Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

TO BE FILLED IN BY THE BIDDER:

BIDDER'S NAME:
Perfetto Contracting Co. Inc.

BID SECURITY (CIRCLE ONE):
(BID BOND) / CERTIFIED CHECK

NUMBER OF ADDENDUMS RECEIVED AND ATTACHED TO BID:
6 ADDENDUMS

DDC CLIENT AGENCY:
NEW YORK CITY DEPARTMENT OF SANITATION

PREPARED BY:
TEN ARQUITECTOS

DATE PREPARED:
09/26/2019

VOLUME 1 OF 3
BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1

FOR THE CONSTRUCTION OF STORMWATER INFRASTRUCTURE, SANITARY SEWERS, FORCE MAIN, LEACHATE WALL PENETRATION INFRASTRUCTURE, AND PILING

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

LAW

Department of Design and Construction

Lorraine Grillo
Commissioner

Jamie Torres-Springer
First Deputy Commissioner

Justin Walter
Chief Administrative Officer
Administration

Nicholas Mendoza
Agency Chief Contracting Officer

Lorraine Holley
Deputy ACCO

January 10, 2020

CERTIFIED MAIL - RETURN RECEIPT REQUEST
PERFETTO CONTRACTING CO. INC.
152 41ST STREET
BROOKLYN, NY 11232

RE: FMS ID: S136-367
E-PIN: 85019B0097001
DDC PIN: 8502019TR0006C
CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE/CONSTRUCTION OF STORMWATER INFRASTRUCTURE, PHASE 1, ETC.-BOROUGH OF STATEN ISLAND
NOTICE OF AWARD

Dear Contractor:

You are hereby awarded the above referenced contract based upon your bid in the amount of $15,497,471.00 submitted at the bid opening on November 22, 2019. Within ten (10) days of your receipt of this notice of award, you are required to take the actions set forth in Paragraphs (1) through (3) below. For your convenience, attached please find a copy of Schedule A of the General Conditions to the Contract, which sets forth the types and amounts of insurance coverage required for this contract.

(1) Execute two copies of the Agreement in the Contracts Unit, 30-30 Thomson Avenue, 1st Floor, Long Island City, New York (IDCNY Building). A Commissioner of Deeds will be available to witness and notarize your signature. The Agreement must be signed by an officer of the corporation or a partner of the firm.

(2) Submit to the Contracts Unit two properly executed performance and payment bonds. If required for this contract, copies of performance and payment bonds are attached.

(3) Submit to the Contracts Unit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by New York State Law. The insurance

documentation specified in this paragraph is required for registration of the contract with the Comptroller's Office.

On or before the contract commencement date, you are required to submit all other certificates of insurance and/or policies in the types and amounts required by Schedule A. Such certificates of Insurance and/or policies must be submitted to the Agency Chief Contracting Office, Attention: Risk Manager, Fourth Floor at the above indicated department address.

Your attention is directed to the section of the Information for Bidders entitled "Failure to Execute Contract". As indicated in this section, in the event you fail to execute the contract and furnish the required bonds within the (10) days of your receipt of this notice of award, your bid security will be retained by the City and you will be liable for the difference between your bid price and the price for which the contract is subsequently awarded, less the amount of the bid security retained.

As of August 16, 2019, please be advised that Contract Site Safety Plans for DDC projects must be submitted through DDC's online Site Safety Plan (SSP) application (available via our Agency Portal – *DDC Anywhere*).

To create an account and begin your Site Safety Pan submission using SSP, click on the link below:

DDC Portal https://ddcanywhere.nyc/Registration/Registration

For questions regarding this web-based application, please contact DDC via email at: appsupport@ddc.nyc.gov.

Sincerely,

Lauren Gesmond

Lorraine Holley
for Deputy ACCO

SPECIAL NOTICE TO BIDDERS

This contract contains requirements that differ from a standard DDC infrastructure contract. Bidders are advised to review all contract requirements.
The bidder's attention is drawn to the following requirements:

- As builts and record documents: S-Pages, Article 2.q.
- LEED requirements: LEED paged
- Commissioning requirements: CX-Pages
- MPT is not itemized, but paid for under lump sum under item 6.70
- Department of Building Requirements: S-Pages, Article 2.q.
- NYC DEC leachate wall requirements: I-pages, Item DSNY-L-INF
- This contract will be managed by DDC's Public Building Division

(NO FURTHER TEXT ON THIS PAGE)

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NOTICE TO BIDDERS

Pre-Bid Questions (PBQs)

Please be advised that PBQs should be submitted to the Agency Contact Person (CSB_projectinquiries@ddc.nyc.gov) at least five (5) business days (by 5:00 PM EST) prior to the bid opening date as indicated in BID INFORMATION, page A-5 and SCHEDULE B, page A-37, VOLUME 1 OF 3 of this BID BOOKLET.

All PBQs must reference the Project ID. If a bidder has multiple PBQs for the same Project ID, the PBQs must be numbered sequentially, even if they are submitted separately.

NYC Contract Financing Loan Fund

Loans at a 3% annual interest rate to perform on New York City contracts

If your business is working as a prime or subcontractor on a project with a City agency or City-funded entity, you may be eligible for a Contract Financing Loan from a participating lender coordinated with the NYC Department of Small Business Services (SBS). Loan repayment terms align with the contract payment schedule.

Loans of up to $500,000 at an annual interest rate of 3% are available to eligible* businesses to perform on New York City contracts. Closing fees apply.

*To be eligible for a loan, you must:

- ✓ Have an operating business, AND
- ✓ Be applying for financing as a prime or sub-contractor to use toward a contract with a City agency or City-funded entity.
- ✓ Additional Eligibility requirements may also apply.

How it works:
Step 1: Fill out the Contract Financing inquiry form at nyc.gov/contractfinancing
Step 2: If Eligible, a participating lender will contact you within two business days.
Step 3: Begin the loan application process

For more information: **Call 311** or visit **nyc.gov/contractfinancing**

(NO FURTHER TEXT ON THIS PAGE)

NYC Bond Collateral Assistance Fund

If your business is bidding or planning to bid on a project as a prime or subcontractor with a City agency or the NYC Economic Development Corporation (NYCEDC) and the project requires surety bonding, you may be eligible* to receive **up to $500,000 in Collateral Assistance to enhance your surety bond application** from a participating bond service provider coordinated with the NYC Department of Small Business Services (SBS).

*To be eligible, you must:

- ✓ Have an operating construction business, AND
- ✓ Be bidding or planning to bid **as a prime or subcontractor** on a contract with a City agency or NYCEDC that requires bonding
- ✓ Additional Eligiblity requirements may apply.

How it works:
Step 1: Fill out the Bond Collateral Assistance Fund inquiry form at nyc.gov/bondfund
Step 2: If Eligible, the bond service provider will contact you within two business days
Step 3: Begin the bond application process

For more information: **Call 311** or visit **nyc.gov/bondfund**

(NO FURTHER TEXT ON THIS PAGE)

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CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

A. BID BOOKLET

BID INFORMATION

(NO TEXT ON THIS PAGE)

SPECIAL NOTICE TO BIDDERS

BID SUBMISSION REQUIREMENTS

THE FOLLOWING DOCUMENTS ARE TO BE COMPLETED AND SUBMITTED WITH THE BID:

(1) Bid Schedule (Page B-3)
(2) Bid Form, including Affirmation (Page A-23)
(3) Bid Security (if required, see Bid Information on Page A-5)
(4) Schedule B: M/WBE Utilization Plan (Page A-37, if participation goals have been established)

FAILURE TO SUBMIT THE ITEMS LISTED ABOVE WILL RESULT IN THE DISQUALIFICATION OF THE BID.

(5) Bidder's Certification of Compliance with Iran Divestment Act (Page A-55)
(6) Special Experience Requirements (Page A-7 & A-8, if applicable)
(7) Apprenticeship Program Requirements (Page A-44, if applicable)
(8) Safety Questionnaire (Page A-51)
(9) Construction Employment Report (Page A-21 if bid is $1,000,000 or more)
(10) Any addenda issued prior to the receipt of bids

FAILURE TO SUBMIT THE ITEMS LISTED ABOVE MAY RESULT IN THE DISQUALIFICATION OF THE BID.

NOTES:

(1) All of the above referred to blank forms to be completed and submitted with the bid are included in the BID BOOKLET, page numbers as noted above.

(2) If the bidder has any questions or requires additional information, please contact the Agency Contact Person noted on Attachment 1 (Page A-5 of this Bid Booklet).

(3) PASSPort Compliance: The Bidder is advised that Vendex Questionnaires and procedures have been replaced by the PASSPort system. Compliance with PASSPort is mandatory for contract Award. PASSPort details are set forth on Page A-21 of this Bid Booklet.

(4) SPECIAL EXPERIENCE REQUIREMENTS: The Bidder is advised that Special Experience Requirements may apply to this contract. Such requirements are set forth beginning on Page A-7 of this Bid Booklet.

(NO TEXT ON THIS PAGE)

BID INFORMATION (ATTACHMENT 1)

PROJECT ID: S136-367
PIN: 8502019TR0006C

Description and Location of Work:

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1
Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

Documents Available at: 30-30 Thomson Avenue
First Floor Bid Procurement Room
Long Island City, New York 11101
8:30 A.M. to 4:00 P.M. – Monday through Friday

Submission of Bids to: 30-30 Thomson Avenue
First Floor Bid Procurement Room
Long Island City, New York 11101
Before 11:00 A.M. on **November 13, 2019**

Bid Opening: 30-30 Thomson Avenue
First Floor Bid Procurement Room
Long Island City, New York 11101
Time and Date: 11:00 A.M. on **November 13, 2019**

Pre-Bid Conference: Yes: X No: _____
If Yes, Mandatory: __ Optional: X
Time and Date: October 29, 2019 @ 11:00 AM
Location: DSNY Staten Island 1 and 3 Garage – 1000 West Service Road, Staten Island, NY 10314

Bid Security: Bid Security is required in the amount set forth below; provided, however, bid security is not required if the TOTAL BID PRICE set forth on the Bid Form is less than $ 1,000,000.00.

(1) Bond in an amount not less than 10% of the TOTAL BID PRICE set forth on the Bid Form, OR
(2) Certified Check in an amount not less than 2% of the TOTAL BID PRICE set forth on the Bid Form.

Performance and Payment Security: Required for contracts in the amount of $1,000,000 or more. Performance Security and Payment Security shall each be in an amount equal to 100% of the Contract Price.

Agency Contact Person: Lorraine Holley
Phone: 718-391-2601 , Fax 718-391-2627
Email: CSB_projectinquiries@ddc.nyc.gov

For questions about site accessibility, please contact our disability services facilitator at (718) 391-2815 or via email at accessibility@ddc.nyc.gov.

(NO TEXT ON THIS PAGE)

SPECIAL EXPERIENCE REQUIREMENTS

(A) SPECIAL EXPERIENCE REQUIREMENTS FOR THE BIDDER:

The Special Experience Requirements set forth below apply to the bidder. Compliance with such Special Experience Requirements will be determined solely by the City prior to an award of contract. Failure to comply with the Special Experience Requirements will result in rejection of the bid as non-responsive.

The requirements in this Section (A) apply to this contract where indicated by a blackened box (■).

■ The bidder must, within the last seven (7) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least one (1) project similar in scope and type to the required work including construction of sanitary sewer main in the right-of-way. Such prior project may have been performed as a prime contractor, subcontractor or sub-subcontractor.

The Special Experience Requirements next to the blackened box below apply to the bidder. If the bidder intends to perform such work itself, it must demonstrate compliance with the Special Experience Requirements. If the bidder intends to subcontract this work, the proposed subcontractor or sub-subcontractor must demonstrate compliance with the Special Experience Requirements. The contractor, subcontractor or sub-subcontractor (hereinafter referred to as the "Entity") that will perform any specific area of work indicated by the blackened box below, may have performed the required prior project(s) as a prime contractor, subcontractor or sub-subcontractor. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City.

☐ **Trunk Water Main Work:** The Entity that will perform the trunk water main work must, within the last seven (7) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least one (1) project similar in scope and type to the required work.

☐ **Best Management Practice Work:** Best Management Practice ("BMP") Work is any item of work in the Bid Schedule that begins with the prefix "BMP". The Entity that will perform any BMP Work must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

For professional services in connection with BMP Work (i.e., monitoring and reporting services), the individual who will perform the required services must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work. Additional requirements are set forth below.

- ☐ The individual serving as the Restoration Specialist (Construction Monitor) must be a Registered Landscape Architect licensed by the state of New York, or must have equivalent professional experience.
- ☐ The individual serving as the Erosion and Sediment Control Licensed/Certified Professional must be a Certified Professional in Erosion and Sediment Control (CPESC), certified by CPESC, Inc.

■ **Micro-Tunneling/Pipe Jacking Work:** The Entity that will perform the micro-tunneling/pipe jacking work must, within the last five (5) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work.

☐ **OTHER:** _____

(B) SPECIAL EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK:

The requirements in this Section (B) apply to this contract where indicated by a blackened box (■).

The Special Experience Requirements set forth below apply to the Entity that will perform the specific area of work. **Compliance with such Special Experience Requirements will be determined solely by the City after an award of contract. Within two (2) weeks of award of contract, the contractor will be required to submit the qualifications of the Entity that will perform the specific area of work.** If the bidder intends to perform such work itself, it must demonstrate compliance with the Special Experience Requirements. If the bidder intends to subcontract this work, the proposed subcontractor or sub-subcontractor must demonstrate compliance with the Special Experience Requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City.

Special Experience Requirements apply to the Entity that will perform any specific area of work indicated by a blackened box. The Entity may have performed the required prior project(s) as a prime contractor, subcontractor or sub-subcontractor.

■ **Hazmat Work:** Hazmat Work is any item of work in the Bid Schedule that begins with the prefix 8.01. The Entity that will perform any Hazmat Work must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least five (5) projects similar in scope and type to the required work.

■ **Pile, CFA Pile, and/or Mini-Pile Work:** The Entity that will perform the Pile, CFA Pile and/or Mini-Pile Work must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work.

For professional services in connection with Pile Work (i.e., engineering and inspection services), the individual who will perform the required services must be a Professional Engineer licensed by the state of New York. Such individual must also comply with the above requirements for prior projects.

☐ **Construction Report, Monitoring and Post-Construction Report, and Continuous Real-Time Monitoring For Vibrations and Movements and Post-Construction Report Work:** The Entity that will perform the Construction Report, Monitoring For Vibrations And Movements, and Post-Construction Report Work must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion at least two (2) projects similar in scope and type to the required work.

For professional services in connection with Reporting and Monitoring Work (i.e., engineering and inspection services), the individual who will perform the required services must be a Professional Engineer licensed by the state of New York. Such individual must also comply with the above requirements for prior projects.

■ **OTHER:**

1. Excavation and Handling of Contaminated Materials

The removal or fill and introduction of new fill at Fresh Kills Landfill requires a Contractor with experience regarding NYSDEC Part 360. The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

2. Earthwork

The removal or fill and introduction of new fill at Fresh Kills Landfill requires a Contractor with experience regarding NYSDEC Part 360. The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

3. Excavation Support and Protection

This project requires Support of Excavation installation adjacent to the existing DSNY Leachate Collection cutoff wall. To avoid potentially impacting the existing wall, a Contractor with SOE experience similar to the proposed work is required. The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

4. Timber Piles

The installation of timber piles adjacent to sensitive infrastructure, such as the high pressure gas main and leachate collection system, requires highly skilled personnel. Therefore, a minimum experience is required of both the manufacturer and the contractor performing the work to provide the necessary level of expertise. The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

5. Microtunneling

Microtunneling beneath Route 440 is critical to the overall upgrades of the facility, which include decommissioning the existing on-site sanitary treatment plant. The contractor or subcontractor performing the work of this section must, within the last five (5) consecutive years prior to the bid opening have successfully completed in a timely fashion at least three (3) projects similar in scope and type to the required work.

(C) SPECIFICATIONS: In the event of any conflict, omission or inconsistency between (1) the Specifications and/or Contract Drawings, and (2) the Special Experience Requirements in Section (B) of the Special Notice to Bidders, the special experience listed in the Specifications and/or Contract Drawings shall be controlling. The Special Experience Requirements in Section (B) of this Special Notice to Bidders are only for the convenience of the bidders.

(D) SUBMISSION REQUIREMENTS: For each project submitted to demonstrate compliance with the Special Experience Requirements, the bidder must complete and submit the Qualification Form included in the Bid Booklet. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

If Special Experience Requirements are indicated for any specific area of work, the submission requirement set forth above shall apply to the entity that will perform the specific area of work.

(E) **CONDITIONS**: In determining compliance with the Special Experience Requirements for the bidder set forth above, the City may consider prior projects completed by principal(s) or other employees of the bidder while affiliated with another entity, subject to the conditions set forth below.

- Any principal or other employee on whose prior experience the bidder is relying to demonstrate compliance with this special experience requirement must have held the following: (a) a significant management role in the prior entity with which the principal or other employee was affiliated, and (b) a significant management role in the entity submitting the bid for a period of at least six (6) months, or from the inception of the bidding entity.
- The bidder may not rely on the experience of its principals or other employees to demonstrate compliance with any other requirements, including without limitation, financial requirements or requirements for a specified minimum amount of annual gross revenues.

(F) **JOINT VENTURES**: In the event the bidder is a joint venture, at least one firm in the joint venture must meet the above described experience requirements.

M/WBE PROGRAM: M/WBE UTILIZATION PLAN

M/WBE Program Requirements: The requirements for the M/WBE Program are set forth on the following pages of this Bid Booklet, in the section entitled "Notice to All Prospective Contractors."

Schedule B: M/WBE Utilization Plan: The M/WBE Utilization Plan for this Contract is set forth in this Bid Booklet starting on page A-37. The M/WBE Utilization Plan (Part I) indicates whether Participation Goals have been established for this Contract. If Participation Goals have been established for this Contract, the bidder must submit an M/WBE Utilization Plan (Part II) with its bid.

Waiver: The bidder may seek a full or partial pre-award waiver of the Participation Goals in accordance with the "Notice to All Prospective Contractors" (See Part A, Section 10). The bidder's request for a waiver must be submitted at least seven (7) calendar days prior to the bid date. Waiver requests submitted after the deadline will not be considered. The form for requesting a waiver of the Participation Goals is set forth in the M/WBE Utilization Plan (Part III).

Rejection of the Bid: The bidder must complete Schedule B: M/WBE Utilization Plan (Part II) set forth in this Bid Booklet starting on page A-39.

The bidder's submission of Schedule B must include both the Vendor Certification and Required Affirmations (see Section V of Part II). If the bidder does not provide a complete Schedule B submission at the time of bid, the Agency will deem the bid to be non-responsive, unless a full waiver of the Participation Goals is granted (Schedule B, Part III). In the event that the City determines that the bidder has submitted a Schedule B where the Vendor Certification and Required Affirmations are completed but other aspects of the Schedule B are not complete, or contain a copy or computation error that is at odds with the Vendor Certification and Required Affirmations, the bidder will be notified by the Agency and will be given four (4) calendar days from receipt of notification to cure the specified deficiencies and return a completed Schedule B to the Agency. Failure to do so will result in a determination that the Bid is non-responsive. Receipt of notification is defined as the date notice is emailed or faxed (if the bidder has provided an email address or fax number), or no later than five (5) calendar days from the date of mailing or upon delivery, if delivered.

Impact on LBE Requirements: If Participation Goals have been established for the participation of M/WBEs, the contractor is not required to comply with the Locally Based Enterprise Program ("LBE"). The LBE Program's requirements are set forth in Article 67 of the Contract.

NOTICE TO ALL PROSPECTIVE CONTRACTORS

PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT

ARTICLE I. M/WBE PROGRAM

Local Law No. 129 of 2005 added and Local Law 1 of 2013 amended Section 6-129 of the Administrative Code of the City of New York (hereinafter "Section 6-129"). Section 6-129 establishes the program for participation in City procurement ("M/WBE Program") by minority-owned business enterprises ("MBEs") and women-owned business enterprises ("WBEs"), certified in accordance with Section 1304 of the New York City Charter. As stated in Section 6-129, the intent of the program is to address the impact of discrimination on the City's procurement process, and to promote the public interest in avoiding fraud and favoritism in the procurement process, increasing competition for City business, and lowering contract costs. The contract provisions contained herein are pursuant to Section 6-129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

If this Contract is subject to the M/WBE Program established by Section 6-129, the specific requirements of MBE and/or WBE participation for this Contract are set forth in Schedule B of the Contract (entitled the "M/WBE Utilization Plan"), and are detailed below. The Contractor must comply with all applicable MBE and WBE requirements for this Contract.

All provisions of Section 6-129 are hereby incorporated in the Contract by reference and all terms used herein that are not defined herein shall have the meanings given such terms in Section 6-129. Article I, Part A, below, sets forth provisions related to the participation goals for construction, standard and professional services contracts. Article I, Part B, below, sets forth miscellaneous provisions related to the M/WBE Program.

PART A

PARTICIPATION GOALS FOR CONSTRUCTION, STANDARD AND PROFESSIONAL SERVICES CONTRACTS OR TASK ORDERS

1. The **MBE and/or WBE Participation Goals** established for this Contract or Task Orders issued pursuant to this Contract, ("**Participation Goals**"), as applicable, are set forth on Schedule B, Part I to this Contract (see Page 1, line 1 Total Participation Goals) or will be set forth on Schedule B, Part I to Task Orders issued pursuant to this Contract, as applicable.

The **Participation Goals** represent a percentage of the total dollar value of the Contract or Task Order, as applicable, that may be achieved by awarding subcontracts to firms certified with New York City Department of Small Business Services as MBEs and/or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in Section 3 below, unless the goals have been waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

2. If **Participation Goals** have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the **Participation Goals**, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

3. If **Participation Goals** have been established for this Contract or Task Order issued pursuant to this Contract, a Contractor that is an MBE and/or WBE shall be permitted to count its own participation toward fulfillment of the relevant **Participation Goal**, provided that in accordance with Section 6-129 the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that the Contractor pays to direct subcontractors (as defined in Section 6-129(c)(13)), and provided

further that a Contractor that is certified as both an MBE and a WBE may count its own participation either toward the goal for MBEs or the goal for WBEs, but not both.

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor pays to direct subcontractors, and then multiplying the remainder by the percentage to be applied to total profit to determine the amount to which an MBE or WBE is entitled pursuant to the joint venture agreement, provided that where a participant in a joint venture is certified as both an MBE and a WBE, such amount shall be counted either toward the goal for MBEs or the goal for WBEs, but not both.

4. A. If **Participation Goals** have been established for this Contract, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Utilization Plan, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. In the event that this M/WBE Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals**, the bid or proposal, as applicable, shall be deemed non-responsive, unless Agency has granted the bidder or proposer, as applicable, a pre- award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

B. (i) If this Contract is for a master services agreement or other requirements type contract that will result in the issuance of Task Orders that will be individually registered ("Master Services Agreement") and is subject to M/WBE **Participation Goals**, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Participation Requirements for Master Services Agreements That Will Require Individually Registered Task Orders, Part II (page 2) indicating the prospective contractor's certification and required affirmations to make all reasonable good faith efforts to meet participation goals established on each individual Task Order issued pursuant to this Contract, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified **Participation Goals** by soliciting and obtaining the participation of certified MBE and/or WBE firms. In the event that the Schedule B indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals** that may be established on Task Orders issued pursuant to this Contract, the bid or proposal, as applicable, shall be deemed nonresponsive.

(ii) **Participation Goals** on a Master Services Agreement will be established for individual Task Orders issued after the Master Services Agreement is awarded. If **Participation Goals** have been established on a Task Order, a contractor shall be required to submit a Schedule B – M/WBE Utilization Plan For Independently Registered Task Orders That Are Issued Pursuant to Master Services Agreements, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. The contractor must engage in good faith efforts to meet the **Participation Goals** as established for the Task Order unless Agency has granted the contractor a pre-award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

C. **THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-**

RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER WILL BE NOTIFIED BY THE AGENCY AND WILL BE GIVEN FOUR (4) CALENDAR DAYS FROM RECEIPT OF NOTIFICATION TO CURE THE SPECIFIED DEFICIENCIES AND RETURN A COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.

5. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency may also require the Contractor to report periodically about the contracts awarded by its direct subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work**. In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the firms' commencement of work. A list of MBE and WBE firms may be obtained from the DSBS website at www.nyc.gov/buycertified, by emailing DSBS at buyer@sbs.nyc.gov, by calling (212) 513-6356, or by visiting or writing DSBS at 110 William St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting www.nyc.gov/getcertified, emailing MWBE@sbs.nyc.gov, or calling the DSBS certification helpline at (212) 513-6311. A firm that is certified as both an MBE and a WBE may be counted either toward the goal for MBEs or the goal for WBEs, but not both. No credit shall be given for participation by a graduate MBE or graduate WBE, as defined in Section 6-129(c)(20).

7. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, with each voucher for payment, and/or periodically as Agency may require, submit statements, certified under penalty of perjury, which shall include, but not be limited to,: the total amount the Contractor paid to its direct subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount direct subcontractors paid to indirect subcontractors; the names, addresses and contact numbers of each MBE or WBE hired as a subcontractor by the Contractor, and, where applicable, hired by any of the Contractor's direct subcontractors; and the dates and amounts paid to each MBE or WBE. The Contractor shall also submit, along with its voucher for final payment: the total

amount it paid to subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount its direct subcontractors paid directly to their indirect subcontractors; and a final list, certified under penalty of perjury, which shall include the name, address and contact information of each subcontractor that is an MBE or WBE, the work performed by, and the dates and amounts paid to each.

8. If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's **M/WBE** Utilization Plan, Agency shall take appropriate action, in accordance with Section 6-129 and Article II below, unless the Contractor has obtained a modification of its **M/WBE** Utilization Plan in accordance with Section 6-129 and Part A, Section 11 below.

9. Where an **M/WBE** Utilization Plan has been submitted, and the Contractor requests a change order the value of which exceeds the greater of 10 percent of the Contract or Task Order, as applicable, or $500,000, Agency shall review the scope of work for the Contract or Task Order, as applicable, and the scale and types of work involved in the change order, and determine whether the **Participation Goals** should be modified.

10. Pre-award waiver of the **Participation Goals**. (a) A bidder or proposer, or contractor with respect to a Task Order, may seek a pre-award full or partial waiver of the **Participation Goals** in accordance with Section 6-129, which requests that Agency change one or more **Participation Goals** on the grounds that the **Participation Goals** are unreasonable in light of the availability of certified firms to perform the services required, or by demonstrating that it has legitimate business reasons for proposing a lower level of subcontracting in its M/WBE Utilization Plan.

(b) To apply for a full or partial waiver of the **Participation Goals**, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at zhangji@ddc.nyc.gov or via facsimile at (718) 391-1886. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

(c) If the Agency determines that the **Participation Goals** are unreasonable in light of the availability of certified firms to perform the services required, it shall revise the solicitation and extend the deadline for bids and proposals, or revise the Task Order, as applicable.

(d) Agency may grant a full or partial waiver of the **Participation Goals** to a bidder, proposer or contractor, as applicable, who demonstrates—before submission of the bid, proposal or Task Order, as applicable—that it has legitimate business reasons for proposing the level of subcontracting in its **M/WBE** Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder, proposer or contractor, as applicable, has the capacity and the bona fide intention to perform the Contract without any subcontracting, or to perform the Contract without awarding the amount of subcontracts represented by the **Participation Goals**. In making such determination, Agency may consider whether the **M/WBE** Utilization Plan is consistent with past subcontracting practices of the bidder, proposer or contractor, as applicable, whether the bidder, proposer or contractor, as applicable, has made efforts to form a joint venture with a certified firm, and whether the bidder, proposer, or contractor, as applicable, has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

11. Modification of **M/WBE** Utilization Plan. (a) A Contractor may request a modification of its **M/WBE** Utilization Plan after award of this Contract. **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance**

with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor may request a Modification of its M/WBE Utilization Plan as part of its bid submission. The Agency may grant a request for Modification of a Contractor's **M/WBE** Utilization Plan if it determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts to meet the **Participation Goals.** In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

(i) The Contractor advertised opportunities to participate in the Contract, where appropriate, in general circulation media, trade and professional association publications and small business media, and publications of minority and women's business organizations;
(ii) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
(iii) The Contractor sent written notices, by certified mail or facsimile, in a timely manner, to advise MBEs or WBEs that their interest in the Contract was solicited;
(iv) The Contractor made efforts to identify portions of the work that could be substituted for portions originally designated for participation by MBEs and/or WBEs in the M/WBE Utilization Plan, and for which the Contractor claims an inability to retain MBEs or WBEs;
(v) The Contractor held meetings with MBEs and/or WBEs prior to the date their bids or proposals were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids or proposals were solicited;
(vi) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
(vii) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;
(viii) Description of how recommendations made by DSBS and Agency were acted upon and an explanation of why action upon such recommendations did not lead to the desired level of participation of MBEs and/or WBEs.

Agency's M/WBE officer shall provide written notice to the Contractor of the determination.

(b) The Agency may modify the **Participation Goals** when the scope of the work has been changed by the Agency in a manner that affects the scale and types of work that the Contractor indicated in its **M/WBE** Utilization Plan would be awarded to subcontractors.

12. If this Contract is for an indefinite quantity of construction, standard or professional services or is a requirements type contract and the Contractor has submitted an **M/WBE** Utilization Plan and has committed to subcontract work to MBEs and/or WBEs in order to meet the **Participation Goals**, the Contractor will not be deemed in violation of the M/WBE Program requirements for this Contract with regard to any work which was intended to be subcontracted to an MBE and/or WBE to the extent that the Agency has determined that such work is not needed.

13. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, at least once annually during the term of the Contract or Task Order, as applicable, Agency shall review the Contractor's progress toward attainment of its M/WBE Utilization Plan, including but not limited to, by reviewing the percentage of work the Contractor has actually awarded to MBE and/or WBE subcontractors and the payments the Contractor made to such subcontractors.

14. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, Agency shall evaluate and assess the Contractor's performance in meeting those goals, and such evaluation and assessment shall become part of the Contractor's overall contract performance evaluation.

PART B: MISCELLANEOUS

1. The Contractor shall take notice that, if this solicitation requires the establishment of an **M/WBE** Utilization Plan, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the **M/WBE** Utilization Plan.

2. Pursuant to DSBS rules, construction contracts that include a requirement for an **M/WBE** Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

3. DSBS is available to assist contractors and potential contractors in determining the availability of MBEs and/or WBEs to participate as subcontractors, and in identifying opportunities that are appropriate for participation by MBEs and/or WBEs in contracts.

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required **Participation Goals**.

ARTICLE II. ENFORCEMENT

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE** Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.

3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE** Utilization Plan, Agency may determine that one of the following actions should be taken:

(a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;
(b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;
(c) making a finding that the Contractor is in default of the Contract;
(d) terminating the Contract;
(e) declaring the Contractor to be in breach of Contract;
(f) withholding payment or reimbursement;
(g) determining not to renew the Contract;
(h) assessing actual and consequential damages;
(i) assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals

through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;

(j) exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or

(k) taking any other appropriate remedy.

4. If an **M/WBE** Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to fulfill its **Participation Goals** contained in its **M/WBE** Utilization Plan or the **Participation Goals** as modified by Agency pursuant to Article I, Part A, Section 11, Agency may assess liquidated damages in the amount of ten percent (10%) of the difference between the dollar amount of work required to be awarded to MBE and/or WBE firms to meet the **Participation Goals** and the dollar amount the Contractor actually awarded and paid, and/or credited, to MBE and/or WBE firms. In view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of Contractor's failure to meet the **Participation Goals**, the foregoing amount is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such failure, and not as a penalty. Agency may deduct and retain out of any monies which may become due under this Contract the amount of any such liquidated damages; and in case the amount which may become due under this Contract shall be less than the amount of liquidated damages suffered by the City, the Contractor shall be liable to pay the difference.

5. Whenever Agency has reason to believe that an MBE and/or WBE is not qualified for certification, or is participating in a contract in a manner that does not serve a commercially useful function (as defined in Section 6-129(c)(8)), or has violated any provision of Section 6- 129, Agency shall notify the Commissioner of DSBS who shall determine whether the certification of such business enterprise should be revoked.

6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 shall be submitted under penalty of perjury and any false or misleading statement or omission shall be grounds for the application of any applicable criminal and/or civil penalties for perjury. The making of a false or fraudulent statement by an MBE and/or WBE in any instrument submitted pursuant to Section 6-129 shall, in addition, be grounds for revocation of its certification.

7. The Contractor's record in implementing its **M/WBE** Utilization Plan shall be a factor in the evaluation of its performance. Whenever Agency determines that a Contractor's compliance with an **M/WBE** Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement Officer, file an advice of caution form for inclusion in PASSPort as caution data.

PRE-AWARD PROCESS

The bidder is advised that as part of the pre-award review of its bid, the Agency will require the three lowest apparent responsive and responsible bidders to submit the information described in Sections (A) through (D) below. These bidders will be notified by DDC (by email, facsimile, or in writing), and the Agency's notice will specify the types of information that the bidder must submit to the Agency. The types of information the bidder may be required to submit are described below. Once notified, the bidder must submit such information to the Agency within five (5) business days following receipt of notification from DDC that it is among the low bidders. In the event the bidder fails to submit the required information within the specified time frame, the Agency may reject the bid as being non-responsive.

In the event the bidder fails to submit the required information within the specified time frame, the Agency may reject the bid as being nonresponsive.

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(A) **Project Reference Form**: The bidder must complete and submit the Project Reference Form set forth starting on page A-47 of this Bid Booklet. The Project Reference Form consists of three (3) parts: (1) Contracts Completed by the Bidder, (2) Contracts Currently Under Construction by the Bidder, and (3) Pending Contracts Not Yet Started by the Bidder.

(B) **Copy of License**: The bidder must submit a copy of the license under which the bidder will be performing the work. Such license must clearly show the following: (1) Name of the Licensee, (2) License Number, and (3) Expiration date of the License. A copy of the license will be required from bidders for the following contracts: Plumbing Work, Electrical Work and Asbestos Abatement.

(C) **Financial Information**: The bidder must submit the financial information described below:

(1) Audited Financial Statements: Financial statements (Balance Sheet and Income Statement) of the entity submitting the bid, as audited by an independent auditor licensed to practice as a certified public accountant (CPA). Audited financial statements for the three (3) most recent fiscal years must be submitted. Each such financial statement must include the auditor's standard report.

If the bidder does not have audited financial statements, the bidder must submit an affidavit attesting to the fact that the bidder does not have such statements. In addition, the bidder must submit the following documentation covering the three (3) most recent fiscal years: signed federal tax returns, unaudited financial statements, and a "certified review letter" from a certified public accountant (CPA) verifying the unaudited financial statements.

Unless the most recent audited or unaudited financial statement was issued within ninety (90) days, the bidder must submit interim financial information that includes data on financial position and results of operation (income data) for the current fiscal year. Such information may be summarized on a monthly or quarterly basis or at other intervals.

(2) Schedule of Aged Accounts Receivable, including portion due within ninety (90) days.

(D) **Project Specific Information**: The bidder must submit the project specific information described below:

(1) Statement indicating the number of years of experience the bidder has had and in what type of construction.

(2) Resumes of all key personnel to be involved in the project, including the proposed project superintendent.

(3) List of significant pieces of equipment expected to be used for the contract, and whether such equipment is owned or leased.
(4) Description of work expected to be subcontracted, and to what firms, if known.
(5) List of key material suppliers.
(6) Preliminary bar chart time schedule
(7) The bidder's expected means of financing the project. This submission should be based on the assumption that the contractor is required to finance two times (2X) the average monthly billings for the project throughout the contract period.
(8) Any other issues the bidder sees as impacting the contractor's ability to complete the project according to the contract.

In addition to the information described in Sections (A) through (D) above, the bidder shall submit such additional information as the Commissioner may require, including without limitation, an explanation or justification for specific unit price items.

The bidder is further advised that it may be required to attend a pre-award meeting with DDC representatives. If such a meeting is convened, the bidder will be advised as to any additional material to be provided.

PASSPort COMPLIANCE

All vendors that intend to do business with the City of New York must complete a disclosure process in order to be considered for a contract. This disclosure process was formerly completed using Vendor Information Exchange System (VENDEX) paper-based forms. The City of New York has moved collection of vendor disclosure information online. In early August 2017, the New York City Mayor's Office of Contract Services (MOCS) launched the **Procurement and Sourcing Solutions Portal (PASSPort)**, a new online procurement system that replaced the paper-VENDEX process. In anticipation of awards, all bidders must create online accounts in the new PASSPort system, and file all disclosure information using PASSPort. **Paper submissions, including certifications of no changes to existing VENDEX packages, will not be accepted in lieu of complete online filings using PASSPort.**

All vendors that intend to do business with the City, but specifically those that fall into any of the following categories, are required to enroll:

- Have a pending award with a City Agency; or
- Hold a current contract with a City Agency and have either an expiring VENDEX or expiring Certificate of No Change.

The Department of Design and Construction (DDC) and MOCS hereby notifies all proposers that the PASSPort system is available, and that disclosure filing completion is required prior to any award through this competitive bid.

To enroll in PASSPort and to access the PASSPort website (including online training), please visit www.nyc.gov/passport. Contact MOCS at passport@mocs.nyc.gov for additional information and technical support.

CONSTRUCTION EMPLOYMENT REPORT

All bidders will be required to submit either a Construction Employment Report (CER) if the bid amount is $1,000,000 or greater.

The CER template form is available online at:
https://www1.nyc.gov/assets/sbs/downloads/pdf/businesses/DLS_Constru_Employ_Rpt.pdf

Instructions for completing the Construction Employment Report are available online at:
https://www1.nyc.gov/assets/sbs/downloads/pdf/businesses/DLS_Cons_Employ_Rpt_Inst.pdf

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

REQUIRED FORMS

BID FORM

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

BID FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

Name of Bidder: Perfetto Contracting Co. Inc.

Date of Bid Opening: ~~11/13/2019~~ 11/22/209 B.F.

Bidder is: (Check one, whichever applies) Individual ( ) Partnership ( ) Corporation (X)

Place of Business of Bidder: 152 41st Street Brooklyn, NY 11232

Bidder's Telephone Number: 718-858-8600 Fax Number: 718-858-8604

Bidder's E-Mail Address: Bfranke@perfettocontracting.com

Residence of Bidder (If Individual): _____

If Bidder is a Partnership, fill in the following blanks:

Names of Partners	Residence of Partners
N/A	N/A

If Bidder is a Corporation, fill in the following blanks:

Organized under the laws of the State of New York

Name and Home Address of President: Cesare Perfetto
12 Gorge Road Staten Island, NY 10304

Name and Home Address of Secretary: Cesare Perfetto
12 Gorge Road Staten Island, NY 10304

Name and Home Address of Treasurer: Cesare Perfetto
12 Gorge Road Staten Island, NY 10304

BID FORM

Perfetto Contracting Co. Inc.

The above-named Bidder affirms and declares:

1. The said bidder is of lawful age and the only one interested in this bid; and no person, firm or corporation other than hereinbefore named has any interest in this bid, or in the Contract proposed to be taken.

2. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief: (1) the prices in this bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor; (2) unless otherwise required by law, the prices quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and (3) No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

3. No councilman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

4. The bidder is not in arrears to the City of New York upon debt or contract or taxes, and is not a defaulter, as surety or otherwise, upon any obligation of the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York or State of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except as set forth on the Affirmation included as page C-6 of this Bid Booklet.

The bidder hereby affirms that it has paid all applicable City income, excise and other taxes for all years it has conducted business activities in New York City.

5. The bidder, as an individual, or as a member, partner, director or officer of the bidder, if the same be a firm, partnership or corporation, executes this document expressly warranting and representing that should this bid be accepted by the City and the Contract awarded to the bidder, the bidder and the bidder's subcontractors engaged in the performance: (1) will comply with the provisions of Section 6-108 of the Administrative Code of the City of New York and the non-discrimination provisions of Section 220a of the New York State Labor Law, as more expressly and in detail set forth in the Agreement; (2) will comply with Section 6-109 of the Administrative Code of the City of New York in relation to minimum wages and other stipulations as more expressly and in detail set forth in the Agreement; (3) have complied with the provisions of the aforesaid laws since their respective effective dates, and (4) will post notices to be furnished by the City, setting forth the requirements of the aforesaid laws in prominent and conspicuous places in each and every plant, factory, building and structure where employees engaged in the performance of the Contract can readily view it, and will continue to keep such notices posted until the supplies, materials and equipment, or work labor and services required to be furnished or rendered by the Contractor have been finally accepted by the City. In the event of any breach or violation of the foregoing, the Contractor may be subject to damages, liquidated or otherwise, cancellation of the Contract and suspension as a bidder for a period of three years. (The words, "the bidder" where used herein shall mean the individual bidder, firm, partnership or corporation executing this bid).

6. Compliance Report

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, (1) represents that the bidder's attention has been

specifically drawn to Executive Order No. 50, dated, April 25, 1980, on Equal Employment Compliance of the contract, and (2) warrants that the bidder will comply with the provisions of Executive Order No. 50. The Employment Report must be submitted as part of the bid.

The bidder, as an individual, or as a member, partner, director, or officer of the bidder, if the same be a firm, partnership, or corporation, executes this document expressly warranting that the bidder will comply with: (1) the provision of the contract on providing records, Chapter 8.

7. By submission of this bid, the bidder certifies that it now has and will continue to have the financial capability to fully perform the work required for this contract. Any award of this contract will be made in reliance upon such certification. Upon request therefor, the bidder will submit written verification of such financial capability in a form that is acceptable to the department.

8. In accordance with Section 165 of the State Finance Law, the bidder agrees that tropical hardwoods, as defined in Section 165 of the State Finance Law, shall not be utilized in the performance of this Contract, except as the same are permitted by the foregoing provision of law.

9. The bidder has visited and examined the site of the work and has carefully examined the Contract in the form approved by the Corporation Counsel, and will execute the Contract and perform all its items, covenants and conditions, and will provide, furnish and deliver all the work, materials, supplies, tools and appliances for all labor and materials necessary or required for the hereinafter named work, all in strict conformity with the Contract, for the prices set forth in the Bid Schedule.

10. M/WBE UTILIZATION PLAN: By signing its bid, the bidder agrees to the Vendor Certification and Required Affirmations set forth below, unless a full waiver of the Participation Goals is granted. The Vendor Certification and Required Affirmations will be deemed to satisfy the requirement to complete Section V of Part II of Schedule B: M/WBE Utilization Plan.

Section V - Vendor Certification and Required Affirmations:

I hereby:

1) acknowledge my understanding of the M/WBE participation requirements as set forth in this Contract and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York and the rules promulgated thereunder;

2) affirm that the information supplied in support of the M/WBE Utilization Plan is true and correct;

3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract;

4) agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such goals are modified by the Agency; and

5) agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.

BID FORM

PROJECT ID. S136-367

TOTAL BID PRICE: In the space provided below, the Bidder shall indicate its Total Bid Price in figures. Such Total Bid Price is set forth on the final page of the Bid Schedule.

TOTAL BID PRICE:
(a/k/a BID PROPOSAL)

$ 15,497,471.00

BB 11/22/19

BIDDER'S SIGNATURE AND AFFIDAVIT

Bidder: Perfetto Contracting Co. Inc.

By: _____
(Signature of Partner or corporate officer)

_____

Attest: Secretary of Corporate Bidder
(Corporate Seal)

Affidavit on the following page should be subscribed
and sworn to before a Notary Public

BID FORM (TO BE NOTARIZED)

AFFIDAVIT WHERE BIDDER IS AN INDIVIDUAL

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:
I am the person described in and who executed the foregoing bid, and the several matters therein stated are in all respects true.

_____
(Signature of the person who signed the Bid)

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

_____
Notary Public

AFFIDAVIT WHERE BIDDER IS A PARTNERSHIP

STATE OF NEW YORK, COUNTY OF _____ ss:
_____ being duly sworn says:
I am a member of _____ the firm described in and which executed the foregoing bid. I subscribed the name of the firm thereto on behalf of the firm, and the several matters therein stated are in all respects true.

_____
(Signature of Partner who signed the Bid)

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

_____
Notary Public

AFFIDAVIT WHERE BIDDER IS A CORPORATION

STATE OF NEW YORK, COUNTY OF Kings ss:
Cesare Perfetto being duly sworn says:
I am the President of the above named corporation whose name is subscribed to and which executed the foregoing bid. I reside at
12 Gorge Road Staten Island, NY 10304
I have knowledge of the several matters therein stated and they are in all respects true.

_____
(Signature of Corporate Officer who signed the Bid)

Subscribed and sworn to before me this
15 day of October, 2019

_____
Notary Public

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

AFFIRMATION

PROJECT ID. S136-367

The undersigned bidder affirms and declares that said bidder is not in arrears to the City of New York upon debt, contract or taxes and is not a defaulter, as surety or otherwise, upon obligation to the City of New York, and has not been declared not responsible, or disqualified, by any agency of the City of New York, nor is there any proceeding pending relating to the responsibility or qualification of the bidder to receive public contracts except:

None

(If none, the bidder shall insert the word "None" in the space provided above.)

Full Name of Bidder: Perfetto Contracting Co. Inc.
Address: 152 41st Street
City Brooklyn State New York Zip Code 11232

CHECK ONE BOX AND INCLUDE APPROPRIATE NUMBER:

/ / A - Individual or Sole Proprietorship*
SOCIAL SECURITY NUMBER

- - - - - - - - - - - -

/ / B - Partnership, Joint Venture or other unincorporated organization
EMPLOYER IDENTIFICATION NUMBER

- - - - - - - - - - - -

/X/ C- Corporation
EMPLOYER IDENTIFICATION NUMBER

11-2814026

By: _____
Signature

Title: President

If a corporation, place seal here

This affirmation must be signed by an officer or duly authorized representative.

*Under the Federal Privacy Act the furnishing of Social Security Numbers by bidders on City contracts is voluntary. Failure to provide a Social Security Number will not result in a bidder's disqualification. Social Security Numbers will be used to identify bidders, proposers or vendors to ensure their compliance with laws, to assist the City in enforcement of laws, as well as to provide the City a means of identifying of businesses which seek City contracts.

BID BONDS

BID BOND 1

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, Perfetto Contracting Co. Inc.
152 41st Street, Brooklyn, NY 11232

hereinafter referred to as the "Principal", and Fidelity and Deposit Company of Maryland
600 Red Brook Boulevard, Suite 600
Owings Mills, MD 21117

hereinafter referred to as the "Surety" are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "CITY", or to its successors and assigns in the penal sum of

Ten Percent (10%) Of Amount Bid ----------

($ 10%), Dollars lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal is about to submit (or has submitted) to the City the accompanying proposal, hereby made a part hereof, to enter into a contract in writing for Project ID#:S136-367;

Construction of DSNY Staten Island 1 & 3 Garage, Phase 1, construction of stormwater infrastructure, sanitary sewers, force main, leachate wall penetration infrastructure, and piling, 1000 West Service Road, Staten Island, NY

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall not withdraw said Proposal without the consent of the City for a period of forty-five (45) days after the opening of bids and in the event of acceptance of the Principal's Proposal by the City, if the Principal shall:

(a) Within ten (10) days after notification by the City, execute in quadruplicate and deliver to the City all the executed counterparts of the Contract in the form set forth in the Contract Documents, in accordance with the proposal as accepted, and

(b) Furnish a performance bond and separate payment bond, as may be required by the City, for the faithful performance and proper fulfillment of such Contract, which bonds shall be satisfactory in all respects to the City and shall be executed by good and sufficient sureties, and

(c) In all respects perform the agreement created by the acceptance of said Proposal as provided in the Information for Bidders, bound herewith and made a part hereof, or if the City shall reject the aforesaid Proposal, then this obligation shall be null and void; otherwise to remain in full force and effect.

BID BOND 2

In the event that the Proposal of the Principal shall be accepted and the Contract be awarded to the Principal the Surety hereunder agrees subject only to the payment by the Principal of the premium therefore, if requested by the City, to write the aforementioned performance and payment bonds in the form set forth in the Contract Documents.

It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

There shall be no liability under this bond if, in the event of the acceptance of the Principal's Proposal by the City, either a performance bond or payment bond, or both, shall not be required by the City on or before the 30th day after the date on which the City signs the Contract.

The surety, for the value received, hereby stipulates and agrees that the obligations of the Surety and its bond shall in no way be impaired or affected by any postponements of the date upon which the City will receive or open bids, or by any extensions of the time within which the City may accept the Principal's Proposal, or by any waiver by the City of any of the requirements of the Information for Bidders, and the Surety hereby waives notice of any such postponements, extensions, or waivers.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the 15thday of October, 2019.

(Seal)

Perfetto Contracting Co. Inc. (L.S.)
Principal

By: _____

(Seal)

Fidelity and Deposit Company of Maryland
Surety

By: _____
William D. Haas, Attorney-In-Fact

BID BOND 3

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:
On this 16th day of October, 2019, before me personally came Cesare Perlino to me known, who, being by me duly sworn, did depose and say that he/she/they resides at 12 George Road Staten Island, NY 10304 that he/she/they is the President of Perlino Contracting Co. Inc. the corporation described in and which executed the foregoing instrument; that he/she/they knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he/she/they signed his name thereto by like order.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:
On this _____ day of _____, _____, before me personally appeared _____ to me known and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument, and he/she/they acknowledged to me that he/she/they executed the same as and for the act and deed of said firm.

_____

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:
On this _____ day of _____, _____, before me personally appeared _____ to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged that he/she/they executed the same.

_____

Notary Public

AFFIX ACKNOWLEDGMENTS AND JUSTIFICATION OF SURETIES

Individual Acknowledgment

State of _____

County of _____

On this _____ day of _____, 20____, before me personally came _____ to me known, and known to me to be the individual in and who executed the foregoing instrument, and acknowledged to me that he/she executed the same.

My commission expires _____ _____
Notary Public

Corporation Acknowledgment

State of NY
County of Kings

On the 16 day of October, 2019 before me personally came Cesare Perlino to me known; who being by me duly sworn, did depose and say that he/she/they reside(s) in 12 George Road Staten Island that he/she/they is (are) the President of the Perlino Contracting Co. Inc., the corporation described in and which executed the above instrument; that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

My commission expires _____

_____
Notary Public

Surety Acknowledgment

State of **New York**

County of **Westchester**

On the 15th day of **October, 2019** personally came William D. Haas to me known , who being by me duly sworn did depose and say that he/she is an Attorney-in-Fact of **Fidelity and Deposit Company of Maryland** in and which executed the above Instrument know(s) the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he/she/they signed the said instrument and affixed the said seal as Attorney-in-fact by authority of the Board of Directors of said corporation and by authority of this office under the standing resolution thereof.

