3. Heavy duty welded construction with 6 cross supports; 1” x 1-1/2” ribbed angles.
4. Front loaded pan rack – holds 18” x 26” or 18” x 13” pans. Side load pan rack holds 18” x 26” pans.
5. Heavy duty 5” stem bolted swivel castors.
6. 500 lb. capacity.
7. Material: 6063-T52 extruded aluminum angles, upright tubing and support pieces.

F. Slicer table with can rack base (Equipment List 28)
1. Manufacturer: Advance Tabco model number CRSS10-54 or approved equal and must be vetted through DRBA and approved.
2. Description: Slicer table with can rack base.
3. Heavy duty welded construction.
4. 4” plate casters with two brakes.
5. Fully welded 1 ¼” square tubing ladder assemble.
6. Extruded aluminum angles.
7. Aluminum top .09 thickness.

G. Center Island Worktable with Undershelf-Casters (Equipment List 34)
1. Manufacturer: Advance Tabco model number SS-304 or approved equal. Approved equal must be vetted through DRBA and approved.

H. Single Overhead Shelf 96” (Suspended from Ceiling) (Equipment List 35a)
1. Manufacturer: Advance Tabco model number ODS-15-96 or approved equal. Approved equal must be vetted through DRBA and approved.

I. Single Overhead Shelf 48” (Suspended from Ceiling) (Equipment List 35b)
1. Manufacturer: Advance Tabco model number ODS-15-48 or approved equal. Approved equal must be vetted through DRBA and approved.

J. Worktable with Under and Center Shelf (Equipment List 36)

1. Manufacturer: Advance Tabco model number SS-308 or approved equal. Approved equal must be vetted through DRBA and approved.

K. Soiled and Clean Dish tables with Wall Mounted D/D Coated Wire Shelf (Equipment List 17)
   1. Manufacturer: Advance Tabco model number DTC-S30 & DTS-S60 or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Clean Straight Dishtable (Right, 36 in)
   3. Soil Straight Dishtable (Left 36 in) Advance Tabco, 14 gauge 304 stainless top, 8 in deep sink bowl, Pre-rinse basket with slide bar
   4. Dishtable Stainless Steel Undershelf (36 in)
   5. Wall Mounted Dishtable Rack Shelf (24 in) Advance Tabco, 16 gauge type 300 series stainless steel side brackets, 18 gauge stainless steel tubing

1.17 FABRICTED EQUIPMENT

A. Double prep sink with wall mounted shelf (Equipment List 23):
   1. Manufacturer: Advance Tabco, model number FC-2-2424-18RL or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Description: two-compartment sink. Fabricate units of welded stainless steel, sound deadened. All TIG welded. Welded areas blended to match adjacent surfaces and to satin finish. Gussets welded to a die-embossed reinforcing channel. Wall shelf with adjustable brackets to accommodate wall studs; finish with bull-nose edge and a 1-1/2" turn-up edge at rear, ends are turned down square; 16-gallon, 304 stainless steel polished to satin finish.
   3. Show bowl and drainboard sizes and configurations on Drawings.
   4. Bowls: Stainless steel, Type 304, 14 gallon; 20"x20".
   5. Integral Drainboards: Stainless steel, Type 304, 14 gallon Left sided location.
   6. Body: Stainless steel, Type 304, 14 gallon.
   7. Back Splash: 11-inch-high splash.
   8. Side Splash: Manufacturer standard height.
   9. Legs and Feet: Stainless steel tubing legs with adjustable bullet feet.
   10. Accessories:
      a. Revise list below to suit Project. Indicate quantities and locations of accessories on Drawings:
   11. Faucets and Spouts: Heavy duty swing faucet #K-112 (12")
   12. Pre-rinse Faucet:
   13. Vacuum breaker.
   14. Lever waste with overflow.
   15. Basket strainer.
   16. Continuous waste.
   17. Scrap trough.
   18. Control bracket for food waste disposer controls.
   19. Scrap block and hole.

20. Stainless steel pot rack.
21. Stainless Steel Sheet: ASTM A240/A240M, austenitic stainless steel, type as indicated.
22. Fabrication: Prepare sink for installation of the following equipment items:
23. Water heater.
24. Food waste disposer; weld disposer cone or collar into sink.
25. Undercounter dishwasher.
26. Stainless Steel Finish: Satin Finish.

B. Stainless Steel Triple Bowl Pot Sink (Equipment List 15)
1. Manufacturer: Advance Tabco model number FC-3-1620-18RL or approved equal by DRBA. Approved equal must be vetted through DRBA and approved.
2. 3 Compartment Sink 84 Shop Drawing required for approval
3. Three compartment prep / utility sink
4. Constructed of 16-gauge type 304 stainless steel
5. 2 Drainboards
6. NSF Listed

C. Stainless Steel Hand Sinks (Equipment List #16):

1. Manufacturer: Advance model number 7-PS-66 or approved equal by DRBA. Approved equal must be vetted through DRBA and approved.
2. Description: Hand sink with side splash units. Fabricate units of stainless steel, Type 304, heavy gauge.
3. Operation: Wrist handle.
4. Faucet and Spout: Manufacturer standard.
5. Accessories:
6. Revise list below to suit Project.
    a. Chrome-plated tail piece and P trap.
    b. Strainer basket with metal post.
    c. Liquid soap and towel dispenser – owner supplied.
    d. Side splashes.
7. Stainless Steel Sheet: ASTM A240/A240M, austenitic stainless steel, type as indicated.

D. Heat shield for left side panel type XS/61-202 (Equipment Schedule 5):
1. Manufacturer: Rational; model number XS-61-202 or approved equal. Approved equal must be vetted through DRBA and approved.
2. Description: heat shield allows you to place radiant heat sources near the left side panel.
3. Minimum unit width is 2 ¼".
4. Material is CNS 1.4301 (CNS 304).

1.18 UTILITY DISTRIBUTION SYSTEMS

A. Grease Trap (Equipment List 22)

1. Manufacturer: Watts; model number GI-75-K or approved equal by DRBA. Approved equal must be vetted through DRBA and approved.

B. Wall Mounted Tankless Water Heater (Equipment List 37)
   1. Manufacturer: Takegi model number Mobius T-M50 or approved equal by DRBA. Approved equal must be vetted through DRBA and approved.
   2. Description: Tankless hot water heater designed specifically for heavy-duty commercial applications. Fully modulating, gas-fired, tankless, on-demand water heater with sealed combustion and power-vented flue. Can be installed either indoors or outdoors.
   3. Built-in freeze protection.
   4. Manual reset hi-limit.
   5. Overheat cut off fuse.
   6. Inlet, Outlet and Thermistors for constant temperature monitoring.
   7. GFI, Fuse and Surge Absorber.
   8. Flame Sensor.