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01KI4986881
COMMISSION EXPIRES 09-30-2021

My commission expires _____

_____
Notary Public

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **ROBERT D. MURRAY, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **William D. HAAS, Denese THOMPSON, Marnie GINSBURG and Benedict J. TOCKARSHEWSKY, all of White Plains, New York, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 19th day of June, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: _____
Assistant Secretary
Dawn E. Brown

_____
Vice President
Robert D. Murray

State of Maryland
County of Baltimore

On this 19th day of June, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **ROBERT D. MURRAY, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

POA-F 093-7826A

THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
1299 Zurich Way Schaumburg, IL 60196

Statement of Financial Condition
As Of December 31, 2018

ASSETS

Bonds		$ 245,255,635
Stocks		22,855,569
Cash and Short Term Investments		3,092,872
Reinsurance Recoverable		73,242,781
Federal Income Tax Recoverable		42,258
Other Accounts Receivable		4,801,363
TOTAL ADMITTED ASSETS		$ 349,290,278

LIABILITIES, SURPLUS AND OTHER FUNDS

Reserve for Taxes and Expenses		$ 106,785
Ceded Reinsurance Premiums Payable		46,727,605
Remittances and Items Unallocated		125,000
Payable to parents, subs and affiliates		28,621,373
Securities Lending Collateral Liability		0
TOTAL LIABILITIES		$ 75,580,762
Capital Stock, Paid Up	$ 5,000,000	
Surplus	268,709,716	
Surplus as regards Policyholders		273,709,716
TOTAL		$ 349,290,478

Securities carried at $162,739,508 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2018 would be $349,736,423 and surplus as regards policyholders $274,155,661.

I, DENNIS F. KERRIGAN, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2018.

Corporate Secretary

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 20th day of March, 2019.

Notary Public

KATHERINE R SCHULTZ
Official Seal
Notary Public - State of Illinois
My Commission Expires Nov 16, 2019

QUALIFICATION FORM

List previous projects completed to meet the special experience requirements for this contract. Please photocopy this form for submission of all required projects.

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Construction of Storm Sanitary Sewers at Neptune Ave. (CONISPH2A)

Location of Project: Neptune Ave b/t West 20th Screet and West 22nd Street; Wesc 21st Street

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title: Robert Yueh, P.E. - Brookyln Director Phone Number: 718-391-1110

Brief description of the Project completed or the Project in progress: All work included sewers, water mains, installation and final pavement restoration in West 21st Street between Surf Ave and Mermaid, Borough of Brooklyn.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $23,883,663.50

Start Date and Completion Date: May 2015 - May 2017

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Distribution Water Mc.ins Extensions/Replacement (RED-371)

Location of Project: Various Locations Brooklyn & Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title: Adam Alweiss, P.E. - Staten Island Director Phone Number: 718-391-1357

Brief description of the Project completed or the Project in progress: Installation of Water Mains and final pavement restoration in Brooklyn and Staten Island, NY

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $3,496,317.76

Start Date and Completion Date: June 2014 - June 2015

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed or otherwise Defective Storm Sanitary or Combined Virtied Pipe Sewers

Location of Project: Various Locations, Staten Island, NY

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER00201Y)

Title: Fathi Husein, Supervising R.E. Phone Number: 718-595-4184

Brief description of the Project completed or the Project in progress: Emergency sewer thru task orders, excavation and installation of underground utilities and final restoration of roadway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $6,261,402.50

Start Date and Completion Date: May 2016 - May 2017

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Construction of Sanitary and Storm Sewers

Location of Project: Amboy Road, Staten Island, NY

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER00208)

Title: Monzer Shahin, EIC Phone Number: 917-337-6031

Brief description of the Project completed or the Project in progress: Excavation and installation of underground utitlties, and final restoration of roadway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,957,000.00

Start Date and Completion Date: October 2014 - October 2015

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Flatbush Streetscape - NYC EDC

Location of Project: Downtown Brooklyn - Flatbush

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: Paul Cons - NYC EDC

Title: Resident Engineer Phone Number: 631-300-5598

Brief description of the Project completed or the Project in progress: Streetscape work, sidewalk, median, bed ramps and restoration along Flatbush Ave from Tillary Street to Hanson Place, Brooklyn

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $11,000,000.00

Start Date and Completion Date: December 2011

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Relocation of Utilties (NY Thruway Authority)

Location of Project: From North Ave Bridge to a new Ped/Bridge - New Rochelle

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: Gregory White

Title: Engineer in Charge Phone Number: 845-222-4749

Brief description of the Project completed or the Project in progress: Relocating utilities in New Rochelle

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $2,385,505.50

Start Date and Completion Date: May 2013

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed or Otherwise Defective Sanitation Storm and Combined vitrified Clay Pipe Sewers in Various Locations of Staten Island

Location of Project: Various Locations in Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title: Pathi Husein (Resident Engineer) Phone Number: 718-595-4201

Brief description of the Project completed or the Project in progress: Excavation and installation of underground utilities water, and final restoration of roadway and surrounding area.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,629,881.50

Start Date and Completion Date: August 2012 - August 2013

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Construction of Storm & Sanitary Sewers and Appurtenances in Peru Street, Staten Island

Location of Project: Peru Street between Morse Ave & Ocean Terrace, Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER200214)

Title: Sam Riad, EIC Phone Number: 718-605-3264

Brief description of the Project completed or the Project in progress: Excavation and installation of underground utilities, sewer water mains and final restoration of roadway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $5,876,486.80

Start Date and Completion Date: December 2012 - May 2014

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed of Otherwise Defective Sanitary Storm and Reconstruction of Collapsed or otherwise Defective Storm Sanitary or Combined Virtied Clay Pipes
Location of Project: Various Locations in the Borough of Brooklyn

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SEK201A0)

Title: Fathi husein, R.E. Phone Number: 718-595-4201

Brief description of the Project completed or the Project in progress: Excavation, installaion of undergrounc utitlites (sewer, water) and final restoration of roadyway and surrounding area.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,727,462.06

Start Date and Completion Date: April 2008 - July 2009

****

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Reconstruction of Collapsed of Otherwise Defective Sanitary Storm and Combined Vitrified Clay Pipe Sewers
Location of Project: Various Locations in the Borough of Staten Island

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction (SER00201R)

Title: Fathi Husein, R.E. Phone Number: 718-595-4201

Brief description of the Project completed or the Project in progress: Excavation and installtion of underground utilities (sewer, water) and final restoration of roadyway and surrounding areas.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: $4,200,000.00

Start Date and Completion Date: April 2008 - July 20019

QUALIFICATION FORM

Name of Contractor: Perfetto Contracting Co. Inc.

Name of Project: Gateway Estates (HD-161D)

Location of Project: Gateway Estates Area (Nehemiah Creek) along Vandalia Ave & Schroeder's Ave (between Elton St & Gateway Dr) in Brooklyn, NY.

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: NYC Department of Design and Construction

Title:_____ Phone Number: _____

Brief description of the Project completed or the Project in progress: The project scope consisted of new utilities including sewer, watermain, street lighting, and traffic work. This included the building of new streets for the purpose affordable housing.

Was the Project performed as a prime, a subcontractor or a sub-subcontractor: Prime

Amount of Contract, Subcontract or Sub-subcontract: _____

Start Date and Completion Date: _____

****

Name of Contractor: _____

Name of Project: _____

Location of Project: _____

Owner or Owner's representative (Architect or Engineer) who is familiar with the work performed:

Name: _____

Title:_____ Phone Number: _____

Brief description of the Project completed or the Project in progress: _____

_____

Was the Project performed as a prime, a subcontractor or a sub-subcontractor:_____

Amount of Contract, Subcontract or Sub-subcontract: _____

Start Date and Completion Date: _____

SCHEDULE B: M/WBE UTILIZATION PLAN

Tax ID #: _____ APT E-PIN #: 85019B0097

SCHEDULE B – M/WBE Utilization Plan
Part I: M/WBE Participation Goals

Part I to be completed by contracting agency

Contract Overview

APT E- Pin #	85019B0097			**FMS Project ID#:**	**S136-367**		
Project Title/ Agency PIN #	**CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1/ 8502019TR0006C**						
Bid/Proposal Response Date	November 18, 2019 @ 11:00 AM 22 BP						
Contracting Agency	Department of Design and Construction						
Agency Address	30-30 Thomson Ave.	**City**	Long Island City	**State**	NY	**Zip Code**	11101
Contact Person	**Emmanuel Charles**			**Title**	**MWBE Liaison & Compliance Analyst**		
Telephone #	**(718) 391-1450**			**Email**	**CharlesEm@ddc.nyc.gov**		

Project Description *(attach additional pages if necessary)*

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1
Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

M/WBE Participation Goals for Services

Enter the percentage amount for each group or for an unspecified goal. Please note that there are no goals for Asian Americans in Professional Services.

Prime Contract Industry: Construction

Group	Percentage	
Unspecified	**13%**	
or		
Black American	**UNSPECIFIED***	
Hispanic American	**UNSPECIFIED***	
Asian American	**UNSPECIFIED***	
Women	**UNSPECIFIED***	
Total Participation	**13 %**	**Line 1**

**Note: For this procurement, individual ethnicity and gender goals are not specified. The Total Participation Goal for construction contracts may be met by using either Black-American, Hispanic-American, Asian American, or Women certified firms or any combination of such firms.*

Tax ID #: 11-2814026 APT E-PIN #: 85019B0097

SCHEDULE B - Part II: M/WBE Participation Plan

Part II to be completed by the bidder/proposer.
Please note: For Non-M/WBE Prime Contractors who will NOT subcontract any services and will self-perform the entire contract, you must obtain a FULL waiver by completing the Waiver Application on pages 5 and 6 and timely submitting it to the contracting agency pursuant to the Notice to Prospective Contractors. Once a FULL WAIVER is granted, it must be included with your bid or proposal and you do not have to complete or submit this form with your bid or proposal.

Section I: Prime Contractor Contact Information

Tax ID #	11-2814026	**FMS Vendor ID #**	
Business Name	Perfetto Contracting Co. Inc.	**Contact Person**	Barney franke
Address	152 41st Street Brooklyn, NY 11232		
Telephone #	718-858-8600	**Email**	Bfranke@perfettocontracting.com

Section II: M/WBE Utilization Goal Calculation: Check the applicable box and complete subsection.

PRIME CONTRACTOR ADOPTING AGENCY M/WBE PARTICIPATION GOALS

☒ **For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Agency M/WBE Participation Goals.**	**Total Bid/Proposal Value**		**Agency Total Participation Goals (Line 1, Page 1)**		**Calculated M/WBE Participation Amount**
Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.	$15,497,471	X	13%	=	$ 2,014,671
	$	**X**		**=**	**$ Line 2**

PRIME CONTRACTOR OBTAINED PARTIAL WAIVER APPROVAL: ADOPTING MODIFIED M/WBE PARTICIPATION GOALS

☐ **For Prime Contractors (including Qualified Joint Ventures and M/WBE firms) adopting Modified M/WBE Participation Goals.**	**Total Bid/Proposal Value**		**Adjusted Participation Goal (From Partial Waiver)**		**Calculated M/WBE Participation Amount**
Calculate the total dollar value of your total bid that you agree will be awarded to M/WBE subcontractors for services and/or credited to an M/WBE prime contractor or Qualified Joint Venture. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation.					
	$	**X**		**=**	**$ Line 3**

Tax ID #: 11-2814026 APT E-PIN #: 85019B0097

Section III: M/WBE Utilization Plan: How Proposer/Bidder Will Fulfill M/WBE Participation Goals. Please review the Notice to Prospective Contractors for more information on how to obtain credit for M/WBE participation. Check applicable box. The Proposer or Bidder will fulfill the M/WBE Participation Goals:

☐ As an M/WBE Prime Contractor that will self-perform and/or subcontract to other M/WBE firms a portion of the contract the value of which is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non-M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals. Please check all that apply to Prime Contractor:

☐ MBE ☐ WBE

☐ As a Qualified Joint Venture with an M/WBE partner, in which the value of the M/WBE partner's participation and/or the value of any work subcontracted to other M/WBE firms is at least the amount located on Lines 2 or 3 above, as applicable. The value of any work subcontracted to non M/WBE firms will not be credited towards fulfillment of M/WBE Participation Goals.

☒ As a non M/WBE Prime Contractor that will enter into subcontracts with M/WBE firms the value of which is at least the amount located on Lines 2 or 3 above, as applicable.

Section IV: General Contract Information

What is the expected percentage of the total contract dollar value that you expect to award in subcontracts for services, regardless of M/WBE status? % 13

✓ Scopes of Subcontract Work

Enter brief description of the type(s) and dollar value of subcontracts for all/any services you plan on subcontracting if awarded this contract. For each item, indicate whether the work is designated for participation by MBEs and/or WBEs and the time frame in which such work is scheduled to begin and end. Use additional sheets if necessary.

1. Trucking M/WBE Duration of project $ 163,000
2. CM scheduling M/WBE Duration of project $ 16,000
3. Electrical M/WBE Duration of project $ 316,000
4. Environmental M/WBE Duration of project $ 42,000
5. Lab Testing M/WBE Duration of project $ 13,000
6. Plumbing M/WBE duration of project $ 634,000
7. Pile Driving M/WBE Duration of project $ 139,000
8. Rebar Install M/WBE Duration of project $ 1,600
9. Excavating M/WBE duration of project $ 126,000
10. Survey M/WBE Duration of project $ 66,000
11.
12.
13.
14.
15.
16.
17.

Tax ID #: 11-2814026 APT E-PIN #: 85019B0097

Section V: Vendor Certification and Required Affirmations

I hereby:

1) acknowledge my understanding of the M/WBE participation requirements as set forth herein and the pertinent provisions of Section 6-129 of the Administrative Code of the City of New York ("Section 6-129"), and the rules promulgated thereunder;

2) affirm that the information supplied in support of this M/WBE Utilization Plan is true and correct;

3) agree, if awarded this Contract, to comply with the M/WBE participation requirements of this Contract, the pertinent provisions of Section 6-129, and the rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract;

4) agree and affirm that it is a material term of this Contract that the Vendor will award the total dollar value of the M/WBE Participation Goals to certified MBEs and/or WBEs, unless a full waiver is obtained or such goals are modified by the Agency; and

5) agree and affirm, if awarded this Contract, to make all reasonable, good faith efforts to meet the M/WBE Participation Goals, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified Participation Goals by soliciting and obtaining the participation of certified MBE and/or WBE firms.

Signature _____ **Date** 10/15/2019

Print Name Cesare Perfetto **Title** President

Tax ID #: 11-2814026 APT E-PIN #: 8501980097

SCHEDULE B – PART III REQUEST FOR WAIVER OF M/WBE PARTICIPATION REQUIREMENT

Contract Overview

Tax ID # 11-2814026 FMS Vendor ID # 0000539080

Business Name Perfetto Contracting Co. Inc.

Contact Name Britney Franke Telephone # 718-858-8600x170 Email Bfranke@perfettocontracting.com

Type of Procurement ☐ Competitive Sealed Bids ☐ Other Bid/Response Due Date

APT E-PIN # (for this procurement): 8502019TR0006C Contracting Agency: NYCDDC

***M/WBE Participation Goals** as described in bid/solicitation documents*

13% % Agency M/WBE Participation Goal

Proposed M/WBE Participation Goal as *anticipated by vendor seeking waiver*

5 % of the total contract value anticipated in good faith by the bidder/proposer to be subcontracted for services and/or credited to an M/WBE Prime Contractor or Qualified Joint Venture.

Basis for Waiver Request *Check appropriate box & explain in detail below (attach additional pages if needed)*

☐ Vendor does not subcontract services, and has the capacity and good faith intention to perform all such work itself with its own employees.

☐ Vendor subcontracts *some* of this type of work but at a *lower* % than bid/solicitation describes, and has the capacity and good faith intention to do so on this contract. (Attach subcontracting plan outlining services that the vendor will self-perform and subcontract to other vendors or consultants.)

☒ Vendor has other legitimate business reasons for proposing the M/WBE Participation Goal above. Explain under separate cover.

References

List 3 most recent contracts performed for NYC agencies (if any). Include information for each subcontract awarded in performance of such contracts. Add more pages if necessary.

CONTRACT NO. CONISPH2A AGENCY NYCDDC DATE COMPLETED JULY 2017

Total Contract Amount $23,883,663.50 Total Amount Subcontracted $ 2,911,771.75

Item of Work Subcontracted and Value of subcontract: TRUCKING $779,895.00; REBAR INSTALLER $127,539.57; MICRO PILES $997,914.00

CONTRACT NO. HWPLZ016K AGENCY NYCDDC DATE COMPLETED September 2018

Total Contract Amount $2,773,430.00 Total Amount Subcontracted $ 213,855.38

Item of Work Subcontracted and Value of subcontract: LANDSCAPING $60,000.00; ELECTRICAL $287,600.00; TRUCKING $30,000.00

CONTRACT NO. HWD104-05 AGENCY NYCDDC DATE COMPLETED May 2018

Total Contract Amount $1,515,100.00 Total Amount Subcontracted $ 332,725.50

Item of Work Subcontracted and Value of subcontract: ELECTRICAL $77,213.00; TRUCKING $40,000.00; LANDSCAPING $64,121.50

Tax ID #: 11-2814026 APT E-PIN #: 65019B0097

List 3 most recent contracts performed for other entities. Include information for each subcontract awarded in performance of such contracts. Add more pages if necessary.

(Complete ONLY if vendor has performed fewer than 3 New York City contracts.)

TYPE OF Contract **ENTITY** **DATE COMPLETED**

Manager at entity that hired vendor (Name/Phone No./Email)

Total Contract Amount $ **Total Amount Subcontracted $**

Type of Work Subcontracted

TYPE OF Contract **AGENCY/ ENTITY** **DATE COMPLETED**

Manager at agency/entity that hired vendor (Name/Phone No./Email)

Total Contract Amount $ **Total Amount Subcontracted $**

Item of Work Subcontracted and Value of subcontract **Item of Work Subcontracted and Value of subcontract** **Item of Work Subcontracted and Value of subcontract**

TYPE OF Contract **AGENCY/ ENTITY** **DATE COMPLETED**

Manager at entity that hired vendor (Name/Phone No./Email)

Total Contract Amount $ **Total Amount Subcontracted $**

Item of Work Subcontracted and Value of subcontract **Item of Work Subcontracted and Value of subcontract** **Item of Work Subcontracted and Value of subcontract**

VENDOR CERTIFICATION: *I hereby affirm that the information supplied in support of this waiver request is true and correct, and that this request is made in good faith.*

Signature: Noah Corwin **Date:** 10/29/2019

Print Name: Noah Corwin **Title:** Senior Estimator

Shaded area below is for agency completion only.

AGENCY CHIEF CONTRACTING OFFICER APPROVAL

Signature: **Date:** 11/8/19

CITY CHIEF PROCUREMENT OFFICER APPROVAL

Signature: **Date:** 11/8/19

Waiver Determination

Full Waiver Approved: ☐

Waiver Denied: ☑

Partial Waiver Approved: ☐

Revised Participation Goal: ____%

APPRENTICESHIP PROGRAM REQUIREMENTS

Bidders are advised that the Apprenticeship Program Requirements set forth below apply to each contract for which a "X" is indicated before the word "Yes". Compliance with these requirements will be determined solely by the City.

__X__ YES _____ NO

(1) Apprenticeship Program Requirements

Notice to Bidders: Please be advised that, pursuant to the authority granted to the City under Labor Law Section 816-b, the Department of Design and Construction hereby requires that the contractor awarded a contract as a result of this Invitation for Bids, and any of its subcontractors with subcontracts worth two million dollars or over, have, prior to entering into such contract or subcontract, apprenticeship agreements appropriate for the type and scope of work to be performed that have been registered with, and approved by, the New York State Commissioner of Labor. In addition, the contractor and its subcontractors will be required to show that such apprenticeship program/s have successfully passed the two year Probation period following the initial registration date of such program/s with the New York State Department of Labor.

The failure to prove, upon request, that these requirements have been met shall result in the contract not being awarded to the contractor or the subcontract not being approved.

Please be further advised that, pursuant to Labor Law Section 220, the allowable ratio of apprentices to journeypersons in any craft classification shall not be greater than the ratio permitted to the contractor as to its workforce on any job under the registered apprenticeship program.

(2) Apprenticeship Program Questionnaire

The bidder must submit a completed and signed Apprenticeship Program Questionnaire. The Questionnaire is set forth on the following pages of the Bid Booklet.

APPRENTICESHIP PROGRAM QUESTIONNAIRE ("APQ")

Bidder Name: Perfetto Contracting Co. Inc.

Project ID Number: S136-367

The Bidder MUST complete, sign and submit this Apprenticeship Program Questionnaire with its bid.

1. Does the bidder have any Apprenticeship Program agreement(s) appropriate for the type and scope of work to be performed? (Note: Participation may be by either direct sponsorship or through collective bargaining agreement(s).)

   X YES _____ NO

2. Has/have the bidder's Apprenticeship Program agreement(s) been registered with, and approved by the New York State Commissioner of Labor ("NYSDOL Commissioner")?

   X YES _____ NO

3. Has/have the bidder's Apprenticeship Program successfully passed the two-year Probation period following its initial registration with the New York State Department of Labor ("NYSDOL")?

   X YES _____ NO

If the answers to Questions 1, 2, and 3 are "Yes". The bidder shall, in the space below (and/or attached herewith where applicable), provide the contact information for such Apprenticeship Program(s) as well as information demonstrating that such Apprenticeship Program(s) have passed the two-year Probation period following its initial registration with the NYSDOL. (The bidder may attach additional pages if necessary).

- **Where the bidder directly sponsors any such apprenticeship Program(s),** the bidder shall provide the following:
  - The trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the NYSDOL Commissioner; and/or
  - A copy of a letter(s) from the NYSDOL, on NYSDOL's letterhead, executed by an official thereof, which verifies/verify the trade classification(s) covered by such program(s), and the date(s) such program(s) was/were approved by the NYSDOL Commissioner and the Active status of such program(s).

- **Where the bidder participates in any such Apprenticeship Program(s) through its membership in an employer organization(s) that directly sponsors such program(s) or where the employer association(s) participates in such program(s) through collective bargaining,** the bidder shall provide the following:
  - The contact information for the employer organization(s), and the apprenticeable trade(s) covered pursuant to the bidder's affiliation therewith, and the date such program(s) was/were approved by the NYSDOL Commissioner; or
  - A letter(s) from such employer organization(s), on letterhead of such organization(s), executed by an officer, delegate or official thereof, which verifies/verify the trade classification(s) covered by such program(s) was/were approved by the NYSDOL Commissioner, and that the bidder is both a member in good standing of the identified employer organization and is subject to the provisions of the Apprenticeship Program agreement(s) sponsored thereby.

APPRENTICESHIP PROGRAM QUESTIONNAIRE ("APQ")

- **Where the bidder participates in any such Apprenticeship Programs through collective bargaining agreements,** the bidder shall provide the following:
    - The contact information for such collective bargaining entity(ies) and the apprenticeable trade(s) covered pursuant to the bidder's affiliation therewith;
    - A letter(s) from such collective bargaining entity(ies), on letterhead of such entity(ies), executed by an officer, delegate or official thereof, which verifies/verify the bidder's status as a signatory/participant in good standing to such collective bargaining entity(ies) Apprenticeship Program Agreements.

We are governing the Apprenticeship Programs through the Local Unions when available.

Bidder: Perfetto Contracting Co. Inc.

By: _____ Title: President
(Signature of Partner or Corporate Officer)

Date: 10/15/2019

THE GENERAL CONTRACTORS ASSOCIATION OF NEW YORK, INC.

December 28, 2018

Perfetto Contracting Co. Inc.
Attention: Mr. Cesare Perfetto
152 41st Street
Brooklyn, NY 11232

Dear Mr. Perfetto:

Perfetto Contracting Co. Inc. is a member in good standing of the General Contractors Association of New York ("GCA"). Through your membership in the GCA, you have authorized the GCA to enter into collective bargaining agreements on your behalf.

As such, your firm is signatory to the collective bargaining agreements and participates in and upholds all provisions of those agreements, including but not limited to participation in the unions' established and approved apprenticeship programs.

The General Contractors Association has collective bargaining agreements with the following unions:

- Laborers International Union of North America
  Local 731, Heavy Construction Laborers
  Local 147 Tunnel Workers
  Local 1010 Asphalt Pavers
- New York District Council of Carpenters
  Local 1556 Dockbuilders/Timbermen
- International Union of Operating Engineers
  Local 14 / 15 Operating Engineers
  Local 15 C Operating Engineers Mechanics & Helpers
  Local 15 D Surveyors
- International Brotherhood of Teamsters Local 282
- Metallic Lathers Local 46

Please contact me if you require additional information.

Sincerely,

Denise M. Richardson
Executive Director

60 East 42nd Street, Rm. 3510 • New York, NY 10165 • Tel: (212) 687-3131 • Fax: (212) 808-5267

A. PROJECT REFERENCES – CONTRACTS COMPLETED BY THE BIDDER

List all contracts substantially completed within the last 4 years, up to a maximum of 10, in descending order of date of substantial completion.

Project & Location	Contract Type	Contract Amount ($000)	Date Completed	Owner Reference & Tel. No.	Architect/Engineer Reference & Tel. No. if different from owner
CONISPH2A Storm and Sanitary Sewers - Neptune Avenue	Public Work City Contract	$20,625,003	08/22/2017	NYC DDC Jatin Upadhyay 718-391-3161	Same as Owner
RED-371 Distribution Water Mains Extension/Replacement Brooklyn & Staten Island	Public Work City Contract	$3,496,317	06/30/2015	NYC DDC Adam Alweiss 718-391-1357	Same as Owner
HWD005K01 Fulton Street Improvements	Public Work City Contract	$1,515,000	05/07/2018	NYC DDC Marie Brandao 718-391-2430	Same as Owner
HWD104-05 Reconstruction of Amboy Road	Public Work City Contract	$2,323,124	11/14/2017	NYC DDC Mansukh Mavani 917-939-6792	Same as Owner
SER00208 Construction Sanitary Sewers Amboy Road, State Island	Public Work City Contract	$4,957,000	10/30/2015	NYC DDC Monzer Shahin 917-337-6031	Same as Owner
SER00201Y Emergecny Sanitary Sewers Various Locations SI	Public Work City Contract	$6,261,402.50	05/31/2017	NYC DEP Fathi Husein 718-595-4201	Same as Owner
SER200214 Sanitary Sewers at Peru Street Staten Island	Public Work City Contract	$5,876,486	05/01/2014	NYC DDC Sam Riad 718-605-3264	Same as Owner

8 PROJECT REFERENCE - CONTRACTS CURRENTLY UNDER CONSTRUCTION BY THE BIDDER
List all contracts currently under construction even if they are not similar to the contract being awarded

Project & Location	Contract Type	Contract Amount	Subcontracted to Others	Uncompleted Portion	Date Scheduled to Complete	Owner Ref. & Tel No	Architect/Engineer Ref. & Tel No. different from owner
HWPLZ016K Reconstruction of Bedford Plaza - Borough of Brooklyn	Public Work City Contract	$3,321,000.00	$160,000.00	$3,000,000.00	July-18	New York City Dept of Design & Construction	Same as Owner
HWPS199 Safety Improvements at PS 199 Maurice Fitzgerald School 39-20 48th Avenue - Borough of Queens	Public Work City Contract	$5,100,000	$620,000.00	$3,000,000.00	June-18	New York City Dept. of Design & Construction	Same as Owner
HD-161D Reconstruction of Gateway Area - Phase D - Borough of Brooklyn	Public Work City Contract	$14,973,047.70	$750,000.00	$5,000,000.00	April-19	New York City Dept. of Design & Construction	Same as Owner
HWK1048A Reconstruction of West Street From Eagle St. to Quay Street Borough of Brooklyn	Public Work City Contract	$28,322,002.64	$8,000,000.00	$5,000,000.00	April-19	New York City Dept. of Design and Construction	Same as Owner
SER200235 Construction of Storm Sewers & Appurtenances in Richmond Ave . Staten Island	Public Work City Contract	$5,021,000.00	$250,000.00	$1,000,000.00	June-19	New York City Dept. of Design & Construction	Same as Owner
HWP14OC Installation of Complex Pedestrian Ramps - Borough of Queens	Public Work City Contract	$4,700,000.00	$560,000.00	$3,700,000.00	June-18	New York City Dept. of Design & Construction	Same as Owner
SANDHW13 Reconstruction of Rockaway Beach Blvd Between Beach 88th Street and Beach 73rd Street, Queens	Public Work City Contract	$24,529,336.00	$1,320,000.00	$24,529,336.00	June, 2020	New York City Dept. of Design & Construction	Same as Owner

C. PROJECT REFERENCES - PENDING CONTRACTS NOT YET STARTED BY THE BIDDER
List all contracts awarded to or won by the bidder but not yet started

Project & Location	Contract Type	Contract Amount	Date Scheduled to Start	Owner Ref. & Tel. No.	Architect/Engineer Reference & Tel. if different from Owner
Reconstruction of Victory Boulevard from Lester St to Sommer Lane Borough of Staten Island HWR00505	Public Work City Contract	$8,585,000.00	Awarded on 1/29/16 Waiting for NTP	NYC Department of Design and Construction (718) 391-1501	Same
Accelerated Distribution Water Main Replacement and Sewer Rehabilitation - Queens QEDA003	Public Work City Contract	$20,100,000.00	Waiting for NTP	NYC Department of Design and Construction (718) 391-1501	Same
Reconstruction of Bedford Plaza Borough of Brooklyn HWPLZ016K	Public Work City Contract	$3,321,000.00	Awarded on 12/09/16	NYC Department of Design and Construction (718) 391-1501	Same
Reconstruction of Rockaway Beach Blvd - Queens SANDHW13	Public Work City Contract	$24,843,800.00	Awarded 6/7/17	NYC Department of Design and Construction (718) 391-1501	Same
Construction of Storm Sewers & Apprtenances in Richmond Ave. - Staten Island SER200235	Public Work City Contract	$5,021,000.00	Awarded 3/22/17	NYC Department of Design and Construction (718) 391-1501	Same

SAFETY QUESTIONNAIRE

The Bidder must include, with its bid, all information requested on this Safety Questionnaire. Failure to provide a completed and signed Safety Questionnaire at the time of bid opening may result in disqualification of the bid as non-responsive. This Safety Questionnaire will be reviewed as per Section V of the Safety Requirements for Construction Contracts, found in Volume 2 of the Contract.

1. Bidder Information:

Company Name: Perfetto Contracting Co. Inc.

DDC Project Number: S136-367

Company Size: ☐ Ten (10) employees or less

☒ Greater than ten (10) employees

Company has previously worked for DDC: ☒ YES ☐ NO

2. Type(s) of Construction Work:

Identify the types of work that the Bidder has performed in the last three years, and the types of work that are part of this Contract.

TYPE OF WORK	LAST 3 YEARS	THIS PROJECT
General Building Construction	☒	☐
Residential Building Construction	☐	☐
Nonresidential Building Construction	☐	☐
Heavy Construction, except building	☒	☒
Highway and Street Construction	☒	☒
Heavy Construction, except highways	☒	☐
Plumbing, Heating, HVAC	☐	☐
Painting and Paper Hanging	☐	☐
Electrical Work	☐	☐
Masonry, Stonework and Plastering	☒	☐
Carpentry and Floor Work	☐	☐
Roofing, Siding, and Sheet Metal	☐	☐
Concrete Work	☒	☐
Specialty Trade Contracting	☒	☐
Asbestos Abatement		
Other (specify) Sewer/Watermain	☒	☒

3. Experience Modification Rate:

The Experience Modification Rate (EMR) is a rating generated by the National Council of Compensation Insurance (NCCI). This rating is used to determine the contractor's premium for worker's compensation insurance. The Bidder / Contractor may obtain its EMR by contacting its insurance broker or the NCCI. If the Bidder cannot obtain its EMR, it must submit a written explanation as to why.

The Bidder must indicate its Intrastate and Interstate EMR for the past three years. [Note: For contractors with less than three years of experience, the EMR will be considered to be 1.00].

YEAR	INTRASTATE RATE	INTERSTATE RATE
2018		~~0~~ 1.19 B.F.
2017		~~4.80~~ 0.94 B.F.
2016		~~2.20~~ 1.06 B.F.

11/26/19

If the Intrastate and/or Interstate EMR for any of the past three years is greater than 1.00, the Bidder / Contractor must attach, to this questionnaire, a written explanation for the rating and identify what corrective action was taken to correct the situation resulting in that rating.

4. OSHA Information:

☐ YES ☒ NO Contractor has received a willful violation issued by OSHA or a New York City Department of Buildings (NYCDOB) construction-related violation within the last three years.

☒ YES ☐ NO Contractor has had an incident requiring OSHA notification within 8 hours (all work-related fatalities) or an incident requiring OSHA notification within 24 hours (work-related in-patient hospitalization, amputation and all loss of an eye).

The OSHA Form 300 "Log of Work-Related Injuries and Illnesses" and OSHA Form 300A "Summary of Work-Related Injuries and Illnesses" must be submitted for the last three years for Contractors with more than ten employees.

The Bidder / Contractor must indicate the total number of hours worked by its employees, as reflected in payroll records for the past three (3) years.

The Bidder / Contractor must submit the Incident Rate for Lost Time Injuries (the Incident Rate) for the past three (3) years. The Incident Rate is calculated in accordance with the formula set forth below. For each given year, the total number of incidents is the total number of non-fatal injuries and illnesses reported on the OSHA Form 300 and OSHA Form 300A. The 200,000 hours represents the equivalent of 100 employees working forty hours a week, fifty (50) weeks per year.

$$\text{Incident Rate} = \frac{\text{Total Number of Incidents X 200,000}}{\text{Total Number of Hours Worked by Employees}}$$

YEAR	TOTAL NUMBERS OF HOURS WORKED BY EMPLOYEES	INCIDENT RATE
2018	274,946	0
2017	208,324	4.80
2016	176,117	2.26

If the Bidder's / Contractor's Incident Rate for any of the past three years is one point higher than the Incident Rate for the type of construction it performs (listed below), the Bidder / Contractor must attach, to this questionnaire, a written explanation for the relatively high rate.

General Building Construction	8.5
Residential Building Construction	7.0
Nonresidential Building Construction	10.2
Heavy Construction, except building	8.7
Highway and Street Construction	9.7
Heavy Construction, except highways	8.3
Plumbing, Heating, HVAC	11.3
Painting and Paper Hanging	6.9
Electrical Work	9.5
Masonry, Stonework and Plastering	10.5
Carpentry and Floor Work	12.2
Roofing, Siding, and Sheet Metal	10.3
Concrete Work	8.6
Specialty Trade Contracting	8.6

5. Safety Performance on Previous DDC Project(s)

☐ YES ☒ NO Fatality or an incident requiring OSHA notification within 24 hours (work-related in-patient hospitalization, amputation and all loss of an eye) on DDC Project(s) within the last three (3) years.

DDC Project Number(s): _____, _____, _____

The Bidder hereby affirms that all the information provided in this Safety Questionnaire and all additional pages and/or attachments, if applicable, consist of accurate representations.

Date: 10/15/2019

By: _____
(Signature of Bidder: Owner, Partner, Corporate Officer)

Title: President

IRAN DIVESTMENT ACT COMPLIANCE RIDER

FOR NEW YORK CITY CONTRACTORS

The Iran Divestment Act of 2012, effective as of April 12, 2012, is codified at State Finance Law ("SFL") §165-a and General Municipal Law ("GML") §103-g. The Iran Divestment Act, with certain exceptions, prohibits municipalities, including the City, from entering into contracts with persons engaged in investment activities in the energy sector of Iran. Pursuant to the terms set forth in SFL §165-a and GML §103-g, a person engages in investment activities in the energy sector of Iran if:

(a) The person provides goods or services of twenty million dollars or more in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; or

(b) The person is a financial institution that extends twenty million dollars or more in credit to another person, for forty-five days or more, if that person will use the credit to provide goods or services in the energy sector in Iran and is identified on a list created pursuant to paragraph (b) of subdivision three of Section 165-a of the State Finance Law and maintained by the Commissioner of the Office of General Services.

A bid or proposal shall not be considered for award nor shall any award be made where the bidder or proposer fails to submit a signed and verified bidder's certification.

Each bidder or proposer must certify that it is not on the list of entities engaged in investment activities in Iran created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. In any case where the bidder or proposer cannot certify that they are not on such list, the bidder or proposer shall so state and shall furnish with the bid or proposal a signed statement which sets forth in detail the reasons why such statement cannot be made. The City of New York may award a bid to a bidder who cannot make the certification on a case by case basis if:

(1) The investment activities in Iran were made before the effective date of this section (i.e., April 12, 2012), the investment activities in Iran have not been expanded or renewed after the effective date of this section and the person has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran: or

(2) The City makes a determination that the goods or services are necessary for the City to perform its functions and that, absent such an exemption, the City would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

BIDDER'S CERTIFICATION OF COMPLIANCE WITH IRAN DIVESTMENT ACT

Pursuant to General Municipal Law Section 103-g, which generally prohibits the City from entering into contracts with persons engaged in investment activities in the energy sector of Iran, the bidder/proposer submits the following certification:

[*Please Check One*]

BIDDER'S CERTIFICATION

☒ By submission of this bid or proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.

☐ I am unable to certify that my name and the name of the bidder/proposer does not appear on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law. I have attached a signed statement setting forth in detail why I cannot so certify.

SIGNATURE

Cesare Perfetto
PRINTED NAME

President
TITLE

Sworn to before me this
15 day of Oct, 20 19

Notary Public

Dated:
10/15/2019

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

B. BID SCHEDULE (B-PAGES)

The following pages contain the Bid Schedule. Items listed in the Bid Schedule shall comply with the requirements of the corresponding sections of the specifications detailed in the table below. All references to the Standard Specifications, Details, Standards and Drawings shall be to the version in effect at the time of bid.

NOTES:

- "XXX" in the table below signifies any possible combination of characters and spaces.
- The table below may contain item formats which are not included in the Bid Schedule. ***Please refer to the Bid Schedule to determine which specifications apply.***

Item Number Format	Applicable Specifications
4.XXX 6.XXX 7.XXX 8.XXX *(Except 8.01 XXX; see below)* 9.XXX HW-XXX DSNY-XXX	NYC Department of Transportation ("DOT") Standard Highway Specifications, as amended in the R-Pages, located in Volume 3 of 3 herein; ***AND*** NYC DOT Standard Details of Construction; ***OR,*** ***if the item is not contained within the Standard Specifications***, then see the applicable New Sections in the I-Pages, located in Volume 3 of 3 herein.
1.XXX 50.XXX through 55.XXX 60.XXX through 66.XXX 70.XXX through 79.XXX *(Except 79.11XXX; see below)* DSS XXX DSW XXX	NYC Department of Environmental Protection ("DEP") Standard Sewer and Water Main Specifications, as amended in the R-Pages and I-Pages, located in Volume 3 of 3 herein; ***AND*** NYC DOT Specifications for Trunk Main Work; ***AND*** NYC DOT Sewer Design Standards; ***AND*** NYC DOT Water Main Standard Drawings; ***OR,*** ***if the item is not contained within the Standard Specifications,*** then see the Amendments to the Standard Sewer and Water Main Specifications in the I-Pages, located in Volume 3 of 3 herein.
GI-XXX PM-XXX ROW XXX	New Sections in the I-Pages, located in Volume 3 of 3 herein ***AND*** NYC DEP Standards for Green Infrastructure.
UTL-XXX	Gas Cost Sharing Standard Specifications in the EP7-Pages, located in Volume 3 of 3 herein.

Item Number Format	Applicable Specifications
83X.XXX MX.XXX MP XXX NYC-XXX NYCT-XXX NYPD-XXX P XXX PK-XXX	New Sections in the I-Pages, located in Volume 3 of 3 herein.
BMP-XXX	Specifications for Construction of Best Management Practice (BMP) and Mitigation Area in the BMP-Pages, located in Volume 3 of 3 herein.
E XXX ME XXX	Specifications for the Specialty Electrical Works in the EL-Pages, located in Volume 3 of 3 herein.
SL-XXX	NYC DOT Division of Street Lighting Specifications ***AND*** NYC Division of Street Lighting Standard Drawings.
T-XXX	NYC DOT Specifications for Traffic Signals and Intelligent Transportation Systems ***AND*** NYC DOT Traffic Signal Standard Drawings.
JB XXX	Joint Bid Specifications in the JB-Pages, located in Volume 3 of 3 herein.
8.01 XXX	Specifications for Handling, Transportation and Disposal of Nonhazardous and Potentially Hazardous Contaminated Materials in the HAZ-Pages, located in Volume 3 of 3 herein.
67.XXX	Specifications for Abatement of Coal Tar Wrap Asbestos Containing Materials in the ASB-Pages, located in Volume 3 of 3 herein.
79.11XXX	Specifications for Abatement of Transit Authority Duct Insulation Asbestos Containing Materials in the ASB-Pages, located in Volume 3 of 3 herein.
REVISED REF	

(NO FURTHER TEXT ON THIS PAGE)

BID SCHEDULE

NOTE: (1) The Agency may reject a bid if it contains unbalanced bid prices. An unbalanced bid is considered to be one containing lump sum or unit items which do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs, anticipated for the performance of the items in question.

(2) The following bid prices on Unit Price Contracts are to be paid for the actual quantities of the item numbers in the completed work or structure, and they cover the cost of all work, labor, material, tools, plant and appliances of every description necessary to complete the entire work, as specified, and the removal of all debris, temporary work and appliances.

(3) PLEASE BE SURE A LEGIBLE BID IS ENTERED, IN INK, FOR EACH ITEM.
Alterations must be initialed in ink by the bidder.

(4) The Extended Amount entered in Column 6 shall be the product of the Estimated Quantity in Column 3 times the Unit Price Bid in Column 5.

(5) Prospective bidders must examine the Bid Schedule carefully and, before bidding, must advise the Commissioner, in writing, if any pages are missing, and must request that such missing pages be furnished them. The pages of this Bid Schedule are numbered consecutively, as follows:
B - 3 [REVISION # 1] Through B - 14 [REVISION # 1]

PLEASE BE SURE A LEGIBLE BID IS ENTERED FOR EACH ITEM.
THE BIDDER SHALL INSERT THE TOTAL BID PRICE IN
THE BID FORM IN THIS BID BOOKLET.

Department of Design and Construction

NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE - BUREAU OF DESIGN

PROJECT ID: S136-367
CONTRACT PIN: 8502019TR0006C
REBID: N/A

11/12/2019 2:41 PM

BID SCHEDULE FORM

ITEM NO.	ITEM NO. / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
001	4.02 AF-R ASPHALTIC CONCRETE WEARING COURSE, 2" THICK	1,394.00	S.Y.	40.00	55,760.00
002	4.02 CA BINDER MIXTURE	72.00	TONS	363.00	26,136.00
003	4.03 TEMPORARY SURFACING ROADWAYS	411.00	S.Y.	172.00	70,692.00
004	4.04 B CONCRETE BASE FOR PAVEMENT, VARIABLE THICKNESS FOR TRENCH RESTORATION, CLASS B-32	232.00	C.Y.	350.00	81,200.00
005	4.06 CONCRETE IN STRUCTURES, CLASS A-40	1,042.00	C.Y.	250.00	260,500.00
006	4.08 AA CONCRETE CURB (18" DEEP)	40.00	L.F.	100.00	4,000.00
007	4.11 CA FILL, PLACE MEASUREMENT	16,965.00	C.Y.	80.00	1,357,200.00
008	4.14 STEEL REINFORCEMENT BARS	1,222.00	LBS.	2.00	2,444.00

BID SCHEDULE FORM

009	4.14 W WELDED STEEL WIRE FABRIC	122,453.00	LBS.	6 50	61,226 00
010	4.20 SEEDING	311.00	S.Y.	3 00	933 00
011	4.22 A PROTECTIVE TREE BARRIER, TYPE A	1.00	EACH	746 00	746 00
012	50.31SC10 10" E.S.V.P. SANITARY SEWER, ON CONCRETE CRADLE	106.00	L.F.	3,800 00	402,800 00
013	50.31SC12 12" E.S.V.P. SANITARY SEWER, ON CONCRETE CRADLE	134.00	L.F.	3,200 00	428,800 00
014	50.41M6S36 36" D.I.P. CLASS 56 STORM SEWER, ON CRUSHED STONE BEDDING	96.00	L.F.	1,300 00	124,800 00
015	50.41S6S06 6" D.I.P. CLASS 56 SANITARY SEWER, ON CRUSHED STONE BEDDING	1,077.00	L.F.	500 00	538,500 00
016	50.41S6S08 8" D.I.P. CLASS 56 SANITARY SEWER, ON CRUSHED STONE BEDDING	250.00	L.F.	580 00	145,000 00

BID SCHEDULE FORM

017	50.61S6D15 6" D.I.P. Class 56 Sanitary Sewer in Jacked 15" Steel Sleeve	809.00	L.F.	2,222 ~~3,050~~ 00	1,797,598 ~~2,467,450~~ 00 AE
018	51.11C000 CHAMBER	1.00	EACH	80,000 00	80,000 00
019	51.11C001 CHAMBER NO. 1	1.00	EACH	100,000 00	100,000 00
020	51.11C002 CHAMBER NO. 2	1.00	EACH	100,000 00	100,000 00
021	51.11C003 CHAMBER NO. 3	1.00	EACH	80,000 00	80,000 00
022	51.11P004 STANDARD 4'-0" DIAMETER PRECAST MANHOLE	3.00	EACH	15,000 00	45,000 00
023	51.11P005 STANDARD 5'-0" DIAMETER PRECAST MANHOLE	4.00	EACH	18,000 00	72,000 00
024	51.11P007 STANDARD 7'-0" DIAMETER PRECAST MANHOLE	5.00	EACH	25,000 00	125,000 00

BID SCHEDULE FORM

ITEM NO	ITEM CODE AND DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
025	**51.11P010** STANDARD 10'-0" DIAMETER PRECAST MANHOLE	1.00	EACH	50,000 00	50,000 00
026	**51.21S0A1000V** STANDARD MANHOLE TYPE A-1	11.00	EACH	15,000 00	165,000 00
027	**51.41S001** STANDARD CATCH BASIN, TYPE 1	7.00	EACH	12,000 00	84,000 00
028	**51.41S002** STANDARD CATCH BASIN, TYPE 2	7.00	EACH	12,000 00	84,000 00
029	**51.71M00000** MODIFICATION OF EXISTING MANHOLE	2.00	EACH	1,000 00	2,000 00
030	**52.11D12** 12" DUCTILE IRON PIPE BASIN CONNECTION	30.00	L.F.	450 00	13,500 00
031	**52.41D06N** NEW 6" D.I.P. HOUSE CONNECTION DRAIN ON STONE BEDDING	40.00	L.F.	240 00	9,600 00
032	**55.11AB** ABANDONING BASINS AND INLETS	9.00	EACH	859 00	7,731 00

BID SCHEDULE FORM

ITEM NO.	ITEM NUMBER & DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
033	**6.01 AA** CLEARING AND GRUBBING	1.00	L.S.	14,440 00	14,440 00
034	**6.02 AAN** UNCLASSIFIED EXCAVATION	3,073.00	C.Y.	70 00	215,110 00
035	**6.23 AB** REMOVE EXISTING FIRE ALARM POST	1.00	EACH	1,750 00	1,750 00
036	**6.23 BA** FURNISH AND INSTALL FIRE ALARM POST AND SUBBASE IN ACCORDANCE WITH F.D. STD. DWG. #141	1.00	EACH	2,580 00	2,580 00
037	**6.23 BD** FURNISH AND INSTALL 4-PAIR FIRE ALARM CABLE	138.00	L.F.	10 00	1,380 00
038	**6.23 BFC** FURNISH AND INSTALL FIRE DEPARTMENT 12 WIRE TERMINAL BOX AND TERMINATE FIRE ALARM CABLES	1.00	EACH	2,360 00	2,360 00
039	**6.23 BGS** FURNISH AND INSTALL 4" P.V.C. CONDUIT, SCHEDULE 40, U.L. 651 (WITHOUT PAVEMENT EXCAVATION)	138.00	L.F.	30 00	4,140 00
040	**6.23 BP** FURNISH AND INSTALL FIRE ALARM PEDESTAL BUMPERS (2 REQUIRED PER SET) IN ACCORDANCE WITH F.D. STD. DWG. #168	2.00	SETS	590 00	1,180 00

BID SCHEDULE FORM

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
041	6.23 RM REMOVE EXISTING F.D.N.Y. MANHOLE	1.00	EACH	6,080 00	6,080 00
042	6.27 DEMOLITION OF STRUCTURES	1.00	L.S.	462,974 00	462,974 00
043	6.40 D ENGINEER'S FIELD OFFICE (TYPE D)	14.00	MONTH	14,000 00	196,000 00
044	6.55 SAWCUTTING EXISTING PAVEMENT	2,500.00	L.F.	3 00	7,500 00
045	6.70 MAINTENANCE AND PROTECTION OF TRAFFIC	1.00	L.S.	550,000 00	550,000 00
046	6.91 REFLECTIVE CRACKING MEMBRANE (18" WIDE)	2,500.00	L.F.	11 00	27,500 00
047	61.41 ICV08 INLINE CHECK VALVE-SIZE 8"	1.00	EACH	2,030 00	2,030 00
048	61.41 ICV24 INLINE CHECK VALVE-SIZE 24"	1.00	EACH	7,000 00	7,000 00

BID SCHEDULE FORM

049	**63.11VC** FURNISHING AND DELIVERING VARIOUS CASTINGS	**6.00**	**TONS**	2,160 00	12,960 00
050	**7.13 B** MAINTENANCE OF SITE	**14.00**	**MONTH**	6,000 00	84,000 00
051	**70.11TS** TAPERED STEEL PILES (CONCRETE FILLED)	**9,680.00**	**V.F.**	100 00	968,000 00
052	**70.11TT** TIMBER PILES (TREATED) **Unit price bid shall not be less than: $ 17.50**	**2,192.00**	**V.F.**	55 00	120,560 00
053	**70.12AN** CONTINUOUS FLIGHT AUGER (CFA) PILES	**42.00**	**V.F.**	3,300 00	138,600 00
054	**72.11HF** HYDRAULIC FILL FOR ABANDONED SEWERS AND WATER MAINS	**350.00**	**C.Y.**	77 00	26,950 00
055	**73.31AE0** ADDITIONAL EARTH EXCAVATION INCLUDING TEST PITS (ALL DEPTHS) **Unit price bid shall not be less than: $ 20.00**	**928.00**	**C.Y.**	80 00	74,240 00

BID SCHEDULE FORM

056	**76.11CR** CONSTRUCTION REPORT	1.00	L.S.	100,000 00	100,000 00
057	**8.01 C1** HANDLING, TRANSPORTING AND DISPOSAL OF NON-HAZARDOUS CONTAMINATED SOIL	22,500.00	TONS	12 00	270,000 00
058	**8.01 C2** SAMPLING AND TESTING OF CONTAMINATED/POTENTIALLY HAZARDOUS SOIL FOR DISPOSAL PURPOSES	34.00	SETS	1,500 00	51,000 00
059	**8.01 H** HANDLING, TRANSPORTING AND DISPOSAL OF HAZARDOUS SOIL	1,350.00	TONS	150 00	202,500 00
060	**8.01 S** HEALTH AND SAFETY	1.00	L.S.	25,000 00	25,000 00
061	**8.01 W1** REMOVAL, TREATMENT, AND DISCHARGE/DISPOSAL OF CONTAMINATED WATER	250.00	DAY	450 00	112,500 00
062	**8.01 W2** SAMPLING AND TESTING OF CONTAMINATED WATER	3.00	SETS	1,010 00	3,030 00
063	**9.13 HD12** 12" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	357.00	L.F.	200 00	71,400 00

BID SCHEDULE FORM

SEC	ITEM NUMBER AND DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
064	**9.13 HD15** 15" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	9.00	L.F.	250 00	2,250 00
065	**9.13 HD18** 18" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	214.00	L.F.	186 00	39,804 00
066	**9.13 HD24** 24" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	55.00	L.F.	190 00	10,450 00
067	**9.13 HD30** 30" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	23.00	L.F.	230 00	5,290 00
068	**9.13 HD36** 36" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	2,191.00	L.F.	280 00	613,480 00
069	**9.13 HD60** 60" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	3,549.00	L.F.	545 00	1,934 205 00
070	**9.30** STORM WATER POLLUTION PREVENTION	1.00	L.S.	25,000 00	25,000 00
071	**DSNY-ELECT** DSNY ELECTRICAL	1.00	L.S.	350,000 00	350,000 00

BID SCHEDULE FORM

072	**DSNY-FS-SS** RATED PENETRATION SEALANTS AT THE EXISTING GARAGE BUILDING	1.00	L.S.	5,000 00	5,000 00
073	**DSNY-IJS** PENETRATION SEALANTS AT THE EXISTING GARAGE BUILDING	1.00	L.S.	1,000 00	1,000 00
074	**DSNY-L-INF** DSNY LEACHATE WALL INFRASTRUCTURE	1.00	L.S.	190,000 00	190,000 00
075	**DSNY-PLUMB** DSNY PLUMBING	1.00	L.S.	30,000 00	30,000 00
076	**DSNY-PTBR** DSNY PETROLEUM TANK BULK REMOVAL PRICE BID SHALL BE FOR THE FIXED SUM OF $ 24,092.00	1.00	F.S.	24,092 00	$24,092 00
077	**DSNY-SPS** DSNY SANITARY PUMP STATION	1.00	L.S.	611,000 00	611,000 00
078	**DSNY-UPI** INSTALL TIMBER UTILITY POLES	1.00	EACH	5,180 00	5,180 00

NYC DDC Department of Design and Construction

11/12/2019 2:41 PM

NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION

DIVISION OF INFRASTRUCTURE - BUREAU OF DESIGN

PROJECT ID: S136-367

CONTRACT PIN: 8502019TR0006C

REBID: N/A

BID SCHEDULE FORM

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
079	**DSNY-WQU** DSNY WATER QUALITY UNIT	2.00	EACH	80,000	00	160,000	00
080	**DSNY-XCE** Protection of Existing Utilities	431.00	C.Y.	177	00	76,287	00
081	**GI-2.09DR-NW** NON-WOVEN GEOTEXTILE FABRIC FOR DRAINAGE	9,545.00	S.Y.	14	00	133,630	00

SUB-TOTAL: $ 14,355,599.00

082	**6.39 B** MOBILIZATION BID PRICE OF MOBILIZATION SHALL NOT EXCEED 8% OF THE ABOVE SUB-TOTAL PRICE.	1.00	L.S.	1,141,872	00	1,141,872	00

TOTAL BID PRICE: $ 15,497,471.00

PLEASE BE SURE A LEGIBLE BID IS ENTERED FOR EACH ITEM.
THE BIDDER SHALL INSERT THE TOTAL BID PRICE IN
THE BID FORM IN THIS BID BOOKLET.

C. DRAWINGS

Contract Drawings

PAGE NO	Sheet NO	Sheet Name
1	G-001	TITLE SHEET
2	G-002	DRAWING LIST
3	PH-010	PHASING DIAGRAM PHASE 1
4	C-001	CIVIL NOTES 1
5	C-002	CIVIL NOTES 2
6	C-050	SITE REMOVALS PLAN
7	C-051	SITE REMOVALS PLAN: ENLARGEMENT 1
8	C-052	SITE REMOVALS PLAN: ENLARGEMENT 2
9	C-100	EROSION AND SEDIMENT CONTROL PLAN
10	C-101	EROSION AND SEDIMENT CONTROL PLAN
11	C-111	DETAILS - EROSION & SEDIMENT CONTROL DETAILS
12	C-200	SITE PLAN
13	C-201	SITE PLAN
14	C-211	DETAILS - SITE DETAILS
15	C-300	DRAINAGE PLAN
16	C-301	DRAINAGE PLAN ENLARGEMENT 1
17	C-302	DRAINAGE PLAN ENLARGEMENT 2
18	C-303	DRAINAGE PLAN ENLARGEMENT 3
19	C-311	DETAILS - DRAINAGE DETAILS 1
20	C-312	DETAILS - DRAINAGE DETAILS 2
21	C-400	GRADING PLAN
22	C-401	GRADING PLAN ENLARGEMENT 1
23	C-402	GRADING PLAN ENLARGEMENT 2
24	C-403	GRADING PLAN ENLARGEMENT 3
25	C-500	UTILITY PLAN
26	C-501	UTILITY PLAN ENLARGEMENT 1
27	C-502	UTILITY PLAN ENLARGEMENT 2
28	C-503	UTILITY PLAN ENLARGEMENT 3
29	C-504	UTILITY PLAN ENLARGEMENT 4
30	C-511	DETAILS - UTILITY DETAILS 1
31	C-512	DETAILS - UTILITY DETAILS 2
32	C-513	DETAILS - UTILITY DETAILS 3
33	C-600	PUMP STATION SITE AND DETAIL PLAN

PAGE NO	Sheet NO	Sheet Name
34	C-601	PUMP STATION DETAILS
35	C-602	PUMP STATION ELECTRICAL DETAILS
36	C-603	PUMP STATION ELECTRICAL DETAILS
37	SOE-001	GENERAL NOTES
38	SOE-101	SUPPORT OF EXCAVATION PLAN
39	SOE-102	SUPPORT OF EXCAVATION PLANS A & B
40	SOE-103	SUPPORT OF EXCAVATION PART PLANS C
41	SOE-104	SUPPORT OF EXCAVATION PART PLAN D
42	SOE-301	SECTIONS A & B
43	SOE-302	SECTIONS C & D
44	SOE-303	SECTION E
45	SOE-304	SECTION F
46	SOE-305	SECTION G & ELEVATION H
47	SOE-306	SECTION I
48	SOE-307	SECTION J
49	SOE-308	SECTION K
50	SOE-501	DETAILS
51	L-010	OVERALL SITE REFERENCE PLAN
52	L-011	PAVING ASSEMBLIES REFERENCE DRAWINGS
53	L-101	SITE SURFACE DEMOLITION PLAN
54	L-102	SITE SURFACE DEMOLITION PLAN
55	S1-001	GENERAL NOTES
56	F0-203	TYPICAL MAT FOUNDATION DETAILS
57	S3-105	S3 SALT SHED FRAMING PLANS
58	P6-001	PLUMBING - NOTES & SYMBOLS
59	P6-100	PLUMBING - OVERALL FIRST FLOOR PLAN - EXISTING GARAGE
60	P6-101	PLUMBING - FIRST FLOOR PART PLANS - EXISTING GARAGE
61	E6-001	ELECTRICAL - NOTES & SYMBOLS - EXISTING GARAGE
62	E6-100	ELECTRICAL - OVERALL FIRST FLOOR PLAN- EXISTING GARAGE
63	E6-101	ELECTRICAL - FIRST FLOOR PART PLANS- EXISTING GARAGE
64	E6-300	ELECTRICAL - POWER RISER DIAGRAM
65	E6-DM-301	ELECTRICAL - DEMOLITION RISER DIAGRAM
66	MPT-01	GENERAL NOTES 1
67	MPT-02	GENERAL NOTES 2
68	MPT-03	TEMPORARY TRAFFIC SIGNS AND STORAGE AREA

PAGE NO	Sheet NO	Sheet Name
70	MPT-05	STAGE 1
71	MPT-06	STAGE 2
72	MPT-07	STAGE 3
73	MPT-08	STAGE 4
74	MPT-09	STAGE 5
75	MPT-10	STAGE 6
76	PSP-01	GENERAL NOTES 1
77	PSP-02	LEGEND AND LIST OF STANDARD REFERENCE DRAWINGS
78	PSP-03	ARTHUR KILL ROAD SANITARY SEWER PLAN AND PROFILE
79	VB100	TOPOGRAPHIC AND UTILITY SURVEY
80	VB101	TOPOGRAPHIC AND UTILITY SURVEY
81	VB102	TOPOGRAPHIC AND UTILITY SURVEY
82	VB103	TOPOGRAPHIC AND UTILITY SURVEY
83	VB104	TOPOGRAPHIC AND UTILITY SURVEY
84	VB105	TOPOGRAPHIC AND UTILITY SURVEY
85	VB106	TOPOGRAPHIC AND UTILITY SURVEY
86	VB107	TOPOGRAPHIC AND UTILITY SURVEY

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Department of Design and Construction

DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

VOLUME 1 OF 3

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

FOR THE CONSTRUCTION OF STORMWATER INFRASTRUCTURE, SANITARY SEWERS, FORCE MAIN, LEACHATE WALL PENETRATION INFRASTRUCTURE, AND PILING.

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

_____
Contractor

Dated_____, **20**_____

Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

TO BE FILLED IN BY THE BIDDER:

BIDDER'S NAME:

_____

_____

BID SECURITY (CIRCLE ONE):
BID BOND / CERTIFIED CHECK

NUMBER OF ADDENDUMS RECEIVED AND ATTACHED TO BID:
____ ADDENDUMS

DDC CLIENT AGENCY:
NEW YORK CITY DEPARTMENT OF SANITATION
PREPARED BY:
TEN ARQUITECTOS
DATE PREPARED:
07/31/2019

VOLUME 2 OF 3
BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1

FOR THE CONSTRUCTION OF STORMWATER INFRASTRUCTURE, SANITARY SEWERS, FORCE MAIN, LEACHATE WALL PENETRATION INFRASTRUCTURE, AND PILING.

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF STATEN ISLAND

CITY OF NEW YORK

Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

TO BE FILLED IN BY THE BIDDER:

BIDDER'S NAME:

_____

_____

BID SECURITY (CIRCLE ONE):
BID BOND / CERTIFIED CHECK

NUMBER OF ADDENDUMS RECEIVED AND ATTACHED TO BID:
____ ADDENDUMS

DDC CLIENT AGENCY:
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PREPARED BY:
TEN ARQUITECTOS

DATE PREPARED:
07/31/2019

VOLUME 2 OF 3
BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: S136-367

INFORMATION FOR BIDDERS
CONTRACT
PERFORMANCE AND PAYMENT BONDS
PREVAILING WAGE SCHEDULE

NOTICE TO BIDDERS

Please note that the Information for Bidders has been updated to include new Section 41, Viewing of Submitted Bid Documents.

(NO FURTHER TEXT ON THIS PAGE)

7/12/2019
DISCONTINUE THE USE OF THIS NOTICE ON 1/1/2020

(NO TEXT ON THIS PAGE)

CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION DIVISION OF INFRASTRUCTURE

INFORMATION FOR BIDDERS

JULY 2019

(NO TEXT ON THIS PAGE)

CITY OF NEW YORK CITY
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFORMATION FOR BIDDERS

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INFORMATION FOR BIDDERS

1. Description and Location of Work

The description and location of the work for which bids are requested are specified in Attachment 1, "Bid Information". Attachment 1 is included in the BID BOOKLET, VOLUME 1 OF 3.

2. Time and Place for Receipt of Bids

Sealed bids shall be received on or before the date and hour specified in Attachment 1, at which time they will be publicly opened and read aloud in the presence of the Commissioner or his or her representative, and any bidders who may desire to be present.

3. Definitions

The definitions set forth in the Procurement Policy Board Rules shall apply to this Invitation For Bids.

4. Invitation For Bids and Contract Documents

(A) Except for titles, sub-titles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience) the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of the Contract and the Invitation for Bids.

(1) All provisions required by law to be inserted in this Contract, whether actually inserted or not
(2) The Contract Drawings and Specifications
(3) The General Conditions, the General Requirements and the Special Conditions, if any
(4) The Contract
(5) The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet
(6) The Budget Director's Certificate; all Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed with the Work.

(B) For particulars as to this procurement, including quantity and quality of the purchase, extent of the work or labor to be performed, delivery and performance schedule, and any other special instructions, prospective bidders are referred to the Invitation For Bids Documents. A copy of such documents can be obtained at the location set forth in Attachment 1.

(C) Deposit for Copy of Invitation For Bids Documents: Prospective bidders may obtain a copy of the Invitation For Bids Documents by complying with the conditions set forth in the Notice of Solicitation. The deposit must be in the form of a check or money order made payable to the City of New York, and drawn upon a state or national bank or trust company, or a check of such bank or trust company signed by a duly authorized officer thereof.

(D) Return of Invitation For Bids Documents: All Invitation For Bids Documents must be returned to the Department upon request. If the bidder elects not to submit a bid thereunder, the

Invitation For Bids Documents shall be returned to the Department, along with a statement that no bid will be submitted.

(E) Return of Deposit: Such deposit will be returned within 30 days after the award of the contract or the rejection of all bids as set forth in the advertisement, provided the Invitation For Bids Documents are returned to the location specified in Attachment 1, in physical condition satisfactory to the Commissioner.

(F) Additional Copies: Additional copies of the Invitation For Bids Documents may be obtained, subject to the conditions set forth in the advertisement for bids.

5. Pre-Bid Conference

A pre-bid conference shall be held as set forth in Attachment 1. Nothing stated at the pre-bid conference shall change the terms or conditions of the Invitation For Bids Documents, unless a change is made by written amendment as provided in Section 9 below. Failure to attend a mandatory pre-bid conference shall constitute grounds for the rejection of the bid.

6. Agency Contact

Any questions or correspondence relating to this bid solicitation shall be addressed to the Agency Contact person specified in Attachment 1.

7. Bidder's Oath

(A) The bid-shall be properly signed by an authorized representative of the bidder and the bid shall be verified by the written oath of the authorized representative who signed the bid, that the several matters stated and information furnished therein are in all aspects true.

(B) A materially false statement willfully or fraudulently made in connection with the bid or any of the forms completed and submitted with the bid may result in the termination of any Contract between the City and the Bidder. As a result, the Bidder may be barred from participating in future City contracts as well as be subject to possible criminal prosecution.

8. Examination and Viewing of Site

(A) Pre-Bidding (Investigation) Viewing of Site -Bidders must carefully view and examine the site of the proposed work, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions on, about or above the site relating to or affecting in any way the performance of the work to be done under the Contract which were or should have been indicated to a reasonably prudent bidder. To arrange a date for visiting the work site, bidders are to contact the Agency Contact person specified in Attachment 1.

(B) Should the contractor encounter during the progress of the work subsurface conditions at the site materially differing from any shown on the Contract Drawings or indicated in the Specifications or such subsurface conditions as could not reasonably have been anticipated by the contractor and were not anticipated by the City, which conditions will materially affect the cost of the work to be done under the

Contract, the attention of the Commissioner must be called immediately to such conditions before they are disturbed. The Commissioner shall thereupon promptly investigate the conditions. If he finds that they do so materially differ, or that they could not have been reasonably anticipated by the contractor and were not anticipated by the City, the Contract may be modified with his written approval.

9. Examination of Proposed Contract

(A) Request for Interpretation or Correction: Prospective bidders must examine the Contract Documents carefully and before bidding must request the Commissioner in writing for an interpretation or correction of every patent ambiguity, inconsistency or error therein which should have been discovered by a reasonably prudent bidder. Such interpretation or correction, as well as any additional contract provisions the Commissioner may decide to include, will be issued in writing by the Commissioner as an addendum to the Contract, which will be transmitted to each person recorded as having received a copy of the Contract Documents from the Department. Transmission of such addendum will be by mail, e-mail, facsimile or hand delivery. Such addendum will also be posted at the place where the Contract Documents are available for the inspection of prospective bidders. Upon transmission as provided for herein, such addendum shall become a part of the Contract Documents, and binding on all bidders, whether or not actual notice of such addendum is shown.

(B) Only Commissioner's Interpretation or Correction Binding: Only the written interpretation or correction so given by the Commissioner shall be binding, and prospective bidders are warned that no other officer, agent or employee of the City is authorized to give information concerning, or to explain or interpret, the Contract.

(C) Documents given to a subcontractor for the purpose of soliciting the subcontractor's bid shall include either a copy of the bid cover sheet or a separate information sheet setting forth the project name, the Contract number (if available), the contracting agency and the Project's location.

10. Form of Bid

Each bid must be submitted upon the prescribed form and must contain: a) the name, residence and place of business of the person or persons making the same; b) the names of all persons interested therein, and if no other person is so interested, such fact must be distinctly stated; c) a statement to the effect that it is made without any connection with any other person making a bid for the same purpose and that it is in all respects fair and without collusion or fraud; d) a statement that no Council member or other officer or employee or person whose salary is payable in whole or part from the City Treasury is directly or indirectly interested therein or in the supplies, materials or equipment and work or labor to which it relates, or in any portion of the profits thereof; e) a statement that the bidder is not in arrears to the City or to any agency upon a debt or contract or taxes, and is not a defaulter as surety or otherwise upon any obligation to the City to any agency thereof, except as set forth in the bid.

THE BID SHALL BE TYPEWRITTEN OR WRITTEN LEGIBLY IN INK. THE BID SHALL BE SIGNED IN INK. ERASURES OR ALTERATIONS SHALL BE INITIALED BY THE SIGNER IN INK. FAILURE TO CONFORM TO THE REQUIREMENTS OF THIS SECTION 10 SHALL RESULT IN THE REJECTION OF THE BID.

11. Irrevocability of Bid

The prices set forth in the bid cannot be revoked and shall be effective until the award of the Contract, unless the bid is withdrawn as provided for in Sections 15 and 18 below.

12. Acknowledgment of Amendments

The receipt of any amendment to the Contract Documents shall be acknowledged by the bidder in its bid submission.

13. Bid Samples and Descriptive Literature

Bid samples and descriptive literature shall not be submitted by the bidder, unless expressly requested elsewhere in the Contract or Contract Documents. Any unsolicited bid samples or descriptive literature which are submitted shall not be examined or tested and shall not be deemed to vary any of the provisions of this Contract.

14. Proprietary Information/Trade Secrets

(A) The bidder shall identify those portions of the bid which it deems to be confidential, proprietary information or trade secrets, and provide justification why such materials shall not be disclosed by the City. All such materials shall be clearly indicated by stamping the pages on which such information appears, at the top and bottom thereof with the word "Confidential". Such materials stamped "Confidential" must be easily separable from the non-confidential sections of the bid.

(B) All such materials so indicated shall be reviewed by the Agency and any decision not to honor a request for confidentiality shall be communicated in writing to the bidder. For those bids which are unsuccessful, all such confidential materials shall be returned to the bidder. Prices, makes and model or catalog numbers of the items offered, deliveries, and terms of payment shall be publicly available after bid opening, regardless of any designation of confidentiality made by the bidder.

15. Pre-Opening Modification or Withdrawal of Bids

Bids may be modified or withdrawn by written notice received in the office designated in Attachment 1, before the time and date set for the bid opening. If a bid is withdrawn in accordance with this Section, the bid security, if any, shall be returned to the bidder.

16. Bid Evaluation and Award

In accordance with the New York City Charter, the Procurement Policy Board Rules and the terms and conditions of this Invitation For Bids, this Contract shall be awarded, if at all, to the responsible bidder whose bid meets the requirements and evaluation criteria set forth in the Invitation For Bids, and whose bid price is either the most favorable bid price or, if the Invitation For Bids so states, the most favorable evaluated bid price. A bid may not be evaluated for any requirement or criterion that is not disclosed in the Invitation For Bids.

Restriction: No negotiations with any bidder shall be allowed to take place except under the circumstances and in the manner set forth in Section 21. Nothing in this Section shall be deemed to permit a contract award to a bidder submitting a higher quality item than that designated in the Invitation For Bids, if that bid is not also the most favorable bid.

17. Late Bids, Late Withdrawals and Late Modifications

Any bid received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. Any request for withdrawal or modification received at the place designated in the solicitation after the time and date set for receipt of bids is late and shall not be considered. The exception to this provision is that a late modification of a successful bid that makes the bid terms more favorable to the City shall be considered at any time it is received.

18. Withdrawal of Bids.

Except as provided for in Section 15, above, a bidder may not withdraw its bid before the expiration of forty-five (45) days after the date of the opening of bids; thereafter, a bidder may withdraw its bid only in writing and in advance of an actual award. If within sixty (60) days after the execution of the Contract, the Commissioner fails to fix the date for commencement of work by written notice to the bidder, the bidder, at his option, may ask to be relieved of his obligation to perform the work called for by written notice to the Commissioner. If such notice is given to the Commissioner, and the request to withdraw is granted, the bidder waives all claims in connection with this Contract.

19. Mistake in Bids

(A) Mistake Discovered Before Bid Opening: A bidder may correct mistakes discovered before the time and date set for bid opening by withdrawing or correcting the bid as provided in Section 15 above.

(B) Mistakes Discovered Before Award

(1) In accordance with General Municipal Law (Section 103, subdivision 11), where a unilateral error or mistake is discovered in a bid, such bid may be withdrawn upon written approval of the Agency Chief Contracting Officer if the following conditions are met:

(a) The mistake is known or made known to the agency prior to the awarding of the Contract or within 3 days after the opening of the bid, whichever period is shorter; and
(b) The price bid was based upon an error of such magnitude that enforcement would be unconscionable; and
(c) The bid was submitted in good faith and the bidder submits credible evidence that the mistake was a clerical error as opposed to a judgment error; and
(d) The error in the bid is actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, material or services made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of the original work paper, documents, or materials used in the preparation of the bid sought to be withdrawn; and
(e) It is possible to place the agency in the same position as existed prior to the bid.

(2) Unless otherwise required by law, the sole remedy for a bid mistake in accordance with this Article shall be withdrawal of the bid, and the return of the bid bond, or other security, if any, to the bidder. Thereafter, the agency may, in its discretion, award the Contract to the next lowest bidder or rebid the Contract. Any amendment to or reformation of a bid or a Contract to rectify such an error or mistake

therein is strictly prohibited.

(3) If the mistake and the intended correct bid are clearly evident on the face of the bid document, the bid shall be corrected to the intended correct bid and may not be withdrawn. Examples of mistakes that may be corrected are typographical errors, errors in extending unit prices, transposition errors and arithmetical errors.

20. Low Tie Bids

(A) When two or more low responsive bids from responsible bidders are identical in price, meeting all the requirements and criteria set forth in the Invitation For Bids, the Agency Chief Contracting Officer will break the tie in the following manner and order of priority:

(1) Award to a certified New York City small, minority or woman-owned business entity bidder;
(2) Award to a New York City bidder;
(3) Award to a certified New York State small, minority or woman-owned business bidder;
(4) Award to a New York State bidder.

(B) If two or more bidders still remain equally eligible after application of paragraph (A) above, award shall be made by a drawing by lot limited to those bidders. The bidders involved shall be invited to attend the drawing. A witness shall be present to verify the drawing and shall certify the results on the bid tabulation sheet.

21. Rejection of Bids

(A) Rejection of Individual Bids: The Agency may reject a bid if:

(1) The bidder fails to furnish any of the information required pursuant to Section 24 or 28 hereof; or if
(2) The bidder is determined to be not responsible pursuant to the Procurement Policy Board Rules; or if
(3) The bid is determined to be non-responsive pursuant to the Procurement Policy Board Rules; or if
(4) The bid, in the opinion of the Agency Chief Contracting Officer, contains unbalanced bid prices and is thus non-responsive, unless the bidder can show that the prices are not unbalanced for the probable required quantity of items, or if the imbalance is corrected pursuant to Section 15.

(B) Rejection of All Bids: The Agency, upon written approval by the Agency Chief Contracting Officer, may reject all bids and may elect to resolicit bids if in its sole opinion it shall deem it in the best interest of the City so to do.

(C) Rejection of All Bids and Negotiation With All Responsible Bidders: The Agency Head may determine that it is appropriate to cancel the Invitation For Bids after bid opening and before award and to complete the acquisition by negotiation. This determination shall be based on one of the following reasons:

(1) All otherwise acceptable bids received are at unreasonable prices, or only one bid is received and the Agency Chief Contracting Officer cannot determine the reasonableness of the bid price, or no responsive bid has been received from a responsible bidder; or

(2) In the judgment of the Agency Chief Contracting Officer, the bids were not independently arrived at in open competition, were collusive, or were submitted in bad faith.

(D) When the Agency has determined that the Invitation for Bids is to be canceled and that use of negotiation is appropriate to complete the acquisition, the contracting officer may negotiate and award the Contract without issuing a new solicitation, subject to the following conditions:

(1) prior notice of the intention to negotiate and a reasonable opportunity to negotiate have been given by the contracting officer to each responsible bidder that submitted a bid in response to the Invitation for Bids;

(2) the negotiated price is the lowest negotiated price offered by a responsible bidder; and

(3) the negotiated price is lower than the lowest rejected bid price of a responsible bidder that submitted a bid in response to the Invitation for Bids.

22. Right to Appeal Determinations of Non-Responsiveness or Non-Responsibility and Right to Protest Solicitations and Award

The bidder has the right to appeal a determination of non-responsiveness or non-responsibility and has the right to protest a solicitation and award. For further information concerning these rights, the bidder is directed to the Procurement Policy Board Rules.

23. Affirmative Action and Equal Employment Opportunity

This Invitation For Bids is subject to applicable provisions of Federal, State and Local Laws and executive orders requiring affirmative action and equal employment opportunity.

24. PASSPort COMPLIANCE

All vendors that intend to do business with the City of New York must complete a disclosure process in order to be considered for a contract. This disclosure process was formerly completed using Vendor Information Exchange System (VENDEX) paper-based forms. The City of New York has moved collection of vendor disclosure information online. In early August 2017, the New York City Mayor's Office of Contract Services (MOCS) launched the Procurement and Sourcing Solutions Portal (PASSPort), a new online procurement system that replaced the paper-VENDEX process. In anticipation of awards, all bidders must create online accounts in the new PASSPort system, and file all disclosure information using PASSPort. Paper submissions, including certifications of no changes to existing VENDEX packages, will not be accepted in lieu of complete online filings using PASSPort.

All vendors that intend to do business with the City, but specifically those that fall into any of the following categories, are required to enroll:

- Have a pending award with a City Agency; or
- Hold a current contract with a City Agency and have either an expiring VENDEX or expiring Certificate of No Change.

The Department of Design and Construction (DDC) and MOCS hereby notifies all proposers that the PASSPort system is available, and that disclosure filing completion is required prior to any award through this competitive bid.

To enroll in PASSPort and to access the PASSPort website (including online training), please visit www.nyc.gov/passport. Contact MOCS at passport@mocs.nyc.gov for additional information and technical support.

25. Complaints About the Bid Process

The New York City Comptroller is charged with the audit of contracts in New York City. Any vendor who believes that there has been unfairness, favoritism or impropriety in the bid process should inform the Comptroller, Office of Contract Administration, One Centre Street, Room 835, New York, New York; telephone number (212) 669-2323.

26. Bid, Performance and Payment Security

(A) Bid Security: Each bid must be accompanied by bid security in an amount and type specified in Attachment 1 (BID BOOKLET, VOLUME 1 OF 3). The bid security shall assure the City of New York of the adherence of the bidder to its proposal, the execution of the Contract, and the furnishing of Performance and Payment Bonds by the bidder, if required in Attachment 1. Bid security shall be returned to the bidder as follows:

(1) Within ten (10) days after the bid opening, the Comptroller will be notified to return the deposits of all but the three (3) lowest bidders. Within five (5) days after the award, the Comptroller will be notified to return the deposits of the remaining two unsuccessful bidders.
(2) Within five (5) days after the execution of the Contract and acceptance of the Contractor's bonds, the Comptroller will be notified to return the bid security of the successful bidder or, if performance and payment bonds are not required, only after the sum retained under Article 21 of the Contract equals the amount of the bid security.
(3) Where all bids are rejected, the Comptroller will be notified to return the deposit of the three (3) lowest bidders at the time of rejection.

(B) Performance and Payment Security: Performance and Payment Security must be provided in an amount and type specified in Attachment 1 (BID BOOKLET, VOLUME 1 OF 3). The performance and payment security shall be delivered by the contractor prior to or at the time of execution of the Contract. If a contractor fails to deliver the required performance and payment security, its bid security shall be enforced, and an award of Contract may be made to the next lowest responsible and responsive bidder, or the contract may be rebid.

(C) Acceptable Types of Security: Acceptable types of security for bids, performance, and payment shall be limited to the following:

(1) a one-time bond in a form satisfactory to the City;
(2) a bank certified check or money order;
(3) obligations of the City of New York; or
(4) other financial instruments as determined by the Office of Construction in consultation with the Comptroller.

Whenever the successful bidder deposits obligations of the City of New York as performance and payment security, the Comptroller may sell and use the proceeds thereof for any purpose for which the principal or surety on such bond would be liable under the terms of the Contract. If the money is deposited with the Comptroller, the successful bidder shall not be entitled to receive interest on such money from the City.

(D) Form of Bonds: Security provided in the form of bonds must be prepared on the form of bonds authorized by the City of New York. Forms for bid, performance, and payment bonds are included in the Invitation for Bids Documents. Such bonds must have as surety thereunder such surety company or companies as are: (I) approved by the City of New York; (2) authorized to do business in the State of New York, and (3) approved by the Department of the Treasury of the United States. Premiums for any required bonds must be included in the base bid.

The bidder is advised that submission of a bid bond where the surety on such bond fails to meet the criteria set forth herein, shall result in the rejection of the bid as non-responsive.

The Department of the Treasury of the United States advises that information concerning approved surety companies may be obtained as follows: (1) from the Government Printing Office at 215-364-6465; (2) through the Internet at https://www.fiscal.treasury.gov/surety-bonds/.

(E) Power of Attorney: Attorneys in fact who sign bid, performance, or payment bonds must file with each bond a certified copy of their power of attorney to sign said bonds.

27. Failure to Execute Contract

In the event of failure of the successful bidder to execute the Contract and furnish the required security within ten (10) days after notice of the award of the Contract, the deposit of the successful bidder or so much thereof as shall be applicable to the amount of the award made shall be retained by the City, and the successful bidder shall be liable for and hereby agrees to pay on demand the difference between the price bid and the price for which such Contract shall be subsequently awarded, including the cost of any required reletting and less the amount of such deposit. No plea of mistake in such accepted bid shall be available to the bidder for the recovery of the deposit or as a defense to any action based upon such accepted bid. Further, should the bidder's failure to comply with this Section cause any funding agency, body or group (Federal, State, City, Public, Private, etc.) to terminate, cancel or reduce the funding on this project, the bidder in such event shall be liable also to the City for the amount of actual funding withdrawn by such agency on this project, less the amount of the forfeited deposit.

28. Bidder Responsibilities and Qualifications

(A) Bidders must include with their bids all information necessary for a determination of bidder responsibility, as set forth in the Specifications.

(B) The Agency may require any bidder or prospective bidder to furnish all books of account, records, vouchers, statements or other information concerning the bidder's financial status for examination as may be required by the Agency to ascertain the bidder's responsibility and capability to perform the Contract. If required, a bidder must also submit a sworn statement setting forth such information as the Agency may require concerning present and proposed plant and equipment, the personnel and qualifications of his working organizations, prior experience and performance record.

(C) Oral Examination on Qualifications: In addition thereto, and when directed by the Agency, the bidder, or a responsible officer, agent or employee of the bidder, must submit to an oral examination to be conducted by the Agency in relation to his proposed tentative plan and schedule of

operations, and such other matters as the Agency may deem necessary in order to determine the bidder's ability and responsibility to perform the work in accordance with the Contract. Each person so examined must sign and verify a stenographic transcript of such examination noting thereon such corrections as such person may desire to make.

(D) If the bidder fails or refuses to supply any of the documents or information set forth in paragraph (B) hereof or fails to comply with any of the requirements thereof, the Agency may reject the bid.

29. Employment Report

In accordance with Executive Order No. 50 (1980) as modified by Executive Order 108 (1986), the filing of a completed Employment Report (ER) is a requirement of doing business with the City of New York for construction contractors with contracts of $1,000,000 or more and subcontractors with construction subcontracts of $750,000 or more. The required forms and information are included in the Bid Booklet.

30. Labor Law Requirements

(A) General: The successful bidder will be required to comply strictly with all Federal, State and local labor laws and regulations.

(B) New York State Labor Law: This Contract is subject to New York State Labor Law Section 220, which requires that construction workers on the site be paid prevailing wages and supplements. The Contractor is reminded that all wage provisions of this Contract will be enforced strictly and failure to comply will be considered when evaluating performance. Noncompliance may result in the contractor being debarred by the City from future contracts. Complaints filed with the Comptroller may result in decisions which may debar a contractor from bidding contracts with any state governmental entity and other political subdivisions.

(C) Records: The Contractor is expected to submit accurate payroll reports and other required documents and verify attendance and job classifications being utilized in compliance with the law, Contract provisions and agency procedures.

31. Insurance

(A) Bidders are advised that the insurance requirements contained herein are regarded as material terms of the Contract. As required by Article 22 of the Contract, the contractor must effect and maintain with companies licensed and authorized to do business in the State of New York, the types of insurance set forth therein, when required by and in the amounts set forth in Schedule A of the General Conditions. Such required insurance must be provided from the date the contractor is ordered to commence work and up to the date of final acceptance of all required work.

(B) The contractor must, within ten days of receipt of the notice of award, submit the following insurance documentation: (a) original certificate of insurance for general liability in the amount required by Schedule A of the General Conditions, and (b) original certificates of insurance or other proof of coverage for workers' compensation and disability benefits, as required by Section 57 of the New York State Workers' Compensation Law and Section 220 of the Disability Benefits Law.

32. Lump Sum Contracts

(A) Comparison of Bids: Bids on Lump Sum Contracts will be compared on the basis of the lump sum price bid, adjusted for alternate prices bid, if any.

(B) Lump Sum Bids for "General Construction Work" which include excavation shall include all necessary excavation work defined in the Specifications as being included in the lump sum bid. The bidder shall also bid a unit price for the additional cost of excavating material which is defined in the Specifications as excavation for which additional payment will be made. The total estimated additional cost of removing such material will be taken as the quantity set forth in the Engineer's Estimate multiplied by the unit price bid. This total estimated cost of additional excavation shall be added to the lump sum bid for the General Construction Work for the purpose of comparing bids to determine the low bidder.

(C) Variations from Engineer's Estimate: The Engineer's Estimate of the quantity of excavation for which additional payment will be made is approximate only and is given solely to be used as a uniform basis for the comparison of bids and such estimate is not to be considered as part of this contract. The quantities actually required to complete the contract work may be more or less than the quantities in the Engineer's Estimate and, if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

33. Unit Price Contracts

(A) Comparison of Bids: Bids on Unit Price Contracts will be compared on the basis of a total estimated price, arrived at by taking the sum of the estimated quantities of such items, in accordance with the Engineer's Estimate of Quantities set forth in the Bid Schedule, multiplied by the corresponding unit prices, and including any lump sum bids on individual items.

(B) Variations from Engineer's Estimate: Bidders are warned that the Engineer's Estimate of Quantities on the various items of work and materials is approximate only, given solely to be used as a uniform basis for the comparison of bids, and is not be considered part of this contract. The quantities actually required to complete the contract work may be less or more than so estimated, and if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

(C) Overruns: The terms and conditions applicable to overruns of unit price items are set forth in Article 26 of the Contract.

34. Excise Tax

Bidders are referred to the Specifications for information on Federal Excise Tax exemptions.

35. Licenses and Permits

The successful bidder will be required to obtain all necessary licenses and permits necessary to perform the work.

36. Multiple Prime Contractors

If more than one prime contractor will be involved on this project, all contractors are required to examine the Invitation for Bid packages for all other parts of the project.

37. Locally Based Enterprise Requirements (LBE)

This Contract is subject to the requirements of Administrative Code, Section 6-108.1, and the regulations promulgated thereunder. No construction contract will be awarded unless and until these requirements have been complied with in their entirety. The bidder is advised of the provisions set forth below, as well as the provisions with respect to the Locally Based Enterprise Program contained in Article 67 of the Contract. The contractor is advised that:

(A) If any portion of the Contract is subcontracted, not less than ten percent of the total dollar amount of the contract shall be awarded to locally based enterprises ("LBEs"); except, where less than ten percent of the total dollar amount of the Contract is subcontracted, such lesser percentage shall be so awarded.

(B) No contractor shall require performance and payment bonds from LBE subcontractors.

(C) No Contract shall be awarded unless the contractor first identifies in its bid:

(1) the percentage, dollar amount and type of work to be subcontracted; and
(2) the percentage, dollar amount and type of work to be subcontracted to LBEs.

(D) Within ten calendar days after notification of low bid, the apparent low bidder shall submit an "LBE Participation Schedule" to the contracting agency. If such schedule does not identify sufficient LBE subcontractors to meet the requirements of Administrative Code Section 6-108.1, the apparent low bidder shall submit documentation of its good faith efforts to meet such requirements.

(1) The "LBE Participation Schedule" shall include:

(a) the name and address of each LBE that will be given a subcontract,
(b) the percentage, dollar amount and type of work to be subcontracted to the LBE, and
(c) the dates when the LBE subcontract work will commence and end.

(2) The following documents shall be attached to the "LBE Participation Schedule":

(a) verification letters from each subcontractor listed in the "LBE Participation Schedule" stating that the LBE will enter into a formal agreement for work,
(b) certification documents of any proposed LBE subcontractor which is not on the LBE certified list, and
(c) copies of the certification letter of any proposed subcontractor which is an LBE.

(3) Documentation of good faith efforts to achieve the required LBE percentage shall include as appropriate but not limited to the following:

(a) attendance at prebid meetings, when scheduled by the agency, to advise bidders of contract requirements;

(b) advertisement where appropriate in general circulation media, trade association publications and small business media of the specific subcontracts that would be at least equal to the percentage goal for LBE utilization specified by the contractor;

(c) written notification to association of small, minority and women contractors soliciting specific subcontractors;

(d) written notification by certified mail to LBE firms that their interest in the contract is solicited for specific work items and their estimated values;

(e) demonstration of efforts made to select portions of the work for performance by LBE firms in order to increase the likelihood of achieving the stated goal;

(f) documented efforts to negotiate with LBE firms for specific subcontracts, including at a minimum:
(i) The names, address and telephone numbers of LBE firms that are contacted;
(ii) A description of the information provided to LBE firms regarding the plans and specifications for portions of the work to be performed;
(iii) Documentation showing that no reasonable price can be obtained from LBE firms;
(iv) A statement of why agreements with LBE firms were not reached;

(g) a statement of the reason for rejecting any LBE firm which the contractor deemed to be unqualified; and

(h) documentation of efforts made to assist the LBE firms contacted that needed assistance in obtaining required insurance.

(E) Unless otherwise waived by the Commissioner with the approval of the Office of Economic and Financial Opportunity, failure of a proposed contractor to provide the information required by paragraphs (C) and (D) above may render the bid non-responsive and the Contract may not be awarded to the bidder. If the contractor states that it will subcontract a specific portion of the work, but can demonstrate despite good faith efforts it cannot achieve its required LBE percentage for subcontracted work until after award of Contract, the Contract may be awarded, subject to a letter of compliance from the contractor stating that it will comply with Administrative Code Section 6-108.1 and subject to approval by the Commissioner. If the contractor has not met its required LBE percentage prior to award, the contractor shall demonstrate that a good faith effort has been made subsequent to award to obtain LBEs on each subcontract until its meets the required percentage.

(F) When a bidder indicates prior to award that no work will be subcontracted, no work may be subcontracted without the prior written approval of the Commissioner, which shall be granted only if the contractor in good faith seeks LBE subcontractors at least six weeks prior to the start of work.

(G) The contractor may not substitute or change any LBE which was identified prior to award of the contract without the written permission of the Commissioner. The contractor shall make a written application to the Commissioner for permission to make such substitution or change, explaining why the contractor needs to change its LBE subcontractor and how the contractor will meet its LBE subcontracting requirement. Copies of such application must be served on the originally identified LBE by certified mail return receipt requested, as well as the proposed substitute LBE. The Commissioner shall determine whether or not to grant the contractor's request for substitution.

38. Bid Submission Requirements

The Bid Submission Requirements are set forth in the BID BOOKLET VOLUME 1 OF 3.

39. Comptroller's Certificate

This Contract shall not be binding or of any force unless it is registered by the Comptroller in accordance with Section 328 of the City Charter and the Procurement Policy Board Rules. This Contract shall continue in force only after annual appropriation of funds by the City of New York and certification as hereinabove set forth.

40. Procurement Policy Board Rules

This Invitation For Bids is subject to the Rules of the Procurement Policy Board of the City of New York. In the event of a conflict between said Rules and a provision of this Invitation For Bids, the Rules shall take precedence.

41. Viewing of Submitted Bid Documents

In accordance with Procurement Policy Board Rules of the City of New York, Section 3-02, the submitted bid documents will be available to view immediately after completion of the bid opening and by appointment for up to 72 hours after the bid opening.

42. DDC Safety Requirements

The DDC Safety Requirements apply to the work to be performed pursuant to the Contract. The DDC Safety Requirements are set forth on the following pages.

CITY OF NEW YORK

DEPARTMENT OF DESIGN AND CONSTRUCTION

SAFETY REQUIREMENTS

FEBRUARY 2019

THE DDC SAFETY REQUIREMENTS INCLUDE THE FOLLOWING SECTIONS:

I. POLICY ON SITE SAFETY

II. PURPOSE

III. DEFINITIONS

IV. RESPONSIBILITIES

V. SAFETY QUESTIONNAIRE

VI. SAFETY PROGRAM AND SITE SAFETY PLAN

VII. KICK-OFF/PRE-CONSTRUCTION MEETINGS AND SAFETY REVIEW

VIII. EVALUATION DURING WORK IN PROGRESS

IX. SAFETY PERFORMANCE EVALUATION

I. POLICY ON SITE SAFETY

The City of New York Department of Design and Construction (DDC) is committed to a policy of injury and illness prevention and risk management for construction work that will ensure the safety and health of the workers engaged in the projects and the protection of the general public. Therefore, it is DDC's policy that work carried out by Contractors on DDC jobsites must, at a minimum, comply with applicable federal, state and city laws, rules and regulations, including without limitation:

- U. S. Department of Labor 29 Code of Federal Regulations (CFR) Part 1926 and applicable Sub-parts of Part 1910 – U.S. Occupational Safety and Health Administration (OSHA); New York State Department of Labor Industrial Code Rule 23 – Protection in Construction, Demolition and Excavation;
- New York City Construction Codes, Title 28
- NYC Department of Transportation Title 34 Chapter 2 – Highway Rules
- New York State Department of Labor Industrial Code Rule 16 NYCRR Part 753
- Title 15 of the Rules of the City of New York, Chapter 13 Citywide Construction Dust Mitigation
- Manual on Uniform Traffic Control Devices (MUTCD)
- Title 15 of the Rules of the City of New York, Chapter 28 Citywide Construction Noise Mitigation

II. PURPOSE

The purpose of this policy is to ensure that Contractors perform their work and supervise their employees in accordance with all applicable federal, state and city rules and regulations. Further, Contractors will be expected to minimize or eliminate jobsite and public hazards, through a planning, inspection, auditing and corrective action process. The goal is to control risks so that injuries, illnesses and accidents to contractors' employees, DDC employees and the general public, as well as damage to city-owned and private property, are reduced to the lowest level feasible.

III. DEFINITIONS

Agency Chief Contracting Officer (ACCO): The ACCO shall mean the person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO.

Competent Person: As defined by OSHA, an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees or the general public, and who has authorization to take prompt corrective measures to eliminate them.

Construction Safety Auditor: A representative of the QA&CS Construction Safety Unit who provides inspection and assessment services to enhance health and safety on all DDC construction projects. The activities of the Construction Safety Auditor include performing site surveys, reviewing health and safety plans, reviewing construction permits, and rendering technical advice and assistance to DDC Resident Engineers and Project Managers.

Construction Safety Unit: A part of QA&CS within the Division of Program Management/ Safety & Site Support that assesses contractor safety on DDC jobsites and advises responsible parties of needed corrective actions.

Construction Superintendent: A representative of the contractor responsible for overseeing performance of the required construction work. This individual must engage in sound construction practices, and is responsible to maintain a safe work site. In the case of a project involving the demolition, alteration or new construction of buildings, the Construction Superintendent must be licensed by the NYC Department of Buildings.

Contractor: For purposes of these Safety Requirements, the term "Contractor" shall mean any person or entity that enters into a contract for the performance of construction work on a DDC project. The term "Contractor" shall include any person or entity which enters into any of the following types of contracts: (1) a prime construction contract for a specific project, (2) a prime construction contract using the Job Order Contracting System ("JOCS Contract"), and (3) a subcontract with a CM/Builder ("First Tier Subcontract").

Daily Safety Job Briefing: Daily jobsite safety meetings, giving to all jobsite personnel by contractor, with the purpose of discussing project specific safety procedures for the scheduled construction work.

Director - Quality Assurance and Construction Safety (QA&CS): Responsible for the operations of the QACS Construction Safety Unit and the DDC Site Safety management programs.

Job Hazard Analysis (JHA): A process of identifying the major job steps and any potential site-specific hazards that may be present during construction and establishing the means and methods to eliminate or control those hazards.

Qualified Person: As defined by OSHA, an individual who, by possession of a recognized degree, certificate, license or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve problems relating to the subject matter, the work, or the project. Qualified Persons are required under regulation to address issues pertaining, but without limit, to fall protection, scaffold design and trenching and shoring, among others.

Project Site: Those areas indicated in the Contract Documents where the Work is to be performed.

Project Safety Representative: The designated project safety representative shall have completed an authorized 30 hour OSHA Construction Safety Course and other safety training applicable to Contractor's/subcontractor's project work. Except in instances where a dedicated Project Safety Manager is required, a Project Safety Representative may also function as a superintendent, foreman or crew leader on the Project, but must have sufficient experience and authority to undertake corrective actions and must qualify to be a competent person. No work is to be performed on site when a Project Safety Representative is not present.

Project Safety Manager: A dedicated, full-time project safety manager may be a contractual requirement on large projects or projects deemed by DDC to be particularly high risk. This would be in addition or in lieu of a Contractor's Project Safety Representative. This individual shall not have any other assigned duties. This individual shall have received, at a minimum an authorized 30 hour OSHA Construction Safety Course. Other examples of acceptable training are OSHA Safety and Health Standards for the Construction Industry training program (OSHA 510), Certified Safety Professional (CSP), Certified Industrial Hygienist (CIH) or a degree/certificate in a safety and health from a college-level curriculum.
A Project Safety Manager shall possess the additional training, years of experience, and skills necessary to thoroughly understand the health and safety hazards and controls for large construction projects, including the full scope of the specific Work.

QA&CS – Quality Assurance and Construction Safety of the New York City Department of Design and Construction.

Resident Engineer (RE) / Construction Project Manager (CPM): Representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the work. (The RE/CPM may be a third-party consultant, including a Construction Management firm, retained by DDC)

Safety Program: Established by the Contractor that covers all operations of that Contractor and establishes the Contractor's overall safety policy, regulatory compliance plan and minimum safety standards. The Safety Program must be submitted prior to the commencement of work at the site and is subject to review and acceptance by the Construction Safety Unit.

Safety Questionnaire: Used by DDC to evaluate Contractor's current and past safety performance. It is required to be completed by all Contractors initially when submitting bids for Construction work, or when being pre-qualified and updated annually or as requested by the DDC.

Site Safety Manager: For certain projects, as defined in NYC Construction Codes – Title 28, the Contractor shall provide a Site Safety Manager with a Site Safety Manager License issued by the NYC Department of Building.

Site Safety Plan: A site-specific safety plan developed by the Contractor for a specific project. The Site Safety Plan must identify hazards associated with the project, and include specific safety procedures and training appropriate and necessary to complete the work. The Site Safety Plan must be submitted prior to the commencement of work at the site and is subject to review and acceptance by the Construction Safety Unit.

Unsafe or Unhealthy Condition: A condition that could be potentially hazardous to the health and safety of personnel or the public, and/or damaging to equipment, machinery, property or the environment.

Weekly Safety Meetings: Weekly documented jobsite safety meetings, given to all jobsite personnel by contractor, with the purpose of discussing general safety topics and job specific requirements encountered at the DDC work site.

Work: The construction required by the Contract Documents whether completed or partially completed, performed by the Contractor/ subcontractors. Work refers to the furnishing of labor, furnishing and incorporating materials and equipment into the construction and providing any service required by the Contract Documents to fulfill the Contractor's obligation to complete the Project.

IV. RESPONSIBILITIES

All persons who manage, perform, and provide support for construction projects shall conduct operations in compliance with the requirements identified in this Policy and all applicable governing regulatory agency requirements and guidelines pertaining to safety in construction.

A. DDC or CM Resident Engineer / Construction Project Manager

- Monitors the issuance of safety- related permits, approvals and drawings and maintains copies on site.
- Monitors construction-related work activities to confirm that they are conducted in accordance with DDC policies and all applicable regulations that pertain to construction safety.
- Maintains documentation and periodically attends weekly safety meetings and daily safety job briefings.
- Notifies the Construction Safety Unit and the ACCO's Insurance and Risk Management Unit of project- related accidents and emergencies, as per DDC's Construction Safety Emergency and Accident Notification and Response Protocol.
- Gathers facts related to all accidents and prepares DDC Construction Accident Report.

- Notifies the Construction Safety Unit within two (2) hours of the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB or others and forwards a copy of the inspection report within three days of its receipt.
- Monitors the conditions at the site for conformance with the contractor's Site Safety Plan and DDC construction documents.
- Notifies the contractor and DDC in the event that any condition or activity exists that is not in compliance with the contractor's Site Safety Plan, applicable federal, state or local codes or any condition that presents a potential risk of injury to the public or workers or possible damage to property.
- Notifies DDC of any unsafe or unhealthy condition and directs the contractor to provide such labor, materials, equipment and supervision to abate such conditions.
- Escort and assist QA&CS Construction Safety Auditors during the field and record inspections.
- Reports emergency conditions to the Construction Safety Unit immediately.

B. Contractors

- Submit a completed Safety Questionnaire and other safety performance related documentation with its bid or as part of a pre-qualification package.
- Complete a written Job Hazard Analysis (JHA) that identifies safety hazards for project specific work tasks and hazard control methods. A written JHA shall be available at the site for reference and included in the Site Safety Plan submitted by the contractor.
- Submit a Site Safety Plan and Safety Program within 30 days from the Award Date or as otherwise directed. The Site Safety Plan and Safety Program are subject to review and acceptance by the Construction Safety Unit prior to the commencement of work at the site. The Site Safety Plan shall be revised and updated as necessary.
- Develop project specific safety procedures to protect general public during all construction activities for the duration of the project.
- Ensure that all employees are aware of the hazards associated with the project through documented formal and informal training and/or other communications. Conduct and document weekly safety meetings and daily job briefing sessions for the duration of the project. Documentation to be provided to the RE/CPM on a monthly basis.
- Name the Project Safety Representative and Project Safety Manager, if required. The Contractor will be required to identify the Project Safety Representative and Project Safety Manager in the Site Safety Plan. Resumes, outlining the qualification and experience for the Project Safety Representative and Project Safety Manager, shall be available upon request. DDC reserves the right to request that the Contractor replace any Project Safety Representative or Project Safety Manager for any reason at any time during the project.
- Name a Competent Person(s), The Contractor will be required to identify a Competent Person(s) in the Site Safety Plan.
- Comply with all mandated federal, state and local safety and health rules and regulations.
- Comply with all provisions of the Site Safety Plan.
- Conduct applicable safety training prior to the commencement of work at the site. All training records (OSHA 10-hour, flagger, scaffold, fall protection, confined space entry, etc.) shall be provided to the RE/CPM prior to mobilization, included in the Site Safety Plan, kept current during the course of the project, and available for review. Prior to performing any work on DDC project all employees shall have successfully completed, within the previous five calendar years, a 10 Hour OSHA construction safety course.
- As part of the Site Safety Plan, prepare a site specific programs and plans, such as MPT plan, steel erection plan, confined space program, fall protection plan, demolition plan, etc. (if not otherwise provided in the contract documents) and comply with all of its provisions.
- Conduct and document site-specific safety orientation for Contractor personnel to review the hazards associated with the project as identified in the Site Safety Plan and the specific safety procedures and

controls that will be used to protect workers, the general public and property. The Project Safety Representative and/or Project Safety Manager will conduct this training prior to mobilization and provide documentation to the RE/CPM.