C. Exhaust Canopy with Fire Control Panel (Equipment List 12)
   1. Manufacturer: CaptiveAir 16ft or approved equal by DRBA.
   2. Stainless construction
   3. High speed direct Drive Centrifugal Upblast Exhaust Fan
   4. Makeup air supply unit
   5. Fire suppression system installed and pre-armed
   6. * Exhaust and makeup air fans installed by client
   7. * Makeup air exterior duct not included in quote

1.19 SHELVING

A. Wall mounted single stainless-steel shelf (Equipment Schedule 10)
   1. Manufacturer: Metro or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Description: Wire shelf in stainless steel Type 304 stainless steel finish with patented QuadTruss design with mat wires welded to a four-truss assembly on front and back and a three-truss assembly on each end; used with Eagle adjustable post wire wall mount, prepackaged end unit with two posts, single shelf brackets and post supports in stainless steel finish with a prepackaged mid unit one post, double shelf brackets with post supports in stainless steel finish.
   3. Dimensions 18” W x 36” L (shelf); 18” W x 14” post height.

1.20 JANITORIAL EQUIPMENT

A. Double width mop sink cabinet (Equipment Schedule 1):
   1. Manufacturer Advance Tabco; model number 9-OPC-84DL or approved equal. Approved equal must be vetted through DRBA and approved.
   2. Description: Double width enclosed cabinet with 18” x 20” x 12” sink bowl (drain included). Opening for mop bucket to roll in, ventilation slots, hinged double doors,

4 fixed intermediate shelves (3 in storage side and 1 above the sink), two mop holders (one on either side) – above the mop sink.

3. All TIG welded construction blended to match adjacent surfaces and to a satin finish.
4. Bowl and Bowl Apron:16-gauge type "304" series sink bowl and 18-gauge type "304" series sink bowl apron.
5. Cabinet: 18-gauge type "430" series stainless steel cabinet.
6. Mop sink location: left side.
7. Cabinet closure: door magnet for each door with center partition separating three storage shelf area from mop sink area.
8. Slotted end panels on both sides and in center partition.
9. Mop sink drain assembly fits a 2" waste line, ½" hot water line, and ½" cold water line.
10. Required Options:
    a. K-94-SHELF – fixed mid-shelf for 84" high cabinets.
    b. K-240 Service faucet.
11. Dimensions:
    a. 20 3/8" clear area between cabinet floor and first shelf, 15 inches between subsequent three shelves.
    b. Overall cabinet dimensions 50 3/8" x 84" on back wall; 50 3/8" x 77 ¾" at front doors.
    c. 52" clear area between top of mop sink and storage shelf.
    d. 48" between floor elevation and mop holder (two supplied) mounted 5 ¾" from the front door on partition wall and side wall.
    e. 22 ¾" depth of cabinet with 15" slope of cabinet top.
    f. Storage side shall be comprised of two full size shelves that match the interior width and interior depth of the storage side of the cabinet mounted 48" and 63" from the ground and a third shelf that matches the interior width of the storage side of the cabinet and also measures out from the back wall only 12" leaving a clear area of 9 7/16" from the shelf to the front of the cabinet. The shortened shelf measures 33" from the ground.
    g. Shelf installed above mop sink to match interior width of mop sink side of the cabinet and measure out from the back wall only 12" leaving a clear area between the front of shelf and door. This shelf measures 64" from the ground (not base of mop sink).
    h. 2 ½" wall thickness of cabinet.
    i. Depth of mop sink base is 4".
    j. Mop sink dimensions 21" x 25" outside dimensions with drain centered in sink. Drain includes 2" IPS Pipe from waste line to elevation 2 ¾" above mop sink finished interior elevation.

1.21 MISCELLANEOUS MATERIALS

A. Installation Accessories, General: NSF certified for end-use application indicated.

B. Elastomeric Joint Sealant: ASTM C920; silicone. Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic) related to exposure, and Use M, G, A, or O as applicable to joint substrates indicated.

1. Public Health and Safety Requirements:

    a. Sealant is certified for compliance with NSF standards for end-use application indicated.
    b. Washed and cured sealant complies with the FDA's regulations for use in areas that come in contact with food.

2. Cylindrical Sealant Backing: ASTM C1330, Type C, closed-cell polyethylene, in diameter greater than joint width.

1.22 FINISHES

A. Stainless Steel Finishes:

1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
2. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

    a. Run grain of directional finishes with long dimension of each piece.
    b. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

B. Powder-Coat Finishes: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard, baked-polymer, thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

1.23 INSTALLATION

A. Install foodservice equipment level and plumb, according to manufacturer's written instructions.

1. Connect equipment to utilities.
2. Provide cutouts in equipment, neatly formed, where required to run service lines through equipment to make final connections.

B. Complete equipment assembly where field assembly is required.

1. Provide closed butt and contact joints that do not require a filler.
2. Grind field welds on stainless steel equipment until smooth and polish to match adjacent finish.

C. Verify equipment access- and maintenance-clearance requirements of authorities having jurisdiction and of local sanitation and health codes; reflect minimum clearances on Drawings.

D. Install equipment with access and maintenance clearances that comply with manufacturer's written installation instructions and with requirements of authorities having jurisdiction.

E. Install cabinets and similar equipment on bases in a bed of sealant.

F. Install closure-trim strips and similar items requiring fasteners in a bed of sealant.

G. Install joint sealant in joints between equipment and abutting surfaces with continuous joint backing unless otherwise indicated. Produce airtight, watertight, vermin-proof, sanitary joints.

H. CLEANING AND PROTECTING
1. After completing installation of equipment, repair damaged finishes.
2. Clean and adjust equipment as required to produce ready-for-use condition.
3. Protect equipment from damage during remainder of the construction period.

1.24 DEMONSTRATION

Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain foodservice equipment.

END OF SECTION 11-4000

SECTION 22-1113 - FACILITY WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes water-distribution piping and related components outside the building for water service.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control test reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

C. Comply with ASTM F645 for selection, design, and installation of thermoplastic water piping.

D. NSF Compliance:

1. Comply with NSF 14 for plastic potable-water-service piping.

2. Comply with NSF 61 Annex G for materials for water-service piping and specialties for domestic water.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:

1. Notify DRBA Project Manager no fewer than 5 days in advance of proposed interruption of service.
2. Do not proceed with interruption of water-distribution service without DRBA written permission.

1.7 COORDINATION

A. Coordinate connection to water main with utility company and DRBA maintenance personnel as applicable.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. Soft Copper Tube: **ASTM B88, Type K** water tube, annealed temper.

1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.

B. Hard Copper Tube: **ASTM B88, Type K**, water tube, drawn temper.

1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.

C. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

D. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
2. Gaskets: AWWA C111, rubber.

E. PVC, AWWA Pipe: AWWA C900, **Class 150**, with bell end with gasket, and with spigot end.

1. Comply with UL 1285 for fire-service mains if indicated.
2. PVC Fabricated Fittings: AWWA C900, **Class 150**, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
4. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

    a. Gaskets: AWWA C111, rubber.

5. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.

    a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.2 PIPING SPECIALTIES

A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

B. Tubular-Sleeve Pipe Couplings:

1. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.

    a. Standard: AWWA C219.

2.3 GATE VALVES

A. AWWA, Cast-Iron Gate Valves:
1. Nonrising-Stem, Metal-Seated Gate Valves:

    a. Description: Gray- or ductile-iron body and bonnet; with cast-iron or bronze double-disc gate, bronze gate rings, bronze stem, and stem nut.

1) Standard: AWWA C500.
2) Minimum Pressure Rating: 200 psig.
3) End Connections: Mechanical joint.
4) Interior Coating: Complying with AWWA C550.

2. Nonrising-Stem, Resilient-Seated Gate Valves:

a. Description: Gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.

1) Standard: AWWA C509.
2) Minimum Pressure Rating: 200 psig.
3) End Connections: Mechanical joint.
4) Interior Coating: Complying with AWWA C550.

3. Nonrising-Stem, High-Pressure, Resilient-Seated Gate Valves:

a. Description: Ductile-iron body and bonnet; with bronze or ductile-iron gate, resilient seats, bronze stem, and stem nut.

1) Standard: AWWA C509.
2) Minimum Pressure Rating: 250 psig.
3) End Connections: Push on or mechanical joint.
4) Interior Coating: Complying with AWWA C550.

4. OS&Y, Rising-Stem, Metal-Seated Gate Valves:

a. Description: Cast- or ductile-iron body and bonnet, with cast-iron double disc, bronze disc and seat rings, and bronze stem.

1) Standard: AWWA C500.
2) Minimum Pressure Rating: 200 psig .
3) End Connections: Flanged.

5. OS&Y, Rising-Stem, Resilient-Seated Gate Valves:

a. Description: Cast- or ductile-iron body and bonnet, with bronze or gray- or ductile-iron gate, resilient seats, and bronze stem.

1) Standard: AWWA C509.
2) Minimum Pressure Rating: 200 psig .
3) End Connections: Flanged.

B. UL/FMG, Cast-Iron Gate Valves:

1. UL/FMG, Nonrising-Stem Gate Valves:

a. Description: Iron body and bonnet with flange for indicator post, bronze seating material, and inside screw.

1) Standards: UL 262 and FMG approved.
2) Minimum Pressure Rating: 175 psig.
3) End Connections: Flanged.

2. OS&Y, Rising-Stem Gate Valves:

a. Description: Iron body and bonnet and bronze seating material.

1) Standards: UL 262 and FMG approved.
2) Minimum Pressure Rating: 175 psig .
3) End Connections: Flanged.

C. Bronze Gate Valves:
1. OS&Y, Rising-Stem Gate Valves:

a. Description: Bronze body and bonnet and bronze stem.

1) Standards: UL 262 and FMG approved.
2) Minimum Pressure Rating: 175 psig.
3) End Connections: Threaded.

2. Nonrising-Stem Gate Valves:

a. Description: Class 125, Type 1, bronze with solid wedge, threaded ends, and malleable iron handwheel.

1) Standard: MSS SP-80.

2.4 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Tapping-Sleeve Assemblies:
1. Description: Sleeve and valve compatible with drilling machine.

a. Standard: MSS SP-60.
b. Tapping Sleeve: Cast- or ductile-iron or stainless-steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.
c. Valve: AWWA, cast-iron, nonrising-stem, metal-seated gate valve with one raised face flange mating tapping-sleeve flange.

B. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 in diameter.

1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

C. Indicator Posts: UL 789, FMG-approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.

2.5 CORPORATION VALVES AND CURB VALVES

A. Service-Saddle Assemblies: Comply with AWWA C800. Include saddle and valve compatible with tapping machine.

1. Service Saddle: Copper alloy with seal and AWWA C800, threaded outlet for corporation valve.
2. Corporation Valve: Bronze body and ground-key plug, with AWWA C800, threaded inlet and outlet matching service piping material.
3. Manifold: Copper fitting with two to four inlets as required, with ends matching corporation valves and outlet matching service piping material.

B. Curb Valves: Comply with AWWA C800. Include bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet matching service piping material.

C. Service Boxes for Curb Valves: Similar to AWWA M44 requirements for cast-iron valve boxes. Include cast-iron telescoping top section of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over curb valve and with a barrel approximately 3 inches in diameter.

1. Shutoff Rods: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and slotted end matching curb valve.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.

B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.

C. Do not use flanges or unions for underground piping.

D. Flanges, unions, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.

E. Underground water-service piping **NPS 3/4 to NPS 3** shall be soft copper tube, [**ASTM B88, Type K]**; wrought-copper, solder-joint fittings; and brazed joints.

3.3 VALVE APPLICATIONS

A. General Application: Use mechanical-joint-end valves for NPS 3 (DN 80) and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 (DN 50) and smaller installation.

3.4 PIPING INSTALLATION

A. Water-Main Connection: Arrange with utility company for tap of size and in location indicated in water main.

B. Water-Main Connection: Tap water main according to requirements of water utility company and of size and in location indicated.

C. Make connections larger than NPS 2 (DN 50) with tapping machine according to the following:

1. Install tapping sleeve and tapping valve according to MSS SP-60.
2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
3. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.
4. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.

D. Make connections NPS 2 (DN 50) and smaller with drilling machine according to the following:

1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
3. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
4. Install corporation valves into service-saddle assemblies.
5. Install manifold for multiple taps in water main.
6. Install curb valve in water-service piping with head pointing up and with service box.

E. Comply with NFPA 24 for fire-service-main piping materials and installation.

1. Install copper tube and fittings according to CDA's "Copper Tube Handbook."

F. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.

G. Install PE pipe according to ASTM D2774 and ASTM F645.

H. Install PVC, AWWA pipe according to ASTM F645 and AWWA M23.

I. Bury piping with depth of cover over top at least **30 inches**, with top at least 12inches below level of maximum frost penetration.

J. Extend water-service piping and connect to water-supply source and building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.

1. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.

K. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.5 ANCHORAGE INSTALLATION

A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:

1. Concrete thrust blocks.
2. Locking mechanical joints.
3. Set-screw mechanical retainer glands.
4. Bolted flanged joints.
5. Heat-fused joints.
6. Pipe clamps and tie rods.