- Provide, replace and adequately maintain at or around the project site, suitable and sufficient signage, lights, barricades and enclosures (fences, sidewalk sheds, netting, bracing, etc.).
- Report unsafe or unhealthy conditions to the RE/CPM as soon as practical, but no more than 24 hours after discovery, and take prompt actions to remove or abate such conditions.
- Report any accidents involving injuries to workers or the general public, as well as property damage, to the RE/CPM within one (1) hour.
- Following an accident, the Contractor shall not remove or alter any equipment, structure, material, or evidence related to the accident. Exception: Immediate emergency procedures taken to secure structures, temporary construction, operations, or equipment that pose a continued imminent danger or facilitate assistance for persons who are trapped or who have sustained bodily injury.
- Notify the RE/CPM within one (1) hour of the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB or others.
- Maintain all records pertaining to all required compliance documents and accident and injury reports.
- Address DDC recommendations on safety, which shall in no way relieve the Contractor of its responsibilities for safety on the project. The Contractor has sole responsibility for safety.

V. SAFETY QUESTIONNAIRE

DDC requires that all Contractors provide information regarding their current and past safety performance and programs. This will be accomplished by the use of the DDC Safety Questionnaire. As a part of the bid submittal package, the contractor must submit a completed DDC Safety Questionnaire listing company workers' compensation experience modification rating and OSHA Incident Rates for the three (3) years prior to the date of the bid opening. DDC may request a Contractor to update its Questionnaire at any time or to provide more detailed information. The Contractor must provide the requested information within 15 days.

The following criteria will be used by DDC in reviewing the Contractor's responsibility, which will be based on the information provided on the questionnaire:

Criteria 1: OSHA Injury and Illness Rates (I&IR) are no greater than the average for the industry (based on the most current Bureau of Labor Statistics data for the Contractors SIC code); and

Criteria 2: Insurance workers compensation Experience Modification Rate (EMR) equal to or less than 1.0; and

Criteria 3: Any willful violations issued by OSHA or NYC DOB within the last three (3) years; and

Criteria 4: A fatality (worker or member of public) and injuries, requiring OSHA notification, experienced on or near Contractor's worksite within the last three (3) years; and

Criteria 5: Past safety performance on DDC projects (accidents; status of safety program and site safety plan submittals; etc.)

Criteria 6: OSHA violation history for the last three (3) years;

Criteria 7: Contractor shall provide OSHA Injury and Illness Records (currently OSHA 300 and 300A Logs) for the last three (3) years.

If the Contractor fails to meet the basic criteria listed above, the Construction Safety Unit may request, through the ACCO, more details concerning the Contractor's safety experience. DDC may request the Contractor to provide copies of, among other things, accident investigation reports, OSHA records, OSHA and NYC DOB citations, EPA citations and written corrective action plan.

VI. SAFETY PROGRAM AND SITE SAFETY PLAN

Within thirty (30) days from the Award Date, or as otherwise directed, the Contractor shall submit the following: (1) Safety Program, and (2) Site Safety Plan. The Safety Program shall set forth the Contractor's overall safety policy, regulatory compliance plan and minimum safety standards. The Site Safety Plan shall identify project work scope, safety hazards associated with the project tasks, and include specific safety procedures and training appropriate and necessary to complete the work. The Safety Program and the Site Safety Plan are subject to review and acceptance by the Construction Safety Unit prior to the commencement of work at the site. Failure by the Contractor to submit an acceptable Site Safety Plan and Safety Program shall be grounds for default.

Safety Program: Corporate Safety Program established by the Contractor that includes the Contractor's overall safety policy, regulatory compliance plan and basic safety procedures covering all aspects of construction operations, performed by the Contractor. The Safety Program shall be a written document with a separate section describing each element of the Safety Program. The Safety Program shall have at minimum the following elements applicable to the Contractor's operations:

- Responsibility and Organization – Contractor's company organization chart, including titles, names, contact information, roles and responsibilities for key personnel, etc.
- Safety Training Program – Contractor's corporate training program.
- Hazard Corrective Actions – Criteria for safety inspections, identification of safety non-compliances, implementation and verification of corrective actions, forms to document safety inspections results, etc.
- Accident/Exposure Investigation
- Recordkeeping and Reporting Injuries – Responsible staff; reporting and recording criteria; OSHA 300 and 300A form completion, etc.
- Fire Protection and Prevention Program
- Housekeeping
- Illumination
- Sanitation
- Personal Protective Equipment (PPE) – Company policy for the use of head protection, foot protection, hearing protection, eye and face protection, protective clothing, and any additional protective equipment based on work tasks; PPE inspection and replacement policy.
- Hazard Communication Program
- Employee Emergency Action Plan
- Protection of Underground Facilities and Utilities
- Ionizing/Nonionizing Radiation
- Material Handling, Storage, Use and Disposal
- Tools – Hand and Power
- Signs, Signals, and Barricades
- Scaffold – Local Law 52 requirements, installation, use, inspection, dismantling, training and general safety requirements.
- Welding and Cutting
- Electrical Safety
- Fall Protection
- Cranes, Derrick, Hoists, Elevators, Conveyors
- Excavation Safety
- Concrete and Masonry Construction
- Maintenance and Protection of Traffic
- Steel Erection
- Demolition
- Blasting and the Use of Explosives
- Stairways and Ladders

- Toxic and Hazardous Substances
- Alcohol and Drug Abuse Policy
- Rodents and Vermin
- Occupational Noise Exposure
- Confined Space Program – General confined Space Program: training requirements, confined space hazard evaluation procedure, atmospheric testing procedure, confined space classification, permit-required procedure, communication procedure, rescue procedure, forms, etc.
- Construction Vehicles/Heavy Equipment
- Dust Control Procedures

Site Safety Plan: The Site Safety Plan shall be a written document and shall apply to all project specific Contractor and subcontractor operations, and shall have at a minimum, the following elements with each element described in a separate section (It may be necessary to modify the basic format for certain unique or high-risk projects, such as tunnels or high-rise construction):

- Project Work Scope – Detailed information regarding work tasks that will be performed by contractor and subcontractors under the project.
- Responsibility and Organization – Contractor's organization chart with responsible staff for the project, including titles, names, contact information, roles and responsibilities.
- Safety Training and Education – OSHA 10 Hours training, requirements for daily safety briefings and weekly safety meetings, any work task specific training, responsible staff for implementation of training program for the project.
- Job Hazard Analysis (JHA) – Project specific Job Hazard Analysis including work tasks, identified hazards, hazard control methods (administrative, engineering, PPE), contractor's name, project id, location, name and signature of a certifying person, hazard assessment date.
- Protection of Public
- Hazard Corrective Actions – Responsible staff, forms, frequency of safety inspections and implementation of corrective actions.
- Accident/Exposure Investigation – Accident/incident notification procedure of DDC project staff. Project specific procedures for accident investigation and implementation of corrective actions.
- First Aid and Medical Attention – Responsible staff, location and inspection of First Aid kit, directions to local hospitals; emergency telephone numbers.
- Project Specific Fire Protection and Prevention Program.
- Project Specific Illumination Procedure.
- Project Specific Sanitation Procedure.
- Personal Protective Equipment (PPE)
- Hazard Communication Program – Responsible staff; training; SDS records, project specific list of chemical; location of the program and SDS records.
- Means of Egress – Information regarding free and unobstructed egress from all parts of the building or structure; exit marking; maintenance of means of egress, etc.
- Employee Emergency Action Plan – Project specific: responsible staff, emergency alarm system, evacuation procedure, procedure to account for employees after evacuation, etc.
- Evacuation Plan – Project specific evacuation plan (drawing/scheme) with exists and evacuation routes.
- Protection of Underground Facilities and Utilities, including responsible staff.
- Ionizing/Nonionizing Radiation – Competent person, license and qualification requirements, type of radiation, employees exposure and protection, etc.
- Material Handling, Storage, Use and Disposal – Project specific information regarding material storage and disposal.
- Signs, Signals, and Barricades – Use of danger/warning signs, sidewalk closure, safety instruction signs, pedestrian fencing and barricades, etc.
- Scaffold – Project specific scaffold types, training, scaffold drawings, competent person, criteria for project specific scaffold, falling object protection.

- Welding and Cutting – project specific procedure for welding and cutting, including all necessary safety requirements such as fire prevention, personal protective equipment, hot work permits, FDNY certificate requirements.
- Fall Protection – Project specific information regarding selected fall protection systems, fall protection plan.
- Cranes, Derrick, Hoists, Elevators, Conveyors – project specific equipment information including type, rated load capacity, manufacture specification requirements, competent person, exposure to falling load, inspection, recordkeeping, clearance requirements, communication procedure, ground lines, permits.
- Excavation Safety – Competent person, project specific protective system.
- Maintenance and Protection of Traffic Plan – Project specific MPT plan, flagmen training.
- Steel Erection – Site specific erection plan, requirements for applicable written notifications, competent person.
- Demolition – Engineering survey, including written evidence, disconnection of all effected utilities, identification of all hazardous chemicals, materials, gases, etc., floor openings, chutes, inspection and maintenance of all stairs/passageways, removal of materials/debris/structural elements, lock out/tag out, competent person.
- Blasting and the Use of Explosives – Project specific safety procedures, warning signs, training/qualification, transportation, storage and use of explosives, inspection.
- Toxic and Hazardous Substances – Safety procedures for substances to be used on project.
- Noise Mitigation Plan – Completed project specific Noise Mitigation Plan.
- Confined Space Program – Project specific Confined Space Program, responsible staff, training records, equipment information, rescue procedure, list of project specific confined spaces, forms.
- Construction Vehicles/Heavy Equipment – Type of construction vehicles/heavy equipment to be used on site.
- Dust Mitigation Plan – Completed project specific Dust Mitigation Plan.

The most critical component of the Site Safety Plan is the Job Hazard Analysis (JHA) section. The JHA form is a written document prepared by the contractor. The contractor must conduct a site and task assessment JHA to identify the major job steps and any potential safety or environmental hazards related to performance of the work, eliminate or implement controls for the potential hazards, and identify proper personal protective equipment for the task. The JHA shall be communicated to all contractor/subcontractor personnel on site.
The initial Job Hazard Assessment form shall be included in the contractor's Site Safety Plan and the current form shall be available at the construction site for reference.

Certain DDC programs, such as Job Order Contracting System (JOCS), may not necessarily require Site Safety Plans. The JOCS contractor shall submit a Safety Program. The Site Safety Plan requirement for the JOCS contractor will be determined by QA&CS based on a project work scope, construction activities and project location. In addition, certain DDC Operating Units may establish client-specific program or safety requirements. The contractor's Site Safety Plan must address such client-specific program or safety requirements.

VII. KICK-OFF MEETINGS/PRE-CONSTRUCTION AND SAFETY REVIEW

RE/CPM shall invite QA&CS Construction Safety Unit to the construction kick-off meeting. A QA&CS representative will participate in this meeting with the Contractor and RE/CPM prior to the start of the project for the purpose of:

A. Reviewing the safety issues detailed in the contract.
B. Reviewing the Site Safety Plan.
C. Reviewing any new issues or information that was not previously addressed.
D. Discussing planned inspections and audits of the site by QA&CS personnel.

VIII. EVALUATION DURING WORK IN PROGRESS

The Contractor's adherence to these Safety Requirements will be monitored throughout the project. This will be accomplished by the following:

A. Use of a safety checklist by a representative of the Construction Safety Unit or other designated DDC representative or Consultant during regular, unannounced inspections of the job site. Field Exit Conferences will be held with the RE/CPM, Contractor Project Safety Representatives.

B. The RE/CPM will continually monitor the safety and environmental performance of the contractor's employees and work methods. Deficiencies shall be brought to the attention of the contractor's representative on site for immediate correction. The DDC representative will maintain a written record of these deficiencies and have these records available upon request. Any critical deficiencies shall be immediately reported to QA&CS phone# (718) 391-1624 or (718) 391-1911.

C. If the Contractor's safety performance during the project is not up to DDC standards (safety performance measure, accident/incident rate, etc.) the Director – QA&CS, or his/her designee will meet with the Contractor's Project Safety Representative and or Project Safety Manager, the DDC Project Manager, the RE/CPM, and the DDC Environmental Specialist (if environmental issues are involved). The purpose of this meeting is to 1) determine the level of non-compliance; 2) explain and clarify the safety/environmental provisions; 3) agree on a future course of action to correct the deficiencies.

D. If the deficiencies continue to occur with inadequate attention by the contractor, this shall, among other remedies available, be grounds for default.

E. The contractor shall within 1 hour inform the RE/CPM/CM of all accidents/incidents including all fatalities, any injuries to employees or members of the general public, and property damage (e.g., structural damage, equipment rollovers, utility damage, loads dropped from crane). The RE/CPM shall notify the Construction Safety Unit as per DDC's Construction Safety Emergency and Accident Notification and Response Protocol and shall maintain a record of all contractor accidents/incidents for the project.

F. The Construction Safety Unit shall be notified within two (2) hours of the start of any NYS-DOL/ NYC-COSH/ OSHA/ EPA inspections.

IX. SAFETY PERFORMANCE EVALUATION

The contractor's safety record, including accident/incident history and DDC safety inspection results, will be considered as part of the Contractor's performance evaluation at the conclusion of the project. Poor safety performance during the course of the project shall be a reason to rate a Contractor unsatisfactory which may be reflected in the City's Vendex system and will be considered for future procurement actions as set forth in the City's Procurement Policy Board Rules.

CITY OF NEW YORK

STANDARD CONSTRUCTION CONTRACT

March 2017

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CITY OF NEW YORK
STANDARD CONSTRUCTION CONTRACT

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WITNESSETH:

The parties, in consideration of the mutual agreements contained herein, agree as follows:

CHAPTER I: THE CONTRACT AND DEFINITIONS

ARTICLE 1. THE CONTRACT

1.1 Except for titles, subtitles, headings, running headlines, tables of contents and indices (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, shall be deemed to be part of this **Contract**:

1.1.1 All provisions required by law to be inserted in this **Contract**, whether actually inserted or not;

1.1.2 The Contract Drawings and Specifications;

1.1.3 The General Conditions and Special Conditions, if any;

1.1.4 The **Contract**;

1.1.5 The Information for Bidders; Request for Proposals; Notice of Solicitation and Proposal For Bids; Bid or Proposal, and, if used, the Bid Booklet;

1.1.6 All Addenda issued prior to the receipt of the bids; the Notice of Award; Performance and Payment Bonds, if required; and the Notice to Proceed or the Order to Work.

1.2 Should any conflict occur in or between the Drawings and Specifications, the **Contractor** shall be deemed to have estimated the most expensive way of doing the **Work**, unless the **Contractor** shall have asked for and obtained a decision in writing from the **Commissioner** of the **Agency** that is entering into this **Contract**, before the submission of its bid, as to what shall govern.

ARTICLE 2. DEFINITIONS

2.1 The following words and expressions, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless a different meaning is clear from the context:

2.1.1 **"Addendum"** or **"Addenda"** shall mean the additional Contract provisions and/or technical clarifications issued in writing by the Commissioner prior to the receipt of bids.

2.1.2 **"Agency"** shall mean a city, county, borough or other office, position, department, division, bureau, board or commission, or a corporation, institution or agency of government, the expenses of which are paid in whole or in part from the City treasury.

2.1.3 **"Agency Chief Contracting Officer" (ACCO)** shall mean a person delegated authority by the Commissioner to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the CCPO, or his/her duly authorized representative.

2.1.4 **"Allowance"** shall mean a sum of money which the Agency may include in the total amount of the Contract for such specific contingencies as the Agency believes may be necessary to complete the Work, *e.g.*, lead or asbestos remediation, and for which the Contractor will be paid on the basis of stipulated unit prices or a formula set forth in the Contract or negotiated between the parties provided, however, that if the Contractor is not directed to use the Allowance, the Contractor shall have no right to such money and it shall be deducted from the total amount of the Contract.

2.1.5 **"City"** shall mean the City of New York.

2.1.6 **"City Chief Procurement Officer" (CCPO)** shall mean a person delegated authority by the Mayor to coordinate and oversee the procurement activity of Mayoral agency staff, including the ACCO and any offices which have oversight responsibility for the procurement of construction, or his/her duly authorized representative.

2.1.7 **"Commissioner"** shall mean the head of the Agency that has entered into this Contract, or his/her duly authorized representative.

2.1.8 **"Comptroller"** shall mean the Comptroller of the City of New York.

2.1.9 **"Contract"** or **"Contract Documents"** shall mean each of the various parts of the contract referred to in Article 1 hereof, both as a whole and severally.

2.1.10 **"Contract Drawings"** shall mean only those drawings specifically entitled as such and listed in the Specifications or in any Addendum, or any drawings furnished by the Commissioner, pertaining or supplemental thereto.

2.1.11 **"Contract Work"** shall mean everything required to be furnished and done by the Contractor by any one or more of the parts of the Contract referred to in Article 1, except Extra Work as hereinafter defined.

2.1.12 **"Contractor"** shall mean the entity which executed this Contract, whether a corporation, firm, partnership, joint venture, individual, or any combination thereof, and its, their, his/her successors, personal representatives, executors, administrators, and assigns, and any person, firm, partnership, joint venture, individual, or corporation which shall at any time be substituted in the place of the Contractor under this Contract.

2.1.13 **"Days"** shall mean calendar days, except where otherwise specified.

2.1.14 **"Engineer"** or **"Architect"** or **"Project Manager"** shall mean the person so designated in writing by the Commissioner in the Notice to Proceed or the Order to Work to act as such in relation to this Contract, including a private Architect or Engineer or Project Manager, as the case may be. Subject to written approval by the Commissioner, the Engineer, Architect or Project Manager may designate an authorized representative.

2.1.15 **"Engineering Audit Officer" (EAO)** shall mean the person so designated by the Commissioner to perform responsible auditing functions hereunder.

2.1.16 **"Extra Work"** shall mean Work other than that required by the Contract at the time of award which is authorized by the Commissioner pursuant to Chapter VI of this Contract.

2.1.17 **"Federal-Aid Contract"** shall mean a contract in which the United States (federal) Government provides financial funding as so designated in the Information for Bidders.

2.1.18 **"Final Acceptance"** shall mean final written acceptance of all the Work by the Commissioner, a copy of which shall be sent to the Contractor.

2.1.19 **"Final Approved Punch List"** shall mean a list, approved pursuant to Article 14.2.2, specifying those items of Work to be completed by the Contractor after Substantial Completion and dates for the completion of each item of Work.

2.1.20 **"Law"** or **"Laws"** shall mean the Constitution of the State of New York, the New York City Charter, the New York City Administrative Code, a statute of the United States or of the State of New York, a local law of the City of New York, any ordinance, rule or regulation having the force of law, or common law.

2.1.21 **"Materialman"** shall mean any corporation, firm, partnership, joint venture, or individual, other than employees of the Contractor, who or which contracts with the Contractor or any Subcontractor, to fabricate or deliver, or who actually fabricates or delivers, plant, materials or equipment to be incorporated in the Work.

2.1.22 **"Means and Methods of Construction"** shall mean the labor, materials, temporary structures, tools, plant, and construction equipment, and the manner and time of their use, necessary to accomplish the result intended by this Contract.

2.1.23**"Notice to Proceed" or "Order to Work"** shall mean the written notice issued by the Commissioner specifying the time for commencement of the Work and the Engineer, Architect or Project Manager.

2.1.24 **"Other Contractor(s)"** shall mean any contractor (other than the entity which executed this Contract or its Subcontractors) who or which has a contract with the City for work on or adjacent to the building or Site of the Work.

2.1.25 **"Payroll Taxes"** shall mean State Unemployment Insurance (SUI), Federal Unemployment Insurance (FUI), and payments pursuant to the Federal Insurance Contributions Act (FICA).

2.1.26 **"Project"** shall mean the public improvement to which this Contract relates.

2.1.27 **"Procurement Policy Board" (PPB)** shall mean the Agency of the City of New York whose function is to establish comprehensive and consistent procurement policies and rules which shall have broad application throughout the City.

2.1.28 **"Required Quantity"** in a unit price Contract shall mean the actual quantity of any item of Work or materials which is required to be performed or furnished in order to comply with the Contract.

2.1.29 **"Resident Engineer"** shall mean the representative of the Commissioner duly designated by the Commissioner to be his/her representative at the site of the Work.

2.1.30 **"Site"** shall mean the area upon or in which the Contractor's operations are carried on, and such other areas adjacent thereto as may be designated as such by the Engineer.

2.1.31 **"Small Tools"** shall mean items that are ordinarily required for a worker's job function, including but not limited to, equipment that ordinarily has no licensing, insurance or substantive storage costs associated with it; such as circular and chain saws, impact drills, threaders, benders, wrenches, socket tools, etc.

2.1.32 **"Specifications"** shall mean all of the directions, requirements, and standards of performance applying to the Work as hereinafter detailed and designated under the Specifications.

2.1.33 **"Subcontractor"** shall mean any person, firm or corporation, other than employees of the Contractor, who or which contracts with the Contractor or with its subcontractors to furnish, or actually furnishes labor, or labor and materials, or labor and equipment, or superintendence, supervision and/or management at the Site. Wherever the word Subcontractor appears, it shall also mean sub-Subcontractor.

2.1.34 **"Substantial Completion"** shall mean the written determination by the Engineer that the Work required under this Contract is substantially, but not entirely, complete and the approval of the **Final Approved Punch List**.

2.1.35 **"Work"** shall mean all services required to complete the Project in accordance with the Contract Documents, including without limitation, labor, material, superintendence, management, administration, equipment, and incidentals, and obtaining any and all permits, certifications and licenses as may be necessary and required to complete the Work, and shall include both Contract Work and Extra Work.

CHAPTER II: THE WORK AND ITS PERFORMANCE

ARTICLE 3. CHARACTER OF THE WORK

3.1 Unless otherwise expressly provided in the **Contract Drawings**, **Specifications,** and **Addenda**, the **Work** shall be performed in accordance with the best modern practice, utilizing, unless otherwise specified in writing, new and unused materials of standard first grade quality and workmanship and design of the highest quality, to the satisfaction of the **Commissioner**.

ARTICLE 4. MEANS AND METHODS OF CONSTRUCTION

4.1 Unless otherwise expressly provided in the **Contract Drawings**, **Specifications,** and **Addenda**, the **Means and Methods of Construction** shall be such as the **Contractor** may choose; subject, however, to the **Engineer's** right to reject the **Means and Methods of Construction** proposed by the **Contractor** which in the opinion of the **Engineer**:

4.1.1 Will constitute or create a hazard to the **Work**, or to persons or property; or

4.1.2 Will not produce finished **Work** in accordance with the terms of the **Contract**; or

4.1.3 Will be detrimental to the overall progress of the **Project**.

4.2 The **Engineer's** approval of the **Contractor's Means and Methods of Construction**, or his/her failure to exercise his/her right to reject such means or methods, shall not relieve the **Contractor**

of its obligation to complete the **Work** as provided in this **Contract**; nor shall the exercise of such right to reject create a cause of action for damages.

ARTICLE 5. COMPLIANCE WITH LAWS

5.1 The **Contractor** shall comply with all **Laws** applicable to this **Contract** and to the **Work** to be done hereunder.

5.2 Procurement Policy Board Rules: This **Contract** is subject to the Rules of the **PPB** ("**PPB** Rules") in effect at the time of the bid opening for this **Contract**. In the event of a conflict between the **PPB** Rules and a provision of this **Contract**, the **PPB** Rules shall take precedence.

5.3 Noise Control Code provisions.

5.3.1 In accordance with the provisions of Section 24-216(b) of the Administrative Code of the **City** ("Administrative Code"), Noise Abatement Contract Compliance, devices and activities which will be operated, conducted, constructed or manufactured pursuant to this **Contract** and which are subject to the provisions of the **City** Noise Control Code shall be operated, conducted, constructed, or manufactured without causing a violation of the Administrative Code. Such devices and activities shall incorporate advances in the art of noise control development for the kind and level of noise emitted or produced by such devices and activities, in accordance with regulations issued by the **Commissioner** of the **City** Department of Environmental Protection.

5.3.2 The **Contractor** agrees to comply with Section 24-219 of the Administrative Code and implementing rules codified at 15 Rules of the City of New York ("RCNY") Section 28-100 *et seq*. In accordance with such provisions, the **Contractor**, if the **Contractor** is the responsible party under such regulations, shall prepare and post a Construction Noise Mitigation Plan at each **Site**, in which the **Contractor** shall certify that all construction tools and equipment have been maintained so that they operate at normal manufacturers operating specifications. If the **Contractor** cannot make this certification, it must have in place an Alternative Noise Mitigation Plan approved by the **City** Department of Environmental Protection. In addition, the **Contractor**'s certified Construction Noise Mitigation Plan is subject inspection by the **City** Department of Environmental Protection in accordance with Section 28-101 of Title 15 of RCNY. No **Contract Work** may take place at a **Site** unless there is a Construction Noise Mitigation Plan or approved Alternative Noise Mitigation Plan in place. In addition, the **Contractor** shall create and implement a noise mitigation training program. Failure to comply with these requirements may result in fines and other penalties pursuant to the applicable provisions of the Administrative Code and RCNY.

5.4 Ultra Low Sulfur Diesel Fuel: In accordance with the provisions of Section 24-163.3 of the Administrative Code, the **Contractor** specifically agrees as follows:

5.4.1 Definitions. For purposes of this Article 5.4, the following definitions apply:

5.4.1(a) "Contractor" means any person or entity that enters into a Public Works Contract with a **City Agency**, or any person or entity that enters into an agreement with such person or entity, to perform work or provide labor or services related to such Public Works Contract.

5.4.1(b) "Motor Vehicle" means any self-propelled vehicle designed for transporting persons or property on a street or highway.

5.4.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.4.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this term shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) horsepower or less and that are not used in any construction program or project.

5.4.1(e) "Public Works Contract" means a contract with a **City Agency** for a construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; a contract with a **City Agency** for the preparation for any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; or a contract with a **City Agency** for any final work involved in the completion of any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge.

5.4.1(f) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.4.2 Ultra Low Sulfur Diesel Fuel

5.4.2(a) All **Contractors** shall use Ultra Low Sulfur Diesel Fuel in diesel-powered Nonroad Vehicles in the performance of this **Contract**.

5.4.2(b) Notwithstanding the requirements of Article 5.4.2(a), **Contractors** may use diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) to fulfill the requirements of this Article 5.4.2, where the Commissioner of the **City** Department of Environmental Protection ("DEP Commissioner") has issued a determination that a sufficient quantity of Ultra Low Sulfur Diesel Fuel is not available to meet the needs of **Agencies** and **Contractors**. Any such determination shall expire after six (6) months unless renewed.

5.4.2(c) **Contractors** shall not be required to comply with this Article 5.4.2 where the **City Agency** letting this **Contract** makes a written finding, which is approved, in writing, by the DEP Commissioner, that a sufficient quantity of Ultra Low Sulfur Diesel Fuel, or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is not available to meet the requirements of Section 24-163.3 of the Administrative Code, provided that such **Contractor** in its fulfillment of the

requirements of this **Contract**, to the extent practicable, shall use whatever quantity of Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm) is available. Any finding made pursuant to this Article 5.4.2(c) shall expire after sixty (60) **Days**, at which time the requirements of this Article 5.4.2 shall be in full force and effect unless the **City Agency** renews the finding in writing and such renewal is approved by the DEP Commissioner.

5.4.2(d) **Contractors** may check on determinations and approvals issued by the DEP Commissioner pursuant to Section 24-163.3 of the Administrative Code, if any, at www.dep.nyc.gov or by contacting the **City Agency** letting this **Contract**.

5.4.2(e) The requirements of this Article 5.4.2 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

5.4.3 Best Available Technology

5.4.3(a) All **Contractors** shall utilize the best available technology for reducing the emission of pollutants for diesel-powered Nonroad Vehicles in the performance of this **Contract**. For determinations of best available technology for each type of diesel-powered Nonroad Vehicle, **Contractors** shall comply with the regulations of the **City** Department of Environmental Protection, as and when adopted, Chapter 14 of Title 15 of the Rules of the City of New York (RCNY). The **Contractor** shall fully document all steps in the best available technology selection process and shall furnish such documentation to the **City Agency** or the DEP Commissioner upon request. The **Contractor** shall retain all documentation generated in the best available technology selection process for as long as the selected best available technology is in use.

5.4.3(b) No **Contractor** shall be required to replace best available technology for reducing the emission of pollutants or other authorized technology utilized for a diesel-powered Nonroad Vehicle in accordance with the provisions of this Article 5.4.3 within three (3) years of having first utilized such technology for such vehicle.

5.4.3(c) This Article 5.4.3 shall not apply to any vehicle used to satisfy the requirements of a specific Public Works Contract for fewer than twenty (20) **Days**.

5.4.3(d) The **Contractor** shall not be required to comply with this Article 5.4.3 with respect to a diesel-powered Nonroad Vehicle under the following circumstances:

5.4.3(d)(i) Where the **City Agency** makes a written finding, which is approved, in writing, by the DEP Commissioner, that the best available technology for reducing the emission of pollutants as required by this Article 5.4.3 is unavailable for such vehicle, the **Contractor** shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such vehicle.

5.4.3(d)(ii) Where the DEP Commissioner has issued a written waiver based upon the **Contractor** having demonstrated to the DEP Commissioner that the use of the best available technology for reducing the emission of pollutants might endanger the operator of such vehicle or those working near such vehicle, due to engine malfunction, the **Contractor** shall use whatever technology for

reducing the emission of pollutants, if any, is available and appropriate for such vehicle, which would not endanger the operator of such vehicle or those working near such vehicle.

5.4.3(d)(iii) In determining which technology to use for the purposes of Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above, the **Contractor** shall primarily consider the reduction in emissions of particulate matter and secondarily consider the reduction in emissions of nitrogen oxides associated with the use of such technology, which shall in no event result in an increase in the emissions of either such pollutant.

5.4.3(d)(iv) The **Contractor** shall submit requests for a finding or a waiver pursuant to this Article 5.4.3(d) in writing to the DEP Commissioner, with a copy to the **ACCO** of the **City Agency** letting this **Contract**. Any finding or waiver made or issued pursuant to Articles 5.4.3(d)(i) and 5.4.3(d)(ii) above shall expire after one hundred eighty (180) **Days**, at which time the requirements of Article 5.4.3(a) shall be in full force and effect unless the **City Agency** renews the finding, in writing, and the DEP Commissioner approves such finding, in writing, or the DEP Commissioner renews the waiver, in writing.

5.4.3(e) The requirements of this Article 5.4.3 do not apply where they are precluded by federal or State funding requirements or where the **Contract** is an emergency procurement.

5.4.4 Section 24-163 of the Administrative Code. The **Contractor** shall comply with Section 24-163 of the Administrative Code related to the idling of the engines of motor vehicles while parking.

5.4.5 Compliance

5.4.5(a) The **Contractor's** compliance with Article 5.4 may be independently monitored. If it is determined that the **Contractor** has failed to comply with any provision of Article 5.4, any costs associated with any independent monitoring incurred by the **City** shall be reimbursed by the **Contractor**.

5.4.5(b) Any **Contractor** who violates any provision of Article 5.4, except as provided in Article 5.4.5(c) below, shall be liable for a civil penalty between the amounts of one thousand ($1,000) and ten thousand ($10,000) dollars, in addition to twice the amount of money saved by such **Contractor** for failure to comply with Article 5.4.

5.4.5(c) No **Contractor** shall make a false claim with respect to the provisions of Article 5.4 to a **City Agency**. Where a **Contractor** has been found to have done so, such **Contractor** shall be liable for a civil penalty of twenty thousand ($20,000) dollars, in addition to twice the amount of money saved by such **Contractor** in association with having made such false claim.

5.4.6 Reporting

5.4.6(a) For all Public Works Contracts covered by this Article 5.4, the **Contractor** shall report to the **City Agency** the following information:

5.4.6(a)(i) The total number of diesel-powered Nonroad Vehicles used to fulfill the requirements of this Public Works Contract;

5.4.6(a)(ii) The number of such Nonroad Vehicles that were powered by Ultra Low Sulfur Diesel Fuel;

5.4.6(a)(iii) The number of such Nonroad Vehicles that utilized the best available technology for reducing the emission of pollutants, including a breakdown by vehicle model and the type of technology;

5.4.6(a)(iv) The number of such Nonroad Vehicles that utilized such other authorized technology in accordance with Article 5.4.3, including a breakdown by vehicle model and the type of technology used for each such vehicle;

5.4.6(a)(v) The locations where such Nonroad Vehicles were used; and

5.4.6(a)(vi) Where a determination is in effect pursuant to Article 5.4.2(b) or 5.4.2(c), detailed information concerning the **Contractor's** efforts to obtain Ultra Low Sulfur Diesel Fuel or diesel fuel that has a sulfur content of no more than thirty parts per million (30 ppm).

5.4.6(b) The **Contractor** shall submit the information required by Article 5.4.6(a) at the completion of **Work** under the Public Works Contract and on a yearly basis no later than August 1 throughout the term of the Public Works Contract. The yearly report shall cover **Work** performed during the preceding fiscal year (July 1 - June 30).

5.5 Ultra Low Sulfur Diesel Fuel. In accordance with the Coordinated Construction Act for Lower Manhattan, as amended:

5.5.1 Definitions. For purposes of this Article 5.5, the following definitions apply:

5.5.1(a) "Lower Manhattan" means the area to the south of and within the following lines: a line beginning at a point where the United States pierhead line in the Hudson River as it exists now or may be extended would intersect with the southerly line of West Houston Street in the Borough of Manhattan extended, thence easterly along the southerly side of West Houston Street to the southerly side of Houston Street, thence easterly along the southerly side of Houston Street to the southerly side of East Houston Street, thence northeasterly along the southerly side of East Houston Street to the point where it would intersect with the United States pierhead line in the East River as it exists now or may be extended, including tax lots within or immediately adjacent thereto.

5.5.1(b) "Lower Manhattan Redevelopment Project" means any project in Lower Manhattan that is funded in whole or in part with federal or State funding, or any project intended to improve transportation between Lower Manhattan and the two air terminals in the **City** known as LaGuardia Airport and John F. Kennedy International Airport, or between Lower Manhattan and the air terminal in Newark known as Newark Liberty International Airport, and that is funded in whole or in part with federal funding.

5.5.1(c) "Nonroad Engine" means an internal combustion engine (including the fuel system) that is not used in a Motor Vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under Section 7411 or Section 7521 of Title 42 of the United States Code, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

5.5.1(d) "Nonroad Vehicle" means a vehicle that is powered by a Nonroad Engine, fifty (50) horsepower (HP) and greater, and that is not a Motor Vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers, and similar equipment, except that this terms shall not apply to horticultural maintenance vehicles used for landscaping purposes that are powered by a Nonroad Engine of sixty-five (65) HP or less and that are not used in any construction program or project.

5.5.1(e) "Ultra Low Sulfur Diesel Fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million (15 ppm).

5.5.2 Requirements. **Contractors** and **Subcontractors** are required to use only Ultra Low Sulfur Diesel Fuel to power the diesel-powered Nonroad Vehicles with engine HP rating of fifty (50) HP and above used on a Lower Manhattan Redevelopment Project and, where practicable, to reduce the emission of pollutants by retrofitting such Nonroad Vehicles with oxidation catalysts, particulate filters, or technology that achieves lowest particulate matter emissions.

5.6 Pesticides. In accordance with Section 17-1209 of the Administrative Code, to the extent that the **Contractor** or any **Subcontractor** applies pesticides to any property owned or leased by the **City**, the **Contractor,** and any **Subcontractor** shall comply with Chapter 12 of the Administrative Code.

5.7 Waste Treatment, Storage, and Disposal Facilities and Transporters. In connection with the **Work**, the **Contractor** and any **Subcontractor** shall use only those waste treatment, storage, and disposal facilities and waste transporters that possess the requisite license, permit or other governmental approval necessary to treat, store, dispose, or transport the waste, materials or hazardous substances.

5.8 Environmentally Preferable Purchasing. The **Contractor** shall ensure that products purchased or leased by the **Contractor** or any **Subcontractor** for the **Work** that are not specified by the **City** or are submitted as equivalents to a product specified by the **City** comply with the requirements of the New York City Environmentally Preferable Purchasing Program contained in Chapter 11 of Title 43 of the RCNY, pursuant to Chapter 3 of Title 6 of the Administrative Code.

ARTICLE 6. INSPECTION

6.1 During the progress of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall at all times afford the representatives of the **City** every reasonable, safe, and proper facility for inspecting all **Work** done or being done at the **Site** and also for inspecting the manufacture or preparation of materials and equipment at the place of such manufacture or preparation.

6.2 The **Contractor's** obligation hereunder shall include the uncovering or taking down of finished **Work** and its restoration thereafter; provided, however, that the order to uncover, take down and restore shall be in writing, and further provided that if **Work** thus exposed proves satisfactory, and if the **Contractor** has complied with Article 6.1, such uncovering or taking down and restoration shall be

considered an item of **Extra Work** to be paid for in accordance with the provisions of Article 26. If the **Work** thus exposed proves unsatisfactory, the **City** has no obligation to compensate the **Contractor** for the uncovering, taking down or restoration.

6.3 Inspection and approval by the **Commissioner**, the **Engineer**, **Project Manager**, or **Resident Engineer**, of finished **Work** or of **Work** being performed, or of materials and equipment at the place of manufacture or preparation, shall not relieve the **Contractor** of its obligation to perform the **Work** in strict accordance with the **Contract**. Finished or unfinished **Work** not found to be in strict accordance with the **Contract** shall be replaced as directed by the **Engineer**, even though such **Work** may have been previously approved and paid for. Such corrective **Work** is **Contract Work** and shall not be deemed **Extra Work**.

6.4 Rejected **Work** and materials shall be promptly taken down and removed from the **Site**, which must at all times be kept in a reasonably clean and neat condition.

ARTICLE 7. PROTECTION OF WORK AND OF PERSONS AND PROPERTY; NOTICES AND INDEMNIFICATION

7.1 During the performance of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall be under an absolute obligation to protect the finished and unfinished **Work** against any damage, loss, injury, theft and/or vandalism and in the event of such damage, loss, injury, theft and/or vandalism, it shall promptly replace and/or repair such **Work** at the **Contractor's** sole cost and expense, as directed by the **Resident Engineer**. The obligation to deliver finished **Work** in strict accordance with the **Contract** prior to **Final Acceptance** shall be absolute and shall not be affected by the **Resident Engineer's** approval of, or failure to prohibit, the **Means and Methods of Construction** used by the **Contractor**.

7.2 During the performance of the **Work** and up to the date of **Final Acceptance**, the **Contractor** shall take all reasonable precautions to protect all persons and the property of the **City** and of others from damage, loss or injury resulting from the **Contractor's**, and/or its **Subcontractors'** operations under this **Contract.** The **Contractor's** obligation to protect shall include the duty to provide, place or replace, and adequately maintain at or about the **Site** suitable and sufficient protection such as lights, barricades, and enclosures.

7.3 The **Contractor** shall comply with the notification requirements set forth below in the event of any loss, damage or injury to **Work**, persons or property, or any accidents arising out of the operations of the **Contractor** and/or its **Subcontractors** under this **Contract**.

7.3.1 The **Contractor** shall make a full and complete report in writing to the **Resident Engineer** within three (3) **Days** after the occurrence.

7.3.2 The **Contractor** shall also send written notice of any such event to all insurance carriers that issued potentially responsive policies (including commercial general liability insurance carriers for events relating to the **Contractor**'s own employees) no later than twenty (20) days after such event and again no later than twenty (20) days after the initiation of any claim and/or action resulting therefrom. Such notice shall contain the following information: the number of the insurance policy, the name of the Named Insured, the date and location of the incident, and the identity of the persons injured or property damaged. For any policy on which the **City** and/or the **Engineer, Architect**, or **Project Manager** are Additional Insureds, such notice shall expressly specify that "this notice is

being given on behalf of the City of New York as Additional Insured, such other Additional Insureds, as well as the Named Insured."

7.3.2(a) Whenever such notice is sent under a policy on which the **City** is an Additional Insured, the **Contractor** shall provide copies of the notice to the **Comptroller,** the **Commissioner** and the **City** Corporation Counsel. The copy to the **Comptroller** shall be sent to the Insurance Unit, NYC Comptroller's Office, 1 Centre Street – Room 1222, New York, New York, 10007. The copy to the **Commissioner** shall be sent to the address set forth in Schedule A of the General Conditions. The copy to the **City** Corporation Counsel shall be sent to Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

7.3.2(b) If the **Contractor** fails to provide any of the foregoing notices to any appropriate insurance carrier(s) in a timely and complete manner, the **Contractor** shall indemnify the **City** for all losses, judgments, settlements, and expenses, including reasonable attorneys' fees, arising from an insurer's disclaimer of coverage citing late notice by or on behalf of the **City**.

7.4 To the fullest extent permitted by law, the **Contractor** shall defend, indemnify, and hold the **City**, its employees, and officials (the "Indemnitees") harmless against any and all claims (including but not limited to claims asserted by any employee of the **Contractor** and/or its **Subcontractors**) and costs and expenses of whatever kind (including but not limited to payment or reimbursement of attorneys' fees and disbursements) allegedly arising out of or in any way related to the operations of the **Contractor** and/or its **Subcontractors** in the performance of this **Contract** or from the **Contractor's** and/or its **Subcontractors'** failure to comply with any of the provisions of this **Contract** or of the **Law**. Such costs and expenses shall include all those incurred in defending the underlying claim and those incurred in connection with the enforcement of this Article 7.4 by way of cross-claim, third-party claim, declaratory action or otherwise. The parties expressly agree that the indemnification obligation hereunder contemplates (1) full indemnity in the event of liability imposed against the Indemnitees without negligence and solely by reason of statute, operation of **Law** or otherwise; and (2) partial indemnity in the event of any actual negligence on the part of the Indemnitees either causing or contributing to the underlying claim (in which case, indemnification will be limited to any liability imposed over and above that percentage attributable to actual fault whether by statute, by operation of **Law**, or otherwise). Where partial indemnity is provided hereunder, all costs and expenses shall be indemnified on a pro rata basis.

7.4.1 Indemnification under Article 7.4 or any other provision of the **Contract** shall operate whether or not **Contractor** or its **Subcontractors** have placed and maintained the insurance specified under Article 22.

7.5 The provisions of this Article 7 shall not be deemed to create any new right of action in favor of third parties against the **Contractor** or the **City**.

CHAPTER III: TIME PROVISIONS

ARTICLE 8. COMMENCEMENT AND PROSECUTION OF THE WORK

8.1 The **Contractor** shall commence the **Work** on the date specified in the **Notice to Proceed** or the **Order to Work**. The time for performance of the **Work** under the **Contract** shall be computed from

the date specified in the **Notice to Proceed** or the **Order to Work. TIME BEING OF THE ESSENCE** to the **City**, the **Contractor** shall thereafter prosecute the **Work** diligently, using such **Means and Methods of Construction** as are in accord with Article 4 herein and as will assure its completion not later than the date specified in this Contract, or on the date to which the time for completion may be extended.

ARTICLE 9. PROGRESS SCHEDULES

9.1 To enable the **Work** to be performed in an orderly and expeditious manner, the **Contractor**, within fifteen (15) **Days** after the **Notice to Proceed** or **Order to Work**, unless otherwise directed by the **Engineer**, shall submit to the **Engineer** a proposed progress schedule based on the Critical Path Method in the form of a bar graph or in such other form as specified by the **Engineer**, and monthly cash flow requirements, showing:

9.1.1 The anticipated time of commencement and completion of each of the various operations to be performed under this **Contract**; and

9.1.2 The sequence and interrelation of each of these operations with the others and with those of other related contracts; and

9.1.3 The estimated time required for fabrication or delivery, or both, of all materials and equipment required for the **Work**, including the anticipated time for obtaining required approvals pursuant to Article 10; and

9.1.4 The estimated amount in dollars the **Contractor** will claim on a monthly basis.

9.2 The proposed schedule shall be revised as directed by the **Engineer**, until finally approved by the **Engineer**, and after such approval, subject to the provisions of Article 11, shall be strictly adhered to by the **Contractor**.

9.3 If the **Contractor** shall fail to adhere to the approved progress schedule, or to the schedule as revised pursuant to Article 11, it shall promptly adopt such other or additional **Means and Methods of Construction**, at its sole cost and expense, as will make up for the time lost and will assure completion in accordance with the approved progress schedule. The approval by the **City** of a progress schedule which is shorter than the time allotted under the **Contract** shall not create any liability for the **City** if the approved progress schedule is not met.

9.4 The **Contractor** will not receive any payments until the proposed progress schedule is submitted.

ARTICLE 10. REQUESTS FOR INFORMATION OR APPROVAL

10.1 From time to time as the **Work** progresses and in the sequence indicated by the approved progress schedule, the **Contractor** shall submit to the **Engineer** a specific request in writing for each item of information or approval required by the **Contractor**. These requests shall state the latest date upon which the information or approval is actually required by the **Contractor**, and shall be submitted in a reasonable time in advance thereof to provide the **Engineer** a sufficient time to act upon such submissions, or any necessary re-submissions thereof.

10.2 The **Contractor** shall not have any right to an extension of time on account of delays due to the **Contractor's** failure to submit requests for the required information or the required approval in accordance with the above requirements.

ARTICLE 11. NOTICE OF CONDITIONS CAUSING DELAY AND DOCUMENTATION OF DAMAGES CAUSED BY DELAY

11.1 After the commencement of any condition which is causing or may cause a delay in completion of the **Work**, including conditions for which the **Contractor** may be entitled to an extension of time, the following notifications and submittals are required:

11.1.1 Within fifteen (15) **Days** after the **Contractor** becomes aware or reasonably should be aware of each such condition, the **Contractor** must notify the **Resident Engineer** or **Engineer**, as directed by the **Commissioner**, in writing of the existence, nature and effect of such condition upon the approved progress schedule and the **Work**, and must state why and in what respects, if any, the condition is causing or may cause a delay. Such notice shall include a description of the construction activities that are or could be affected by the condition and may include any recommendations the **Contractor** may have to address the delay condition and any activities the **Contractor** may take to avoid or minimize the delay.

11.1.2 If the **Contractor** shall claim to be sustaining damages for delay as provided for in this Article 11,within forty-five (45) **Days** from the time such damages are first incurred for each such condition, the **Contractor** shall submit to the **Commissioner** a verified written statement of the details and estimates of the amounts of such damages, including categories of expected damages and projected monthly costs, together with documentary evidence of such damages as the **Contractor** may have at the time of submission ("statement of delay damages"), as further detailed in Article 11.6. The **Contractor** may submit the above statement within such additional time as may be granted by the **Commissioner** in writing upon written request therefor.

11.1.3 Articles 11.1.1 and 11.1.2 do not relieve the **Contractor** of its obligation to comply with the provisions of Article 44.

11.2 Failure of the **Contractor** to strictly comply with the requirements of Article 11.1.1 may, in the discretion of the **Commissioner**, be deemed sufficient cause to deny any extension of time on account of delay arising out of such condition. Failure of the **Contractor** to strictly comply with the requirements of both Articles 11.1.1 and 11.1.2 shall be deemed a conclusive waiver by the **Contractor** of any and all claims for damages for delay arising from such condition and no right to recover on such claims shall exist.

11.3 When appropriate and directed by the **Engineer**, the progress schedule shall be revised by the **Contractor** until finally approved by the **Engineer**. The revised progress schedule must be strictly adhered to by the **Contractor**.

11.4 Compensable Delays

11.4.1 The **Contractor** agrees to make claim only for additional costs attributable to delay in the performance of this **Contract** necessarily extending the time for completion of the **Work** or resulting from acceleration directed by the **Commissioner** and required to maintain the progress schedule, occasioned solely by any act or omission to act of the **City** listed below. The **Contractor** also agrees that delay from any other cause shall be

compensated, if at all, solely by an extension of time to complete the performance of the **Work**.

11.4.1.1 The failure of the **City** to take reasonable measures to coordinate and progress the **Work** to the extent required by the **Contract**, except that the City shall not be responsible for the **Contractor's** obligation to coordinate and progress the **Work** of its **Subcontractors**.

11.4.1.2 Unreasonable delays attributable to the review of shop drawings, the issuance of change orders, or the cumulative impact of change orders that were not brought about by any act or omission of the **Contractor**.

11.4.1.3 The unavailability of the **Site** caused by acts or omissions of the **City**..

11.4.1.4 The issuance by the **Engineer** of a stop work order that was not brought about through any act or omission of the **Contractor**.

11.4.1.5 Differing site conditions or environmental hazards that were neither known nor reasonably ascertainable on a pre-bid inspection of the **Site** or review of the bid documents or other publicly available sources, and that are not ordinarily encountered in the **Project**'s geographical area or neighborhood or in the type of **Work** to be performed.

11.4.1.6 Delays caused by the **City's** bad faith or its willful, malicious, or grossly negligent conduct;

11.4.1.7 Delays not contemplated by the parties;

11.4.1.8 Delays so unreasonable that they constitute an intentional abandonment of the **Contract** by the **City**; and

11.4.1.9 Delays resulting from the **City's** breach of a fundamental obligation of the **Contract**.

11.4.2 No claim may be made for any alleged delay in **Substantial Completion** of the **Work** if the **Work** will be or is substantially completed by the date of **Substantial Completion** provided for in Schedule A unless acceleration has been directed by the **Commissioner** to meet the date of **Substantial Completion** set forth in Schedule A, or unless there is a provision in the **Contract** providing for additional compensation for early completion.

11.4.3 The provisions of this Article 11 apply only to claims for additional costs attributable to delay and do not preclude determinations by the **Commissioner** allowing reimbursements for additional costs for **Extra Work** pursuant to Articles 25 and 26 of this **Contract**. To the extent that any cost attributable to delay is reimbursed as part of a change order, no additional claim for compensation under this Article 11 shall be allowed.

11.5 Non-Compensable Delays. The **Contractor** agrees to make no claim for, and is deemed to have included in its bid prices for the various items of the **Contract**, the extra/additional costs attributable to any delays caused by or attributable to the items set forth below. For such items, the **Contractor** shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**, in accordance with the provisions of Article 13. Such extensions of time will be granted, if at all, pursuant to the grounds set forth in Article 13.3.

11.5.1 The acts or omissions of any third parties, including but not limited to **Other Contractors**, public/ governmental bodies (other than **City Agencies**), utilities or private enterprises, who are disclosed in the **Contract Documents** or are ordinarily encountered or generally recognized as related to the **Work**;

11.5.2 Any situation which was within the contemplation of the parties at the time of entering into the **Contract**, including any delay indicated or disclosed in the **Contract Documents** or that would be generally recognized by a reasonably prudent contractor as related to the nature of the **Work**, and/or the existence of any facility or appurtenance owned, operated or maintained by any third party, as indicated or disclosed in the **Contract Documents** or ordinarily encountered or generally recognized as related to the nature of the **Work**;

11.5.3 Restraining orders, injunctions or judgments issued by a court which were caused by a Contractor's submission, action or inaction or by a Contractor's **Means and Methods of Construction**, or by third parties, unless such order, injunction or judgment was the result of an act or omission by the **City**;

11.5.4 Any labor boycott, strike, picketing, lockout or similar situation;

11.5.5 Any shortages of supplies or materials, or unavailability of equipment, required by the **Contract Work**;

11.5.6 Climatic conditions, storms, floods, droughts, tidal waves, fires, hurricanes, earthquakes, landslides or other catastrophes or acts of God, or acts of war or of the public enemy or terrorist acts, including the **City's** reasonable responses thereto; and

11.5.7 **Extra Work** which does not significantly affect the overall completion of the **Contract**, reasonable delays in the review or issuance of change orders or field orders and/or in shop drawing reviews or approvals.