B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.
3. Fire-Service-Main Piping: According to NFPA 24.

C. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.6 VALVE INSTALLATION

A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.

B. UL/FMG, Gate Valves: Comply with NFPA 24. Install each underground valve and valves in vaults with stem pointing up and with vertical cast-iron indicator post.

C. MSS Valves: Install as component of connected piping system.

D. Corporation Valves and Curb Valves: Install each underground curb valve with head pointed up and with service box.

3.7 IDENTIFICATION

A. Install continuous underground **detectable** warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Section 312000 "Earth Moving."

3.8 CLEANING

A. Clean and disinfect water-distribution piping as follows:

1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
3. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:

    a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
    b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
    c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
    d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.

B. Prepare reports of purging and disinfecting activities.

3.9 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.10 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 22-1113

SECTION 22-1313 - FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Nonpressure-type transition couplings.
   2. Cleanouts.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of pipe and fitting.

B. Field quality-control reports.

PART 2 - PRODUCTS

2.1 NONPRESSURE-TYPE TRANSITION COUPLINGS

A. Comply with ASTM C1173, elastomeric, sleeve-type, reducing or transition coupling; for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and include corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

   1. For Cast-Iron Soil Pipes: ASTM C564, rubber.
   2. For Plastic Pipes: ASTM F477, elastomeric seal or ASTM D5926, PVC.
   3. For Dissimilar Pipes: ASTM D5926, PVC or other material compatible with pipe materials being joined.

C. Unshielded, Flexible Couplings:

   1. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Ring-Type, Flexible Couplings:

1. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

E. Nonpressure-Type, Rigid Couplings:

1. Description: ASTM C1461, sleeve-type, reducing- or transition-type mechanical coupling; molded from ASTM C1440, TPE material; with corrosion-resistant-metal tension band and tightening mechanism on each end.

F. Cast-Iron Cleanouts:

1. Description: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.

2. Top-Loading Classification(s): Heavy Duty.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details to indicate general location and arrangement of underground sanitary sewer piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.

C. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

D. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

E. Install gravity-flow, nonpressure, drainage piping according to the following:

1. Install piping pitched down in direction of flow, at minimum slope of 2 percent unless otherwise indicated.
2. Install piping [NPS 6 (DN 150)] and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place-concrete supports or anchors.
3. Install piping 36-inch minimum cover.
4. Install hub-and-spigot, cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
5. Install hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
6. Install PVC corrugated sewer piping according to ASTM D2321 and ASTM F1668.
7. Install PVC Type PSM sewer piping according to ASTM D2321 and ASTM F1668.

F. Clear interior of piping and manholes of dirt and superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.3 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure, drainage piping according to the following:

1. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
2. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
3. Join hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints.
4. Join PVC corrugated sewer piping according to ASTM D2321.
5. Join PVC Type PSM sewer piping according to ASTM D2321 and ASTM D3034 for elastomeric-seal joints or ASTM D3034 for elastomeric-gasket joints.
6. Join dissimilar pipe materials with nonpressure-type, flexible or rigid couplings.

B. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use nonpressure flexible couplings where required to join gravity-flow, nonpressure sewer piping unless otherwise indicated.

    a. Unshielded flexible or rigid couplings for pipes of same or slightly different OD.
    b. Unshielded, increaser/reducer-pattern, flexible or rigid couplings for pipes with different OD.
    c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

3.4 MANHOLE INSTALLATION

A. General: Install manholes complete with appurtenances and accessories indicated.

B. Install precast concrete manhole sections with sealants according to ASTM C891.

C. Form continuous concrete channels and benches between inlets and outlet.

D. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 3 inches (76 mm) above finished surface elsewhere unless otherwise indicated.

3.5 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318.

3.6 BACKWATER VALVE INSTALLATION

A. Install horizontal-type backwater valves in piping manholes or pits.

B. Install combination horizontal and manual gate-type valves in piping and in manholes.

C. Install terminal-type backwater valves on end of piping and in manholes. Secure units to sidewalls.

3.7 CLEANOUT INSTALLATION

A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and use cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
   1. Use Medium-Duty, top-loading classification cleanouts in paved foot-traffic areas.
   2. Use Heavy-Duty, top-loading classification cleanouts in vehicle-traffic service areas.
   3. Use Extra-Heavy-Duty, top-loading classification cleanouts in roads.

B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade.

C. Set cleanout frames and covers in concrete pavement and roads with tops flush with pavement surface.

3.8 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping to building's sanitary building drains. Make connections to existing piping.

1. Use commercially manufactured wye fittings for piping branch connections. Install wye fitting/flexible tap saddle into existing piping, and encase entire wye fitting plus 6-inch overlap with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

    a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
    b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

2. Protect existing piping to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

B. Connect to grease interceptors specified in Section 221323 "Sanitary Waste Interceptors."

3.9 IDENTIFICATION

A. Comply with requirements in Section 312000 "Earth Moving" for underground utility identification devices. Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.

1. Use detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground manholes.

3.10 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate report for each system inspection.
2. Defects requiring correction include the following:

    a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
    c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
    d. Infiltration: Water leakage into piping.
    e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:

a. Fill sewer piping with water. Test with pressure of at least 10-foot head of water and maintain such pressure without leakage for at least 15 minutes.
b. Close openings in system and fill with water.
c. Purge air and refill with water.
d. Disconnect water supply.
e. Test and inspect joints for leaks.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.11 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.12 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 22-1313

SECTION 23-1123 - FACILITY NATURAL-GAS PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fuel gas systems, including piping, equipment, and all necessary accessories as designated in this section.

1.2 ACTION SUBMITTALS

A. Product Data: Manufacturer's Literature and Data including full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, and capacity.

B. Piping.

C. Strainers.

D. All items listed in Part 2 - Products.

PART 2 - PRODUCTS

2.1 FUEL GAS SERVICE CONNECTIONS TO BUILDING

A. From inside face of exterior wall to a distance of approximately 1.5 m (5 feet) outside of building, use coated piping.

B. Pipe: Black steel, ASTM A53/A53M, Schedule 40. Shop-applied pipe coating shall be one of the following types:

   1. Coal Tar Enamel Coating: Exterior of pipe and fittings shall be cleaned, primed with Type B primer, and coated with hot-applied coal tar enamel with bonded layer of felt wrap in accordance with AWWA C203. Asbestos felt is prohibited. Felt material shall be fibrous glass mat as specified in AWWA C203.

   2. Adhesive-thermoplastic Resin Coating: ASTM STP534, Type I.

   3. Thermosetting Epoxy Coating: Fed. ASTM STP534, Type II.

   4. Field-applied plastic tape material used on pipe joints and for repairing damaged areas of shop-applied coatings, ASTM STP534, Type I, 10 mils nominal thickness for pipe joints, and Type II, 20 mils nominal thickness for coating repairs.

2.2 VALVES

A. Ball Valve: Bronze body, rated for 1034 kPa at 185 degrees C (150 psig at 365 degrees F), 1724 kPa at 121 degrees C (250 psig at 250 degrees F), reinforced TFE seat, stem seal, and thrust washer; end entry, threaded ends, UL listed for natural or LP gas shut off service when used on those services.

B. Gas Vent Cocks: Type 701, bronze body, tee handle, rated for 207 kPa at 38 degrees C (30 psig at 100 degrees F), ground plug, rated for tight shut-off on fuel gas service.

2.3 WATERPROOFING

A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.

B. Floors: Provide cast iron stack sleeve with flashing device and an underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.

C. Walls: Provide cast iron sleeve with flashing device and a mechanical link seal. After pipe is passed through sleeve, provide a waterproofed caulked joint at inside wall face and escutcheon.

2.4 DIELECTRIC FITTINGS

A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

PART 3 - EXECUTION

3.1 INSTALLATION

A. If an installation is unsatisfactory to the DRBA, the Contractor shall correct the installation at no additional cost or time.

B. General: Comply with the ICC IFGC and the following:
   1. Install branch piping for fuel gas and connect to all fixtures, valves, cocks, outlets, casework, cabinets, and equipment.
   2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe shall be reamed to full size after cutting.
   3. All pipe runs shall be laid out to avoid interference with other work.
   4. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible.
   5. Install union and shut-off valve on pressure piping at connections to equipment.
   6. Pipe Hangers, Supports, and Accessories:
      a. All piping shall be supported per ICC IFGC.
      b. Floor, Wall and Ceiling Plates, Supports, Hangers:

C. Solid or split unplated cast iron, chrome-plated in finished areas.
   1. All plates shall be provided with set screws.
   2. Pipe Hangers: Height adjustable clevis type.
   3. Adjustable Floor Rests and Base Flanges: Steel.
   4. Concrete Inserts: "Universal" or continuous slotted type.
   5. Hanger Rods: Mild, low carbon steel, fully threaded or threaded at each end, with two removable nuts at each end for positioning rod and hanger and locking each in place.
   6. Riser Clamps: Malleable iron or steel.
   7. Rollers: Cast iron.
   8. Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
   9. Miscellaneous Materials: As specified, required, directed, or as noted in the contract documents for proper installation of hangers, supports, and accessories.

D. Install chrome-plated cast escutcheon with set screw at each wall, floor, and ceiling penetration in exposed finished locations and within cabinets and millwork.

E. Penetrations:
   1. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke, and gases. Completely fill and seal clearances between raceways and openings with the fire stopping materials.
   2. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with sealant.

F. Fuel Gas Piping shall conform to the following:

G. Entire fuel gas piping installation shall be in accordance with requirements of NFPA 54 and ICC IFGC.

H. Install fuel gas piping with plugged drip pockets at low points.

I. Install automatic shutoff valve (earthquake valve) on building side of meter. Valve shall positively shut off supply of gas in case of pressure failure, remain shut off until manually reopened, and be provided with outside adjustment for reset.

J. CLEANING OF SYSTEM AFTER INSTALLATION
   1. Clean all piping systems to remove all dirt, coatings and debris. //Remove all valves, controls etc., and reinstall after piping system has been cleaned.

K. STARTUP AND TESTING
   1. Make tests as recommended by product manufacturer and listed standards and under actual or simulated operating conditions and prove full compliance with design and specified requirements. Tests of the various items of equipment shall be performed simultaneously with the system of which each item is an integral part.

L. When any defects are detected, correct defects and repeat test at no additional cost or time to the Government.

M. Test system either in its entirety or in sections. Test shall be made in accordance with the ICC IFGC. The system shall be tested at a minimum of 1.5 times maximum working pressure, but not less than //21 kPa (3 psig))// //690 kPa (100 psig)//.

N. The Commissioning Agent will observe startup and contractor testing of selected equipment. Coordinate the startup and contractor testing schedules with the COR and Commissioning Agent. Provide a minimum notice of 10 working days prior to startup and testing.

O. COMMISSIONING
   1. Provide commissioning documentation.

END OF SECTION 23-1123

SECTION 31-2000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade walks pavements turf and grasses and plants.
3. Excavating and backfilling for buildings and structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete walks and pavements.
6. Subbase course and base course for asphalt paving.
7. Excavating and backfilling trenches for utilities and pits for buried utility structures.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized

excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct preexcavation conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Material test reports.

1.5 FIELD CONDITIONS

A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294/D 2940M 0; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Drainage Course: Narrowly graded mixture of washed crushed stone or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.

2.2 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Pile Foundations: Stop excavations 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

B. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Roadways: Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course.

D. Initial Backfill: Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Final Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

F. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.9 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.10 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.11 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 8 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

3.13 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Shape subbase course and base course to required crown elevations and cross-slope grades.
2. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.14 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.15 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform inspections:

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.16 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

3.18 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.19 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 31-2000

SECTION 32-1216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hot-mix asphalt paving.
2. Hot-mix asphalt overlay.
3. Cold milling of existing asphalt pavement.
4. Hot-mix asphalt patching.
5. Asphalt curbs.

B. Related Requirements:

1. Section 312000 "Earth Moving" for subgrade preparation, fill material, separation geotextiles, unbound-aggregate subbase and base courses, and aggregate pavement shoulders.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at the Project Site, Cape May Ferry Terminal, 1220 Lincoln Boulevard, North Cape May, NJ 08204

1.3 ACTION SUBMITTALS

A. Product Data:

1. Herbicide.

B. Hot-mix asphalt designs.

C. Sustainable Design Submittals:

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.

1. Aggregates.
2. Asphalt binder.
3. Tack coat.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of New Jersey DOT for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. Coarse Aggregate: ASTM D692/D692M, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag.

B. Fine Aggregate: ASTM D1073 or AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.

C. Mineral Filler: ASTM D242/D242M or AASHTO M 17, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

A. Asphalt Binder: ASTM D6373 or AASHTO M 320 binder designation PG 64-22.

B. Asphalt Cement: ASTM D3381/D3381M.

C. Tack Coat: ASTM D977 or AASHTO M 140 emulsified asphalt, cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

2.3 AUXILIARY MATERIALS

A. Recycled Materials for Hot-Mix Asphalt Mixes: Reclaimed asphalt pavement; reclaimed, unbound-aggregate base material; and recycled tires asphalt shingles or glass from sources and gradations that have performed satisfactorily in previous installations, equal to performance of required hot-mix asphalt paving produced from all new materials.

B. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.

2.4 MIXES

1. Surface Course Limit: Recycled content no more than 10 percent by weight.

B. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction

PART 3 - EXECUTION

3.1 PATCHING

A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseat concrete pieces firmly.

1. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.

C. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

D. Placing Patch Material: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.2 SURFACE PREPARATION

A. Ensure that prepared subgrade is ready to receive paving. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces.

B. Herbicide Treatment: Apply herbicide in accordance with manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.

C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.

2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.3 HOT-MIX ASPHALT PLACEMENT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Place hot-mix asphalt surface course in single lift.
3. Spread mix at a minimum temperature of 250 deg F.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method in accordance with AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations.

3.5 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
   1. Average Density, Rice Test Method: 92 percent of reference maximum theoretical density in accordance with ASTM D2041/D2041M, but not less than 90 percent or greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Replace and compact hot-mix asphalt where core tests were taken.

C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.7 WASTE HANDLING

A. General: Handle asphalt-paving waste in accordance with approved waste management plan required in Section 017419 "Construction Waste Management and Disposal."

3.8 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.9 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 32-1216

SECTION 32-9200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.
2. Sodding.

1.2 DEFINITIONS

A. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

B. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Certification of grass seed.

1. Certification of each seed mixture for turfgrass sod.

B. Product certificates.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: State-certified seed of grass species as noted on the Plans.

2.2 TURFGRASS SOD

A. Turfgrass Sod: Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.

2.3 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb./1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

2.4 MULCHES

A. Refer to the Delaware ESC Handbook for approved mulches.

2.5 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."

B. Reduce elevation of planting soil to allow for soil thickness of sod.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate as shown on Erosion and Sediment Control Details

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate as shown on Erosion and Sediment Control Details to form a continuous blanket in loose thickness over seeded areas.

1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.3 SODDING

A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

1. Lay sod across slopes exceeding 1:3.
2. Anchor sod on slopes exceeding 1:6 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.

C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.4 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowing.

3.5 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage meeting the requirements of the Erosion and Sediment Control Details.
2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.6 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.7 BASIS OF PAYMENT

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work. END OF TURF AND GRASSES

END OF SECTION 32-9200

SECTION 26-0000 - GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for work under Division 26.

B. Coordinate the work of this Section with the requirements of the Project.

C. Refer to Divisions 31 and 33 for earth moving and concrete requirements.

1.2 DEFINITIONS

A. Following are definitions of terms and expressions used in the Electrical Sections in addition to definitions found in the Contract Conditions:

1. "Wiring" includes wire, fittings, conduit, boxes and other accessories that comprise a system.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements

1. Work shall conform to the requirements of the codes, laws and ordinances, National Fire Protection Association, National Electrical Code (NEC), National Electrical Manufacturer's Association (NEMA) and other authorities having jurisdiction.
2. The requirements of the authorities having jurisdiction shall take precedence over the Drawings and Specifications and changes required by the authorities shall be made after review by the Engineer.

1.4 SUBMITTALS

A. Product data and shop drawings are required for the following:

1. Circuit Breakers

B. Review of shop drawings does not relieve the Contractor of responsibility for complying with the Contract Documents.

1.5 PROTECTION

A. Protect material and equipment from damage.

B. Cap or plug openings in equipment and conduits with proper caps and plugs.

1.6 VARIANCES

A. Where conflicts exist within the contract documents, request clarification prior to the submission of a bid. If clarification is not requested, provide the work representing the higher cost and quality.

1.7 WARRANTY

A. During the warranty period, make the proper adjustments of systems, equipment and devices installed and perform work necessary to ensure the efficient and proper functioning of the systems, equipment and devices.

B. Certain items of equipment shall be warranted for a longer time than the general warranty period. Provide for service or replacement required in connection with the warranty of these items.

PART 2 - PRODUCTS

2.1 PRODUCTS TO BE USED

A. Items specified by designations such as trade name, manufacturer's name, and catalog number indicate the capacity and quality of the products or materials to be used on this project.

B. Only products indicated on Contract Documents by name, series and/or model number have been coordinated with other trades. Coordinate items of other manufacturers with other trades, and make any necessary modifications required by use of the alternate product.

2.2 MATERIALS AND WORKMANSHIP

A. Items shown and not specifically called for, or items specified and not specifically indicated or detailed on the Drawings, or items neither specified nor shown, but which are reasonably incidental to and commonly required to make a complete job, shall be provided.

2.3 EQUIPMENT SUPPORTS

A. Provide supports as necessary for satisfactory installation and operation of equipment. Furnish and set anchor bolts.

2.4 HANGERS AND CONDUIT SUPPORTS

A. Provide conduit hangers and supports to maintain required alignment for equipment and conduits.

B. Conduits may not be supported from other conduits. Trapeze hangers may be used for parallel runs of conduit.

C. Provide supports for equipment and materials under these Specifications. Supports shall be structural steel shapes (angles, channels) of Kindorf or Unistrut. Minimum rod size shall be 3/8 inch.

D. For wood joist construction, hanger rods shall be supported from wood joists with hangers bolted through or attached with lag crews to the joists.

E. For steel bar joist construction, hanger rods shall be supported from the top chord of the joists or from panel points of the lower chord of the joists. Where conduit runs parallel to joists or where hangers are required at other than joist locations, provide steel angles welded to joists to support hangers so that weight is supported from the top chord of the joists.

F. For poured in place concrete construction, support hanger rods by drilled steel drop-in anchors, wedge anchor or expansion anchor. Zamac type nail in, spike or powder actuated type anchors shall not be used without written approval and permission from building's structural engineer.

G. For existing concrete plank construction or where the concrete topping is less than 2 inches thick, hangers shall be bolted into planks using toggle bolts. Where these toggle bolts are used, hanger rods shall carry no more than 200 pounds per hanger. The hanger spacing shall be reduced as required to meet this requirement.

H. Expansion bolts or wood plugs will not be permitted in slag block walls. Equipment hung on such walls shall be supported by through bolts or approved anchor bolts set into masonry as the wall is laid up.

2.5 OPENINGS

A. Determine the location and size of openings necessary for the proper installation of the work and provide them during the erection of the work in which such openings occur.

B. In case cutting of building construction is necessary, such cutting shall be done and repaired to match original condition of the work. Do not cut structural members.

C. Where non-combustible conduits pass through sleeves or openings in fire rated wall, floor-ceiling and ceiling-roof assemblies, seal openings with a UL classified firestop method. Firestop method shall be a one part, intumescent (expands with heat), latex elastomer capable of expanding a minimum of three times. Firestop materials shall be UL listed when tested in accordance with ASTM E814 for a two-hour fire (F) and temperature (T) rating.