11.6 Required Content of Submission of Statement of Delay Damages

11.6.1 In the verified written statement of delay damages required by Article 11.1.2, the following information shall be provided by the **Contractor**:

11.6.1.1 For each delay, the start and end dates of the claimed periods of delay and, in addition, a description of the operations that were delayed, an explanation of how they were delayed, and the reasons for the delay, including identifying the applicable act or omission of the City listed in Article 11.4.

11.6.1.2 A detailed factual statement of the claim providing all necessary dates, locations and items of **Work** affected by the claim.

11.6.1.3 The estimated amount of additional compensation sought and a breakdown of that amount into categories as described in Article 11.7.

11.6.1.4 Any additional information requested by the **Commissioner**.

11.7 Recoverable Costs

11.7.1 Delay damages may be recoverable for the following costs actually and necessarily incurred in the performance of the **Work**:

11.7.1.1 Direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits, based on time and materials records;

11.7.1.2 Necessary materials (including transportation to the **Site**), based on time and material records;

11.7.1.3 Reasonable rental value of necessary plant and equipment other than small tools, plus fuel/energy costs according to the applicable formula set forth in Articles 26.2.4 and/or 26.2.8, based on time and material records;

11.7.1.4 Additional insurance and bond costs;

11.7.1.5 Extended **Site** overhead, field office rental, salaries of field office staff, on-site project managers and superintendents, field office staff vehicles, **Project**-specific storage, field office utilities and telephone, and field office consumables;

11.7.1.6 Labor escalation costs based on actual costs;

11.7.1.7 Materials and equipment escalation costs based on applicable industry indices unless documentation of actual increased cost is provided;

11.7.1.8 Additional material and equipment storage costs based on actual documented costs and additional costs necessitated by extended manufacturer warranty periods; and

11.7.1.9 Extended home office overhead calculated based on the following formula:

(1) Subtract from the original **Contract** amount the amount earned by original contractual **Substantial Completion** date (not including change orders);

(2) Remove 15% overhead and profit from the calculation in item (1) by dividing the results of item (1) by 1.15;

(3) Multiply the result of item (2) by 7.25% for the total home office overhead;

(4) Multiply the result of item (3) by 7.25% for the total profit; and

(5) The total extended home office overhead will be the total of items (3) and (4).

11.7.2 Recoverable Subcontractor Costs. When the **Work** is performed by a **Subcontractor**, the **Contractor** may be paid the actual and necessary costs of such subcontracted **Work** as outlined above in Articles 11.7.1.1 through 11.7.1.8, and an additional overhead of 5% of the costs outlined in Articles 11.7.1.1 through 11.7.1.3.

11.7.3 Non-Recoverable Costs. The parties agree that the **City** will have no liability for the following items and the **Contractor** agrees it shall make no claim for the following items:

11.7.3.1 Profit, or loss of anticipated or unanticipated profit, except as provided in Article 11.7.1.9;

11.7.3.2 Consequential damages, including, but not limited to, construction or bridge loans or interest paid on such loans, loss of bonding capacity, bidding opportunities, or interest in investment, or any resulting insolvency;

11.7.3.3 Indirect costs or expenses of any nature except those included in Article 11.7.1;

11.7.3.4 Direct or indirect costs attributable to performance of **Work** where the **Contractor**, because of situations or conditions within its control, has not progressed the **Work** in a satisfactory manner; and

11.7.3.5 Attorneys' fees and dispute and claims preparation expenses.

11.8 Any claims for delay under this Article 11 are not subject to the jurisdiction of the Contract Dispute Resolution Board pursuant to the dispute resolution process set forth in Article 27.

11.9 Any compensation provided to the **Contractor** in accordance with this Article 11 will be made pursuant to a claim filed with the **Comptroller**. Nothing in this Article 11 extends the time for the **Contractor** to file an action with respect to a claim within six months after **Substantial Completion** pursuant to Article 56.

ARTICLE 12. COORDINATION WITH OTHER CONTRACTORS

12.1 During the progress of the **Work**, **Other Contractors** may be engaged in performing other work or may be awarded other contracts for additional work on this **Project**. In that event, the **Contractor** shall coordinate the **Work** to be done hereunder with the work of such **Other Contractors** and the **Contractor** shall fully cooperate with such **Other Contractors** and carefully fit its own **Work** to that provided under other contracts as may be directed by the **Engineer**. The **Contractor** shall not commit or permit any act which will interfere with the performance of work by any **Other Contractors.**

12.2 If the **Engineer** determines that the **Contractor** is failing to coordinate its **Work** with the work of **Other Contractors** as the **Engineer** has directed, then the **Commissioner** shall have the right to withhold any payments otherwise due hereunder until the **Contractor** completely complies with the **Engineer's** directions.

12.3 The **Contractor** shall notify the **Engineer** in writing if any **Other Contractor** on this **Project** is failing to coordinate its work with the **Work** of this **Contract**. If the **Engineer** finds such charges to be true, the **Engineer** shall promptly issue such directions to the **Other Contractor** with respect thereto as the situation may require. The **City** shall not, however, be liable for any damages suffered by any **Other Contractor's** failure to coordinate its work with the **Work** of this **Contract** or by reason of the **Other Contractor's** failure to promptly comply with the directions so issued by the **Engineer**, or by reason of any **Other Contractor's** default in performance, it being understood that the **City** does not guarantee the responsibility or continued efficiency of any contractor. The **Contractor** agrees to make no claim against the **City** for any damages relating to or arising out of any directions issued by the **Engineer** pursuant to this Article 12 (including but not limited to the failure of any **Other Contractor** to comply or promptly comply with such directions), or the failure of any **Other Contractor** to coordinate its work, or the default in performance of any **Other Contractor**.

12.4 The **Contractor** shall indemnify and hold the **City** harmless from any and all claims or judgments for damages and from costs and expenses to which the **City** may be subjected or which it may suffer or incur by reason of the **Contractor's** failure to comply with the **Engineer's** directions promptly; and the **Comptroller** shall have the right to exercise the powers reserved in Article 23 with respect to any claims which may be made for damages due to the **Contractor's** failure to comply with the **Engineer's** directions promptly. Insofar as the facts and **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent provided by **Law**.

12.5 Should the **Contractor** sustain any damage through any act or omission of any **Other Contractor** having a contract with the **City** for the performance of work upon the **Site** or of work which may be necessary to be performed for the proper prosecution of the **Work** to be performed hereunder, or through any act or omission of a subcontractor of such **Other Contractor**, the **Contractor** shall have no claim against the **City** for such damage, but shall have a right to recover such damage from the **Other**

Contractor under the provision similar to the following provisions which apply to this **Contract** and have been or will be inserted in the contracts with such **Other Contractors**:

12.5.1 Should any **Other Contractor** having or who shall hereafter have a contract with the **City** for the performance of work upon the **Site** sustain any damage through any act or omission of the **Contractor** hereunder or through any act or omission of any **Subcontractor** of the **Contractor**, the **Contractor** agrees to reimburse such **Other Contractor** for all such damages and to defend at its own expense any action based upon such claim and if any judgment or claim (even if the allegations of the action are without merit) against the **City** shall be allowed the **Contractor** shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and agrees to indemnify and hold the **City** harmless from all such claims. Insofar as the facts and **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent provided by **Law**.

12.6 The **City's** right to indemnification hereunder shall in no way be diminished, waived or discharged by its recourse to assessment of liquidated damages as provided in Article 15, or by the exercise of any other remedy provided for by **Contract** or by **Law**.

ARTICLE 13. EXTENSION OF TIME FOR PERFORMANCE

13.1 If performance by the **Contractor** is delayed for a reason set forth in Article 13.3, the **Contractor** may be allowed a reasonable extension of time in conformance with this Article 13 and the **PPB** Rules.

13.2 Any extension of time may be granted only by the **ACCO** or by the Board for the Extension of Time (hereafter "Board") (as set forth below) upon written application by the **Contractor**.

13.3 Grounds for Extension: If such application is made, the **Contractor** shall be entitled to an extension of time for delay in completion of the **Work** caused solely:

13.3.1 By the acts or omissions of the **City**, its officials, agents or employees; or

13.3.2 By the act or omissions of **Other Contractors** on this **Project**; or

13.3.3 By supervening conditions entirely beyond the control of either party hereto (such as, but not limited to, acts of God or the public enemy, excessive inclement weather, war or other national emergency making performance temporarily impossible or illegal, or strikes or labor disputes not brought about by any act or omission of the **Contractor**).

13.3.4 The **Contractor** shall, however, be entitled to an extension of time for such causes only for the number of **Days** of delay which the **ACCO** or the Board may determine to be due solely to such causes, and then only if the **Contractor** shall have strictly complied with all of the requirements of Articles 9 and 10.

13.4 The **Contractor** shall not be entitled to receive a separate extension of time for each of several causes of delay operating concurrently, but, if at all, only for the actual period of delay in completion of the **Work** as determined by the **ACCO** or the Board, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the **Contractor** or of its **Subcontractors** or **Materialmen**, and would of itself (irrespective

of the concurrent causes) have delayed the **Work**, no extension of time will be allowed for the period of delay resulting from such act, fault or omission.

13.5 The determination made by the **ACCO** or the Board on an application for an extension of time shall be binding and conclusive on the **Contractor**.

13.6 The **ACCO** or the Board acting entirely within their discretion may grant an application for an extension of time for causes of delay other than those herein referred.

13.7 Permitting the **Contractor** to continue with the **Work** after the time fixed for its completion has expired, or after the time to which such completion may have been extended has expired, or the making of any payment to the **Contractor** after such time, shall in no way operate as a waiver on the part of the **City** of any of its rights under this **Contract**.

13.8 Application for Extension of Time:

13.8.1 Before the **Contractor's** time extension request will be considered, the **Contractor** shall notify the **ACCO** of the condition which allegedly has caused or is causing the delay, and shall submit a written application to the **ACCO** identifying:

13.8.1(a) The **Contractor**; the registration number; and **Project** description;

13.8.1(b) Liquidated damage assessment rate, as specified in the **Contract**;

13.8.1(c) Original total bid price;

13.8.1(d) The original **Contract** start date and completion date;

13.8.1(e) Any previous time extensions granted (number and duration); and

13.8.1(f) The extension of time requested.

13.8.2 In addition, the application for extension of time shall set forth in detail:

13.8.2(a) The nature of each alleged cause of delay in completing the **Work**;

13.8.2(b) The date upon which each such cause of delay began and ended and the number of **Days** attributable to each such cause;

13.8.2(c) A statement that the **Contractor** waives all claims except for those delineated in the application, and the particulars of any claims which the **Contractor** does not agree to waive. For time extensions for **Substantial Completion** and final completion payments, the application shall include a detailed statement of the dollar amounts of each element of claim item reserved; and

13.8.2(d) A statement indicating the **Contractor's** understanding that the time extension is granted only for purposes of permitting continuation of **Contract** performance and payment for **Work** performed and that the **City** retains its right to conduct an investigation and assess liquidated damages as appropriate in the future.

13.9 Analysis and Approval of Time Extensions:

13.9.1 For time extensions for partial payments, a written determination shall be made by the **ACCO** who may, for good and sufficient cause, extend the time for the performance of the **Contract** as follows:

13.9.1(a) If the **Work** is to be completed within six (6) months, the time for performance may be extended for sixty (60) **Days**;

13.9.1(b) If the **Work** is to be completed within less than one (1) year but more than six (6) months, an extension of ninety (90) **Days** may be granted;

13.9.1(c) If the **Contract** period exceeds one (1) year, besides the extension granted in Article 13.9.1(b), an additional thirty (30) **Days** may be granted for each multiple of six (6) months involved beyond the one (1) year period; or

13.9.1(d) If exceptional circumstances exist, the **ACCO** may extend the time for performance beyond the extensions in Articles 13.9.1(a), 13.9.1(b), and 13.9.1(c). In that event, the **ACCO** shall file with the Mayor's Office of Contract Services a written explanation of the exceptional circumstances.

13.9.2 For extensions of time for **Substantial Completion** and final completion payments, the **Engineer**, in consultation with the **ACCO**, shall prepare a written analysis of the delay (including a preliminary determination of the causes of delay, the beginning and end dates for each such cause of delay, and whether the delays are excusable under the terms of this **Contract**). The report shall be subject to review by and approval of the Board, which shall have authority to question its analysis and determinations and request additional facts or documentation. The report as reviewed and made final by the Board shall be made a part of the **Agency** contract file. Neither the report itself nor anything contained therein shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

13.9.3 Approval Mechanism for Time Extensions for **Substantial Completion** or Final Completion Payments: An extension shall be granted only with the approval of the Board which is comprised of the **ACCO** of the **Agency**, the **City** Corporation Counsel, and the **Comptroller**, or their authorized representatives.

13.9.4 Neither the granting of any application for an extension of time to the **Contractor** or any **Other Contractor** on this **Project** nor the papers, records or reports related to any application for or grant of an extension of time or determination related thereto shall be referred to or offered in evidence by the **Contractor** or its attorneys in any action or proceeding.

13.10 No Damage for Delay: The **Contractor** agrees to make no claim for damages for delay in the performance of this **Contract** occasioned by any act or omission to act of the **City** or any of its representatives, except as provided for in Article 11.

ARTICLE 14. COMPLETION AND FINAL ACCEPTANCE OF THE WORK

14.1 Date for **Substantial Completion**: The **Contractor** shall substantially complete the **Work** within the time fixed in Schedule A of the General Conditions, or within the time to which such **Substantial Completion** may be extended.

14.2 Determining the Date of **Substantial Completion**: The **Work** will be deemed to be substantially complete when the two conditions set forth below have been met.

14.2.1 Inspection: The **Engineer** or **Resident Engineer**, as applicable, has inspected the **Work** and has made a written determination that it is substantially complete.

14.2.2 Approval of **Final Approved Punch List** and Date for **Final Acceptance**: Following inspection of the **Work**, the **Engineer/Resident Engineer** shall furnish the **Contractor** with a final punch list, specifying all items of **Work** to be completed and proposing dates for the completion of each specified item of **Work**. The **Contractor** shall then submit in writing to the **Engineer/Resident Engineer** within ten (10) **Days** of the **Engineer/Resident Engineer** furnishing the final punch list either acceptance of the dates or proposed alternative dates for the completion of each specified item of **Work**. If the **Contractor** neither accepts the dates nor proposes alternative dates within ten (10) **Days**, the schedule proposed by the **Engineer/Resident Engineer** shall be deemed accepted. If the **Contractor** proposes alternative dates, then, within a reasonable time after receipt, the **Engineer/Resident Engineer**, in a written notification to the **Contractor**, shall approve the **Contractor's** completion dates or, if they are unable to agree, the **Engineer/Resident Engineer** shall establish dates for the completion of each item of **Work**. The latest completion date specified shall be the date for **Final Acceptance** of the **Work**.

14.3 Date of **Substantial Completion**. The date of approval of the **Final Approved Punch List**, shall be the date of **Substantial Completion**. The date of approval of the **Final Approved Punch List** shall be either (a) if the **Contractor** approves the final punch list and proposed dates for completion furnished by the **Engineer/Resident Engineer**, the date of the **Contractor**'s approval; or (b) if the **Contractor** neither accepts the dates nor proposes alternative dates, ten (10) **Days** after the **Engineer/Resident Engineer** furnishes the **Contractor** with a final punch list and proposed dates for completion; or (c) if the **Contractor** proposes alternative dates, the date that the **Engineer/Resident Engineer** sends written notification to the **Contractor** either approving the **Contractor**'s proposed alternative dates or establishing dates for the completion for each item of **Work**.

14.4 Determining the Date of **Final Acceptance**: The **Work** will be accepted as final and complete as of the date of the **Engineer**'s/**Resident Engineer**'s inspection if, upon such inspection, the **Engineer/Resident Engineer** finds that all items on the **Final Approved Punch List** are complete and no further **Work** remains to be done. The **Commissioner** will then issue a written determination of **Final Acceptance**.

14.5 Request for Inspection: Inspection of the **Work** by the **Engineer/Resident Engineer** for the purpose of **Substantial Completion** or **Final Acceptance** shall be made within fourteen (14) **Days** after receipt of the **Contractor's** written request therefor.

14.6 Request for Re-inspection: If upon inspection for the purpose of **Substantial Completion** or **Final Acceptance**, the **Engineer/Resident Engineer** determines that there are items of **Work** still to be performed, the **Contractor** shall promptly perform them and then request a re-inspection. If upon re-inspection, the **Engineer/Resident Engineer** determines that the **Work** is substantially complete or finally accepted, the date of such re-inspection shall be the date of **Substantial Completion** or **Final Acceptance**. Re-inspection by the **Engineer/Resident Engineer** shall be made within ten (10) **Days** after receipt of the **Contractor's** written request therefor.

14.7 Initiation of Inspection by the **Engineer/Resident Engineer**: If the **Contractor** does not request inspection or re-inspection of the **Work** for the purpose of **Substantial Completion** or **Final Acceptance**, the **Engineer/Resident Engineer** may initiate such inspection or re-inspection.

ARTICLE 15. LIQUIDATED DAMAGES

15.1 In the event the **Contractor** fails to substantially complete the **Work** within the time fixed for such **Substantial Completion** in Schedule A of the General Conditions, plus authorized time extensions, or if the **Contractor**, in the sole determination of the **Commissioner**, has abandoned the **Work**, the **Contractor** shall pay to the **City** the sum fixed in Schedule A of the General Conditions, for each and every **Day** that the time consumed in substantially completing the **Work** exceeds the time allowed therefor; which said sum, in view of the difficulty of accurately ascertaining the loss which the **City** will suffer by reason of delay in the **Substantial Completion** of the **Work** hereunder, is hereby fixed and agreed as the liquidated damages that the **City** will suffer by reason of such delay, and not as a penalty. This Article 15 shall also apply to the **Contractor** whether or not the **Contractor** is defaulted pursuant to Chapter X of this **Contract**. Neither the failure to assess liquidated damages nor the granting of any time extension shall operate as a waiver or release of any claim the **City** may have against the **Contractor** for either actual or liquidated damages.

15.2 Liquidated damages received hereunder are not intended to be nor shall they be treated as either a partial or full waiver or discharge of the **City's** right to indemnification, or the **Contractor's** obligation to indemnify the **City**, or to any other remedy provided for in this **Contract** or by **Law**.

15.3 The **Commissioner** may deduct and retain out of the monies which may become due hereunder, the amount of any such liquidated damages; and in case the amount which may become due hereunder shall be less than the amount of liquidated damages suffered by the **City**, the **Contractor** shall be liable to pay the difference.

ARTICLE 16. OCCUPATION OR USE PRIOR TO COMPLETION

16.1 Unless otherwise provided for in the **Specifications**, the **Commissioner** may take over, use, occupy or operate any part of the **Work** at any time prior to **Final Acceptance**, upon written notification to the **Contractor**. The **Engineer** or **Resident Engineer**, as applicable, shall inspect the part of the **Work** to be taken over, used, occupied, or operated, and will furnish the **Contractor** with a written statement of the **Work**, if any, which remains to be performed on such part. The **Contractor** shall not object to, nor interfere with, the **Commissioner's** decision to exercise the rights granted by Article 16. In the event the **Commissioner** takes over, uses, occupies, or operates any part of the **Work:**

16.1.1 the **Engineer/Resident Engineer** shall issue a written determination of **Substantial Completion** with respect to such part of the **Work**;

16.1.2 the **Contractor** shall be relieved of its absolute obligation to protect such part of the unfinished **Work** in accordance with Article 7;

16.1.3 the **Contractor's** guarantee on such part of the **Work** shall begin on the date of such use by the **City**; and;

16.1.4 the **Contractor** shall be entitled to a return of so much of the amount retained in accordance with Article 21 as it relates to such part of the **Work**, except so much thereof as may be retained under Articles 24 and 44.

CHAPTER IV: SUBCONTRACTS AND ASSIGNMENTS

ARTICLE 17. SUBCONTRACTS

17.1 The **Contractor** shall not make subcontracts totaling an amount more than the percentage of the total **Contract** price fixed in Schedule A of the General Conditions, without prior written permission from the **Commissioner**. All subcontracts made by the **Contractor** shall be in writing. No **Work** may be performed by a **Subcontractor** prior to the **Contractor** entering into a written subcontract with the **Subcontractor** and complying with the provisions of this Article 17.

17.2 Before making any subcontracts, the **Contractor** shall submit a written statement to the **Commissioner** giving the name and address of the proposed **Subcontractor**; the portion of the **Work** and materials which it is to perform and furnish; the cost of the subcontract; the VENDEX questionnaire if required; the proposed subcontract if requested by the **Commissioner**; and any other information tending to prove that the proposed **Subcontractor** has the necessary facilities, skill, integrity, past experience, and financial resources to perform the **Work** in accordance with the terms and conditions of this **Contract**.

17.3 In addition to the requirements in Article 17.2, **Contractor** is required to list the **Subcontractor** in the web based Subcontractor Reporting System through the City's Payee Information Portal (PIP), available at www.nyc.gov/pip.[1] For each **Subcontractor** listed, **Contractor** is required to provide the following information: maximum contract value, description of **Subcontractor's** Work, start and end date of the subcontract and identification of the **Subcontractor**'s industry. Thereafter, **Contractor** will be required to report in the system the payments made to each **Subcontractor** within 30 days of making the payment. If any of the required information changes throughout the Term of the **Contract**, **Contractor** will be required to revise the information in the system.

Failure of the **Contractor** to list a **Subcontractor** and/or to report **Subcontractor** payments in a timely fashion may result in the **Commissioner** declaring the **Contractor** in default of the **Contract** and will subject **Contractor** to liquidated damages in the amount of $100 per day for each day that the **Contractor** fails to identify a **Subcontractor** along with the required information about the **Subcontractor** and/or fails to report payments to a **Subcontractor**, beyond the time frames set forth herein or in the notice from the **City**. Article 15 shall govern the issue of liquidated damages.

17.4 If an approved **Subcontractor** elects to subcontract any portion of its subcontract, the proposed sub-subcontract shall be submitted in the same manner as directed above.

17.5 The **Commissioner** will notify the **Contractor** in writing whether the proposed **Subcontractor** is approved. If the proposed **Subcontractor** is not approved, the **Contractor** may submit another proposed **Subcontractor** unless the **Contractor** decides to do the **Work**. No **Subcontractor** shall be permitted to enter or perform any work on the **Site** unless approved.

17.6 Before entering into any subcontract hereunder, the **Contractor** shall provide the proposed **Subcontractor** with a complete copy of this document and inform the proposed **Subcontractor** fully and completely of all provisions and requirements of this **Contract** relating either directly or indirectly to the **Work** to be performed and the materials to be furnished under such subcontract, and every such

[1] In order to use the new system, a PIP account will be required. Detailed instructions on creating a PIP account and using the new system are also available at www.nyc.gov/pip. Additional assistance with PIP may be obtained by emailing the Financial Information Services Agency Help Desk at pip@fisa.nyc.gov.

Subcontractor shall expressly stipulate that all labor performed and materials furnished by the **Subcontractor** shall strictly comply with the requirements of this **Contract**.

17.7 Documents given to a prospective **Subcontractor** for the purpose of soliciting the **Subcontractor's** bid shall include either a copy of the bid cover or a separate information sheet setting forth the **Project** name, the **Contract** number (if available), the **Agency** (as noted in Article 2.1.6), and the **Project's** location.

17.8 The **Commissioner's** approval of a **Subcontractor** shall not relieve the **Contractor** of any of its responsibilities, duties, and liabilities hereunder. The **Contractor** shall be solely responsible to the **City** for the acts or defaults of its **Subcontractor** and of such **Subcontractor's** officers, agents, and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the **Contractor** to the extent of its subcontract.

17.9 If the **Subcontractor** fails to maintain the necessary facilities, skill, integrity, past experience, and financial resources (other than due to the **Contractor's** failure to make payments where required) to perform the **Work** in accordance with the terms and conditions of this **Contract**, the **Contractor** shall promptly notify the **Commissioner** and replace such **Subcontractor** with a newly approved **Subcontractor** in accordance with this Article 17.

17.10 The **Contractor** shall be responsible for ensuring that all **Subcontractors** performing **Work** at the **Site** maintain all insurance required by **Law**.

17.11 The **Contractor** shall promptly, upon request, file with the **Engineer** a conformed copy of the subcontract and its cost. The subcontract shall provide the following:

17.11.1 Payment to **Subcontractors**: The agreement between the **Contractor** and its **Subcontractor** shall contain the same terms and conditions as to method of payment for **Work**, labor, and materials, and as to retained percentages, as are contained in this **Contract**.

17.11.2 Prevailing Rate of Wages: The agreement between the **Contractor** and its **Subcontractor** shall include the prevailing wage rates and supplemental benefits to be paid in accordance with Labor Law Section 220.

17.11.3 Section 6-123 of the Administrative Code: Pursuant to the requirements of Section 6-123 of the Administrative Code, every agreement between the **Contractor** and a **Subcontractor** in excess of fifty thousand ($50,000) dollars shall include a provision that the **Subcontractor** shall not engage in any unlawful discriminatory practice as defined in Title VIII of the Administrative Code (Section 8-101 *et seq.*).

17.11.4 All requirements required pursuant to federal and/or state grant agreement(s), if applicable to the **Work**.

17.12 The **Commissioner** may deduct from the amounts certified under this **Contract** to be due to the **Contractor**, the sum or sums due and owing from the **Contractor** to the **Subcontractors** according to the terms of the said subcontracts, and in case of dispute between the **Contractor** and its **Subcontractor**, or **Subcontractors**, as to the amount due and owing, the **Commissioner** may deduct and withhold from the amounts certified under this **Contract** to be due to the **Contractor** such sum or sums as may be claimed by such **Subcontractor**, or **Subcontractors**, in a sworn affidavit, to be due and owing until such time as such claim or claims shall have been finally resolved.

17.13 On contracts where performance bonds and payment bonds are executed, the **Contractor** shall include on each requisition for payment the following data: **Subcontractor's** name, value of the subcontract, total amount previously paid to **Subcontractor** for **Work** previously requisitioned, and the amount, including retainage, to be paid to the **Subcontractor** for **Work** included in the requisition.

17.14 On **Contracts** where performance bonds and payment bonds are not executed, the **Contractor** shall include with each requisition for payment submitted hereunder, a signed statement from each and every **Subcontractor** and/or **Materialman** for whom payment is requested in such requisition. Such signed statement shall be on the letterhead of the **Subcontractor** and/or **Materialman** for whom payment is requested and shall (i) verify that such **Subcontractor** and/or **Materialman** has been paid in full for all **Work** performed and/or material supplied to date, exclusive of any amount retained and any amount included on the current requisition, and (ii) state the total amount of retainage to date, exclusive of any amount retained on the current requisition.

ARTICLE 18. ASSIGNMENTS

18.1 The **Contractor** shall not assign, transfer, convey or otherwise dispose of this **Contract**, or the right to execute it, or the right, title or interest in or to it or any part thereof, or assign, by power of attorney or otherwise any of the monies due or to become due under this **Contract**, unless the previous written consent of the **Commissioner** shall first be obtained thereto, and the giving of any such consent to a particular assignment shall not dispense with the necessity of such consent to any further or other assignments.

18.2 Such assignment, transfer, conveyance or other disposition of this **Contract** shall not be valid until filed in the office of the **Commissioner** and the **Comptroller**, with the written consent of the **Commissioner** endorsed thereon or attached thereto.

18.3 Failure to obtain the previous written consent of the **Commissioner** to such an assignment, transfer, conveyance or other disposition, may result in the revocation and annulment of this **Contract**. The **City** shall thereupon be relieved and discharged from any further liability to the **Contractor**, its assignees, transferees or sublessees, who shall forfeit and lose all monies therefor earned under the **Contract**, except so much as may be required to pay the **Contractor's** employees.

18.4 The provisions of this clause shall not hinder, prevent, or affect an assignment by the **Contractor** for the benefit of its creditors made pursuant to the **Laws** of the State of New York.

18.5 This **Contract** may be assigned by the **City** to any corporation, agency or instrumentality having authority to accept such assignment.

CHAPTER V: CONTRACTOR'S SECURITY AND GUARANTEE

ARTICLE 19. SECURITY DEPOSIT

19.1 If performance and payment bonds are required, the **City** shall retain the bid security to ensure that the successful bidder executes the **Contract** and furnishes the required payment and performance security within ten (10) **Days** after notice of the award of the **Contract**. If the successful bidder fails to execute the **Contract** and furnish the required payment and performance security, the **City** shall retain such bid security as set forth in the Information for Bidders. If the successful bidder executes the

Contract and furnishes the required payment and performance security, the **City** shall return the bid security within a reasonable time after the furnishing of such bonds and execution of the **Contract** by the **City**.

19.2 If performance and payment bonds are not required, the bid security shall be retained by the **City** as security for the **Contractor**'s faithful performance of the **Contract**. If partial payments are provided, the bid security will be returned to the **Contractor** after the sum retained under Article 21 equals the amount of the bid security, subject to other provisions of this **Contract**. If partial payments are not provided, the bid security will be released when final payment is certified by the **City** for payment.

19.3 If the **Contractor** is declared in default under Article 48 prior to the return of the deposit, or if any claim is made such as referred to in Article 23, the amount of such deposit, or so much thereof as the **Comptroller** may deem necessary, may be retained and then applied by the **Comptroller**:

19.3.1 To compensate the **City** for any expense, loss or damage suffered or incurred by reason of or resulting from such default, including the cost of re-letting and liquidated damages; or

19.3.2 To indemnify the **City** against any and all claims.

ARTICLE 20. PAYMENT GUARANTEE

20.1 On **Contracts** where one hundred (100%) percent performance bonds and payment bonds are executed, this Article 20 does not apply.

20.2 In the event the terms of this **Contract** do not require the **Contractor** to provide a payment bond or where the **Contract** does not require a payment bond for one hundred (100%) percent of the **Contract** price, the **City** shall, in accordance with the terms of this Article 20, guarantee payment of all lawful claims for:

20.2.1 Wages and compensation for labor performed and/or services rendered; and

20.2.2 Materials, equipment, and supplies provided, whether incorporated into the **Work** or not, when demands have been filed with the **City** as provided hereinafter by any person, firm, or corporation which furnished labor, material, equipment, supplies, or any combination thereof, in connection with the **Work** performed hereunder (hereinafter referred to as the "beneficiary") at the direction of the **City** or the **Contractor**.

20.3 The provisions of Article 20.2 are subject to the following limitations and conditions:

20.3.1 If the **Contractor** provides a payment bond for a value that is less than one hundred (100%) percent of the value of the **Contract Work**, the payment bond provided by the **Contractor** shall be primary (and non-contributing) to the payment guarantee provided under this Article 20.

20.3.2 The guarantee is made for the benefit of all beneficiaries as defined in Article 20.2 provided that those beneficiaries strictly adhere to the terms and conditions of Article 20.3.4 and 20.3.5.

20.3.3 Nothing in this Article 20 shall prevent a beneficiary providing labor, services or material for the **Work** from suing the **Contractor** for any amounts due and owing the beneficiary by the **Contractor**.

20.3.4 Every person who has furnished labor or material, to the **Contractor** or to a **Subcontractor** of the **Contractor**, in the prosecution of the **Work** and who has not been paid in full therefor before the expiration of a period of ninety (90) **Days** after the date on which the last of the labor was performed or material was furnished by him/her for which the claim is made, shall have the right to sue on this payment guarantee in his/her own name for the amount, or the balance thereof, unpaid at the time of commencement of the action; provided, however, that a person having a direct contractual relationship with a **Subcontractor** of the **Contractor** but no contractual relationship express or implied with the **Contractor** shall not have a right of action upon the guarantee unless he/she shall have given written notice to the **Contractor** within one hundred twenty (120) **Days** from the date on which the last of the labor was performed or the last of the material was furnished, for which his/her claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the material was furnished or for whom the labor was performed. The notice shall be served by delivering the same personally to the **Contractor** or by mailing the same by registered mail, postage prepaid, in an envelope addressed to the **Contractor** at any place where it maintains an office or conducts its business; provided, however, that where such notice is actually received by the **Contractor** by other means, such notice shall be deemed sufficient.

20.3.5 Except as provided in Labor Law Section 220-g, no action on this payment guarantee shall be commenced after the expiration of the one-year limitations period set forth in Section 137(4)(b) of the State Finance Law.

20.3.6 The **Contractor** shall promptly forward to the **City** any notice or demand received pursuant to Article 20.3.4. The **Contractor** shall inform the **City** of any defenses to the notice or demand and shall forward to the **City** any documents the **City** requests concerning the notice or demand.

20.3.7 All demands made against the **City** by a beneficiary of this payment guarantee shall be presented to the **Engineer** along with all written documentation concerning the demand which the **Engineer** deems reasonably appropriate or necessary, which may include, but shall not be limited to: the subcontract; any invoices presented to the **Contractor** for payment; the notarized statement of the beneficiary that the demand is due and payable, that a request for payment has been made of the **Contractor** and that the demand has not been paid by the **Contractor** within the time allowed for such payment by the subcontract; and copies of any correspondence between the beneficiary and the **Contractor** concerning such demand. The **City** shall notify the **Contractor** that a demand has been made. The **Contractor** shall inform the **City** of any defenses to the demand and shall forward to the **City** any documents the **City** requests concerning the demand.

20.3.8 The **City** shall make payment only if, after considering all defenses presented by the **Contractor**, it determines that the payment is due and owing to the beneficiary making the demand.

20.3.9 No beneficiary shall be entitled to interest from the **City**, or to any other costs, including, but not limited to, attorneys' fees, except to the extent required by State Finance Law Section 137.

20.4 Upon the receipt by the **City** of a demand pursuant to this Article 20, the **City** may withhold from any payment otherwise due and owing to the **Contractor** under this **Contract** an amount sufficient to satisfy the demand.

20.4.1 In the event the **City** determines that the demand is valid, the **City** shall notify the **Contractor** of such determination and the amount thereof and direct the **Contractor** to immediately pay such amount to the beneficiary. In the event the **Contractor**, within seven (7) **Days** of receipt of such notification from the **City**, fails to pay the beneficiary, such failure shall constitute an automatic and irrevocable assignment of payment by the **Contractor** to the beneficiary for the amount of the demand determined by the **City** to be valid. The **Contractor**, without further notification or other process, hereby gives its unconditional consent to such assignment of payment to the beneficiary and authorizes the **City**, on its behalf, to take all necessary actions to implement such assignment of payment, including without limitation the execution of any instrument or documentation necessary to effectuate such assignment.

20.4.2In the event that the amount otherwise due and owing to the **Contractor** by the **City** is insufficient to satisfy such demand, the **City** may, at its option, require payment from the **Contractor** of an amount sufficient to cover such demand and exercise any other right to require or recover payment which the **City** may have under **Law** or **Contract**.

20.4.3 In the event the **City** determines that the demand is invalid, any amount withheld pending the **City**'s review of such demand shall be paid to the **Contractor**; provided, however, no lien has been filed. In the event a claim or an action has been filed, the terms and conditions set forth in Article 23 shall apply. In the event a lien has been filed, the parties will be governed by the provisions of the Lien Law of the State of New York.

20.5 The provisions of this Article 20 shall not prevent the **City** and the **Contractor** from resolving disputes in accordance with the **PPB** Rules, where applicable.

20.6 In the event the **City** determines that the beneficiary is entitled to payment pursuant to this Article 20, such determination and any defenses and counterclaims raised by the **Contractor** shall be taken into account in evaluating the **Contractor's** performance.

20.7 Nothing in this Article 20 shall relieve the **Contractor** of the obligation to pay the claims of all persons with valid and lawful claims against the **Contractor** relating to the **Work**.

20.8 The **Contractor** shall not require any performance, payment or other bonds of any **Subcontractor** if this **Contract** does not require such bonds of the **Contractor**.

20.9 The payment guarantee made pursuant to this Article 20 shall be construed in a manner consistent with Section 137 of the State Finance Law and shall afford to persons furnishing labor or materials to the **Contractor** or its **Subcontractors** in the prosecution of the **Work** under this **Contract** all of the rights and remedies afforded to such persons by such section, including but not limited to, the right to commence an action against the **City** on the payment guarantee provided by this Article 20 within the one-year limitations period set forth in Section 137(4)(b).

ARTICLE 21. RETAINED PERCENTAGE

21.1 If this **Contract** requires one hundred (100%) percent performance and payment security, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and

retain until the substantial completion of the **Work**, five (5%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.2 If this **Contract** does not require one hundred (100%) percent performance and payment security and if the price for which this **Contract** was awarded does not exceed one million ($1,000,000) dollars, then as further security for the faithful performance of this **Contract**, the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, five (5%) percent of the value of **Work** certified for payment in each partial payment voucher.

21.3 If this **Contract** does not require one hundred (100%) percent performance and payment security and if the price for which this **Contract** was awarded exceeds one million ($1,000,000) dollars, then as further security for the faithful performance of this **Contract,** the **Commissioner** shall deduct, and retain until the substantial completion of the **Work**, up to ten (10%) percent of the value of **Work** certified for payment in each partial payment voucher. The percentage to be retained is set forth in Schedule A of the General Conditions.

ARTICLE 22. INSURANCE

22.1 Types of Insurance: The **Contractor** shall procure and maintain the following types of insurance if, and as indicated, in Schedule A of the General Conditions (with the minimum limits and special conditions specified in Schedule A). Such insurance shall be maintained from the date the **Contractor** is required to provide Proof of Insurance pursuant to Article 22.3.1 through the date of completion of all required **Work** (including punch list work as certified in writing by the **Resident Engineer**), except for insurance required pursuant to Article 22.1.4, which may terminate upon **Substantial Completion** of the **Contract.** All insurance shall meet the requirements set forth in this Article 22. Wherever this Article requires that insurance coverage be "at least as broad" as a specified form (including all ISO forms), there is no obligation that the form itself be used, provided that the **Contractor** can demonstrate that the alternative form or endorsement contained in its policy provides coverage at least as broad as the specified form.

22.1.1 Commercial General Liability Insurance: The **Contractor** shall provide Commercial General Liability Insurance covering claims for property damage and/or bodily injury, including death, which may arise from any of the operations under this **Contract**. Coverage under this insurance shall be at least as broad as that provided by the latest edition of Insurance Services Office ("ISO") Form CG 0001. Such insurance shall be "occurrence" based rather than "claims-made" and include, without limitation, the following types of coverage: premises operations; products and completed operations; contractual liability (including the tort liability of another assumed in a contract); broad form property damage; independent contractors; explosion, collapse and underground (XCU); construction means and methods; and incidental malpractice. Such insurance shall contain a "per project" aggregate limit, as specified in Schedule A, that applies separately to operations under this **Contract.**

22.1.1(a) Such Commercial General Liability Insurance shall name the **City** as an Additional Insured. Coverage for the City shall specifically include the **City's** officials and employees, be at least as broad as the latest edition of ISO Form CG 20 10 and provide completed operations coverage at least as broad as the latest edition of ISO Form CG 20 37.

22.1.1(b) Such Commercial General Liability Insurance shall name all other entities designated as additional insureds in Schedule A but only for claims arising from the

Contractor's operations under this **Contract**, with coverage at least as broad as the latest edition of ISO Form CG 20 26.

22.1.1(c) If the **Work** requires a permit from the Department of Buildings pursuant to 1 RCNY Section 101-08, the **Contractor** shall provide Commercial General Liability Insurance with limits of at least those required by 1 RCNY section 101-08 or greater limits required by the Agency in accordance with Schedule A. If the **Work** does not require such a permit, the minimum limits shall be those provided for in Schedule A.

22.1.1(d) If any of the **Work** includes repair of a waterborne vessel owned by or to be delivered to the **City**, such Commercial General Liability shall include, or be endorsed to include, Ship Repairer's Legal Liability Coverage to protect against, without limitation, liability arising from navigation of such vessels prior to delivery to and acceptance by the **City**.

22.1.2 Workers' Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance: The **Contractor** shall provide, and shall cause its **Subcontractors** to provide, Workers Compensation Insurance, Employers' Liability Insurance, and Disability Benefits Insurance in accordance with the **Laws** of the State of New York on behalf of all employees providing services under this **Contract** (except for those employees, if any, for which the **Laws** require insurance only pursuant to Article 22.1.3).

22.1.3 United States Longshoremen's and Harbor Workers Act and/or Jones Act Insurance: If specified in Schedule A of the General Conditions or if required by **Law**, the **Contractor** shall provide insurance in accordance with the United States Longshoremen's and Harbor Workers Act and/or the Jones Act, on behalf of all qualifying employees providing services under this **Contract**.

22.1.4 Builders Risk Insurance: If specified in Schedule A of the General Conditions, the **Contractor** shall provide Builders Risk Insurance on a completed value form for the total value of the **Work** through **Substantial Completion** of the **Work** in its entirety. Such insurance shall be provided on an All Risk basis and include coverage, without limitation, for windstorm (including named windstorm), storm surge, flood and earth movement. Unless waived by the **Commissioner**, it shall include coverage for ordinance and law, demolition and increased costs of construction, debris removal, pollutant clean up and removal, and expediting costs. Such insurance shall cover, without limitation, (a) all buildings and/or structures involved in the **Work**, as well as temporary structures at the **Site**, and (b) any property that is intended to become a permanent part of such building or structure, whether such property is on the **Site**, in transit or in temporary storage. Policies shall name the **Contractor** as Named Insured and list the **City** as both an Additional Insured and a Loss Payee as its interest may appear.

22.1.4(a) Policies of such insurance shall specify that, in the event a loss occurs at an occupied facility, occupancy of such facility is permitted without the consent of the issuing insurance company.

22.1.4(b) Such insurance may be provided through an Installation Floater, at the **Contractor's** option, if it otherwise conforms with the requirements of this Article 22.1.4.

22.1.5 Commercial Automobile Liability Insurance: The **Contractor** shall provide Commercial Automobile Liability Insurance for liability arising out of ownership,

maintenance or use of any owned (if any), non-owned and hired vehicles to be used in connection with this **Contract**. Coverage shall be at least as broad as the latest edition of ISO Form CA0001. If vehicles are used for transporting hazardous materials, the Automobile Liability Insurance shall be endorsed to provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90.

22.1.6 Contractors Pollution Liability Insurance: If specified in Schedule A of the General Conditions, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Contractors Pollution Liability Insurance covering bodily injury and property damage. Such insurance shall provide coverage for actual, alleged or threatened emission, discharge, dispersal, seepage, release or escape of pollutants (including asbestos), including any loss, cost or expense incurred as a result of any cleanup of pollutants (including asbestos) or in the investigation, settlement or defense of any claim, action, or proceedings arising from the operations under this **Contract**. Such insurance shall be in the **Contractor's** name and list the **City** as an Additional Insured and any other entity specified in Schedule A. Coverage shall include, without limitation, (a) loss of use of damaged property or of property that has not been physically injured, (b) transportation, and (c) non-owned disposal sites.

22.1.6(a) Coverage for the **City** as Additional Insured shall specifically include the **City's** officials and employees and be at least as broad as provided to the **Contractor** for this **Project**.

22.1.6(b) If such insurance is written on a claims-made policy, such policy shall have a retroactive date on or before the effective date of this **Contract**, and continuous coverage shall be maintained, or an extended discovery period exercised, for a period of not less than three (3) years from the time the **Work** under this **Contract** is completed.

22.1.7 Marine Insurance:

22.1.7(a) Marine Protection and Indemnity Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such Work to maintain, Marine Protection and Indemnity Insurance with coverage at least as broad as Form SP-23. The insurance shall provide coverage for the **Contractor** or **Subcontractor** (whichever is doing this **Work**) and for the **City** (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured for bodily injury and property damage arising from marine operations under this **Contract**. Coverage shall include, without limitation, injury or death of crew members (if not fully provided through other insurance), removal of wreck, damage to piers, wharves and other fixed or floating objects and loss of or damage to any other vessel or craft, or to property on such other vessel or craft.

22.1.7(b) Hull and Machinery Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such **Work** to maintain, Hull and Machinery Insurance with coverage for the **Contractor** or **Subcontractor** (whichever is doing this Work) and for the **City** (together with its officials and employees) as Additional Insured at least as broad as the latest edition of American Institute Tug Form for all tugs used under this

Contract and Collision Liability at least as broad as the latest edition of American Institute Hull Clauses.

22.1.7(c) Marine Pollution Liability Insurance: If specified in Schedule A of the General Conditions or if the **Contractor** engages in marine operations in the execution of any part of the **Work**, the **Contractor** shall maintain, or cause the **Subcontractor** doing such Work to maintain, Marine Pollution Liability Insurance covering itself (or the Subcontractor doing such Work) as Named Insured and the **City** (together with its officials and employees) and any other entity specified in Schedule A as an Additional Insured. Coverage shall be at least as broad as that provided by the latest edition of Water Quality Insurance Syndicate Form and include, without limitation, liability arising from the discharge or substantial threat of a discharge of oil, or from the release or threatened release of a hazardous substance including injury to, or economic losses resulting from, the destruction of or damage to real property, personal property or natural resources.

22.1.8 The **Contractor** shall provide such other types of insurance, at such minimum limits and with such conditions, as are specified in Schedule A of the General Conditions.

22.2 General Requirements for Insurance Coverage and Policies:

22.2.1 All required insurance policies shall be maintained with companies that may lawfully issue the required policy and have an A.M. Best rating of at least A-/VII or a Standard and Poor's rating of at least A, unless prior written approval is obtained from the **City** Corporation Counsel.

22.2.2 The **Contractor** shall be solely responsible for the payment of all premiums for all required policies and all deductibles and self-insured retentions to which such policies are subject, whether or not the **City** is an insured under the policy.

22.2.3 In his/her sole discretion, the **Commissioner** may, subject to the approval of the **Comptroller** and the **City** Corporation Counsel, accept Letters of Credit and/or custodial accounts in lieu of required insurance.

22.2.4 The **City's** limits of coverage for all types of insurance required pursuant to Schedule A of the General Conditions shall be the greater of (i) the minimum limits set forth in Schedule A or (ii) the limits provided to the **Contractor** as Named Insured under all primary, excess, and umbrella policies of that type of coverage.

22.2.5 The **Contractor** may satisfy its insurance obligations under this Article 22 through primary policies or a combination of primary and excess/umbrella policies, so long as all policies provide the scope of coverage required herein.

22.2.6 Policies of insurance provided pursuant to this Article 22 shall be primary and non-contributing to any insurance or self-insurance maintained by the **City**.

22.3 Proof of Insurance:

22.3.1 For all types of insurance required by Article 22.1 and Schedule A, except for insurance required by Articles 22.1.4 and 22.1.7, the **Contractor** shall file proof of insurance in accordance with this Article 22.3 within ten (10) **Days** of award. For insurance

provided pursuant to Articles 22.1.4 and 22.1.7, proof shall be filed by a date specified by the **Commissioner** or ten (10) **Days** prior to the commencement of the portion of the **Work** covered by such policy, whichever is earlier.

22.3.2 For Workers' Compensation Insurance provided pursuant to Article 22.1.2, the **Contractor** shall submit one of the following forms: C-105.2 Certificate of Workers' Compensation Insurance; U-26.3 - State Insurance Fund Certificate of Workers' Compensation Insurance; Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the **Commissioner**. For Disability Benefits Insurance provided pursuant to Article 22.1.2, the Contractor shall submit DB-120.1 - Certificate Of Insurance Coverage Under The NYS Disability Benefits Law, Request for WC/DB Exemption (Form CE-200); equivalent or successor forms used by the New York State Workers' Compensation Board; or other proof of insurance in a form acceptable to the **Commissioner**. ACORD forms are not acceptable.

22.3.3 For policies provided pursuant to all of Article 22.1 other than Article 22.1.2, the **Contractor** shall submit one or more Certificates of Insurance on forms acceptable to the **Commissioner**. All such Certificates of Insurance shall certify (a) the issuance and effectiveness of such policies of insurance, each with the specified minimum limits (b) for insurance secured pursuant to Article 22.1.1 that the **City** and any other entity specified in Schedule A is an Additional Insured thereunder; (c) in the event insurance is required pursuant to Article 22.1.6 and/or Article 22.1.7, that the City is an Additional Insured thereunder; (d) the company code issued to the insurance company by the National Association of Insurance Commissioners (the NAIC number); and (e) the number assigned to the **Contract** by the **City**. All such Certificates of Insurance shall be accompanied by either a duly executed "Certification by Insurance Broker or Agent" in the form contained in Part III of Schedule A or copies of all policies referenced in such Certificate of Insurance as certified by an authorized representative of the issuing insurance carrier. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

22.3.4 Documentation confirming renewals of insurance shall be submitted to the **Commissioner** prior to the expiration date of coverage of policies required under this **Contract**. Such proofs of insurance shall comply with the requirements of Articles 22.3.2 and 22.3.3.

22.3.5 The **Contractor** shall be obligated to provide the **City** with a copy of any policy of insurance provided pursuant to this Article 22 upon the demand for such policy by the **Commissioner** or the **City** Corporation Counsel.

22.4 Operations of the **Contractor**:

22.4.1 The **Contractor** shall not commence the **Work** unless and until all required certificates have been submitted to and accepted by the **Commissioner**. Acceptance by the **Commissioner** of a certificate does not excuse the **Contractor** from securing insurance consistent with all provisions of this Article 22 or of any liability arising from its failure to do so.

22.4.2 The **Contractor** shall be responsible for providing continuous insurance coverage in the manner, form, and limits required by this **Contract** and shall be authorized to perform **Work** only during the effective period of all required coverage.

22.4.3 In the event that any of the required insurance policies lapse, are revoked, suspended or otherwise terminated, for whatever cause, the **Contractor** shall immediately stop all **Work**, and shall not recommence **Work** until authorized in writing to do so by the **Commissioner**. Upon quitting the **Site**, except as otherwise directed by the **Commissioner**, the **Contractor** shall leave all plant, materials, equipment, tools, and supplies on the **Site**. **Contract** time shall continue to run during such periods and no extensions of time will be granted. The **Commissioner** may also declare the **Contractor** in default for failure to maintain required insurance.

22.4.4 In the event the **Contractor** receives notice, from an insurance company or other person, that any insurance policy required under this Article 22 shall be cancelled or terminated (or has been cancelled or terminated) for any reason, the **Contractor** shall immediately forward a copy of such notice to both the **Commissioner** and the New York City Comptroller, attn: Office of Contract Administration, Municipal Building, One Centre Street, room 1005, New York, New York 10007. Notwithstanding the foregoing, the **Contractor** shall ensure that there is no interruption in any of the insurance coverage required under this Article 22.

22.4.5 Where notice of loss, damage, occurrence, accident, claim or suit is required under an insurance policy maintained in accordance with this Article 22, the **Contractor** shall notify in writing all insurance carriers that issued potentially responsive policies of any such event relating to any operations under this **Contract** (including notice to Commercial General Liability insurance carriers for events relating to the **Contractor**'s own employees) no later than 20 days after such event. For any policy where the **City** is an Additional Insured, such notice shall expressly specify that "this notice is being given on behalf of the City of New York as Insured as well as the Named Insured." Such notice shall also contain the following information: the number of the insurance policy, the name of the named insured, the date and location of the damage, occurrence, or accident, and the identity of the persons or things injured, damaged or lost. The **Contractor** shall simultaneously send a copy of such notice to the City of New York c/o Insurance Claims Specialist, Affirmative Litigation Division, New York City Law Department, 100 Church Street, New York, New York 10007.

22.4.6 In the event of any loss, accident, claim, action, or other event that does or can give rise to a claim under any insurance policy required under this Article 22, the **Contractor** shall at all times fully cooperate with the **City** with regard to such potential or actual claim.

22.5 **Subcontractor** Insurance: In the event the **Contractor** requires any **Subcontractor** to procure insurance with regard to any operations under this **Contract** and requires such **Subcontractor** to name the **Contractor** as an **Additional Insured** thereunder, the **Contractor** shall ensure that the **Subcontractor** name the **City**, including its officials and employees, as an Additional Insured with coverage at least as broad as the most recent edition of ISO Form CG 20 26.

22.6 Wherever reference is made in Article 7 or this Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth in Schedule A of the General Conditions. In the event no address is set forth in Schedule A, such documents are to be sent to the **Commissioner's** address as provided elsewhere in this **Contract**.

22.7 Apart from damages or losses covered by insurance provided pursuant to Articles 22.1.2, 22.1.3, or 22.1.5, the **Contractor** waives all rights against the **City**, including its officials and employees, for any damages or losses that are covered under any insurance required under this Article 22 (whether or

not such insurance is actually procured or claims are paid thereunder) or any other insurance applicable to the operations of the **Contractor** and/or its employees, agents, or **Subcontractors**.

22.8 In the event the **Contractor** utilizes a self-insurance program to satisfy any of the requirements of this Article 22, the **Contractor** shall ensure that any such self-insurance program provides the **City** with all rights that would be provided by traditional insurance under this Article 22, including but not limited to the defense and indemnification obligations that insurers are required to undertake in liability policies.

22.9 Materiality/Non-Waiver: The **Contractor's** failure to secure policies in complete conformity with this Article 22, or to give an insurance company timely notice of any sort required in this **Contract** or to do anything else required by this Article 22 shall constitute a material breach of this **Contract**. Such breach shall not be waived or otherwise excused by any action or inaction by the **City** at any time.

22.10 Pursuant to General Municipal Law Section 108, this **Contract** shall be void and of no effect unless **Contractor** maintains Workers' Compensation Insurance for the term of this **Contract** to the extent required and in compliance with the New York State Workers' Compensation Law.

22.11 Other Remedies: Insurance coverage provided pursuant to this Article 22 or otherwise shall not relieve the **Contractor** of any liability under this **Contract**, nor shall it preclude the **City** from exercising any rights or taking such other actions available to it under any other provisions of this **Contract** or **Law**.

ARTICLE 23. MONEY RETAINED AGAINST CLAIMS

23.1 If any claim shall be made by any person or entity (including **Other Contractors** with the **City** on this **Project**) against the **City** or against the **Contractor** and the **City** for any of the following:

(a) An alleged loss, damage, injury, theft or vandalism of any of the kinds referred to in Articles 7 and 12, plus the reasonable costs of defending the **City**, which in the opinion of the **Comptroller** may not be paid by an insurance company (for any reason whatsoever); or

(b) An infringement of copyrights, patents or use of patented articles, tools, etc., as referred to in Article 57; or

(c) Damage claimed to have been caused directly or indirectly by the failure of the **Contractor** to perform the **Work** in strict accordance with this **Contract,**

the amount of such claim, or so much thereof as the **Comptroller** may deem necessary, may be withheld by the **Comptroller**, as security against such claim, from any money due hereunder. The **Comptroller**, in his/her discretion, may permit the **Contractor** to substitute other satisfactory security in lieu of the monies so withheld.

23.2 If an action on such claim is timely commenced and the liability of the **City**, or the **Contractor**, or both, shall have been established therein by a final judgment of a court of competent jurisdiction, or if such claim shall have been admitted by the **Contractor** to be valid, the **Comptroller** shall pay such judgment or admitted claim out of the monies retained by the **Comptroller** under the provisions of this Article 23, and return the balance, if any, without interest, to the **Contractor**.

ARTICLE 24. MAINTENANCE AND GUARANTY

24.1 The **Contractor** shall promptly repair, replace, restore or rebuild, as the **Commissioner** may determine, any finished **Work** in which defects of materials or workmanship may appear or to which damage may occur because of such defects, during the one (1) year period subsequent to the date of **Substantial Completion** (or use and occupancy in accordance with Article 16), except where other periods of maintenance and guaranty are provided for in Schedule A.

24.2 As security for the faithful performance of its obligations hereunder, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to one (1%) percent of the price (or the amount fixed in Schedule A of the General Conditions) in cash or certified check upon a state or national bank and trust company or a check of such bank and trust company signed by a duly authorized officer thereof and drawn to the order of the **Comptroller**, or obligations of the **City**, which the **Comptroller** may approve as of equal value with the sum so required.

24.3 In lieu of the above, the **Contractor** may make such security payment to the **City** by authorizing the **Commissioner** in writing to deduct the amount from the **Substantial Completion** payment which shall be deemed the deposit required above.

24.4 If the **Contractor** has faithfully performed all of its obligations hereunder the **Commissioner** shall so certify to the **Comptroller** within five (5) **Days** after the expiration of one (1) year from the date of **Substantial Completion** and acceptance of the **Work** or within thirty (30) **Days** after the expiration of the guarantee period fixed in the **Specifications**. The security payment shall be repaid to the **Contractor** without interest within thirty (30) **Days** after certification by the **Commissioner** to the **Comptroller** that the **Contractor** has faithfully performed all of its obligations hereunder.

24.5 Notice by the **Commissioner** to the **Contractor** to repair, replace, rebuild or restore such defective or damaged **Work** shall be timely, pursuant to this article, if given not later than ten (10) **Days** subsequent to the expiration of the one (1) year period or other periods provided for herein.

24.6 If the **Contractor** shall fail to repair, replace, rebuild or restore such defective or damaged **Work** promptly after receiving such notice, the **Commissioner** shall have the right to have the **Work** done by others in the same manner as provided for in the completion of a defaulted **Contract**, under Article 51.

24.7 If the security payment so deposited is insufficient to cover the cost of such **Work**, the **Contractor** shall be liable to pay such deficiency on demand by the **Commissioner**.

24.8 The **Engineer's** certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective **Work** when performed by one other than the **Contractor**, shall be binding and conclusive upon the **Contractor** as to the amount thereof.

24.9 The **Contractor** shall obtain all manufacturers' warranties and guaranties of all equipment and materials required by this **Contract** in the name of the **City** and shall deliver same to the **Commissioner**. All of the **City's** rights and title and interest in and to said manufacturers' warranties and guaranties may be assigned by the **City** to any subsequent purchasers of such equipment and materials or lessees of the premises into which the equipment and materials have been installed.

CHAPTER VI: CHANGES, EXTRA WORK, AND DOCUMENTATION OF CLAIM

ARTICLE 25. CHANGES

25.1 Changes may be made to this **Contract** only as duly authorized in writing by the **Commissioner** in accordance with the **Law** and this **Contract.** All such changes, modifications, and amendments will become a part of the **Contract**. **Work** so ordered shall be performed by the **Contractor.**

25.2 **Contract** changes will be made only for **Work** necessary to complete the **Work** included in the original scope of the **Contract** and/or for non-material changes to the scope of the **Contract.** Changes are not permitted for any material alteration in the scope of **Work** in the **Contract.**

25.3 The **Contractor** shall be entitled to a price adjustment for **Extra Work** performed pursuant to a written change order. Adjustments to price shall be computed in one or more of the following ways:

25.3.1 By applicable unit prices specified in the **Contract**; and/or

25.3.2 By agreement of a fixed price; and/or

25.3.3 By time and material records; and/or

25.3.4 In any other manner approved by the **CCPO.**

25.4 All payments for change orders are subject to pre-audit by the **Engineering Audit Officer** and may be post-audited by the **Comptroller** and/or the **Agency.**

ARTICLE 26. METHODS OF PAYMENT FOR OVERRUNS AND EXTRA WORK

26.1 Overrun of Unit Price Item: An overrun is any quantity of a unit price item which the **Contractor** is directed to provide which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule.

26.1.1 For any unit price item, the **Contractor** will be paid at the unit price bid for any quantity up to one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule. If during the progress of the **Work**, the actual quantity of any unit price item required to complete the **Work** approaches the estimated quantity for that item, and for any reason it appears that the actual quantity of any unit price item necessary to complete the **Work** will exceed the estimated quantity for that item by twenty-five (25%) percent, the **Contractor** shall immediately notify the **Engineer** of such anticipated overrun. The **Contractor** shall not be compensated for any quantity of a unit price item provided which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule without written authorization from the **Engineer.**

26.1.2 If the actual quantity of any unit price item necessary to complete the **Work** will exceed one hundred twenty five (125%) percent of the estimated quantity for that item set forth in the bid schedule, the **City** reserves the right and the **Contractor** agrees to negotiate a new unit price for such item. In no event shall such negotiated new unit price exceed the unit bid price. If the **City** and **Contractor** cannot agree on a new unit price, then the **City** shall order the **Contractor** and the **Contractor** agrees to provide additional quantities of

the item on the basis of time and material records for the actual and reasonable cost as determined under Article 26.2, but in no event at a unit price exceeding the unit price bid.

26.2 **Extra Work:** For **Extra Work** where payment is by agreement on a fixed price in accordance with Article 25.3.2, the price to be paid for such **Extra Work** shall be based on the fair and reasonable estimated cost of the items set forth below. For **Extra Work** where payment is based on time and material records in accordance with Article 25.3.3, the price to be paid for such **Extra Work** shall be the actual and reasonable cost of the items set forth below, calculated in accordance with the formula specified therein, if any.

26.2.1 Necessary materials (including transportation to the **Site**); plus

26.2.2 Necessary direct labor, including payroll taxes (subject to statutory wage caps) and supplemental benefits; plus

26.2.3 Sales and personal property taxes, if any, required to be paid on materials not incorporated into such **Extra Work**; plus

26.2.4 Reasonable rental value of **Contractor**-owned (or **Subcontractor**-owned, as applicable), necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per operating hour: (.035) x (HP rating) x (Fuel cost/gallon). Reasonable rental value is defined as the lower of either seventy-five percent of the monthly prorated rental rates established in "The AED Green Book, Rental Rates and Specifications for Construction Equipment" published by Equipment Watch (the "Green Book"), or seventy-five percent of the monthly prorated rental rates established in the "Rental Rate Blue Book for Construction Equipment" published by Equipment Watch (the "Blue Book") (the applicable Blue Book rate being for rental only without the addition of any operational costs listed in the Blue Book). The reasonable rental value is deemed to be inclusive of all operating costs except for fuel/energy consumption and equipment operator's wages/costs. For multiple shift utilization, reimbursement shall be calculated as follows: first shift shall be seventy-five (75%) percent of such rental rates; second shift shall be sixty (60%) percent of the first shift rate; and third shift shall be forty (40%) percent of the first shift rate. Equipment on standby shall be reimbursed at one-third (1/3) the prorated monthly rental rate. **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment includes equipment from rental companies affiliated with or controlled by the **Contractor** (or **Subcontractor**, as applicable), as determined by the **Commissioner**. In establishing cost reimbursement for non-operating **Contractor**-owned (or **Subcontractor**-owned, as applicable) equipment (scaffolding, sheeting systems, road plates, etc.), the **City** may restrict reimbursement to a purchase-salvage/life cycle basis if less than the computed rental costs; plus

26.2.5 Necessary installation and dismantling of such plant and equipment, including transportation to and from the **Site**, if any, provided that, in the case of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) equipment rented from a third party, the cost of installation and dismantling are not allowable if such costs are included in the rental rate; plus

26.2.6 Necessary fees charged by governmental entities; plus

26.2.7 Necessary construction-related service fees charged by non-governmental entities, such as landfill tipping fees; plus

26.2.8 Reasonable rental costs of non-**Contractor**-owned (or non-**Subcontractor**-owned, as applicable) necessary plant and equipment other than **Small Tools**, plus fuel/energy costs. Except for fuel costs for pick-up trucks which shall be reimbursed based on a consumption of five (5) gallons per shift, fuel costs shall be reimbursed based on actual costs or, in the absence of auditable documentation, the following fuel consumption formula per hour of operation: (.035) x (HP rating) x (Fuel cost/gallon). In lieu of renting, the **City** reserves the right to direct the purchase of non-operating equipment (scaffolding, sheeting systems, road plates, etc.), with payment on a purchase-salvage/life cycle basis, if less than the projected rental costs; plus

26.2.9 Workers' Compensation Insurance, and any insurance coverage expressly required by the **City** for the performance of the **Extra Work** which is different than the types of insurance required by Article 22 and Schedule A of the General Conditions. The cost of Workers' Compensation Insurance is subject to applicable payroll limitation caps and shall be based upon the carrier's Manual Rate for such insurance derived from the applicable class Loss Cost ("LC") and carrier's Lost Cost Multiplier ("LCM") approved by the New York State Department of Financial Services, and with the exception of experience rating, rate modifiers as promulgated by the New York Compensation Insurance Rating Board ("NYCIRB"); plus

26.2.10 Additional costs incurred as a result of the **Extra Work** for performance and payment bonds; plus

26.2.11 Twelve percent (12%) percent of the total of items in Articles 26.2.1 through 26.2.5 as compensation for overhead, except that no percentage for overhead will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes. Overhead shall include without limitation, all costs and expenses in connection with administration, management superintendence, small tools, and insurance required by Schedule A of the General Conditions other than Workers' Compensation Insurance; plus

26.2.12 Ten (10%) percent of the total of items in Articles 26.2.1 through 26.2.5, plus the items in Article 26.2.11, as compensation for profit, except that no percentage for profit will be allowed on **Payroll Taxes** or on the premium portion of overtime pay or on sales and personal property taxes; plus

26.2.13 Five (5%) percent of the total of items in Articles 26.2.6 through 26.2.10 as compensation for overhead and profit.

26.3 Where the **Extra Work** is performed in whole or in part by other than the **Contractor's** own forces pursuant to Article 26.2, the **Contractor** shall be paid, subject to pre-audit by the **Engineering Audit Officer**, the cost of such **Work** computed in accordance with Article 26.2 above, plus an additional allowance of five (5%) percent to cover the **Contractor's** overhead and profit.

26.4 Where a change is ordered, involving both **Extra Work** and omitted or reduced **Contract Work,** the **Contract** price shall be adjusted, subject to pre-audit by the **EAO**, in an amount based on the difference between the cost of such **Extra Work** and of the omitted or reduced **Work**.

26.5 Where the **Contractor** and the **Commissioner** can agree upon a fixed price for **Extra Work** in accordance with Article 25.3.2 or another method of payment for **Extra Work** in accordance with

Article 25.3.4, or for **Extra Work** ordered in connection with omitted **Work**, such method, subject to pre-audit by the **EAO**, may, at the option of the **Commissioner**, be substituted for the cost plus a percentage method provided in Article 26.2; provided, however, that if the **Extra Work** is performed by a **Subcontractor**, the **Contractor** shall not be entitled to receive more than an additional allowance of five (5%) percent for overhead and profit over the cost of such **Subcontractor's Work** as computed in accordance with Article 26.2.

ARTICLE 27. RESOLUTION OF DISPUTES

27.1 All disputes between the **City** and the **Contractor** of the kind delineated in this Article 27.1 that arise under, or by virtue of, this **Contract** shall be finally resolved in accordance with the provisions of this Article 27 and the **PPB** Rules. This procedure for resolving all disputes of the kind delineated herein shall be the exclusive means of resolving any such disputes.

27.1.1 This Article 27 shall not apply to disputes concerning matters dealt with in other sections of the **PPB** Rules, or to disputes involving patents, copyrights, trademarks, or trade secrets (as interpreted by the courts of New York State) relating to proprietary rights in computer software.

27.1.2 This Article 27 shall apply only to disputes about the scope of **Work** delineated by the **Contract**, the interpretation of **Contract** documents, the amount to be paid for **Extra Work** or disputed work performed in connection with the **Contract**, the conformity of the **Contractor's Work** to the **Contract**, and the acceptability and quality of the **Contractor's Work**; such disputes arise when the **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner** makes a determination with which the **Contractor** disagrees.

27.2 All determinations required by this Article 27 shall be made in writing clearly stated, with a reasoned explanation for the determination based on the information and evidence presented to the party making the determination. Failure to make such determination within the time required by this Article 27 shall be deemed a non-determination without prejudice that will allow application to the next level.

27.3 During such time as any dispute is being presented, heard, and considered pursuant to this Article 27, the **Contract** terms shall remain in force and the **Contractor** shall continue to perform **Work** as directed by the **ACCO** or the **Engineer**. Failure of the **Contractor** to continue **Work** as directed shall constitute a waiver by the **Contractor** of its claim.

27.4 Presentation of Disputes to **Commissioner**.

Notice of Dispute and Agency Response. The **Contractor** shall present its dispute in writing ("Notice of Dispute") to the **Commissioner** within thirty (30) Days of receiving written notice of the determination or action that is the subject of the dispute. This notice requirement shall not be read to replace any other notice requirements contained in the **Contract**. The Notice of Dispute shall include all the facts, evidence, documents, or other basis upon which the **Contractor** relies in support of its position, as well as a detailed computation demonstrating how any amount of money claimed by the **Contractor** in the dispute was arrived at. Within thirty (30) Days after receipt of the detailed written submission comprising the complete Notice of Dispute, the **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner** shall submit to the **Commissioner** all materials he or she deems pertinent to the dispute. Following initial submissions to the **Commissioner**, either party may demand of the other the production of any document or other material the demanding party believes may be relevant to the dispute. The requested party shall produce all relevant materials that are not otherwise

protected by a legal privilege recognized by the courts of New York State. Any question of relevancy shall be determined by the **Commissioner** whose decision shall be final. Willful failure of the **Contractor** to produce any requested material whose relevancy the **Contractor** has not disputed, or whose relevancy has been affirmatively determined, shall constitute a waiver by the **Contractor** of its claim.

27.4.1 **Commissioner** Inquiry. The **Commissioner** shall examine the material and may, in his or her discretion, convene an informal conference with the **Contractor**, the **ACCO**, and the **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner** to resolve the issue by mutual consent prior to reaching a determination. The **Commissioner** may seek such technical or other expertise as he or she shall deem appropriate, including the use of neutral mediators, and require any such additional material from either or both parties as he or she deems fit. The **Commissioner's** ability to render, and the effect of, a decision hereunder shall not be impaired by any negotiations in connection with the dispute presented, whether or not the **Commissioner** participated therein. The **Commissioner** may or, at the request of any party to the dispute, shall compel the participation of any **Other Contractor** with a contract related to the **Work** of this **Contract**, and that **Contractor** shall be bound by the decision of the **Commissioner**. Any **Other Contractor** thus brought into the dispute resolution proceeding shall have the same rights and obligations under this Article 27 as the **Contractor** initiating the dispute.

27.4.2 **Commissioner** Determination. Within thirty (30) **Days** after the receipt of all materials and information, or such longer time as may be agreed to by the parties, the **Commissioner** shall make his or her determination and shall deliver or send a copy of such determination to the **Contractor**, the **ACCO**, and **Engineer**, **Resident Engineer**, **Engineering Audit Officer**, or other designee of the **Commissioner**, as applicable, together with a statement concerning how the decision may be appealed.

27.4.3 Finality of **Commissioner's** Decision. The **Commissioner's** decision shall be final and binding on all parties, unless presented to the Contract Dispute Resolution Board pursuant to this Article 27. The **City** may not take a petition to the Contract Dispute Resolution Board. However, should the **Contractor** take such a petition, the **City** may seek, and the Contract Dispute Resolution Board may render, a determination less favorable to the **Contractor** and more favorable to the **City** than the decision of the **Commissioner**.

27.5 Presentation of Dispute to the **Comptroller**. Before any dispute may be brought by the **Contractor** to the Contract Dispute Resolution Board, the **Contractor** must first present its claim to the **Comptroller** for his or her review, investigation, and possible adjustment.

27.5.1 Time, Form, and Content of Notice. Within thirty (30) **Days** of its receipt of a decision by the **Commissioner**, the **Contractor** shall submit to the **Comptroller** and to the **Commissioner** a Notice of Claim regarding its dispute with the **Agency**. The Notice of Claim shall consist of (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written decision of the **Commissioner**; and (iii) a copy of all materials submitted by the **Contractor** to the **Agency**, including the Notice of Dispute. The **Contractor** may not present to the **Comptroller** any material not presented to the **Commissioner**, except at the request of the **Comptroller**.

27.5.2 Response. Within thirty (30) **Days** of receipt of the Notice of Claim, the **Agency** shall make available to the **Comptroller** a copy of all material submitted by the **Agency** to the **Commissioner** in connection with the dispute. The **Agency** may not present to the **Comptroller** any material not presented to the **Commissioner** except at the request of the **Comptroller**.

27.5.3 **Comptroller** Investigation. The **Comptroller** may investigate the claim in dispute and, in the course of such investigation, may exercise all powers provided in Sections 7-201 and 7-203 of the Administrative Code. In addition, the **Comptroller** may demand of either party, and such party shall provide, whatever additional material the **Comptroller** deems pertinent to the claim, including original business records of the **Contractor**. Willful failure of the **Contractor** to produce within fifteen (15) **Days** any material requested by the **Comptroller** shall constitute a waiver by the **Contractor** of its claim. The **Comptroller** may also schedule an informal conference to be attended by the **Contractor**, **Agency** representatives, and any other personnel desired by the **Comptroller**.

27.5.4 Opportunity of **Comptroller** to Compromise or Adjust Claim. The **Comptroller** shall have forty-five (45) **Days** from his or her receipt of all materials referred to in Article 27.5.3 to investigate the disputed claim. The period for investigation and compromise may be further extended by agreement between the **Contractor** and the **Comptroller**, to a maximum of ninety (90) **Days** from the **Comptroller's** receipt of all materials. The **Contractor** may not present its petition to the Contract Dispute Resolution Board until the period for investigation and compromise delineated in this Article 27.5.4 has expired. In compromising or adjusting any claim hereunder, the **Comptroller** may not revise or disregard the terms of the **Contract** between the parties.

27.6 Contract Dispute Resolution Board. There shall be a Contract Dispute Resolution Board composed of:

27.6.1 The chief administrative law judge of the Office of Administrative Trials and Hearings (OATH) or his/her designated OATH administrative law judge, who shall act as chairperson, and may adopt operational procedures and issue such orders consistent with this Article 27 as may be necessary in the execution of the Contract Dispute Resolution Board's functions, including, but not limited to, granting extensions of time to present or respond to submissions;

27.6.2 The **CCPO** or his/her designee; any designee shall have the requisite background to consider and resolve the merits of the dispute and shall not have participated personally and substantially in the particular matter that is the subject of the dispute or report to anyone who so participated; and

27.6.3 A person with appropriate expertise who is not an employee of the **City**. This person shall be selected by the presiding administrative law judge from a prequalified panel of individuals, established and administered by OATH with appropriate background to act as decision-makers in a dispute. Such individual may not have a contract or dispute with the **City** or be an officer or employee of any company or organization that does, or regularly represents persons, companies, or organizations having disputes with the **City**.

27.7 Petition to the Contract Dispute Resolution Board. In the event the claim has not been settled or adjusted by the **Comptroller** within the period provided in this Article 27, the **Contractor**,

within thirty (30) **Days** thereafter, may petition the Contract Dispute Resolution Board to review the **Commissioner's** determination.

27.7.1 Form and Content of Petition by **Contractor**. The **Contractor** shall present its dispute to the Contract Dispute Resolution Board in the form of a petition, which shall include (i) a brief written statement of the substance of the dispute, the amount of money, if any, claimed, and the reason(s) the **Contractor** contends the dispute was wrongly decided by the **Commissioner**; (ii) a copy of the written Decision of the **Commissioner**, (iii) copies of all materials submitted by the **Contractor** to the Agency; (iv) a copy of the written decision of the **Comptroller**, if any, and (v) copies of all correspondence with, or written material submitted by the **Contractor**, to the **Comptroller**. The **Contractor** shall concurrently submit four (4) complete sets of the Petition: one set to the **City** Corporation Counsel (Attn: Commercial and Real Estate Litigation Division) and three (3) sets to the Contract Dispute Resolution Board at OATH's offices with proof of service on the **City** Corporation Counsel. In addition, the **Contractor** shall submit a copy of the written statement of the substance of the dispute, cited in (i) above, to both the **Commissioner** and the **Comptroller**.

27.7.2 **Agency** Response. Within thirty (30) **Days** of its receipt of the Petition by the **City** Corporation Counsel, the **Agency** shall respond to the brief written statement of the **Contractor** and make available to the Contract Dispute Resolution Board all material it submitted to the **Commissioner** and **Comptroller**. Three (3) complete copies of the **Agency** response shall be provided to the Contract Dispute Resolution Board and one to the **Contractor**. Extensions of time for submittal of the **Agency** response shall be given as necessary upon a showing of good cause or, upon consent of the parties, for an initial period of up to thirty (30) Days.

27.7.3 Further Proceedings. The Contract Dispute Resolution Board shall permit the **Contractor** to present its case by submission of memoranda, briefs, and oral argument. The Contract Dispute Resolution Board shall also permit the **Agency** to present its case in response to the **Contractor** by submission of memoranda, briefs, and oral argument. If requested by the **City** Corporation Counsel, the **Comptroller** shall provide reasonable assistance in the preparation of the **Agency's** case. Neither the **Contractor** nor the **Agency** may support its case with any documentation or other material that was not considered by the **Comptroller**, unless requested by the Contract Dispute Resolution Board. The Contract Dispute Resolution Board, in its discretion, may seek such technical or other expert advice as it shall deem appropriate and may seek, on its own or upon application of a party, any such additional material from any party as it deems fit. The Contract Dispute Resolution Board, in its discretion, may combine more than one dispute between the parties for concurrent resolution.

27.7.4 Contract Dispute Resolution Board Determination. Within forty-five (45) **Days** of the conclusion of all written submissions and oral arguments, the Contract Dispute Resolution Board shall render a written decision resolving the dispute. In an unusually complex case, the Contract Dispute Resolution Board may render its decision in a longer period, not to exceed ninety (90) **Days**, and shall so advise the parties at the commencement of this period. The Contract Dispute Resolution Board's decision must be consistent with the terms of the **Contract**. Decisions of the Contract Dispute Resolution Board shall only resolve matters before the Contract Dispute Resolution Board and shall not have precedential effect with respect to matters not before the Contract Dispute Resolution Board.

27.7.5 Notification of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board shall send a copy of its decision to the **Contractor**, the **ACCO**, the Engineer, the **Comptroller**, the **City** Corporation Counsel, the CCPO, and the **PPB**. A decision in favor of the **Contractor** shall be subject to the prompt payment provisions of the **PPB** Rules. The Required Payment Date shall be thirty (30) Days after the date the parties are formally notified of the Contract Dispute Resolution Board's decision.

27.7.6 Finality of Contract Dispute Resolution Board Decision. The Contract Dispute Resolution Board's decision shall be final and binding on all parties. Any party may seek review of the Contract Dispute Resolution Board's decision solely in the form of a challenge, filed within four (4) months of the date of the Contract Dispute Resolution Board's decision, in a court of competent jurisdiction of the State of New York, County of New York pursuant to Article 78 of the Civil Practice Law and Rules. Such review by the court shall be limited to the question of whether or not the Contract Dispute Resolution Board's decision was made in violation of lawful procedure, was affected by an error of **Law**, or was arbitrary and capricious or an abuse of discretion. No evidence or information shall be introduced or relied upon in such proceeding that was not presented to the Contract Dispute Resolution Board in accordance with this Article 27.

27.8 Any termination, cancellation, or alleged breach of the **Contract** prior to or during the pendency of any proceedings pursuant to this Article 27 shall not affect or impair the ability of the **Commissioner** or Contract Dispute Resolution Board to make a binding and final decision pursuant to this Article 27.

ARTICLE 28. RECORD KEEPING FOR EXTRA OR DISPUTED WORK OR WORK ON A TIME & MATERIALS BASIS

28.1 While the **Contractor** or any of its **Subcontractors** is performing **Work** on a time and material basis or **Extra Work** on a time and material basis ordered by the **Commissioner** under Article 25, or where the **Contractor** believes that it or any of its **Subcontractors** is performing **Extra Work** but a final determination by **Agency** has not been made, or the **Contractor** or any of its **Subcontractors** is performing disputed **Work** (whether on or off the **Site**), or complying with a determination or order under protest in accordance with Articles 11, 27, and 30, in each such case the **Contractor** shall furnish the **Resident Engineer** daily with three (3) copies of written statements signed by the **Contractor's** representative at the **Site** showing:

28.1.1 The name, trade, and number of each worker employed on such **Work** or engaged in complying with such determination or order, the number of hours employed, and the character of the **Work** each is doing; and

28.1.2 The nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such **Work** or compliance with such determination or order, and from whom purchased or rented.

28.2 A copy of such statement will be countersigned by the **Resident Engineer**, noting thereon any items not agreed to or questioned, and will be returned to the **Contractor** within two (2) **Days** after submission.

28.3 The **Contractor** and its **Subcontractors**, when required by the **Commissioner**, or the **Comptroller**, shall also produce for inspection, at the office of the **Contractor** or **Subcontractor**, any and all of its books, bid documents, financial statements, vouchers, records, daily job diaries and reports,

and cancelled checks, and any other documents relating to showing the nature and quantity of the labor, materials, plant and equipment actually used in the performance of such **Work**, or in complying with such determination or order, and the amounts expended therefor, and shall permit the **Commissioner** and the **Comptroller** to make such extracts therefrom, or copies thereof, as they or either of them may desire.

28.4 In connection with the examination provided for herein, the **Commissioner**, upon demand therefor, will produce for inspection by the **Contractor** such records as the **Agency** may have with respect to such **Extra Work** or disputed **Work** performed under protest pursuant to order of the **Commissioner**, except those records and reports which may have been prepared for the purpose of determining the accuracy and validity of the **Contractor's** claim.

28.5 Failure to comply strictly with these requirements shall constitute a waiver of any claim for extra compensation or damages on account of the performance of such **Work** or compliance with such determination or order.

ARTICLE 29. OMITTED WORK

29.1 If any **Contract Work** in a lump sum **Contract**, or if any part of a lump sum item in a unit price, lump sum, or percentage-bid **Contract** is omitted by the **Commissioner** pursuant to Article 33, the **Contract** price, subject to audit by the EAO, shall be reduced by a pro rata portion of the lump sum bid amount based upon the percent of **Work** omitted subject to Article 29.4. For the purpose of determining the pro rata portion of the lump sum bid amount, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be the determining factor.

29.2 If the whole of a lump sum item or units of any other item is so omitted by the **Commissioner** in a unit price, lump sum, or percentage-bid **Contract**, then no payment will be made therefor except as provided in Article 29.4.

29.3 For units that have been ordered but are only partially completed, the unit price shall be reduced by a pro rata portion of the unit price bid based upon the percentage of **Work** omitted subject to Article 29.4.

29.4 In the event the **Contractor**, with respect to any omitted **Work**, has purchased any non-cancelable material and/or equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated into the **Work**, the **Contractor** shall be paid for such material and/or equipment in accordance with Article 64.2.1(b); provided, however, such payment is contingent upon the **Contractor's** delivery of such material and/or equipment in acceptable condition to a location designated by the **City**.

29.5 The **Contractor** agrees to make no claim for damages or for loss of overhead and profit with regard to any omitted **Work**.

ARTICLE 30. NOTICE AND DOCUMENTATION OF COSTS AND DAMAGES; PRODUCTION OF FINANCIAL RECORDS

30.1 If the **Contractor** shall claim to be sustaining damages by reason of any act or omission of the **City** or its agents, it shall submit to the **Commissioner** within forty-five (45) **Days** from the time such damages are first incurred, and every thirty (30) **Days** thereafter to the extent additional damages are being incurred for the same condition, verified statements of the details and the amounts of such

damages, together with documentary evidence of such damages. The **Contractor** may submit any of the above statements within such additional time as may be granted by the **Commissioner** in writing upon written request therefor. Failure of the **Commissioner** to respond in writing to a written request for additional time within thirty (30) **Days** shall be deemed a denial of the request. On failure of the **Contractor** to strictly comply with the foregoing provisions, such claims shall be deemed waived and no right to recover on such claims shall exist. Damages that the **Contractor** may claim in any action or dispute resolution procedure arising under or by reason of this **Contract** shall not be different from or in excess of the statements and documentation made pursuant to this Article 30. This Article 30.1 does not apply to claims submitted to the **Commissioner** pursuant to Article 11 or to claims disputing a determination under Article 27.

30.2 In addition to the foregoing statements, the **Contractor** shall, upon notice from the **Commissioner**, produce for examination at the **Contractor's** office, by the **Engineer, Architect** or **Project Manager**, all of its books of account, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**, and submit itself and persons in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.3 In addition to the statements required under Article 28 and this Article 30, the **Contractor** and/or its **Subcontractor** shall, within thirty (30) **Days** upon notice from the **Commissioner** or **Comptroller**, produce for examination at the **Contractor's** and/or **Subcontractor's** office, by a representative of either the **Commissioner** or **Comptroller**, all of its books of account, bid documents, financial statements, accountant workpapers, bills, invoices, payrolls, subcontracts, time books, daily reports, bank deposit books, bank statements, check books, and cancelled checks, showing all of its acts and transactions in connection with or relating to or arising by reason of this **Contract**. Further, the **Contractor** and/or its **Subcontractor** shall submit any person in its employment, for examination under oath by any person designated by the **Commissioner** or **Comptroller** to investigate claims made or disputes against the **City** under this **Contract**. At such examination, a duly authorized representative of the **Contractor** may be present.

30.4 Unless the information and examination required under Article 30.3 is provided by the **Contractor** and/or its **Subcontractor** upon thirty (30) **Days'** notice from the **Commissioner** or **Comptroller**, or upon the **Commissioner's** or **Comptroller's** written authorization to extend the time to comply, the **City** shall be released from all claims arising under, relating to or by reason of this **Contract**, except for sums certified by the **Commissioner** to be due under the provisions of this **Contract**. It is further stipulated and agreed that no person has the power to waive any of the foregoing provisions and that in any action or dispute resolution procedure against the **City** to recover any sum in excess of the sums certified by the **Commissioner** to be due under or by reason of this **Contract**, the **Contractor** must allege in its complaint and prove, at trial or during such dispute resolution procedure, compliance with the provisions of this Article 30.

30.5 In addition, after the commencement of any action or dispute resolution procedure by the **Contractor** arising under or by reason of this **Contract**, the **City** shall have the right to require the **Contractor** to produce for examination under oath, up until the trial of the action or hearing before the Contract Dispute Resolution Board, the books and documents described in Article 30.3 and submit itself and all persons in its employ for examination under oath. If this Article 30 is not complied with as required, then the **Contractor** hereby consents to the dismissal of the action or dispute resolution procedure.

CHAPTER VII: POWERS OF THE RESIDENT ENGINEER,THE ENGINEER OR ARCHITECT AND THE COMMISSIONER

ARTICLE 31. THE RESIDENT ENGINEER

31.1 The **Resident Engineer** shall have the power to inspect, supervise, and control the performance of the **Work**, subject to review by the **Commissioner**. The **Resident Engineer** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 32. THE ENGINEER OR ARCHITECT OR PROJECT MANAGER

32.1 The **Engineer** or **Architect** or **Project Manager**, in addition to those matters elsewhere herein delegated to the **Engineer** and expressly made subject to his/her determination, direction or approval, shall have the power, subject to review by the **Commissioner**:

32.1.1 To determine the amount, quality, and location of the **Work** to be paid for hereunder; and

32.1.2 To determine all questions in relation to the **Work**, to interpret the **Contract Drawings**, **Specifications**, and **Addenda**, and to resolve all patent inconsistencies or ambiguities therein; and

32.1.3 To determine how the **Work** of this **Contract** shall be coordinated with **Work** of **Other Contractors** engaged simultaneously on this **Project**, including the power to suspend any part of the **Work**, but not the whole thereof; and

32.1.4 To make minor changes in the **Work** as he/she deems necessary, provided such changes do not result in a net change in the cost to the **City** or to the **Contractor** of the **Work** to be done under the **Contract**; and

32.1.5 To amplify the **Contract Drawings**, add explanatory information and furnish additional **Specifications** and drawings, consistent with this **Contract**.

32.2 The foregoing enumeration shall not imply any limitation upon the power of the **Engineer** or **Architect** or **Project Manager**, for it is the intent of this **Contract** that all of the **Work** shall generally be subject to his/her determination, direction, and approval, except where the determination, direction or approval of someone other than the **Engineer** or **Architect** or **Project Manager** is expressly called for herein.

32.3 The **Engineer** or **Architect** or **Project Manager** shall not, however, have the power to issue an **Extra Work** order, except as specifically designated in writing by the **Commissioner**.

ARTICLE 33. THE COMMISSIONER

33.1 The **Commissioner**, in addition to those matters elsewhere herein expressly made subject to his/her determination, direction or approval, shall have the power:

33.1.1 To review and make determinations on any and all questions in relation to this **Contract** and its performance; and

33.1.2 To modify or change this **Contract** so as to require the performance of **Extra Work** (subject, however, to the limitations specified in Article 25) or the omission of **Contract Work**; and

33.1.3 To suspend the whole or any part of the **Work** whenever in his/her judgment such suspension is required:

33.1.3(a) In the interest of the **City** generally; or

33.1.3(b) To coordinate the **Work** of the various contractors engaged on this **Project** pursuant to the provisions of Article 12; or

33.1.3(c) To expedite the completion of the entire **Project** even though the completion of this particular **Contract** may thereby be delayed.

ARTICLE 34. NO ESTOPPEL

34.1 Neither the **City** nor any **Agency**, official, agent or employee thereof, shall be bound, precluded or estopped by any determination, decision, approval, order, letter, payment or certificate made or given under or in connection with this **Contract** by the **City**, the **Commissioner**, the **Engineer**, the **Resident Engineer**, or any other official, agent or employee of the **City**, either before or after the final completion and acceptance of the **Work** and payment therefor:

34.1.1 From showing the true and correct classification, amount, quality or character of the **Work** actually done; or that any such determination, decision, order, letter, payment or certificate was untrue, incorrect or improperly made in any particular, or that the **Work**, or any part thereof, does not in fact conform to the requirements of this **Contract**; and

34.1.2 From demanding and recovering from the **Contractor** any overpayment made to it, or such damages as the **City** may sustain by reason of the **Contractor's** failure to perform each and every part of its **Contract**.

CHAPTER VIII: LABOR PROVISIONS

ARTICLE 35. EMPLOYEES

35.1 The **Contractor** and its **Subcontractors** shall not employ on the **Work**:

35.1.1 Anyone who is not competent, faithful and skilled in the **Work** for which he/she shall be employed; and whenever the **Commissioner** shall inform the **Contractor**, in writing, that any employee is, in his/her opinion, incompetent, unfaithful or disobedient, that employee shall be discharged from the **Work** forthwith, and shall not again be employed upon it; or

35.1.2 Any labor, materials or means whose employment, or utilization during the course of this **Contract**, may tend to or in any way cause or result in strikes, work stoppages, delays, suspension of **Work** or similar troubles by workers employed by the **Contractor** or its **Subcontractors**, or by any of the trades working in or about the buildings and premises where **Work** is being performed under this **Contract**, or by **Other Contractors** or their **Subcontractors** pursuant to other contracts, or on any other building or premises owned or operated by the **City**, its **Agencies**, departments, boards or authorities. Any violation by the **Contractor** of this requirement may, upon certification of the **Commissioner**, be considered as proper and sufficient cause for declaring the **Contractor** to be in default, and for the **City** to take action against it as set forth in Chapter X of this **Contract**, or such other article of this **Contract** as the Commissioner may deem proper; or

35.1.3 In accordance with Section 220.3-e of the Labor Law of the State of New York (hereinafter "Labor Law"), the **Contractor** and its **Subcontractors** shall not employ on the **Work** any apprentice, unless he/she is a registered individual, under a bona fide program registered with the New York State Department of Labor. The allowable ratio of apprentices to journey-level workers in any craft classification shall not be greater than the ratio permitted to the **Contractor** as to its work force on any job under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered as above, shall be paid the wage rate determined by the **Comptroller** of the **City** for the classification of **Work** actually performed. The **Contractor** or **Subcontractor** will be required to furnish written evidence of the registration of its program and apprentices as well as all the appropriate ratios and wage rates, for the area of the construction prior to using any apprentices on the **Contract Work**.

35.2 If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand ($250,000) dollars, all laborers, workers, and mechanics employed in the performance of the **Contract** on the public work site, either by the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by the **Contract**, shall be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration.

35.3 In accordance with Local Law Nos. 30-2012 and 33-2012, codified at sections 6-132 and 12-113 of the Administrative Code, respectively,

35.3.1 The **Contractor** shall not take an adverse personnel action with respect to an officer or employee in retaliation for such officer or employee making a report of information concerning conduct which such officer or employee knows or reasonably believes to involve corruption, criminal activity, conflict of interest, gross mismanagement or abuse of authority by any officer or employee relating to this **Contract** to (a) the Commissioner of the Department of Investigation, (b) a member of the New York City Council, the Public Advocate, or the **Comptroller**, or (c) the **CCPO**, **ACCO**, **Agency** head, or **Commissioner**.

35.3.2 If any of the **Contractor**'s officers or employees believes that he or she has been the subject of an adverse personnel action in violation of Article 35.3.1, he or she shall be entitled to bring a cause of action against the **Contractor** to recover all relief necessary to make him or her whole. Such relief may include but is not limited to: (a) an injunction to restrain continued retaliation, (b) reinstatement to the position such employee would have had but for the retaliation or to an equivalent position, (c) reinstatement of full fringe benefits and seniority rights, (d) payment of two times back

pay, plus interest, and (e) compensation for any special damages sustained as a result of the retaliation, including litigation costs and reasonable attorney's fees.

35.3.3 The **Contractor** shall post a notice provided by the **City** in a prominent and accessible place on any site where work pursuant to the **Contract** is performed that contains information about:

35.3.3(a) how its employees can report to the New York City Department of Investigation allegations of fraud, false claims, criminality or corruption arising out of or in connection with the **Contract**; and

35.3.3(b) the rights and remedies afforded to its employees under Administrative Code sections 7-805 (the New York City False Claims Act) and 12-113 (the Whistleblower Protection Expansion Act) for lawful acts taken in connection with the reporting of allegations of fraud, false claims, criminality or corruption in connection with the **Contract**.

35.3.4 For the purposes of this Article 35.3, "adverse personnel action" includes dismissal, demotion, suspension, disciplinary action, negative performance evaluation, any action resulting in loss of staff, office space, equipment or other benefit, failure to appoint, failure to promote, or any transfer or assignment or failure to transfer or assign against the wishes of the affected officer or employee.

35.3.5 This Article 35.3 is applicable to all of the **Contractor**'s **Subcontractors** having subcontracts with a value in excess of $100,000; accordingly, the **Contractor** shall include this rider in all subcontracts with a value a value in excess of $100,000.

35.4 Article 35.3 is not applicable to this **Contract** if it is valued at $100,000 or less. Articles 35.3.1, 35.3.2, 35.3.4, and 35.3.5 are not applicable to this **Contract** if it was solicited pursuant to a finding of an emergency.

35.5 Paid Sick Leave Law.

35.5.1 Introduction and General Provisions.

35.5.1(a) The Earned Sick Time Act, also known as the Paid Sick Leave Law ("PSLL"), requires covered employees who annually perform more than 80 hours of work in New York City to be provided with paid sick time.[2] Contractors of the **City** or of other governmental entities may be required to provide sick time pursuant to the PSLL.

35.5.1(b) The PSLL became effective on April 1, 2014, and is codified at Title 20, Chapter 8, of the New York City Administrative Code. It is administered by the City's Department of Consumer Affairs ("DCA"); DCA's rules promulgated under the PSLL are codified at Chapter 7 of Title 6 of the Rules of the City of New York ("Rules").

[2] Pursuant to the PSLL, if fewer than five employees work for the same employer, as determined pursuant to New York City Administrative Code § 20-912(g), such employer has the option of providing such employees uncompensated sick time.

35.5.1(c) The **Contractor** agrees to comply in all respects with the PSLL and the Rules, and as amended, if applicable, in the performance of this **Contract**. The **Contractor** further acknowledges that such compliance is a material term of this **Contract** and that failure to comply with the PSLL in performance of this **Contract** may result in its termination.

35.5.1(d) The **Contractor** must notify the **Agency Chief Contracting Officer** of the **Agency** with whom it is contracting in writing within ten (10) days of receipt of a complaint (whether oral or written) regarding the PSLL involving the performance of this **Contract**. Additionally, the **Contractor** must cooperate with DCA's education efforts and must comply with DCA's subpoenas and other document demands as set forth in the PSLL and Rules.

35.5.1(e) The PSLL is summarized below for the convenience of the **Contractor**. The **Contractor** is advised to review the PSLL and Rules in their entirety. On the website www.nyc.gov/PaidSickLeave there are links to the PSLL and the associated Rules as well as additional resources for employers, such as Frequently Asked Questions, timekeeping tools and model forms, and an event calendar of upcoming presentations and webinars at which the **Contractor** can get more information about how to comply with the PSLL. The **Contractor** acknowledges that it is responsible for compliance with the PSLL notwithstanding any inconsistent language contained herein.

35.5.2 Pursuant to the PSLL and the Rules: Applicability, Accrual, and Use.

35.5.2(a) An employee who works within the City of New York for more than eighty hours in any consecutive 12-month period designated by the employer as its "calendar year" pursuant to the PSLL ("Year") must be provided sick time. Employers must provide a minimum of one hour of sick time for every 30 hours worked by an employee and compensation for such sick time must be provided at the greater of the employee's regular hourly rate or the minimum wage. Employers are not required to provide more than 40 hours of sick time to an employee in any Year.

35.5.2(b) An employee has the right to determine how much sick time he or she will use, provided that employers may set a reasonable minimum increment for the use of sick time not to exceed four hours per **Day**. In addition, an employee may carry over up to 40 hours of unused sick time to the following Year, provided that no employer is required to allow the use of more than forty hours of sick time in a Year or carry over unused paid sick time if the employee is paid for such unused sick time and the employer provides the employee with at least the legally required amount of paid sick time for such employee for the immediately subsequent Year on the first **Day** of such Year.

35.5.2(c) An employee entitled to sick time pursuant to the PSLL may use sick time for any of the following:

i. such employee's mental illness, physical illness, injury, or health condition or the care of such illness, injury, or condition or such employee's need for medical diagnosis or preventive medical care;
ii. such employee's care of a family member (an employee's child, spouse, domestic partner, parent, sibling, grandchild or grandparent, or the child or parent of an employee's spouse or domestic partner) who has a mental

illness, physical illness, injury or health condition or who has a need for medical diagnosis or preventive medical care;

iii. closure of such employee's place of business by order of a public official due to a public health emergency; or

iv. such employee's need to care for a child whose school or childcare provider has been closed due to a public health emergency.

35.5.2(d) An employer must not require an employee, as a condition of taking sick time, to search for a replacement. However, an employer may require an employee to provide: reasonable notice of the need to use sick time; reasonable documentation that the use of sick time was needed for a reason above if for an absence of more than three consecutive work days; and/or written confirmation that an employee used sick time pursuant to the PSLL. However, an employer may not require documentation specifying the nature of a medical condition or otherwise require disclosure of the details of a medical condition as a condition of providing sick time and health information obtained solely due to an employee's use of sick time pursuant to the PSLL must be treated by the employer as confidential.

35.5.2(e) If an employer chooses to impose any permissible discretionary requirement as a condition of using sick time, it must provide to all employees a written policy containing those requirements, using a delivery method that reasonably ensures that employees receive the policy. If such employer has not provided its written policy, it may not deny sick time to an employee because of non-compliance with such a policy.

35.5.2(f) Sick time to which an employee is entitled must be paid no later than the payday for the next regular payroll period beginning after the sick time was used.

35.5.3 Exemptions and Exceptions. Notwithstanding the above, the PSLL does not apply to any of the following:

35.5.3(a) an independent contractor who does not meet the definition of employee under section 190(2) of the New York State Labor Law;

35.5.3(b) an employee covered by a valid collective bargaining agreement in effect on April 1, 2014, until the termination of such agreement;

35.5.3(c) an employee in the construction or grocery industry covered by a valid collective bargaining agreement if the provisions of the PSLL are expressly waived in such collective bargaining agreement;

35.5.3(d) an employee covered by another valid collective bargaining agreement if such provisions are expressly waived in such agreement and such agreement provides a benefit comparable to that provided by the PSLL for such employee;

35.5.3(e) an audiologist, occupational therapist, physical therapist, or speech language pathologist who is licensed by the New York State Department of Education and who calls in for work assignments at will, determines his or her own schedule, has the ability to reject or accept any assignment referred to him or her, and is paid an average hourly wage that is at least four times the federal minimum wage;

35.5.3(f) an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;

35.5.3(g) an employee whose work is compensated by a qualified scholarship program as that term is defined in the Internal Revenue Code, Section 117 of Chapter 20 of the United States Code; or

35.5.3(h) a participant in a Work Experience Program (WEP) under section 336-c of the New York State Social Services Law.

35.5.4 Retaliation Prohibited. An employer may not threaten or engage in retaliation against an employee for exercising or attempting in good faith to exercise any right provided by the PSLL. In addition, an employer may not interfere with any investigation, proceeding, or hearing pursuant to the PSLL.

35.5.5 Notice of Rights.

35.5.5(a) An employer must provide its employees with written notice of their rights pursuant to the PSLL. Such notice must be in English and the primary language spoken by an employee, provided that DCA has made available a translation into such language. Downloadable notices are available on DCA's website at http://www.nyc.gov/html/dca/html/law/PaidSickLeave.shtml.

35.5.5(b) Any person or entity that willfully violates these notice requirements is subject to a civil penalty in an amount not to exceed fifty dollars for each employee who was not given appropriate notice.

35.5.6 Records. An employer must retain records documenting its compliance with the PSLL for a period of at least three years, and must allow DCA to access such records in furtherance of an investigation related to an alleged violation of the PSLL.

35.5.7 Enforcement and Penalties.

35.5.7(a) Upon receiving a complaint alleging a violation of the PSLL, DCA has the right to investigate such complaint and attempt to resolve it through mediation. Within 30 **Days** of written notification of a complaint by DCA, or sooner in certain circumstances, the employer must provide DCA with a written response and such other information as DCA may request. If DCA believes that a violation of the PSLL has occurred, it has the right to issue a notice of violation to the employer.

35.5.7(b) DCA has the power to grant an employee or former employee all appropriate relief as set forth in New York City Administrative Code § 20-924(d). Such relief may include, among other remedies, treble damages for the wages that should have been paid, damages for unlawful retaliation, and damages and reinstatement for unlawful discharge. In addition, DCA may impose on an employer found to have violated the PSLL civil penalties not to exceed $500 for a first violation, $750 for a second violation within two years of the first violation, and $1,000 for each succeeding violation within two years of the previous violation.