2.6 IDENTIFICATION

A. Equipment, panels, outlets, and conduits shall be identified with self-adhesive printed labels. Letters shall be at least 3/8 inch high. Outdoor labels shall be UV

and water resistant. Lettering shall include equipment name, voltage, source panel and circuit number where it is being fed from.

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS

A. Visit the site and become familiar with existing conditions. Modifications to work required to allow for existing conditions shall be provided. Submit proposed modifications to the Engineer for approval prior to installation.

B. Where electrical systems pass through the renovated areas to serve other portions of the premises, they shall be suitably relocated, and the systems restored to normal operation. Any outages in systems shall be coordinated with the Owner. Where duration of proposed outages cannot be tolerated by the Owner, provide temporary connection as required to maintain service.

C. Coordinate any power interruptions with the Owner. Provide temporary connections to maintain operation of existing systems.

D. Relocate existing hangers and supports where necessary to install new work. Maximum spacing requirements shall apply for relocated supports.

E. Where new devices are added to existing walls and ceilings, new wiring shall be concealed by chasing existing walls as required. Devices shall be installed flush.

F. Where new finishes or treatments are added to existing walls and ceilings by the Engineer, provide necessary outlet box extensions, plaster rings, etc., so that devices are installed in the same manner as existing, i.e., flush, concealed, surface, etc.

3.2 DEMOLITION

A. Equipment removed that is salvageable and desired by the Owner to be retained, shall be stored on the site where directed by the Owner. Otherwise, other materials and equipment which are removed shall become the property of the contractor and shall be removed by him from the premises.

B. In each area to be renovated, remove the entire existing electrical installation except those portions indicated to be reused. When existing electrical work is removed, remove conduit, ducts, supports, etc. to a point below the finished floors or behind finished walls and cap. Such points shall be far enough behind finished surfaces to allow for the installation of the normal thickness of finished material. Unused wiring and cable shall be removed back to source.

3.3 MANNER OF INSTALLATION

A. The Drawings showing the layout of the electrical systems indicate the approximate location of outlets and equipment. The runs of feeders and branch circuits as shown on the Drawings are schematic only and are not intended to show the routing and location of conduits. The final determination of routing and location shall be governed by structural conditions, obstructions and connection locations on equipment. Detailed drawings showing major deviations shall be submitted to the Engineer for acceptance before such changes are made.

3.4 EXCAVATION AND BACKFILL

A. Provide excavation and backfill necessary to install underground conduits and other work included in this Division of the Specifications. Establish lines and grades required for the proper location of the Work.

B. After the conduit has been placed, the trenches shall be backfilled to the lines of present grades or finished grade as required. No backfill shall be placed, however, until water has been removed from the trenches and joints have been set.

3.5 RECORD DRAWINGS

A. Keep at the site one (1) set of black and white prints for the express purpose of showing changes from the contract Drawings made during construction. Mark up the prints with red pencil during construction and deliver the prints, before final inspection, to the Engineer as a final set of “Record Drawings”. Refer to general sections for additional requirements.

3.6 TESTING

A. Provide labor, instruments and equipment required for the tests. Make necessary changes to the systems as required to produce the specified results. Retest to the Engineer's satisfaction.

B. Tests shall be conducted before equipment is connected that would be subject to damage from the test.

C. Notify the Engineer of the date and time of the test at least three days prior to that date.

D. The tests shall demonstrate to the satisfaction of the Engineer the following:

1. That circuits are continuous and free from short circuits.
2. That circuits are properly connected.
3. That equipment is fully functional.

3.7 PAINTING

A. Remove rust, scale, grease, and dirt from equipment and material and leave ready for finish painting. Equipment specified with factory baked enamel finish shall be touched up as required to provide a surface visually free of scratches, nicks and blemishes.

3.8 OPERATING AND MAINTENANCE MANUAL

A. Submit operating and maintenance instructions. Unless covered in another specification section, provide a minimum of four copies in three-ring binders and one CD. The manual shall include the following:

1. A brief description of systems and their various components.
2. List of manufacturer's representatives with address and telephone numbers.
3. Manufacturer's printed operating and maintenance instructions, parts lists, illustrations and diagrams for pieces of equipment.
4. A complete schedule of periodic servicing and lubrication requirements for equipment.
5. One copy of each shop drawing, engineer’s shop drawing review comments, and Contractor's drawings.
6. Manufacturer's data report from UL certifying code compliance for equipment specified.
7. Certificate of approval from the code authority.

3.9 GROUNDING

A. Grounds and connections shall be provided in accordance with the latest provisions of the National Electrical Code, and as indicated on the Drawings and specified.

B. Unless otherwise noted, ground conductors shall be of copper, sized as required by the National Electrical Code. Ground lugs and clamps shall be cast non-ferrous metal, bolt-on type.

C. The required equipment grounding conductors and straps shall be sized in compliance with National Electrical Code. Equipment grounding conductors shall be provided with green insulation equivalent to the insulation on the associated phase conductors. The related feeder and the branch circuit grounding conductors shall be connected to the grounding bus with approved pressure connectors.

D. Ground conductors shall be extended and connected to the main water service piping. Provide bonding jumpers on the main water service piping. Jumpers shall be installed at non-metallic couplings in the main water service piping to a point 10'-0" beyond the exterior of the building wall. In addition, ground conductors shall be extended and connected to the ground rods in the ground field.

E. Provide ground for service neutral and metallic structures, enclosures, devices, and utilization equipment permanently and effectively in accordance with requirements

of the National Electrical Code, and as shown and required. Grounding and bonding connections shall be solderless. Welding of conduit and fittings will not be allowed for bonding purposes.

F. The required equipment grounding conductors and straps shall be sized in compliance with National Electrical Code. Equipment grounding conductors shall be provided with green insulation equivalent to the insulation on the associated phase conductors. The related feeder and the branch circuit grounding conductors shall be connected to the grounding bus with approved pressure connectors.

G. Provided a separate green insulated equipment grounding conductor for each feeder and branch circuit. The required grounding conductor shall be installed in the common raceway with the related phase and/or neutral conductors. Flexible metallic conduit equipment connections utilized in conjunction with the above shall be provided with suitable green insulated grounding conductors connected to approved grounding terminals at ends of the flexible conduit.

3.10 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a monthly basis, based on percent completion of the work as determined by the Engineer.

3.11 BASIS OF PAYMENT.

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 26-0000

SECTION 26-0500 - ELECTRICAL METHODS AND MATERIALS

PART 1 - GENERAL

1.1 NOTE

A. The requirements of Section 26-0000 apply to work performed under this Section.

B. The requirements of this Section of the Specifications apply to and form a part of the individual Electrical Sections of the Specifications.

1.2 SCOPE

A. The Work under this Section of the Specification includes the furnishing of labor, materials and equipment for the installation of a complete electrical system as shown and as specified herein.

PART 2 - PRODUCTS

2.1 CIRCUIT BREAKERS

A. Provide circuit breaker type power and distribution panelboards or switchboards with thermal-magnetic circuit breakers. Adjustable instantaneous trip shall be accessible from the front of the circuit breaker.

B. Circuit breakers provided in existing panelboards or switchboards shall be the same type and amperes interrupting capacity (AIC) as existing.

2.2 SAFETY SWITCHES

A. General

1. Heavy duty type
2. Cover interlock to prevent operation with cover open.
3. Visible blade
4. Externally operated with current carrying parts silver or tin plated.
5. Provisions for two or more external padlocks
6. Capable of accepting copper or aluminum cables.

B. Enclosure

1. NEMA 1 for general interior work
2. NEMA 3R for exterior work and damp locations.

C. Safety switches shall be by Square D, Siemens, or Cutler-Hammer.

2.3 BOXES AND FITTINGS

A. Provide metal boxes manufactured by one of the following:

1. Steel City
2. Raco
3. Thomas & Betts
4. Crouse-Hinds
5. Walker

B. Provide pull boxes, junction boxes and wire troughs indicated in the construction documents or required by field conditions or the National Electrical Code to facilitate wiring installation. Obtain approval prior to installing boxes in finished areas.

2.4 CONDUCTORS

A. Provide soft drawn, 98 percent conductivity, copper conductors with 600-volt insulation, and manufactured in accordance with the requirements of the National Electrical Code, the Board of Fire Underwriters, A.S.A., N.E.M.A. and I.C.E.A.

B. Provide conductors with 90 °C "THHN-THWN" insulation.

C. Aluminum wire is not permitted.

D. Provide stranded wires. Make entire length of conductors continuous without any splices.

E. A color-coding system shall be as follows throughout the building's network of feeders and circuits and used as a basis of balancing the load. The color code shall be continuous from fixture to fixture or other outlets.

Color System	Phase A	Phase B	Phase C	Neutral
208/120V	Black	Red	Blue	White

F. Provide UL approved "Y-ER-Ease", Buchanan, or Ideal pulling compound. Soap, grease or substances other than specified will not be permitted.

2.5 GROUND RODS

A. Ground rods shall conform to UL 467 and shall be made of copper-clad steel. Rods shall be one piece, 3/4-inch diameter, and 10 feet in length. All connections to ground rods shall be by exothermic weld.

2.6 RACEWAYS AND WIRING METHODS

A. Rigid metal conduit (RMC)

1. Provide threaded heavy-wall conduit and couplings which conform to Federal Specification WW-C-581, as amended, ANSI Standard C80.1 and bear the UL label.
2. Provide type "A" insulating bushings manufactured by O-Z/Gedney.

B. Electrical Metallic Tubing (EMT)

1. Provide galvanized EMT which conforms to Federal Specification WW-C-563, as amended, ANSI Standard C80.3 and bears the UL label.
2. EMT Couplings and box connectors:
    a. steel
    b. compression ring type
    c. with insulated throat
    d. manufactured by
        i. Thomas & Betts
        ii. Raco
        iii. Steel City

C. Polyvinyl Chloride Conduit (PVC)

1. Provide PVC Schedule 80 conduit which conforms to NEMA TC 2 and WC 1094 specifications.

PART 3 - EXECUTION

3.1 EQUIPMENT CONNECTIONS

A. Conduit, outlets, wiring and other necessary fittings or accessories for power connections for heating equipment, fans and special furnishings shall be provided under this Section.

B. Make final connections to electrical equipment specified under this Section and other Sections of these Specifications.

3.2 CONDUCTOR APPLICATIONS

A. Utilize conduit and wire for circuits in exposed areas, feeders, and where other wiring methods are not specifically allowed by the National Electrical Code, the authority having jurisdiction, or elsewhere in these specifications.

B. Utilize conduit and wire throughout.

C. Wire and cable shall be delivered to the job site in full coils or reels, each bearing a tag containing the UL approval stamp, name of manufacturer, trade name, code, type of wire, and month and year manufactured.

3.3 RACEWAY AND WIRING METHOD APPLICATIONS

A. Rigid metal conduit (RMC)

1. Utilize rigid metal conduit under the following conditions:
    a. Exposed in damp or wet locations or outdoor locations.
    b. Transitions from underground and risers.
    c. Where subject to damage by vehicular traffic.

B. Electrical Metallic Tubing (EMT)

1. Provide EMT indoor dry locations except where other conduit types are required by the NEC, the authority having jurisdiction, or elsewhere in these contract documents.

C. Polyvinyl Chloride Conduit (PVC)

1. Provide PVC conduit when runs are below grade.
    a. Provide PVC schedule 80 conduit
    b. Spacing 3 diameters apart.
    c. Protected with stone dust.

3.4 WIRING METHODS

A. Conduit and cable methods shall conform to the National Electrical Code requirements and these Specifications and shall produce a complete, safe, well-built electrical system.

B. Conduit sizes shall be in accordance with the National Electrical Code. 3/4 inch minimum.

C. Conduits passing from heated to unheated spaces, exterior spaces, refrigerated spaces and cold section plenums of air conditioning units shall be suitably sealed by means of sealing fittings to prevent accumulation of condensation.

D. On conduits crossing expansion joints, provide expansion fittings manufactured by O-Z/Gedney.

E. Conduit nipples connecting outlets in adjoining rooms shall be packed with Johns-Manville "Duxseal" after wires are in place to prevent transmission of noise between rooms unless nipples are 12 inches or more in length.

F. Where electrical equipment or material is installed in or through fire-rated building elements, provide appropriate UL-listed firestop material to maintain the rated integrity of the affected surface.

G. Provide fiberglass fire-rated outlet boxes or listed putty pads where required to maintain fire rating of wall.

3.5 METHOD OF MEASUREMENT

A. Payment for this work will be made on a lump sum basis, wherein no separate measurement will be made. Measurement of this bid item will be made on a

monthly basis, based on percent completion of the work as determined by the Engineer.

3.6 BASIS OF PAYMENT.

A. Payment for this work shall include full compensation for performing the work specified and furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the work described in the contract documents. Payment of this bid item will be made on a monthly basis, based on percent completion of the work.

END OF SECTION 26-0500

DELAWARE RIVER AND BAY AUTHORITY

CAPE MAY-LEWES FERRY

CONTRACT CMLF-C20-08

CAPE MAY FERRY TERMINAL PRODUCTION KITCHEN

* * * * * * *

ATTACHMENT A

Contract Drawings

Located in the CapEx Project file