35.5.8 More Generous Polices and Other Legal Requirements. Nothing in the PSLL is intended to discourage, prohibit, diminish, or impair the adoption or retention of a more generous sick time policy, or the obligation of an employer to comply with any contract,

collective bargaining agreement, employment benefit plan or other agreement providing more generous sick time. The PSLL provides minimum requirements pertaining to sick time and does not preempt, limit or otherwise affect the applicability of any other law, regulation, rule, requirement, policy or standard that provides for greater accrual or use by employees of sick leave or time, whether paid or unpaid, or that extends other protections to employees. The PSLL may not be construed as creating or imposing any requirement in conflict with any federal or state law, rule or regulation.

35.6 HireNYC: Hiring and Reporting Requirements. This Article 35.6 applies to construction contracts of $1,000,000 or more. The **Contractor** shall comply with the requirements of Articles 35.6.1-35.6.5 for all non-trades jobs (e.g., for an administrative position arising out of **Work** ant located in New York City). The **Contractor** shall reasonably cooperate with SBS and the **City** on specific outreach events, including "Hire-on-the-Spot" events, for the hiring of trades workers in connection with the **Work**. If provided elsewhere in this **Contract**, this **Contract** is subject to a project labor agreement.

35.6.1 Enrollment. The **Contractor** shall enroll with the HireNYC system, found at www.nyc.gov/sbs, within thirty (30) days after the registration of this **Contract** pursuant to Section 328 of the New York City Charter. The **Contractor** shall provide information about the business, designate a primary contact and say whether it intends to hire for any entry to mid-level job opportunities arising from this **Contract** and located in New York City, and, if so, the approximate start date of the first hire.

35.6.2 Job Posting Requirements.

35.6.2(a) Once enrolled in HireNYC, the **Contractor** agrees to update the HireNYC portal with all entry to mid-level job opportunities arising from this **Contract** and located in New York City, if any, which shall be defined as jobs requiring no more than an associate degree, as provided by the New York State Department of Labor (see Column F of https://labor.ny.gov/stats/2012-2022- NYS-Employment-Prospects.xls). The information to be updated includes the types of entry and mid-level positions made available from the work arising from the **Contract** and located in New York City, the number of positions, the anticipated schedule of initiating the hiring process for these positions, and the contact information for the **Contractor's** representative charged with overseeing hiring. The **Contractor** must update the HireNYC portal with any hiring needs arising from the contract and located in New York City, and the requirements of the jobs to be filled, no less than three weeks prior to the intended first day of employment for each new position, except with the permission of SBS, not to be unreasonably withheld, and must also update the HireNYC portal as set forth below.

35.6.2(b) After enrollment through HireNYC and submission of relevant information, SBS will work with the **Contractor** to develop a recruitment plan which will outline the candidate screening process, and will provide clear instructions as to when, where, and how interviews will take place. HireNYC will screen applicants based on employer requirements and refer applicants whom it believes are qualified to the **Contractor** for interviews. The **Contractor** must interview referred applicants whom it believes are qualified.

35.6.2(c) After completing an interview of a candidate referred by HireNYC, the **Contractor** must provide feedback via the portal within twenty (20) business days to indicate which candidates were interviewed and hired, if any. In addition, the **Contractor** shall provide the start date of new hires, and additional information

reasonably related to such hires, within twenty (20) business days after the start date. In the event the **Contractor** does not have any job openings covered by this Rider in any given year, the **Contractor** shall be required to provide an annual update to HireNYC to that effect. For this purpose, the reporting year shall run from the date of the registration of the **Contract** pursuant to Charter section 328 and each anniversary date.

35.6.2(d) These requirements do not limit the **Contractor's** ability to assess the qualifications of prospective workers, and to make final hiring and retention decisions. No provision of this Article 35.6 shall be interpreted so as to require the **Contractor** to employ any particular worker.

35.6.2(e) In addition, the provisions of this Article 35.6 shall not apply to positions that the **Contractor** intends to fill with employees employed pursuant to the job retention provision of Section 22-505 of the Administrative Code of the City of New York. The **Contractor** shall not be required to report such openings with HireNYC. However, the **Contractor** shall enroll with the HireNYC system pursuant to Article 35.6.1, above, and, if such positions subsequently become open, then the remaining provisions of this Article 35.6 will apply.

35.6.3 Breach and Liquidated Damages. If the **Contractor** fails to comply with the terms of the **ContrSact** and this Article 35.6 (l) by not enrolling its business with HireNYC; (2) by not informing HireNYC, as required, of open positions; or (3) by failing to interview a qualified candidate, the **Agency** may assess liquidated damages in the amount of two-thousand five hundred dollars ($2,500) per breach. For all other events of noncompliance with the terms of this Article 35.6, the **Agency** may assess liquidated damages in the amount of five hundred dollars ($500) per breach. Furthermore, in the event the **Contractor** breaches the requirements of this Article 35.6 during the term of the **Contract**, the **City** may hold the **Contractor** in default of this **Contract**.

35.6.4 Audit Compliance. In addition to the auditing requirements set forth in other parts of the **Contract**, the **Contractor** shall permit SBS and the **City** to inspect any and all records concerning or relating to job openings or the hiring of individuals for work arising from the **Contract** and located in New York City. The **Contractor** shall permit an inspection within seven (7) business days of the request.

35.6.5 Other Reporting Requirements. The **Contractor** shall report to the **City**, on a monthly basis, all information reasonably requested by the **City** that is necessary for the **City** to comply with any reporting requirements imposed by **Law**, including any requirement that the **City** maintain a publicly accessible database. In addition, the **Contractor** agrees to comply with all reporting requirements imposed by **Law**, or as otherwise requested by the **City**.

35.6.6 Federal Hiring Requirements. If this **Contract** is federally funded (as indicated elsewhere in this Contract), the **Contractor** shall comply with all federal hiring requirements as may be set forth in this **Contract**, including, as applicable: (a) Section 3 of the HUD Act of 1968, which requires, to the greatest extent feasible, economic opportunities for 30 percent of new hires be given to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing and Executive Order 11246, which prohibits discrimination in employment due to race, color, religion, sex or national origin, and requires the implementation of goals for minority and female participation for work involving any construction trade.

ARTICLE 36. NO DISCRIMINATION

36.1 The **Contractor** specifically agrees, as required by Labor Law Section 220-e, as amended, that:

36.1.1 In the hiring of employees for the performance of **Work** under this **Contract** or any subcontract hereunder, neither the **Contractor**, **Subcontractor**, nor any person acting on behalf of such **Contractor** or **Subcontractor**, shall by reason of race, creed, color or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the **Work** to which the employment relates;

36.1.2 Neither the **Contractor**, **Subcontractor**, nor any person on its behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of **Work** under this **Contract** on account of race, creed, color or national origin;

36.1.3 There may be deducted from the amount payable to the **Contractor** by the **City** under this **Contract** a penalty of fifty ($50.00) dollars for each person for each **Day** during which such person was discriminated against or intimidated in violation of the provisions of this **Contract**; and

36.1.4 This **Contract** may be cancelled or terminated by the **City** and all moneys due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this Article 36.

36.1.5 This Article 36 covers all construction, alteration and repair of any public building or public work occurring in the State of New York and the manufacture, sale, and distribution of materials, equipment, and supplies to the extent that such operations are performed within the State of New York pursuant to this **Contract**.

36.2 The **Contractor** specifically agrees, as required by Section 6-108 of the Administrative Code, as amended, that:

36.2.1 It shall be unlawful for any person engaged in the construction, alteration or repair of buildings or engaged in the construction or repair of streets or highways pursuant to a **Contract** with the **City** or engaged in the manufacture, sale or distribution of materials, equipment or supplies pursuant to a **Contract** with the **City** to refuse to employ or to refuse to continue in any employment any person on account of the race, color or creed of such person.

36.2.2 It shall be unlawful for any person or any servant, agent or employee of any person, described in Article 36.1.2, to ask, indicate or transmit, orally or in writing, directly or indirectly, the race, color or creed or religious affiliation of any person employed or seeking employment from such person, firm or corporation.

36.2.3 Breach of the foregoing provisions shall be deemed a violation of a material provision of this **Contract**.

36.2.4 Any person, or the employee, manager or owner of or officer of such firm or corporation who shall violate any of the provisions of this Article 36.2 shall, upon

conviction thereof, be punished by a fine of not more than one hundred ($100.00) dollars or by imprisonment for not more than thirty (30) **Days**, or both.

36.3 This **Contract** is subject to the requirements of Executive Order No. 50 (1980) ("E.O. 50"), as revised, and the rules and regulations promulgated thereunder. No contract will be awarded unless and until these requirements have been complied with in their entirety. By signing this **Contract**, the **Contractor** agrees that it:

36.3.1 Will not engage in any unlawful discrimination against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability, marital status or sexual orientation with respect to all employment decisions including, but not limited to, recruitment, hiring, upgrading, demotion, downgrading, transfer, training, rates of pay or other forms of compensation, layoff, termination, and all other terms and conditions of employment; and

36.3.2 Will not engage in any unlawful discrimination in the selection of **Subcontractors** on the basis of the owner's race, color, creed, national origin, sex, age, disability, marital status or sexual orientation; and

36.3.3 Will state in all solicitations or advertisements for employees placed by or on behalf of the **Contractor** that all qualified applicants will receive consideration for employment without unlawful discrimination based on race, creed, color, national origin, sex, age, citizens status, disability, marital status, sexual orientation, or that it is an equal employment opportunity employer; and

36.3.4 Will send to each labor organization or representative of workers with which it has a collective bargaining agreement or other contract or memorandum of understanding, written notification of its equal employment opportunity commitments under E.O. 50 and the rules and regulations promulgated thereunder; and

36.3.5 Will furnish, before the award of the **Contract**, all information and reports, including an employment report, that are required by E.O. 50, the rules and regulations promulgated thereunder, and orders of the **City** Department of Business Services, Division of Labor Services (**DLS**) and will permit access to its books, records, and accounts by the **DLS** for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.

36.4 The **Contractor** understands that in the event of its noncompliance with the nondiscrimination clauses of this **Contract** or with any of such rules, regulations, or orders, such noncompliance shall constitute a material breach of this **Contract** and noncompliance with E.O. 50 and the rules and regulations promulgated thereunder. After a hearing held pursuant to the rules of the **DLS**, the Director of the **DLS** may direct the **Commissioner** to impose any or all of the following sanctions:

36.4.1 Disapproval of the **Contractor**; and/or

36.4.2 Suspension or termination of the **Contract**; and/or

36.4.3 Declaring the **Contractor** in default; and/or

36.4.4 In lieu of any of the foregoing sanctions, the Director of the **DLS** may impose an employment program.

In addition to any actions taken under this **Contract**, failure to comply with E.O. 50 and the rules and regulations promulgated thereunder, in one or more instances, may result in a **City Agency** declaring the **Contractor** to be non-responsible in future procurements. The **Contractor** further agrees that it will refrain from entering into any **Contract** or **Contract** modification subject to E.O. 50 and the rules and regulations promulgated thereunder with a **Subcontractor** who is not in compliance with the requirements of E.O. 50 and the rules and regulations promulgated thereunder.

36.5 The **Contractor** specifically agrees, as required by Section 6-123 of the Administrative Code, that:

36.5.1 The **Contractor** will not engage in any unlawful discriminatory practice in violation of Title 8 of the Administrative Code; and

36.5.2 Any failure to comply with this Article 36.5 may subject the **Contractor** to the remedies set forth in Section 6-123 of the Administrative Code, including, where appropriate, sanctions such as withholding of payment, imposition of an employment program, finding the **Contractor** to be in default, cancellation of the **Contract**, or any other sanction or remedy provided by **Law** or **Contract**.

ARTICLE 37. LABOR LAW REQUIREMENTS

37.1 The **Contractor** shall strictly comply with all applicable provisions of the Labor Law, as amended. Such compliance is a material term of this **Contract**.

37.2 The **Contractor** specifically agrees, as required by Labor Law Sections 220 and 220-d, as amended, that:

37.2.1 Hours of **Work**: No laborer, worker, or mechanic in the employ of the **Contractor**, **Subcontractor** or other person doing or contracting to do the whole or a part of the **Work** contemplated by this **Contract** shall be permitted or required to work more than eight (8) hours in any one (1) **Day**, or more than five (5) **Days** in any one (1) week, except as provided in the Labor Law and in cases of extraordinary emergency including fire, flood, or danger to life or property, or in the case of national emergency when so proclaimed by the President of the United States of America.

37.2.2 In situations in which there are not sufficient laborers, workers, and mechanics who may be employed to carry on expeditiously the **Work** contemplated by this **Contract** as a result of such restrictions upon the number of hours and **Days** of labor, and the immediate commencement or prosecution or completion without undue delay of the **Work** is necessary for the preservation of the **Site** and/or for the protection of the life and limb of the persons using the same, such laborers, workers, and mechanics shall be permitted or required to work more than eight (8) hours in any one (1) **Day**; or five (5) **Days** in any one (1) week; provided, however, that upon application of any **Contractor**, the **Commissioner** shall have first certified to the Commissioner of Labor of the State of New York (hereinafter "Commissioner of Labor") that such public **Work** is of an important nature and that a delay in carrying it to completion would result in serious disadvantage to the public; and provided, further, that such Commissioner of Labor shall have determined that such an emergency does in fact exist as provided in Labor Law Section 220.2.

37.2.3 Failure of the **Commissioner** to make such a certification to the Commissioner of Labor shall not entitle the **Contractor** to damages for delay or for any cause whatsoever.

37.2.4 Prevailing Rate of Wages: The wages to be paid for a legal day's **Work** to laborers, workers, or mechanics employed upon the **Work** contemplated by this **Contract** or upon any materials to be used thereon shall not be less than the "prevailing rate of wage" as defined in Labor Law Section 220, and as fixed by the **Comptroller** in the attached Schedule of Wage Rates and in updated schedules thereof. The prevailing wage rates and supplemental benefits to be paid are those in effect at the time the **Work** is being performed.

37.2.5 Requests for interpretation or correction in the Information for Bidders includes all requests for clarification of the classification of trades to be employed in the performance of the **Work** under this **Contract**. In the event that a trade not listed in the **Contract** is in fact employed during the performance of this **Contract**, the **Contractor** shall be required to obtain from the **Agency** the prevailing wage rates and supplementary benefits for the trades used and to complete the performance of this **Contract** at the price at which the **Contract** was awarded.

37.2.6 Minimum Wages: Except for employees whose wage is required to be fixed pursuant to Labor Law Section 220, all persons employed by the **Contractor** and any **Subcontractor** in the manufacture or furnishing of the supplies, materials, or equipment, or the furnishing of work, labor, or services, used in the performance of this **Contract**, shall be paid, without subsequent deduction or rebate unless expressly authorized by **Law**, not less than the sum mandated by **Law**.

37.3 Working Conditions: No part of the **Work**, labor or services shall be performed or rendered by the **Contractor** in any plants, factories, buildings or surroundings or under working conditions which are unsanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of this **Contract**. Compliance with the safety, sanitary, and factory inspection **Laws** of the state in which the **Work** is to be performed shall be prima facie evidence of compliance with this Article 37.3.

37.4 Prevailing Wage Enforcement: The **Contractor** agrees to pay for all costs incurred by the **City** in enforcing prevailing wage requirements, including the cost of any investigation conducted by or on behalf of the **Agency** or the **Comptroller,** where the **City** discovers a failure to comply with any of the requirements of this Article 37 by the **Contractor** or its **Subcontractor(s)**. The **Contractor** also agrees that, should it fail or refuse to pay for any such investigation, the **Agency** is hereby authorized to deduct from a **Contractor's** account an amount equal to the cost of such investigation.

37.4.1 The Labor Law Section 220 and Section 220-d, as amended, provide that this **Contract** shall be forfeited and no sum paid for any **Work** done hereunder on a second conviction for willfully paying less than:

37.4.1(a) The stipulated prevailing wage scale as provided in Labor Law section 220, as amended, or

37.4.1(b) The stipulated minimum hourly wage scale as provided in Labor Law section 220-d, as amended.

37.4.2 For any breach or violation of either working conditions (Article 37.3) or minimum wages (Article 37.2.6) provisions, the party responsible therefor shall be liable to the **City** for liquidated damages, which may be withheld from any amounts due on any contracts with the **City** of such party responsible, or may be recovered in actions brought by the **City**

Corporation Counsel in the name of the **City**, in addition to damages for any other breach of this **Contract**, for a sum equal to the amount of any underpayment of wages due to any employee engaged in the performance of this **Contract**. In addition, the **Commissioner** shall have the right to cancel contracts and enter into other contracts for the completion of the original contract, with or without public letting, and the original **Contractor** shall be liable for any additional cost. All sums withheld or recovered as deductions, rebates, refunds, or underpayment of wages hereunder, shall be held in a special deposit account and shall be paid without interest, on order of the **Comptroller**, directly to the employees who have been paid less than minimum rates of pay as set forth herein and on whose account such sums were withheld or recovered, provided that no claims by employees for such payments shall be entertained unless made within two (2) years from the date of actual notice to the **Contractor** of the withholding or recovery of such sums by the **City**.

37.4.3 A determination by the **Comptroller** that a **Contractor** and/or its **Subcontractor** willfully violated Labor Law Section 220 will be forwarded to the **City's** five District Attorneys for review.

37.4.4 The **Contractor's** or **Subcontractor's** noncompliance with this Article 37.4 and Labor Law Section 220 may result in an unsatisfactory performance evaluation and the **Comptroller** may also find and determine that the **Contractor** or **Subcontractor** willfully violated the New York Labor **Law**.

37.4.4(a) An unsatisfactory performance evaluation for noncompliance with this Article 37.4 may result in a determination that the **Contractor** is a non-responsible bidder on subsequent procurements with the **City** and thus a rejection of a future award of a contract with the **City**, as well as any other sanctions provided for by **Law**.

37.4.4(b) Labor Law Section 220-b, as amended, provides that when two (2) final determinations have been rendered against a **Contractor** or **Subcontractor** within any consecutive six (6) year period determining that such **Contractor** or **Subcontractor** has willfully failed to pay the prevailing rate of wages or to provide supplements in accordance with the Labor Law and this Article 37.4, whether such failures were concurrent or consecutive and whether or not such final determinations concerning separate public works projects are rendered simultaneously, such **Contractor** or **Subcontractor** shall be ineligible to submit a bid on or be awarded any public works contract with the **City** for a period of five (5) years from the second final determination. If the final determination involves the falsification of payroll records or the kickback of wages or supplements, the **Contractor** or **Subcontractor** shall be ineligible to submit a bid on or be awarded any public works contract with the **City** for a period of five (5) years from the first final determination.

37.4.4(c) Labor Law Section 220, as amended, provides that the **Contractor** or **Subcontractor** found to have violated this Article 37.4 may be directed to make payment of wages or supplements including interest found to be due, and the **Contractor** or **Subcontractor** may be directed to make payment of a further sum as a civil penalty in an amount not exceeding twenty-five (25%) percent of the total amount found to be due.

37.5 The **Contractor** and its **Subcontractors** shall within ten (10) **Days** after mailing of a Notice of Award or written order, post in prominent and conspicuous places in each and every plant, factory, building, and structure where employees of the **Contractor** and its **Subcontractors** engaged in the

performance of this **Contract** are employed, notices furnished by the **City**, in relation to prevailing wages and supplements, minimum wages, and other stipulations contained in Sections 220 and 220-h of the Labor Law, and the **Contractor** and its **Subcontractors** shall continue to keep such notices posted in such prominent and conspicuous places until **Final Acceptance** of the supplies, materials, equipment, or **Work**, labor, or services required to be furnished or rendered under this **Contract**.

37.6 The **Contractor** shall strictly comply with all of the provisions of Articles 37.6.1 through 37.6.5, and provide for all workers, laborers or mechanics in its employ, the following:

37.6.1 Notices Posted At **Site**: Post, in a location designated by the **City**, schedules of prevailing wages and supplements for this **Project**, a copy of all re-determinations of such schedules for the **Project**, the Workers' Compensation **Law** Section 51 notice, all other notices required by **Law** to be posted at the **Site**, the **City** notice that this **Project** is a public works project on which each worker is entitled to receive the prevailing wages and supplements for the occupation at which he or she is working, and all other notices which the **City** directs the **Contractor** to post. The **Contractor** shall provide a surface for such notices which is satisfactory to the **City**. The **Contractor** shall maintain and keep current such notices in a legible manner and shall replace any notice or schedule which is damaged, defaced, illegible or removed for any reason. The **Contractor** shall post such notices before commencing any **Work** on the **Site** and shall maintain such notices until all **Work** on the **Site** is complete; and

37.6.2 Daily **Site** Sign-in Sheets: Maintain daily **Site** sign-in sheets, and require that **Subcontractors** maintain daily **Site** sign-in sheets for its employees, which include blank spaces for an employee's name to be both printed and signed, job title, date started and Social Security number, the time the employee began work and the time the employee left work, until **Final Acceptance** of the supplies, materials, equipment, or **Work**, labor, or services to be furnished or rendered under this **Contract** unless exception is granted by the **Comptroller** upon application by the **Agency**. In the alternative, subject to the approval of the **CCPO**, the **Contractor** and **Subcontractor** may maintain an electronic or biometric sign-in system, which provides the information required by this Article 37.6.2; and

37.6.3 Individual Employee Information Notices: Distribute a notice to each worker, laborer or mechanic employed under this **Contract**, in a form provided by the **Agency**, that this **Project** is a public works project on which each worker, laborer or mechanic is entitled to receive the prevailing rate of wages and supplements for the occupation at which he or she is working. If the total cost of the **Work** under this **Contract** is at least two hundred fifty thousand ($250,000) dollars, such notice shall also include a statement that each worker, laborer or mechanic must be certified prior to performing any **Work** as having successfully completed a course in construction safety and health approved by the United States Department of Labor's Occupational Safety and Health Administration that is at least ten (10) hours in duration. Such notice shall be distributed to each worker before he or she starts performing any **Work** of this **Contract** and with the first paycheck after July first of each year. "Worker, laborer or mechanic" includes employees of the **Contractor** and all **Subcontractors** and all employees of suppliers entering the **Site**. At the time of distribution, the **Contractor** shall have each worker, laborer or mechanic sign a statement, in a form provided by the **Agency**, certifying that the worker has received the notice required by this Article 37.6.3, which signed statement shall be maintained with the payroll records required by this **Contract**; and

37.6.3(a) The **Contractor** and each **Subcontractor** shall notify each worker, laborer or mechanic employed under this **Contract** in writing of the prevailing rate of

wages for their particular job classification. Such notification shall be given to every worker, laborer, and mechanic on their first pay stub and with every pay stub thereafter; and

37.6.4 **Site** Laminated Identification Badges: The **Contractor** shall provide laminated identification badges which include a photograph of the worker's, laborer's or mechanic's face and indicate the worker's, laborer's or mechanic's name, trade, employer's name, and employment starting date (month/day/year). Further, the **Contractor** shall require as a condition of employment on the **Site**, that each and every worker, laborer or mechanic wear the laminated identification badge at all times and that it may be seen by any representative of the **City**. The **Commissioner** may grant a written waiver from the requirement that the laminated identification badge include a photograph if the **Contractor** demonstrates that the identity of an individual wearing a laminated identification badge can be easily verified by another method; and

37.6.5 Language Other Than English Used On **Site**: Provide the **ACCO** notice when three (3) or more employees (worker and/or laborer and/or mechanic) on the **Site**, at any time, speak a language other than English. The **ACCO** will then provide the **Contractor** the notices described in Article 37.6.1 in that language or languages as may be required. The **Contractor** is responsible for all distributions under this Article 37; and

37.6.6 Provision of Records: The **Contractor** and **Subcontractor(s)** shall produce within five (5) **Days** on the **Site** of the **Work** and upon a written order of the **Engineer**, the **Commissioner**, the **ACCO**, the **Agency EAO**, or the **Comptroller**, such records as are required to be kept by this Article 37.6; and

37.6.7 The **Contractor** and **Subcontractor(s)** shall pay employees by check or direct deposit. If this **Contract** is for an amount greater than one million ($1,000,000) dollars, checks issued by the **Contractor** to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the **Agency**). For any subcontract for an amount greater than seven hundred fifty thousand ($750,000) dollars, checks issued by a **Subcontractor** to covered employees shall be generated by a payroll service or automated payroll system (an in-house system may be used if approved by the **Agency**); and

37.6.8 The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of Articles 37.6.1 through 37.6.7 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract**.

37.7 The **Contractor** and its **Subcontractors** shall keep such employment and payroll records as are required by Section 220 of the Labor Law. The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of this Article 37.7 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract.**

37.8 At the time the **Contractor** makes application for each partial payment and for final payment, the **Contractor** shall submit to the **Commissioner** a written payroll certification, in the form provided by this **Contract**, of compliance with the prevailing wage, minimum wage, and other provisions and stipulations required by Labor Law Section 220 and of compliance with the training requirements of Labor Law Section 220-h set forth in Article 35.2. This certification of compliance shall be a condition precedent to payment and no payment shall be made to the **Contractor** unless and until each such certification shall have been submitted to and received by the **Commissioner**.

37.9 This **Contract** is executed by the **Contractor** with the express warranty and representation that the **Contractor** is not disqualified under the provisions of Section 220 of the Labor Law from the award of the **Contract.**

37.10 Any breach or violation of any of the foregoing shall be deemed a breach or violation of a material provision of this **Contract,** and grounds for cancellation thereof by the **City.**

ARTICLE 38. PAYROLL REPORTS

38.1 The **Contractor** and its **Subcontractor(s)** shall maintain on the **Site** during the performance of the **Work** the original payrolls or transcripts thereof which the **Contractor** and its **Subcontractor(s)** are required to maintain and shall submit such original payrolls or transcripts, subscribed and affirmed by it as true, within thirty (30) **Days** after issuance of its first payroll, and every thirty (30) **Days** thereafter, pursuant to Labor Law Section 220(3-a)(a)(iii). The **Contractor** and **Subcontractor(s)** shall submit such original payrolls or transcripts along with each and every payment requisition. If payment requisitions are not submitted at least once a month, the **Contractor** and its **Subcontractor(s)** shall submit original payrolls and transcripts both along with its payment requisitions and independently of its payment requisitions.

38.2 The **Contractor** shall maintain payrolls or transcripts thereof for six (6) years from the date of completion of the **Work** on this **Contract.** If such payrolls and transcripts are maintained outside of New York City after the completion of the **Work** and their production is required pursuant to this Article 38, the **Contractor** shall produce such records in New York City upon request by the City.

38.3 The **Contractor** and **Subcontractor(s)** shall comply with any written order, direction, or request made by the **Engineer,** the **Commissioner,** the **ACCO,** the **Agency EAO,** the **Agency Labor Law Investigator(s),** or the **Comptroller,** to provide to the requesting party any of the following information and/or records within five (5) **Days** of such written order, direction, or request:

38.3.1 Such original payrolls or transcripts thereof subscribed and affirmed by it as true and the statements signed by each worker pursuant to this Chapter VIII; and/or

38.3.2 Attendance sheets for each **Day** on which any employee of the **Contractor** and/or any of the **Subcontractor(s)** performed **Work** on the **Site,** which attendance sheet shall be in a form acceptable to the **Agency** and shall provide information acceptable to the **Agency** to identify each such employee; and/or

38.3.3 Any other information to satisfy the **Engineer,** the **Commissioner,** the **ACCO,** the **Agency EAO,** the **Agency Labor Law Investigator(s)** or the **Comptroller,** that this Chapter VIII and the Labor Law, as to the hours of employment and prevailing rates of wages and/or supplemental benefits, are being observed.

38.4 The failure of the **Contractor** or **Subcontractor(s)** to comply with the provisions of Articles 38.1 and/or 38.2 may result in the **Commissioner** declaring the **Contractor** in default and/or the withholding of payments otherwise due under the **Contract.**

ARTICLE 39. DUST HAZARDS

39.1 Should a harmful dust hazard be created in performing the **Work** of this **Contract,** for the elimination of which appliances or methods have been approved by the Board of Standards and Appeals

of the City of New York, such appliances and methods shall be installed, maintained, and effectively operated during the continuance of such harmful dust hazard. Failure to comply with this provision after notice shall make this **Contract** voidable at the sole discretion of the **City**.

CHAPTER IX: PARTIAL AND FINAL PAYMENTS

ARTICLE 40. CONTRACT PRICE

40.1 The **City** shall pay, and the **Contractor** agrees to accept, in full consideration for the **Contractor's** performance of the **Work** subject to the terms and conditions hereof, the lump sum price or unit prices for which this **Contract** was awarded, plus the amount required to be paid for any **Extra Work** ordered by the **Commissioner** under Article 25, less credit for any **Work** omitted pursuant to Article 29.

ARTICLE 41. BID BREAKDOWN ON LUMP SUM

41.1 Within fifteen (15) **Days** after the commencement date specified in the **Notice to Proceed** or **Order to Work**, unless otherwise directed by the **Resident Engineer**, the **Contractor** shall submit to the **Resident Engineer** a breakdown of its bid price, or of lump sums bid for items of the **Contract**, showing the various operations to be performed under the **Contract**, as directed in the progress schedule required under Article 9, and the value of each of such operations, the total of such items to equal the lump sum price bid. Said breakdown must be approved in writing by the **Resident Engineer**.

41.2 No partial payment will be approved until the **Contractor** submits a bid breakdown that is acceptable to the **Resident Engineer**.

41.3 The **Contractor** shall also submit such other information relating to the bid breakdown as directed by the **Resident Engineer**. Thereafter, the breakdown may be used only for checking the **Contractor's** applications for partial payments hereunder, but shall not be binding upon the **City**, the **Commissioner**, or the **Engineer** for any purpose whatsoever.

ARTICLE 42. PARTIAL PAYMENTS

42.1 From time to time as the **Work** progresses satisfactorily, but not more often than once each calendar month (except where the **Commissioner** approves in writing the submission of invoices on a more frequent basis and for invoices relating to **Work** performed pursuant to a change order), the **Contractor** may submit to the **Engineer** a requisition for a partial payment in the prescribed form, which shall contain an estimate of the quantity and the fair value of the **Work** done during the payment period.

42.2 Partial payments may be made for materials, fixtures, and equipment in advance of their actual incorporation in the **Work**, as the **Commissioner** may approve, and upon the terms and conditions set forth in the General Conditions.

42.3 The **Contractor** shall also submit to the **Commissioner** in connection with every application for partial payment a verified statement in the form prescribed by the **Comptroller** setting forth the information required under Labor Law Section 220-a.

42.4 Within thirty (30) **Days** after receipt of a satisfactory payment application, and within sixty (60) **Days** after receipt of a satisfactory payment application in relation to **Work** performed pursuant to a change order, the **Engineer** will prepare and certify, and the **Commissioner** will approve, a voucher for a partial payment in the amount of such approved estimate, less any and all deductions authorized to be made by the **Commissioner** under the terms of this **Contract** or by **Law**.

ARTICLE 43. PROMPT PAYMENT

43.1 The Prompt Payment provisions of the **PPB** Rules in effect at the time of the bid will be applicable to payments made under this **Contract**. The provisions require the payment to the **Contractor** of interest on payments made after the required payment date, except as set forth in the **PPB** Rules.

43.2 The **Contractor** shall submit a proper invoice to receive payment, except where the **Contract** provides that the **Contractor** will be paid at predetermined intervals without having to submit an invoice for each scheduled payment.

43.3 Determination of interest due will be made in accordance with the **PPB** Rules.

43.4 If the **Contractor** is paid interest, the proportionate share(s) of that interest shall be forwarded by the **Contractor** to its **Subcontractor(s)**.

43.5 The **Contractor** shall pay each **Subcontractor** or **Materialman** not later than seven (7) **Days** after receipt of payment out of amounts paid to the **Contractor** by the **City** for **Work** performed by the **Subcontractor** or **Materialman** under this **Contract**.

> 43.5.1 If **Contractor** fails to make any payment to any **Subcontractor** or **Materialman** within seven (7) **Days** after receipt of payment by the **City** pursuant to this Article 43.5, then the **Contractor** shall pay interest on amounts due to such **Subcontractor** or **Materialman** at the rate of interest in effect on the date such payment is made by the **Contractor** computed in accordance with Section 756-b (1)(b) of the New York General Business Law. Accrual of interest shall commence on the **Day** immediately following the expiration of the seventh **Day** following receipt of payment by the **Contractor** from the **City** and shall end on the date on which payment is made.

43.6 The **Contractor** shall include in each of its subcontracts a provision requiring each **Subcontractor** to make payment to each of its **Subcontractors** or **Materialmen** for **Work** performed under this **Contract** in the same manner and within the same time period set forth above.

ARTICLE 44. SUBSTANTIAL COMPLETION PAYMENT

44.1 The **Contractor** shall submit with the **Substantial Completion** requisition:

> 44.1.1 A final verified statement of any pending Article 27 disputes in accordance with the **PPB** Rules and this **Contract** and any and all alleged claims against the **City**, in any way connected with or arising out of this **Contract** (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the

Contractor claims the performance of the **Work** or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay.

44.1.1(a) With respect to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the **City** Corporation Counsel shall have the same right to inspect, and to make extracts or copies of, the **Contractor's** books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 44.1.1(a) is intended to or shall relieve the **Contractor** from the obligation of complying strictly with Articles 11, 27, 28, and 30. The **Contractor** is warned that unless such claims are completely set forth as herein required, the **Contractor** upon acceptance of the **Substantial Completion** payment pursuant to this Article 44, will have waived any such claims.

44.1.2 A **Final Approved Punch List.**

44.1.3 Where required, a request for an extension of time to achieve **Substantial Completion** or final extension of time.

44.2 The **Commissioner** shall issue a voucher calling for payment of any part or all of the balance due for **Work** performed under the **Contract**, including monies retained under Article 21, less any and all deductions authorized to be made by the **Commissioner**, under this **Contract** or by **Law**, and less twice the amount the **Commissioner** considers necessary to ensure the completion of the balance of the **Work** by the **Contractor**. Such a payment shall be considered a partial and not a final payment. No **Substantial Completion** payment shall be made under this Article 44 where the **Contractor** failed to complete the **Work** within the time fixed for such completion in the Schedule A of the General Conditions, or within the time to which completion may have been extended, until an extension or extensions of time for the completion of **Work** have been acted upon pursuant to Article 13.

44.3 No further partial payments shall be made to the **Contractor** after **Substantial Completion**, except the **Substantial Completion** payment and payment pursuant to any **Contractor's** requisition that were properly filed with the **Commissioner** prior to the date of **Substantial Completion**; however, the **Commissioner** may grant a waiver for further partial payments after the date of **Substantial Completion** to permit payments for change order **Work** and/or release of retainage and deposits pursuant to Articles 21 and 24. Such waiver shall be in writing.

44.4 The **Contractor** acknowledges that nothing contained in this Article 44 is intended to or shall in any way diminish the force and effect of Article 13.

ARTICLE 45. FINAL PAYMENT

45.1 After completion and **Final Acceptance** of the **Work**, the **Contractor** shall submit all required certificates and documents, together with a requisition for the balance claimed to be due under the **Contract**, less the amount authorized to be retained for maintenance under Article 24. Such submission shall be within 90 days of the date of the **Commissioner's** written determination of **Final Acceptance**, or within such additional time as may be granted by the **Commissioner** in writing. If the **Contractor** fails to submit all required certificates and documents within the time allowed, no payment of the balance claimed shall be made to the **Contractor** and the **Contractor** shall be deemed to have forfeited its right to payment of any balance claimed. A verified statement similar to that required in connection with applications for partial payments shall also be submitted to the **Commissioner**.

45.2 Amended Verified Statement of Claims: The **Contractor** shall also submit with the final requisition any amendments to the final verified statement of any pending dispute resolution procedures in accordance with the **PPB** Rules and this **Contract** and any and all alleged claims against the **City**, in any way connected with or arising out of this **Contract** (including those as to which details may have been furnished pursuant to Articles 11, 27, 28, and 30) that have occurred subsequent to **Substantial Completion**, setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein, and the alleged value of each such item; and if the alleged claim be one for delay, the alleged cause of each such delay, the period or periods of time, giving the dates when the **Contractor** claims the performance of the **Work** or a particular part thereof was delayed, and an itemized statement and breakdown of the amount claimed for each such delay. With reference to each such claim, the **Commissioner**, the **Comptroller** and, in the event of litigation, the **City** Corporation Counsel shall have the same right to inspect, and to make extracts or copies of, the **Contractor's** books, vouchers, records, etc., as is referred to in Articles 11, 27, 28, and 30. Nothing contained in this Article 45.2, is intended to or shall relieve the **Contractor** from the obligation of complying strictly with Articles 11, 27, 28, and 30. The **Contractor** is warned that unless such claims are completely set forth as herein required, the **Contractor**, upon acceptance of the Final Payment pursuant to Article 46, will have waived any such claims.

45.3 Preparation of Final Voucher: Upon determining the balance due hereunder other than on account of claims, the **Engineer** will prepare and certify, for the Commissioner's approval, a voucher for final payment in that amount less any and all deductions authorized to be made by the **Commissioner** under this **Contract** or by **Law**. In the case of a lump sum **Contract**, the **Commissioner** shall certify the voucher for final payment within thirty (30) **Days** from the date of completion and acceptance of the **Work**, provided all requests for extensions of time have been acted upon.

45.3.1 All prior certificates and vouchers upon which partial payments were made, being merely estimates made to enable the **Contractor** to prosecute the **Work** more advantageously, shall be subject to correction in the final voucher, and the certification of the **Engineer** thereon and the approval of the **Commissioner** thereof, shall be conditions precedent to the right of the **Contractor** to receive any money hereunder. Such final voucher shall be binding and conclusive upon the **Contractor**.

45.3.2 Payment pursuant to such final voucher, less any deductions authorized to be made by the **Commissioner** under this **Contract** or by **Law**, shall constitute the final payment, and shall be made by the **Comptroller** within thirty (30) **Days** after the filing of such voucher in his/her office.

45.4 The **Contractor** acknowledges that nothing contained in this Article 45 is intended to or shall in any way diminish the force and effect of Article 13.

ARTICLE 46. ACCEPTANCE OF FINAL PAYMENT

46.1 The acceptance by the **Contractor**, or by anyone claiming by or through it, of the final payment, whether such payment be made pursuant to any judgment of any court, or otherwise, shall constitute and operate as a release of the **City** from any and all claims of and liability to the **Contractor** for anything heretofore done or furnished for the **Contractor** relating to or arising out of this **Contract** and the **Work** done hereunder, and for any prior act, neglect or default on the part of the **City** or any of its officials, agents or employees, excepting only a claim against the **City** for the amounts deducted or retained in accordance with the terms and provisions of this **Contract** or by **Law**, and excepting any claims, not otherwise waived, or any pending dispute resolution procedures which are contained in the

verified statement filed with the **Contractor's** substantial and final requisitions pursuant to Articles 44 and 45.

46.2 The **Contractor** is warned that the execution by it of a release, in connection with the acceptance of the final payment, containing language purporting to reserve claims other than those herein specifically excepted from the operation of this Article 46, or those for amounts deducted by the **Commissioner** from the final requisition or from the final payment as certified by the **Engineer** and approved by the **Commissioner**, shall not be effective to reserve such claims, anything stated to the **Contractor** orally or in writing by any official, agent or employee of the **City** to the contrary notwithstanding.

46.3 Should the **Contractor** refuse to accept the final payment as tendered by the **Comptroller**, it shall constitute a waiver of any right to interest thereon.

46.4 The **Contractor**, however, shall not be barred by this Article 46 from commencing an action for breach of **Contract** to the extent permitted by **Law** and by the terms of the **Contract** for any claims that are contained in the verified statement filed with the **Contractor's** substantial and final requisitions pursuant to Articles 44 and 45 or that arose after submission of the final payment requisition, provided that a detailed and verified statement of claim is served upon the contracting **Agency** and **Comptroller** not later than forty (40) **Days** after the making of such final payment by electronic funds transfer (EFT) or the mailing of such final payment. The statement shall specify the items upon which the claim will be based and any such claim shall be limited to such items.

ARTICLE 47. APPROVAL BY PUBLIC DESIGN COMMISSION

47.1 All works of art, including paintings, mural decorations, stained glass, statues, bas-reliefs, and other sculptures, monuments, fountains, arches, and other structures of a permanent character intended for ornament or commemoration, and every design of the same to be used in the performance of this **Contract**, and the design of all bridges, approaches, buildings, gates, fences, lamps, or structures to be erected, pursuant to the terms of this **Contract**, shall be submitted to the Art Commission, d/b/a the Public Design Commission of the City of New York, and shall be approved by the Public Design Commission prior to the erection or placing in position of the same. The final payment shall not become due or payable under this **Contract** unless and until the Public Design Commission shall certify that the design for the **Work** herein contracted for has been approved by the said Public Design Commission, and that the same has been executed in substantial accordance with the design so approved, pursuant to the provisions of Chapter 37, Section 854 of the **City** Charter, as amended.

CHAPTER X: CONTRACTOR'S DEFAULT

ARTICLE 48. COMMISSIONER'S RIGHT TO DECLARE CONTRACTOR IN DEFAULT

48.1 In addition to those instances specifically referred to in other Articles herein, the **Commissioner** shall have the right to declare the **Contractor** in default of this **Contract** if:

48.1.1 The **Contractor** fails to commence **Work** when notified to do so by the **Commissioner**; or if

48.1.2 The **Contractor** shall abandon the **Work**; or if

48.1.3 The **Contractor** shall refuse to proceed with the **Work** when and as directed by the **Commissioner**; or if

48.1.4 The **Contractor** shall, without just cause, reduce its working force to a number which, if maintained, would be insufficient, in the opinion of the **Commissioner**, to complete the **Work** in accordance with the progress schedule; or if

48.1.5 The **Contractor** shall fail or refuse to increase sufficiently such working force when ordered to do so by the **Commissioner**; or if

48.1.6 The **Contractor** shall sublet, assign, transfer, convert or otherwise dispose of this **Contract** other than as herein specified; or sell or assign a majority interest in the **Contractor**; or if

48.1.7 The **Contractor** fails to secure and maintain all required insurance; or if

48.1.8 A receiver or receivers are appointed to take charge of the **Contractor's** property or affairs; or if

48.1.9 The **Commissioner** shall be of the opinion that the **Contractor** is or has been unnecessarily or unreasonably or willfully delaying the performance and completion of the **Work**, or the award of necessary subcontracts, or the placing of necessary material and equipment orders; or if

48.1.10 The **Commissioner** shall be of the opinion that the **Contractor** is or has been willfully or in bad faith violating any of the provisions of this **Contract**; or if

48.1.11 The **Commissioner** shall be of the opinion that the **Work** cannot be completed within the time herein provided therefor or within the time to which such completion may have been extended; provided, however, that the impossibility of timely completion is, in the **Commissioner's** opinion, attributable to conditions within the **Contractor's** control; or if

48.1.12 The **Work** is not completed within the time herein provided therefor or within the time to which the **Contractor** may be entitled to have such completion extended; or if

48.1.13 Any statement or representation of the **Contractor** in the **Contract** or in any document submitted by the **Contractor** with respect to the **Work**, the **Project**, or the **Contract** (or for purposes of securing the **Contract**) was untrue or incorrect when made; or if

48.1.14 The **Contractor** or any of its officers, directors, partners, five (5%) percent shareholders, principals, or other persons substantially involved in its activities, commits any of the acts or omissions specified as the grounds for debarment in the **PPB** Rules.

48.2 Before the **Commissioner** shall exercise his/her right to declare the **Contractor** in default, the **Commissioner** shall give the **Contractor** an opportunity to be heard, upon not less than two (2) **Days'** notice.

ARTICLE 49. EXERCISE OF THE RIGHT TO DECLARE DEFAULT

49.1 The right to declare the **Contractor** in default for any of the grounds specified or referred to in Article 48 shall be exercised by sending the **Contractor** a notice, signed by the **Commissioner**, setting forth the ground or grounds upon which such default is declared (hereinafter referred to as a "Notice of Default").

49.2 The **Commissioner's** determination that the **Contractor** is in default shall be conclusive, final, and binding on the parties and such a finding shall preclude the **Contractor** from commencing a plenary action for any damages relating to the **Contract**. If the **Contractor** protests the determination of the **Commissioner**, the **Contractor** may commence an action in a court of competent jurisdiction of the State of New York under Article 78 of the New York Civil Practice Law and Rules.

ARTICLE 50. QUITTING THE SITE

50.1 Upon receipt of such notice the **Contractor** shall immediately discontinue all further operations under this **Contract** and shall immediately quit the **Site**, leaving untouched all plant, materials, equipment, tools, and supplies then on the **Site**.

ARTICLE 51. COMPLETION OF THE WORK

51.1 The **Commissioner**, after declaring the **Contractor** in default, may then have the **Work** completed by such means and in such manner, by contract with or without public letting, or otherwise, as he/she may deem advisable, utilizing for such purpose such of the **Contractor's** plant, materials, equipment, tools, and supplies remaining on the **Site**, and also such **Subcontractors**, as he/she may deem advisable.

51.2 After such completion, the **Commissioner** shall make a certificate stating the expense incurred in such completion, which shall include the cost of re-letting and also the total amount of liquidated damages (at the rate provided for in the **Contract**) from the date when the **Work** should have been completed by the **Contractor** in accordance with the terms hereof to the date of actual completion of the **Work**. Such certificate shall be binding and conclusive upon the **Contractor**, its sureties, and any person claiming under the **Contractor**, as to the amount thereof.

51.3 The expense of such completion, including any and all related and incidental costs, as so certified by the **Commissioner**, and any liquidated damages assessed against the **Contractor**, shall be charged against and deducted out of monies which are earned by the **Contractor** prior to the date of default. Should the expense of such completion, as certified by the **Commissioner**, exceed the total sum which would have been payable under the **Contract** if it had been completed by the **Contractor**, any excess shall be paid by the **Contractor**.

ARTICLE 52. PARTIAL DEFAULT

52.1 In case the **Commissioner** shall declare the **Contractor** in default as to a part of the **Work** only, the **Contractor** shall discontinue such part, shall continue performing the remainder of the **Work** in strict conformity with the terms of this **Contract**, and shall in no way hinder or interfere with any **Other Contractor(s)** or persons whom the **Commissioner** may engage to complete the **Work** as to which the **Contractor** was declared in default.

52.2 The provisions of this Chapter relating to declaring the **Contractor** in default as to the entire **Work** shall be equally applicable to a declaration of partial default, except that the **Commissioner** shall be entitled to utilize for completion of the part of the **Work** as to which the **Contractor** was declared in default only such plant, materials, equipment, tools, and supplies as had been previously used by the **Contractor** on such part.

ARTICLE 53. PERFORMANCE OF UNCOMPLETED WORK

53.1 In completing the whole or any part of the **Work** under the provisions of this Chapter X, the **Commissioner** shall have the power to depart from or change or vary the terms and provisions of this **Contract**, provided, however, that such departure, change or variation is made for the purpose of reducing the time or expense of such completion. Such departure, change or variation, even to the extent of accepting a lesser or different performance, shall not affect the conclusiveness of the **Commissioner's** certificate of the cost of completion referred to in Article 51, nor shall it constitute a defense to an action to recover the amount by which such certificate exceeds the amount which would have been payable to the **Contractor** hereunder but for its default.

ARTICLE 54. OTHER REMEDIES

54.1 In addition to the right to declare the **Contractor** in default pursuant to this Chapter X, the **Commissioner** shall have the absolute right, in his/her sole discretion and without a hearing, to complete or cause to be completed in the same manner as described in Articles 51 and 53, any or all unsatisfactory or uncompleted punch list **Work** that remains after the completion date specified in the **Final Approved Punch List**. A written notice of the exercise of this right shall be sent to the **Contractor** who shall immediately quit the **Site** in accordance with the provisions of Article 50.

54.2 The expense of completion permitted under Article 54.1, including any and all related and incidental costs, as so certified by the **Commissioner**, shall be charged against and deducted out of monies which have been earned by the **Contractor** prior to the date of the exercise of the right set forth in Article 54.1; the balance of such monies, if any, subject to the other provisions of this **Contract**, to be paid to the **Contractor** without interest after such completion. Should the expense of such completion, as certified by the **Commissioner**, exceed the total sum which would have been payable under the **Contract** if it had been completed by the **Contractor**, any excess shall be paid by the **Contractor**.

54.3 The previous provisions of this Chapter X shall be in addition to any and all other remedies available under **Law** or in equity.

54.4 The exercise by the **City** of any remedy set forth herein shall not be deemed a waiver by the **City** of any other legal or equitable remedy contained in this **Contract** or provided under **Law**.

CHAPTER XI: MISCELLANEOUS PROVISIONS

ARTICLE 55. CONTRACTOR'S WARRANTIES

55.1 In consideration of, and to induce, the award of this **Contract** to the **Contractor**, the **Contractor** represents and warrants:

55.1.1 That it is financially solvent, sufficiently experienced and competent to perform the **Work**; and

55.1.2 That the facts stated in its bid and the information given by it pursuant to the Information for Bidders is true and correct in all respects; and

55.1.3 That it has read and complied with all requirements set forth in the **Contract**.

ARTICLE 56. CLAIMS AND ACTIONS THEREON

56.1 Any claim, that is not subject to dispute resolution under the **PPB** Rules or this **Contract**, against the **City** for damages for breach of **Contract** shall not be made or asserted in any action, unless the **Contractor** shall have strictly complied with all requirements relating to the giving of notice and of information with respect to such claims, as herein before provided.

56.2 Nor shall any action be instituted or maintained on any such claims unless such action is commenced within six (6) months after **Substantial Completion**; except that:

56.2.1 Any claims arising out of events occurring after **Substantial Completion** and before **Final Acceptance** of the **Work** shall be asserted within six (6) months of **Final Acceptance** of the **Work**;

56.2.2 If the **Commissioner** exercises his/her right to complete or cause to complete any or all unsatisfactory or uncompleted punch list **Work** that remains after the completion date specified in the **Final Approved Punch List** pursuant to Article 54, any such action shall be commenced within six (6) months from the date the **Commissioner** notifies the **Contractor** in writing that he/she has exercised such right. Any claims for monies deducted, retained or withheld under the provisions of this **Contract** shall be asserted within six (6) months after the date when such monies otherwise become due and payable hereunder; and

56.2.3 If the **Commissioner** exercises his/her right to terminate the **Contract** pursuant to Article 64, any such action shall be commenced within six (6) months of the date the **Commissioner** exercises said right.

ARTICLE 57. INFRINGEMENT

57.1 The **Contractor** shall be solely responsible for and shall defend, indemnify, and hold the **City** harmless from any and all claims (even if the allegations of the lawsuit are without merit) and judgments for damages and from costs and expenses to which the **City** may be subject to or which it may suffer or incur allegedly arising out of or in connection with any infringement by the **Contractor** of any copyright, trade secrets, trademark or patent rights or any other property or personal right of any third party by the **Contractor** and/or its **Subcontractors** in the performance or completion of the **Work**. Insofar as the facts or **Law** relating to any claim would preclude the **City** from being completely indemnified by the **Contractor**, the **City** shall be partially indemnified by the **Contractor** to the fullest extent permitted by **Law**.

ARTICLE 58. NO CLAIM AGAINST OFFICIALS, AGENTS OR EMPLOYEES

58.1 No claim whatsoever shall be made by the **Contractor** against any official, agent or employee of the **City** for, or on account of, anything done or omitted to be done in connection with this **Contract**.

ARTICLE 59. SERVICE OF NOTICES

59.1 The **Contractor** hereby designates the business address, fax number, and email address specified in its bid, as the place where all notices, directions or other communications to the **Contractor** may be delivered, or to which they may be mailed. Any notice, direction, or communication from either party to the other shall be in writing and shall be deemed to have been given when (i) delivered personally; (ii) sent by certified mail, return receipt requested; (iii) delivered by overnight or same day courier service in a properly addressed envelope with confirmation; or (iv) sent by fax or email and, unless receipt of the fax or e-mail is acknowledged by the recipient by fax or e-mail, deposited in a post office box regularly maintained by the United States Postal Service in a properly addressed, postage pre-paid envelope.

59.2 **Contractor's** notice address, email address, or fax number may be changed at any time by an instrument in writing, executed and acknowledged by the **Contractor**, and delivered to the **Commissioner**.

59.3 Nothing herein contained shall, however, be deemed to preclude or render inoperative the service of any notice, direction or other communication upon the **Contractor** personally, or, if the **Contractor** is a corporation, upon any officer thereof.

ARTICLE 60. UNLAWFUL PROVISIONS DEEMED STRICKEN FROM CONTRACT

60.1 If this **Contract** contains any unlawful provision not an essential part of the **Contract** and which shall not appear to have been a controlling or material inducement to the making thereof, the same shall be deemed of no effect and shall, upon notice by either party, be deemed stricken from the **Contract** without affecting the binding force of the remainder.

ARTICLE 61. ALL LEGAL PROVISIONS DEEMED INCLUDED

61.1 It is the intent and understanding of the parties to this **Contract** that each and every provision of **Law** required to be inserted in this **Contract** shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is to be deemed to be inserted herein, and if, through mistake or otherwise, any such provision is not inserted, or is not inserted in correct form, then this **Contract** shall forthwith upon the application of either party be amended by such insertion so as to comply strictly with the **Law** and without prejudice to the rights of either party hereunder.

ARTICLE 62. TAX EXEMPTION

62.1 The **City** is exempt from payment of Federal, State, and local taxes, including sales and compensating use taxes of the State of New York and its cities and counties on all tangible personal property sold to the **City** pursuant to the provisions of this **Contract**. These taxes are not to be included in bids. However, this exemption does not apply to tools, machinery, equipment or other property leased by or to the **Contractor**, **Subcontractor** or **Materialman** or to tangible personal property which, even

though it is consumed, is not incorporated into the completed **Work** (consumable supplies) and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**. The **Contractor** and its **Subcontractors** and **Materialmen** shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on such leased tools, machinery, equipment or other property and upon all such consumable supplies and tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**.

62.2 The **Contractor** agrees to sell and the **City** agrees to purchase all tangible personal property, other than consumable supplies and other tangible personal property that the **Contractor** is required to remove from the **Site** during or upon completion of the **Work**, that is required, necessary or proper for or incidental to the construction of the **Project** covered by this **Contract**. The sum paid under this **Contract** for such tangible personal property shall be in full payment and consideration for the sale of such tangible personal property.

62.2.1 The **Contractor** agrees to construct the **Project** and to perform all **Work**, labor and services rendered, necessary, proper or incidental thereto for the sum shown in the bid for the performance of such **Work**, labor, and services, and the sum so paid pursuant to this **Contract** for such **Work**, labor, and services, shall be in full consideration for the performance by the **Contractor** of all its duties and obligations under this **Contract** in connection with said **Work**, labor, and services.

62.3 20 NYCRR Section 541.3(d) provides that a **Contractor**'s purchases of tangible personal property that is either incorporated into real property owned by a governmental entity or purchased for and sold to a governmental entity are exempt from sales and use tax. The **City** shall not pay sales tax for any such tangible personal property that it purchases from the **Contractor** pursuant to the **Contract.** With respect to such tangible personal property, the **Contractor**, at the request of the **City**, shall furnish to the **City** such bills of sale and other instruments as may be required by the **City**, properly executed, acknowledged and delivered assuring to the **City** title to such tangible personal property, free of liens and/or encumbrances, and the **Contractor** shall mark or otherwise identify all such tangible personal property as the property of the **City**.

62.4 Title to all tangible personal property to be sold by the **Contractor** to the **City** pursuant to the provisions of the **Contract** shall immediately vest in and become the sole property of the **City** upon delivery of such tangible personal property to the **Site**. Notwithstanding such transfer of title, the **Contractor** shall have the full and continuing responsibility to install such tangible personal property in accordance with the provisions of this **Contract**, protect it, maintain it in a proper condition and forthwith repair, replace and make good any damage thereto, theft or disappearance thereof, and furnish additional tangible personal property in place of any that may be lost, stolen or rendered unusable, without cost to the **City**, until such time as the **Work** covered by the **Contract** is fully accepted by the **City**. Such transfer of title shall in no way affect any of the **Contractor's** obligations hereunder. In the event that, after title has passed to the **City**, any of the tangible personal property is rejected as being defective or otherwise unsatisfactory, title to all such tangible personal property shall be deemed to have been transferred back to the **Contractor**.

62.5 The purchase by **Subcontractors** or **Materialmen** of tangible personal property to be sold hereunder shall be a purchase or procurement for resale to the **Contractor** (either directly or through other **Subcontractors**) and therefore not subject to the aforesaid sales and compensating use taxes, provided that the subcontracts and purchase agreements provide for the resale of such tangible personal property and that such subcontracts and purchase agreements are in a form similar to this **Contract** with respect to the separation of the sale of consumable supplies and tangible personal property that the

Contractor is required to remove from the **Site** during or upon completion of the **Work** from the **Work** and labor, services, and any other matters to be provided, and provided further that the subcontracts and purchase agreements provide separate prices for tangible personal property and all other services and matters. Such separation shall actually be followed in practice, including the separation of payments for tangible personal property from the payments for other **Work** and labor and other things to be provided.

62.6 The **Contractor** and its **Subcontractors** and **Materialmen** shall furnish a **Contractor** Exempt Purchase Certificate to all persons, firms or corporations from which they purchase tangible personal property for the performance of the **Work** covered by this **Contract**.

62.7 In the event any of the provisions of this Article 62 shall be deemed to be in conflict with any other provisions of this **Contract** or create any ambiguity, then the provisions of this Article 62 shall control.

ARTICLE 63. INVESTIGATION(S) CLAUSE

63.1 The parties to this **Contract** agree to cooperate fully and faithfully with any investigation, audit or inquiry conducted by a United States, a State of New York (State) or a **City** governmental agency or authority that is empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath, or conducted by the Inspector General of a governmental agency that is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit or license that is the subject of the investigation, audit or inquiry.

63.2 If any person who has been advised that his/her statement, and any information from such statement, will not be used against him/her in any subsequent criminal proceeding refuses to testify before a grand jury or other governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to examine witnesses under oath concerning the award of or performance under any transaction, agreement, lease, permit, contract, or license entered into with the **City**, the State, or any political subdivision or public authority thereof, or the Port Authority of New York and New Jersey, or any local development corporation within the **City**, or any public benefit corporation organized under the **Laws** of the State of New York, or;

63.3 If any person refuses to testify for a reason other than the assertion of his/her privilege against self incrimination in an investigation, audit or inquiry conducted by a **City** or State governmental agency or authority empowered directly or by designation to compel the attendance of witnesses and to take testimony under oath, or by the Inspector General of the governmental agency that is a party in interest in, and is seeking testimony concerning the award of, or performance under any transaction, agreement, lease, permit, contract, or license entered into with the **City**, the State, or any political subdivision thereof or any local development corporation within the **City**, then;

63.4 The **Commissioner** whose **Agency** is a party in interest to the transaction, submitted bid, submitted proposal, contract, lease, permit, or license shall convene a hearing, upon not less than five (5) **Days**' written notice to the parties involved to determine if any penalties should attach for the failure of a person to testify.

63.5 If any non-governmental party to the hearing requests an adjournment, the **Commissioner** who convened the hearing may, upon granting the adjournment, suspend any contract, lease, permit, or license, pending the final determination pursuant to Article 63.7 without the **City** incurring any penalty or damages for delay or otherwise.

63.6 The penalties which may attach after a final determination by the **Commissioner** may include but shall not exceed:

63.6.1 The disqualification for a period not to exceed five (5) years from the date of an adverse determination for any person, or any entity of which such person was a member at the time the testimony was sought, from submitting bids for, or transacting business with, or entering into or obtaining any contract, lease, permit or license with or from the **City**; and/or

63.6.2 The cancellation or termination of any and all such existing **City** contracts, leases, permits or licenses that the refusal to testify concerns and that have not been assigned as permitted under this **Contract**, nor the proceeds of which pledged, to an unaffiliated and unrelated institutional lender for fair value prior to the issuance of the notice scheduling the hearing, without the **City** incurring any penalty or damages on account of such cancellation or termination; monies lawfully due for goods delivered, work done, rentals, or fees accrued prior to the cancellation or termination shall be paid by the **City**.

63.7 The **Commissioner** shall consider and address in reaching his/her determination and in assessing an appropriate penalty the factors in Articles 63.7.1 and 63.7.2. The **Commissioner** may also consider, if relevant and appropriate, the criteria established in Articles 63.7.3 and 63.7.4, in addition to any other information which may be relevant and appropriate:

63.7.1 The party's good faith endeavors or lack thereof to cooperate fully and faithfully with any governmental investigation or audit, including but not limited to the discipline, discharge, or disassociation of any person failing to testify, the production of accurate and complete books and records, and the forthcoming testimony of all other members, agents, assignees or fiduciaries whose testimony is sought.

63.7.2 The relationship of the person who refused to testify to any entity that is a party to the hearing, including but not limited to, whether the person whose testimony is sought has an ownership interest in the entity and/or the degree of authority and responsibility the person has within the entity.

63.7.3 The nexus of the testimony sought to the subject entity and its contracts, leases, permits or licenses with the **City**.

63.7.4 The effect a penalty may have on an unaffiliated and unrelated party or entity that has a significant interest in an entity subject to penalties under Article 63.6, provided that the party or entity has given actual notice to the **Commissioner** upon the acquisition of the interest, or at the hearing called for in Article 63.4, gives notice and proves that such interest was previously acquired. Under either circumstance the party or entity shall present evidence at the hearing demonstrating the potential adverse impact a penalty will have on such person or entity.

63.8 Definitions:

63.8.1 The term "license" or "permit" as used in this Article 63 shall be defined as a license, permit, franchise or concession not granted as a matter of right.

63.8.2 The term "person" as used in this Article 63 shall be defined as any natural person doing business alone or associated with another person or entity as a partner, director, officer, principal or employee.

63.8.3 The term "entity" as used in this Article 63 shall be defined as any firm, partnership, corporation, association, joint venture, or person that receives monies, benefits, licenses, leases, or permits from or through the **City** or otherwise transacts business with the **City**.

63.8.4 The term "member" as used in this Article 63 shall be defined as any person associated with another person or entity as a partner, director, officer, principal or employee.

63.9 In addition to and notwithstanding any other provision of this **Contract**, the **Commissioner** may in his/her sole discretion terminate this **Contract** upon not less than three (3) **Days'** written notice in the event the **Contractor** fails to promptly report in writing to the **Commissioner** of the Department of Investigations ("DOI") of the **City** any solicitation of money, goods, requests for future employment or other benefit or thing of value, by or on behalf of any employee of the **City** or other person, firm, corporation or entity for any purpose which may be related to the procurement or obtaining of this **Contract** by the **Contractor**, or affecting the performance of this **Contract**.

ARTICLE 64. TERMINATION BY THE CITY

64.1 In addition to termination pursuant to any other article of this **Contract**, the **Commissioner** may, at any time, terminate this **Contract** by written notice to the **Contractor**. In the event of termination, the **Contractor** shall, upon receipt of such notice, unless otherwise directed by the **Commissioner**:

64.1.1 Stop **Work** on the date specified in the notice;

64.1.2 Take such action as may be necessary for the protection and preservation of the **City's** materials and property;

64.1.3 Cancel all cancelable orders for material and equipment;

64.1.4 Assign to the **City** and deliver to the **Site** or another location designated by the **Commissioner**, any non-cancelable orders for material and equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract** and not incorporated in the **Work**;

64.1.5 Take no action which will increase the amounts payable by the **City** under this **Contract**.

64.2 In the event of termination by the **City** pursuant to this Article 64, payment to the **Contractor** shall be in accordance with Articles 64.2.1, 64.2.2 or 64.2.3, to the extent that each respective article applies.

64.2.1 Lump Sum Contracts or Items: On all lump sum **Contracts**, or on lump sum items in a **Contract**, the **City** will pay the **Contractor** the sum of the amounts described in Articles 64.2.1(a) and 64.2.1(b), less all payments previously made pursuant to this **Contract**. On lump sum **Contracts** only, the **City** will also pay the **Contractor** an additional sum as provided in Article 64.2.1(c).

64.2.1(a) For **Work** completed prior to the notice of termination, the **Contractor** shall be paid a pro rata portion of the lump sum bid amount, plus approved change orders, based upon the percent completion of the **Work**, as determined by the

Commissioner. For the purpose of determining the pro rata portion of the lump sum bid amount to which the **Contractor** is entitled, the bid breakdown submitted in accordance with Article 41 shall be considered, but shall not be dispositive. The **Commissioner's** determination hereunder shall be final, binding, and conclusive.

64.2.1(b) For non-cancelable material and equipment that is not capable of use except in the performance of this **Contract** and has been specifically fabricated for the sole purpose of this **Contract**, but not yet incorporated in the **Work**, the **Contractor** shall be paid the lesser of the following, less salvage value:

64.2.1(b)(i) The Direct Cost, as defined in Article 64.2.4; or

64.2.1(b)(ii) The fair and reasonable value, if less than Direct Cost, of such material and equipment, plus necessary and reasonable delivery costs.

64.2.1(b)(iii) In addition, the **Contractor** shall be paid five (5%) percent of the amount described in Article 64.2.1(b)(i) or Article 64.2.1(b)(ii), whichever applies.

64.2.1(c) Except as otherwise provided in Article 64.2.1(d), on all lump sum **Contracts**, the **Contractor** shall be paid the percentage indicated below applied to the difference between the total lump sum bid amount and the total of all payments made prior to the notice of termination plus all payments allowed pursuant to Articles 64.2.1(a) and 64.2.1(b):

64.2.1(c)(i) Five (5%) percent of the first five million ($5,000,000) dollars; and

64.2.1(c)(ii) Three (3%) percent of any amount between five million ($5,000,000) dollars and fifteen million ($15,000,000) dollars; plus

64.2.1(c)(iii) One (1%) percent of any amount over fifteen million ($15,000,000) dollars.

64.2.1(d) In the event the **City** terminates a lump sum **Contract** pursuant to this Article 64 within ninety (90) **Days** after registration of the **Contract** with the **Comptroller**, the **Contractor** shall be paid one (1%) percent of the difference between the lump sum bid amount and the total of all payments made pursuant to this Article 64.2.

64.2.2 Unit Price Contracts or Items: On all unit price **Contracts**, or on unit price items in a **Contract**, the **City** will pay the **Contractor** the sum of the amounts described in Articles 64.2.2(a) and 64.2.2(b), less all payments previously made pursuant to this **Contract**:

64.2.2(a) For all completed units, the unit price stated in the **Contract**, and

64.2.2(b) For units that have been ordered but are only partially completed, the **Contractor** will be paid:

64.2.2(b)(i) A pro rata portion of the unit price stated in the **Contract** based upon the percent completion of the unit and

64.2.2(b)(ii) For non-cancelable material and equipment, payment will be made pursuant to Article 64.2.1(b).

64.2.3 Time and Materials Contracts or Items Based on Time and Material Records: On all **Contracts** or items in a **Contract** where payment for the **Work** is based on time and material records, the **Contractor** shall be paid in accordance with Article 26, less all payments previously made pursuant to this **Contract.**

64.2.4 Direct Costs: Direct Costs as used in this Article 64.2 shall mean:

64.2.4(a) The actual purchase price of material and equipment, plus necessary and reasonable delivery costs,

64.2.4(b) The actual cost of labor involved in construction and installation at the **Site**, and

64.2.4(c) The actual cost of necessary bonds and insurance purchased pursuant to requirements of this **Contract** less any amounts that have been or should be refunded by the **Contractor's** sureties or insurance carriers.

64.2.4(d) Direct Costs shall not include overhead.

64.3 In no event shall any payments under this Article 64 exceed the **Contract** price for such items.

64.4 All payments pursuant to Article 64 shall be in the nature of liquidated damages and shall be accepted by the **Contractor** in full satisfaction of all claims against the **City.**

64.5 The **City** may deduct or set off against any sums due and payable pursuant to this Article 64, any deductions authorized by this **Contract** or by **Law** (including but not limited to liquidated damages) and any claims it may have against the **Contractor.** The **City's** exercise of the right to terminate the **Contract** pursuant to this Article 64 shall not impair or otherwise effect the **City's** right to assert any claims it may have against the **Contractor** in a plenary action.

64.6 Where the **Work** covered by the **Contract** has been substantially completed, as determined in writing by the **Commissioner**, termination of the **Work** shall be handled as an omission of **Work** pursuant to Articles 29 and 33, in which case a change order will be issued to reflect an appropriate reduction in the **Contract** sum, or if the amount is determined after final payment, such amount shall be paid by the **Contractor.**

ARTICLE 65. CHOICE OF LAW, CONSENT TO JURISDICTION AND VENUE

65.1 This **Contract** shall be deemed to be executed in the **City** regardless of the domicile of the **Contractor**, and shall be governed by and construed in accordance with the **Laws** of the State of New York and the **Laws** of the United States, where applicable.

65.2 The parties agree that any and all claims asserted against the **City** arising under this **Contract** or related thereto shall be heard and determined in the courts of the State of New York ("New York State Courts") located in the **City** and County of New York. To effect this **Contract** and intent, the **Contractor** agrees:

65.2.1 If the **City** initiates any action against the **Contractor** in Federal court or in a New York State Court, service of process may be made on the **Contractor** either in person, wherever such **Contractor** may be found, or by registered mail addressed to the **Contractor** at its address as set forth in this **Contract**, or to such other address as the **Contractor** may provide to the **City** in writing; and

65.2.2 With respect to any action between the **City** and the **Contractor** in a New York State Court, the **Contractor** hereby expressly waives and relinquishes any rights it might otherwise have:

65.2.2(a) To move to dismiss on grounds of forum non conveniens;

65.2.2(b) To remove to Federal Court; and

65.2.2(c) To move for a change of venue to a New York State Court outside New York County.

65.2.3 With respect to any action brought by the **City** against the **Contractor** in a Federal Court located in the **City**, the **Contractor** expressly waives and relinquishes any right it might otherwise have to move to transfer the action to a Federal Court outside the **City**.

65.2.4 If the **Contractor** commences any action against the **City** in a court located other than in the **City** and County of New York, upon request of the **City**, the **Contractor** shall either consent to a transfer of the action to a New York State Court of competent jurisdiction located in the **City** and County of New York or, if the Court where the action is initially brought will not or cannot transfer the action, the **Contractor** shall consent to dismiss such action without prejudice and may thereafter reinstate the action in a New York State Court of competent jurisdiction in New York County.

65.3 If any provision(s) of this Article 65 is held unenforceable for any reason, each and all other provision(s) shall nevertheless remain in full force and effect.

ARTICLE 66. PARTICIPATION IN AN INTERNATIONAL BOYCOTT

66.1 The **Contractor** agrees that neither the **Contractor** nor any substantially owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the Federal Export Administration Act of 1979, as amended, or the regulations of the United States Department of Commerce (Commerce Department) promulgated thereunder.

66.2 Upon the final determination by the Commerce Department or any other agency of the United States as to, or conviction of the **Contractor** or a substantially-owned affiliated company thereof for participation in an international boycott in violation of the provisions of the Export Administration Act of 1979, as amended, or the regulations promulgated thereunder, the **Comptroller** may, at his/her option, render forfeit and void this **Contract**.

66.3 The **Contractor** shall comply in all respects, with the provisions of Section 6-114 of the Administrative Code and the rules and regulations issued by the **Comptroller** thereunder.

ARTICLE 67. LOCALLY BASED ENTERPRISE PROGRAM

67.1 This **Contract** is subject to the requirements of Section 6-108.1 of the Administrative Code and regulations promulgated thereunder. No construction contract shall be awarded unless and until these requirements have been complied with in their entirety; however, compliance with this Article 67 is not required if the Agency sets Subcontractor Participation Goals for Minority- and Women-Owned Business Enterprises (M/WBEs).

67.2 Unless specifically waived by the **Commissioner** with the approval of the Division of Economic and Financial Opportunity of the **City** Department of Business Services, if any portion of the **Contract** is subcontracted, not less than ten (10%) percent of the total dollar amount of the **Contract** shall be awarded to locally based enterprises (LBEs); except that where less than ten (10%) percent of the total dollar amount of the **Contract** is subcontracted, such lesser percentage shall be so awarded.

67.3 The **Contractor** shall not require performance and payment bonds from LBE **Subcontractors**.

67.4 If the **Contractor** has indicated prior to award that no **Work** will be subcontracted, no **Work** shall be subcontracted without the prior approval of the **Commissioner**, which shall be granted only if the **Contractor** makes a good faith effort beginning at least six (6) weeks before the **Work** is to be performed to obtain LBE **Subcontractors** to perform the **Work**.

67.5 If the **Contractor** has not identified sufficient LBE **Subcontractors** prior to award, it shall sign a letter of compliance stating that it complies with Section 6-108.1 of the Administrative Code, recognizes that achieving the LBE requirement is a condition of its **Contract**, and shall submit documentation demonstrating its good faith efforts to obtain LBEs. After award, the **Contractor** shall begin to solicit LBE's to perform subcontracted **Work** at least six (6) weeks before the date such **Work** is to be performed and shall demonstrate that a good faith effort has been made to obtain LBEs on each subcontract until it meets the required percentage.

67.6 Failure of the **Contractor** to comply with the requirements of Section 6-108.1 of the Administrative Code and the regulations promulgated thereunder shall constitute a material breach of this **Contract**. Remedy for such breach may include the imposition of any or all of the following sanctions:

67.6.1 Reducing the **Contractor's** compensation by an amount equal to the dollar value of the percentage of the LBE subcontracting requirement not complied with;

67.6.2 Declaring the **Contractor** in default;

67.6.3 If the **Contractor** is an LBE, de-certifying and declaring the **Contractor** ineligible to participate in the LBE program for a period of up to three (3) years.

ARTICLE 68. ANTITRUST

68.1 The **Contractor** hereby assigns, sells, and transfers to the **City** all right, title, and interest in and to any claims and causes of action arising under the antitrust **Laws** of New York State or of the United States relating to the particular goods or services purchased or procured by the **City** under this **Contract**.

ARTICLE 69. MacBRIDE PRINCIPLES PROVISIONS

69.1 Notice To All Prospective **Contractors**:

69.1.1 Local Law No. 34 of 1991 became effective on September 10, 1991 and added Section 6-115.1 of the Administrative Code. The local **Law** provides for certain restrictions on **City Contracts** to express the opposition of the people of the **City** to employment discrimination practices in Northern Ireland to promote freedom of work-place opportunity.

69.1.2 Pursuant to Section 6-115.1, prospective **Contractors** for **Contracts** to provide goods or services involving an expenditure of an amount greater than ten thousand ($10,000.) dollars, or for construction involving an amount greater than fifteen thousand ($15,000.) dollars, are asked to sign a rider in which they covenant and represent, as a material condition of their **Contract**, that any business operations in Northern Ireland conducted by the **Contractor** and any individual or legal entity in which the **Contractor** holds a ten (10%) percent or greater ownership interest in the **Contractor** will be conducted in accordance with the MacBride Principles of nondiscrimination in employment.

69.1.3 Prospective **Contractors** are not required to agree to these conditions. However, in the case of **Contracts** let by competitive sealed bidding, whenever the lowest responsible bidder has not agreed to stipulate to the conditions set forth in this notice and another bidder who has agreed to stipulate to such conditions has submitted a bid within five (5%) percent of the lowest responsible bid for a **Contract** to supply goods, services or contraction of comparable quality, the **Agency** shall refer such bids to the Mayor, the Speaker or other officials, as appropriate, who may determine, in accordance with applicable **Law**, that it is in the best interest of the **City** that the **Contract** be awarded to other than the lowest responsible pursuant to Section 313(b)(2) of the **City** Charter.

69.1.4 In the case of **Contracts** let by other than competitive sealed bidding, if a prospective **Contractor** does not agree to these conditions, no **Agency**, elected official or the **City** Council shall award the **Contract** to that bidder unless the **Agency** seeking to use the goods, services or construction certifies in writing that the **Contract** is necessary for the **Agency** to perform its functions and there is no other responsible **Contractor** who will supply goods, services or construction of comparable quality at a comparable price.

69.2 In accordance with Section 6-115.1 of the Administrative Code, the **Contractor** stipulates that such **Contractor** and any individual or legal entity in which the **Contractor** holds a ten (10%) percent or greater ownership interest in the **Contractor** either:

69.2.1 Have no business operations in Northern Ireland, or

69.2.2 Shall take lawful steps in good faith to conduct any business operations they have in Northern Ireland in accordance with the MacBride Principles, and shall permit independent monitoring of their compliance with such principles.

69.3 For purposes of this Article, the following terms shall have the following meanings:

69.3.1 "MacBride Principles" shall mean those principles relating to nondiscrimination in employment and freedom of work-place opportunity which require employers doing business in Northern Ireland to:

69.3.1(a) increase the representation of individuals from under-represented religious groups in the workforce, including managerial, supervisory, administrative, clerical and technical jobs;

69.3.1(b) take steps to promote adequate security for the protection of employees from under-represented religious groups both at the work-place and while traveling to and from **Work**;

69.3.1(c) ban provocative religious or political emblems from the workplace;

69.3.1(d) publicly advertise all job openings and make special recruitment efforts to attract applicants from under-represented religious groups;

69.3.1(e) establish layoff, recall, and termination procedures which do not in practice favor a particular religious group;

69.3.1(f) abolish all job reservations, apprenticeship restrictions and different employment criteria which discriminate on the basis of religion;

69.3.1(g) develop training programs that will prepare substantial numbers of current employees from under-represented religious groups for skilled jobs, including the expansion of existing programs and the creation of new programs to train, upgrade, and improve the skills of workers from under-represented religious groups;

69.3.1(h) establish procedures to asses, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

69.3.1(i) appoint a senior management staff member to oversee affirmative action efforts and develop a timetable to ensure their full implementation.

69.4 The **Contractor** agrees that the covenants and representations in Article 69.2 are material conditions to this **Contract**. In the event the **Agency** receives information that the **Contractor** who made the stipulation required by this Article 69 is in violation thereof, the **Agency** shall review such information and give the **Contractor** an opportunity to respond. If the **Agency** finds that a violation has occurred, the **Agency** shall have the right to declare the **Contractor** in default in default and/or terminate this **Contract** for cause and procure supplies, services or **Work** from another source in the manner the **Agency** deems proper. In the event of such termination, the **Contractor** shall pay to the **Agency**, or the **Agency** in its sole discretion may withhold from any amounts otherwise payable to the **Contractor**, the difference between the **Contract** price for the uncompleted portion of this **Contract** and the cost to the **Agency** of completing performance of this **Contract** either itself or by engaging another **Contractor** or **Contractors**. In the case of a requirement **Contract**, the **Contractor** shall be liable for such difference in price for the entire amount of supplies required by the **Agency** for the uncompleted term of **Contractor's Contract**. In the case of a construction **Contract**, the **Agency** shall also have the right to hold the **Contractor** in partial or total default in accordance with the default provisions of this **Contract**, and/or may seek debarment or suspension of the **Contractor**. The rights and remedies of the **Agency** hereunder shall be in addition to, and not in lieu of, any rights and remedies the **Agency** has pursuant to this **Contract** or by operation of **Law**.

ARTICLE 70. ELECTRONIC FILING/NYC DEVELOPMENT HUB

70.1 The **Contractor** shall electronically file all alteration type-2 and alteration type-3 applications via the New York City Development Hub Web site, except applications for the following types of minor alterations: enlargements, curb cuts, legalizations, fire alarms, builders pavement plans, and jobs filed on Landmark Preservation Commission calendared properties. All such filings must be professionally certified. Information about electronic filing via the New York City Development Hub is available on the **City** Department of Buildings Web site at www.nyc.gov/buildings.

ARTICLE 71. PROHIBITION OF TROPICAL HARDWOODS

71.1 Tropical hardwoods, as defined in Section 165 of the New York State Finance Law (Finance Law), shall not be utilized in the performance of this **Contract** except as expressly permitted by Section 165 of the Finance Law.

ARTICLE 72. CONFLICTS OF INTEREST

72.1 Section 2604 of the **City** Charter and other related provisions of the **City** Charter, the Administrative Code, and the Penal Law are applicable under the terms of this **Contract** in relation to conflicts of interest and shall be extended to **Subcontractors** authorized to perform **Work**, labor and services pursuant to this **Contract** and further, it shall be the duty and responsibility of the **Contractor** to so inform its respective **Subcontractors**. Notice is hereby given that, under certain circumstances, penalties may be invoked against the donor as well as the recipient of any form of valuable gift.

ARTICLE 73. MERGER CLAUSE

73.1 The written **Contract** herein, contains all the terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this **Contract** shall be deemed to exist or to bind any of the parties hereto, or to vary any of the terms contained herein.

ARTICLE 74. STATEMENT OF WORK

74.1 The **Contractor** shall furnish all labor and materials and perform all **Work** in strict accordance with the **Specifications** and **Addenda** thereto, numbered as shown in Schedule A.

ARTICLE 75. COMPENSATION TO BE PAID TO CONTRACTOR

75.1 The **City** will pay and the **Contractor** will accept in full consideration for the performance of the **Contract**, subject to additions and deductions as provided herein, the total sum shown in Schedule A, this said sum being the amount at which the **Contract** was awarded to the **Contractor** at a public letting thereof, based upon the **Contractor's** bid for the **Contract**.

ARTICLE 76. ELECTRONIC FUNDS TRANSFER

76.1 In accordance with Section 6-107.1 of the Administrative Code, the **Contractor** agrees to accept payments under this **Contract** from the **City** by electronic funds transfer (EFT). An EFT is any

transfer of funds, other than a transaction originated by check, draft or similar paper instrument, which is initiated through an electronic terminal, telephonic instrument or computer or magnetic tape so as to order, instruct or authorize a financial institution to debit or credit an account. Prior to the first payment made under this **Contract**, the **Contractor** shall designate one financial institution or other authorized payment agent and shall complete the attached "EFT Vendor Payment Enrollment Form" in order to provide the Commissioner of the **City** Department of Finance with information necessary for the **Contractor** to receive electronic funds transfer payments through a designated financial institution or authorized payment agent. The crediting of the amount of a payment to the appropriate account on the books of a financial institution or other authorized payment agent designated by the **Contractor** shall constitute full satisfaction by the **City** for the amount of the payment under this **Contract**. The account information supplied by the **Contractor** to facilitate the electronic funds transfer shall remain confidential to the fullest extent provided by **Law**.

76.2 The **Commissioner** may waive the application of the requirements of this Article 76 to payments on contracts entered into pursuant to Section 315 of the **City** Charter. In addition, the Commissioner of the Department of Finance and the Comptroller may jointly issue standards pursuant to which the **Agency** may waive the requirements of this Article 76 for payments in the following circumstances: (i) for individuals or classes of individuals for whom compliance imposes a hardship; (ii) for classifications or types of checks; or (iii) in other circumstances as may be necessary in the interest of the **City**.

ARTICLE 77. RECORDS RETENTION

77.1 The **Contractor** agrees to retain all books, records, and other documents relevant to this **Contract** for six years after the final payment or termination of this **Contract**, whichever is later. **City**, state, and federal auditors and any other persons duly authorized by the **City** shall have full access to and the right to examine any such books, records, and other documents during the retention period.

ARTICLE 78. EXAMINATION AND VIEWING OF SITE, CONSIDERATION OF OTHER SOURCES OF INFORMATION AND CHANGED SITE CONDITIONS

78.1 Pre-Bidding (Investigation) Viewing of Site – Bidders must carefully view and examine the **Site** of the proposed **Work**, as well as its adjacent area, and seek other usual sources of information, for they will be conclusively presumed to have full knowledge of any and all conditions and hazards on, about or above the **Site** relating to or affecting in any way the performance of the **Work** to be done under the **Contract** that were or should have been known by a reasonably prudent bidder. To arrange a date for visiting the **Site**, bidders are to contact the **Agency** contact person specified in the bid documents.

78.2 Should the **Contractor** encounter during the progress of the Work site conditions or environmental hazards at the **Site** materially differing from any shown on the **Contract Drawings** or indicated in the **Specifications** or such conditions or environmental hazards as could not reasonably have been anticipated by the **Contractor**, which conditions or hazards will materially affect the cost of the **Work** to be done under the **Contract**, the attention of the **Commissioner** must be called immediately to such conditions or hazards before they are disturbed. The **Commissioner** shall thereupon promptly investigate the conditions or hazards. If the **Commissioner** finds that they do so materially differ, and that they could not have been reasonably anticipated by the **Contractor**, the **Contract** may be modified with the **Commissioner**'s written approval.

ARTICLE 79. PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT

NOTICE TO ALL PROSPECTIVE CONTRACTORS

ARTICLE I. M/WBE PROGRAM

Local Law No. 129 of 2005 added and Local Law 1 of 2013 amended Section 6-129 of the Administrative Code of the City of New York (hereinafter "Section 6-129"). Section 6-129 establishes the program for participation in City procurement ("M/WBE Program") by minority- owned business enterprises ("MBEs") and women-owned business enterprises ("WBEs"), certified in accordance with Section 1304 of the New York City Charter. As stated in Section 6-129, the intent of the program is to address the impact of discrimination on the City's procurement process, and to promote the public interest in avoiding fraud and favoritism in the procurement process, increasing competition for City business, and lowering contract costs. The contract provisions contained herein are pursuant to Section 6-129, and the rules of the Department of Small Business Services ("DSBS") promulgated thereunder.

If this Contract is subject to the M/WBE Program established by Section 6-129, the specific requirements of MBE and/or WBE participation for this Contract are set forth in Schedule B of the Contract (entitled the "M/WBE Utilization Plan"), and are detailed below. The Contractor must comply with all applicable MBE and WBE requirements for this Contract.

All provisions of Section 6-129 are hereby incorporated in the Contract by reference and all terms used herein that are not defined herein shall have the meanings given such terms in Section 6-129. Article I, Part A, below, sets forth provisions related to the participation goals for construction, standard and professional services contracts. Article I, Part B, below, sets forth miscellaneous provisions related to the M/WBE Program.

PART A

PARTICIPATION GOALS FOR CONSTRUCTION, STANDARD AND PROFESSIONAL SERVICES CONTRACTS OR TASK ORDERS

1. The **MBE and/or WBE Participation Goals** established for this Contract or Task Orders issued pursuant to this Contract, ("**Participation Goals**"), as applicable, are set forth on Schedule B, Part I to this Contract (see Page 1, line 1 Total Participation Goals) or will be set forth on Schedule B, Part I to Task Orders issued pursuant to this Contract, as applicable.

The **Participation Goals** represent a percentage of the total dollar value of the Contract or Task Order, as applicable, that may be achieved by awarding subcontracts to firms certified with New York City Department of Small Business Services as MBEs and/or WBEs, and/or by crediting the participation of prime contractors and/or qualified joint ventures as provided in Section 3 below, unless the goals have been waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

2. If **Participation Goals** have been established for this Contract or Task Orders issued pursuant to this Contract, Contractor agrees or shall agree as a material term of the Contract that Contractor shall be subject to the **Participation Goals**, unless the goals are waived or modified by Agency in accordance with Section 6-129 and Part A, Sections 10 and 11 below, respectively.

3. If **Participation Goals** have been established for this Contract or Task Order issued pursuant to this Contract, a Contractor that is an MBE and/or WBE shall be permitted to count its own participation toward fulfillment of the relevant **Participation Goal**, provided that in accordance with Section 6-129 the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that the Contractor pays to direct subcontractors (as defined in Section 6-129(c)(13)), and provided further that a Contractor that is certified as both an MBE and a WBE may count its own participation either toward the goal for MBEs or the goal for WBEs, but not both.

A Contractor that is a qualified joint venture (as defined in Section 6-129(c)(30)) shall be permitted to count a percentage of its own participation toward fulfillment of the relevant **Participation Goal**. In accordance with Section 6-129, the value of Contractor's participation shall be determined by subtracting from the total value of the Contract or Task Order, as applicable, any amounts that Contractor pays to direct subcontractors, and then multiplying the remainder by the percentage to be applied to total profit to determine the amount to which an MBE or WBE is entitled pursuant to the joint venture agreement, provided that where a participant in a joint venture is certified as both an MBE and a WBE, such amount shall be counted either toward the goal for MBEs or the goal for WBEs, but not both.

4. A. If **Participation Goals** have been established for this Contract, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Utilization Plan, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. In the event that this M/WBE Utilization Plan indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals**, the bid or proposal, as applicable, shall be deemed non-responsive, unless Agency has granted the bidder or proposer, as applicable, a pre- award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

B. (i) If this Contract is for a master services agreement or other requirements type contract that will result in the issuance of Task Orders that will be individually registered ("Master Services Agreement") and is subject to M/WBE **Participation Goals**, a prospective contractor shall be required to submit with its bid or proposal, as applicable, a completed Schedule B, M/WBE Participation Requirements for Master Services Agreements That Will Require Individually Registered Task Orders, Part II (page 2) indicating the prospective contractor's certification and required affirmations to make all reasonable good faith efforts to meet participation goals established on each individual Task Order issued pursuant to this Contract, or if a partial waiver is obtained or such goals are modified by the Agency, to meet the modified **Participation Goals** by soliciting and obtaining the participation of certified MBE and/or WBE firms. In the event that the Schedule B indicates that the bidder or proposer, as applicable, does not intend to meet the **Participation Goals** that may be established on Task Orders issued pursuant to this Contract, the bid or proposal, as applicable, shall be deemed nonresponsive.

(ii) **Participation Goals** on a Master Services Agreement will be established for individual Task Orders issued after the Master Services Agreement is awarded. If **Participation Goals** have been established on a Task Order, a contractor shall be required to submit a Schedule B – M/WBE Utilization Plan For Independently Registered Task Orders That Are Issued Pursuant to Master Services Agreements, Part II (see Pages 2-4) indicating: (a) whether the contractor is an MBE or WBE, or qualified joint venture; (b) the percentage of work it intends to award to direct subcontractors; and (c) in cases where the contractor intends to award direct subcontracts, a description of the type and dollar value of work designated for participation by MBEs and/or WBEs, and the time frames in which such work is scheduled to begin and end. The contractor must engage in good faith efforts to meet the **Participation Goals** as established for the Task Order unless Agency has granted the contractor a pre-award waiver of the Participation Goals in accordance with Section 6-129 and Part A, Section 10 below.

C. THE BIDDER/PROPOSER MUST COMPLETE THE SCHEDULE B INCLUDED HEREIN (SCHEDULE B, PART II). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS (SEE SECTION V OF PART II) WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART III). IN THE EVENT THAT THE CITY DETERMINES THAT THE BIDDER/PROPOSER HAS SUBMITTED A SCHEDULE B WHERE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS ARE COMPLETED BUT OTHER ASPECTS OF THE SCHEDULE B ARE NOT COMPLETE, OR CONTAIN A COPY OR COMPUTATION ERROR THAT IS AT ODDS WITH THE VENDOR CERTIFICATION AND AFFIRMATIONS, THE BIDDER/PROPOSER WILL BE NOTIFIED BY THE AGENCY AND WILL BE GIVEN FOUR (4) CALENDAR DAYS FROM RECEIPT OF NOTIFICATION TO CURE THE SPECIFIED DEFICIENCIES AND RETURN A COMPLETED SCHEDULE B TO THE AGENCY. FAILURE TO DO SO WILL RESULT IN A DETERMINATION THAT THE BID/PROPOSAL IS NON-RESPONSIVE. RECEIPT OF NOTIFICATION IS DEFINED AS THE DATE NOTICE IS E-MAILED OR FAXED (IF THE BIDDER/PROPOSER HAS PROVIDED AN E-MAIL ADDRESS OR FAX NUMBER), OR NO LATER THAN FIVE (5) CALENDAR DAYS FROM THE DATE OF MAILING OR UPON DELIVERY, IF DELIVERED.

5. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, within 30 days of issuance by Agency of a notice to proceed, submit a list of proposed persons or entities to which it intends to award subcontracts within the subsequent 12 months. In the case of multiyear contracts, such list shall also be submitted every year thereafter. The Agency may also require the Contractor to report periodically about the contracts awarded by its direct subcontractors to indirect subcontractors (as defined in Section 6-129(c)(22)). **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor must identify all those to which it intends to award construction subcontracts for any portion of the Wicks trade work at the time of bid submission, regardless of what point in the life of the contract such subcontracts will occur. In identifying intended subcontractors in the bid submission, bidders may satisfy any Participation Goals established for this Contract by proposing one or more subcontractors that are MBEs and/or WBEs for any portion of the Wicks trade work.** In the event that the Contractor's selection of a subcontractor is disapproved, the Contractor shall have a reasonable time to propose alternate subcontractors.

6. MBE and WBE firms must be certified by DSBS in order for the Contractor to credit such firms' participation toward the attainment of the **Participation Goals**. Such certification must occur prior to the

firms' commencement of work. A list of MBE and WBE firms may be obtained from the DSBS website at www.nyc.gov/buycertified, by emailing DSBS at buyer@sbs.nyc.gov, by calling (212) 513-6356, or by visiting or writing DSBS at 110 William St., New York, New York, 10038, 7th floor. Eligible firms that have not yet been certified may contact DSBS in order to seek certification by visiting www.nyc.gov/getcertified, emailing MWBE@sbs.nyc.gov, or calling the DSBS certification helpline at (212) 513-6311. A firm that is certified as both an MBE and a WBE may be counted either toward the goal for MBEs or the goal for WBEs, but not both. No credit shall be given for participation by a graduate MBE or graduate WBE, as defined in Section 6-129(c)(20).

7. Where an **M/WBE** Utilization Plan has been submitted, the Contractor shall, with each voucher for payment, and/or periodically as Agency may require, submit statements, certified under penalty of perjury, which shall include, but not be limited to,: the total amount the Contractor paid to its direct subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount direct subcontractors paid to indirect subcontractors; the names, addresses and contact numbers of each MBE or WBE hired as a subcontractor by the Contractor, and, where applicable, hired by any of the Contractor's direct subcontractors; and the dates and amounts paid to each MBE or WBE. The Contractor shall also submit, along with its voucher for final payment: the total amount it paid to subcontractors, and, where applicable pursuant to Section 6-129(j), the total amount its direct subcontractors paid directly to their indirect subcontractors; and a final list, certified under penalty of perjury, which shall include the name, address and contact information of each subcontractor that is an MBE or WBE, the work performed by, and the dates and amounts paid to each.

8. If payments made to, or work performed by, MBEs or WBEs are less than the amount specified in the Contractor's **M/WBE** Utilization Plan, Agency shall take appropriate action, in accordance with Section 6-129 and Article II below, unless the Contractor has obtained a modification of its **M/WBE** Utilization Plan in accordance with Section 6-129 and Part A, Section 11 below.

9. Where an **M/WBE** Utilization Plan has been submitted, and the Contractor requests a change order the value of which exceeds the greater of 10 percent of the Contract or Task Order, as applicable, or $500,000, Agency shall review the scope of work for the Contract or Task Order, as applicable, and the scale and types of work involved in the change order, and determine whether the **Participation Goals** should be modified.

10. Pre-award waiver of the **Participation Goals**. (a) A bidder or proposer, or contractor with respect to a Task Order, may seek a pre-award full or partial waiver of the **Participation Goals** in accordance with Section 6-129, which requests that Agency change one or more **Participation Goals** on the grounds that the **Participation Goals** are unreasonable in light of the availability of certified firms to perform the services required, or by demonstrating that it has legitimate business reasons for proposing a lower level of subcontracting in its M/WBE Utilization Plan.

(b) To apply for a full or partial waiver of the **Participation Goals**, a bidder, proposer, or contractor, as applicable, must complete Part III (Page 5) of Schedule B and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at poped@ddc.nyc.gov or via facsimile at (718) 391-1886. Bidders, proposers, or contractors, as applicable, who have submitted requests will receive an Agency response by no later than two (2) calendar days prior to the due date for bids, proposals, or Task Orders; provided, however, that if that date would fall on a weekend or holiday, an Agency response will be provided by close-of-business on the business day before such weekend or holiday date.

(c) If the Agency determines that the **Participation Goals** are unreasonable in light of the availability of certified firms to perform the services required, it shall revise the solicitation and extend the deadline for bids and proposals, or revise the Task Order, as applicable.

(d) Agency may grant a full or partial waiver of the **Participation Goals** to a bidder, proposer or contractor, as applicable, who demonstrates—before submission of the bid, proposal or Task Order, as applicable—that it has legitimate business reasons for proposing the level of subcontracting in its **M/WBE** Utilization Plan. In making its determination, Agency shall consider factors that shall include, but not be limited to, whether the bidder, proposer or contractor, as applicable, has the capacity and the bona fide intention to perform the Contract without any subcontracting, or to perform the Contract without awarding the amount of subcontracts represented by the **Participation Goals**. In making such determination, Agency may consider whether the **M/WBE** Utilization Plan is consistent with past subcontracting practices of the bidder, proposer or contractor, as applicable, whether the bidder, proposer or contractor, as applicable, has made efforts to form a joint venture with a certified firm, and whether the bidder, proposer, or contractor, as applicable, has made good faith efforts to identify other portions of the Contract that it intends to subcontract.

11. Modification of **M/WBE** Utilization Plan. (a) A Contractor may request a modification of its **M/WBE** Utilization Plan after award of this Contract. **PLEASE NOTE: If this Contract is a public works project subject to GML §101(5) (i.e., a contract valued at or below $3M for projects in New York City) or if the Contract is subject to a project labor agreement in accordance with Labor Law §222, and the bidder is required to identify at the time of bid submission its intended subcontractors for the Wicks trades (plumbing and gas fitting; steam heating, hot water heating, ventilating and air conditioning (HVAC); and electric wiring), the Contractor may request a Modification of its M/WBE Utilization Plan as part of its bid submission.** The Agency may grant a request for Modification of a Contractor's **M/WBE** Utilization Plan if it determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts to meet the **Participation Goals.** In making such determination, Agency shall consider evidence of the following efforts, as applicable, along with any other relevant factors:

(i) The Contractor advertised opportunities to participate in the Contract, where appropriate, in general circulation media, trade and professional association publications and small business media, and publications of minority and women's business organizations;
(ii) The Contractor provided notice of specific opportunities to participate in the Contract, in a timely manner, to minority and women's business organizations;
(iii) The Contractor sent written notices, by certified mail or facsimile, in a timely manner, to advise MBEs or WBEs that their interest in the Contract was solicited;
(iv) The Contractor made efforts to identify portions of the work that could be substituted for portions originally designated for participation by MBEs and/or WBEs in the M/WBE Utilization Plan, and for which the Contractor claims an inability to retain MBEs or WBEs;
(v) The Contractor held meetings with MBEs and/or WBEs prior to the date their bids or proposals were due, for the purpose of explaining in detail the scope and requirements of the work for which their bids or proposals were solicited;
(vi) The Contractor made efforts to negotiate with MBEs and/or WBEs as relevant to perform specific subcontracts, or act as suppliers or service providers;
(vii) Timely written requests for assistance made by the Contractor to Agency's M/WBE liaison officer and to DSBS;
(viii) Description of how recommendations made by DSBS and Agency were acted upon and an explanation of why action upon such recommendations did not lead to the desired level of participation of MBEs and/or WBEs.

Agency's M/WBE officer shall provide written notice to the Contractor of the determination.

(b) The Agency may modify the **Participation Goals** when the scope of the work has been changed by the Agency in a manner that affects the scale and types of work that the Contractor indicated in its **M/WBE** Utilization Plan would be awarded to subcontractors.

12. If this Contract is for an indefinite quantity of construction, standard or professional services or is a requirements type contract and the Contractor has submitted an **M/WBE** Utilization Plan and has committed to subcontract work to MBEs and/or WBEs in order to meet the **Participation Goals**, the Contractor will not be deemed in violation of the M/WBE Program requirements for this Contract with regard to any work which was intended to be subcontracted to an MBE and/or WBE to the extent that the Agency has determined that such work is not needed.

13. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, at least once annually during the term of the Contract or Task Order, as applicable, Agency shall review the Contractor's progress toward attainment of its M/WBE Utilization Plan, including but not limited to, by reviewing the percentage of work the Contractor has actually awarded to MBE and/or WBE subcontractors and the payments the Contractor made to such subcontractors.

14. If **Participation Goals** have been established for this Contract or a Task Order issued pursuant to this Contract, Agency shall evaluate and assess the Contractor's performance in meeting those goals, and such evaluation and assessment shall become part of the Contractor's overall contract performance evaluation.

PART B: MISCELLANEOUS

1. The Contractor shall take notice that, if this solicitation requires the establishment of an **M/WBE** Utilization Plan, the resulting contract may be audited by DSBS to determine compliance with Section 6-129. See §6-129(e)(10). Furthermore, such resulting contract may also be examined by the City's Comptroller to assess compliance with the **M/WBE** Utilization Plan.

2. Pursuant to DSBS rules, construction contracts that include a requirement for an **M/WBE** Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

3. DSBS is available to assist contractors and potential contractors in determining the availability of MBEs and/or WBEs to participate as subcontractors, and in identifying opportunities that are appropriate for participation by MBEs and/or WBEs in contracts.

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required **Participation Goals**.

ARTICLE II. ENFORCEMENT

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE** Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.

3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE** Utilization Plan, Agency may determine that one of the following actions should be taken:

(a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;
(b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;
(c) making a finding that the Contractor is in default of the Contract;
(d) terminating the Contract;
(e) declaring the Contractor to be in breach of Contract;
(f) withholding payment or reimbursement;
(g) determining not to renew the Contract;
(h) assessing actual and consequential damages;
(i) assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;
(j) exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or
(k) taking any other appropriate remedy.

4. If an **M/WBE** Utilization Plan has been submitted, and pursuant to this Article II, Section 3, the Contractor has been found to have failed to fulfill its **Participation Goals** contained in its **M/WBE** Utilization Plan or the **Participation Goals** as modified by Agency pursuant to Article I, Part A, Section 11, Agency may assess liquidated damages in the amount of ten percent (10%) of the difference between the dollar amount of work required to be awarded to MBE and/or WBE firms to meet the **Participation Goals** and the dollar amount the Contractor actually awarded and paid, and/or credited, to MBE and/or WBE firms. In view of the difficulty of accurately ascertaining the loss which the City will suffer by reason of Contractor's failure to meet the **Participation Goals**, the foregoing amount is hereby fixed and agreed as the liquidated damages that the City will suffer by reason of such failure, and not as a penalty. Agency may deduct and retain out of any monies which may become due under this Contract the amount of any such liquidated damages; and in case the amount which may become due under this Contract shall be less than the amount of liquidated damages suffered by the City, the Contractor shall be liable to pay the difference.

5. Whenever Agency has reason to believe that an MBE and/or WBE is not qualified for certification, or is participating in a contract in a manner that does not serve a commercially useful function (as defined in Section 6-129(c)(8)), or has violated any provision of Section 6- 129, Agency shall notify the Commissioner of DSBS who shall determine whether the certification of such business enterprise should be revoked.

6. Statements made in any instrument submitted to Agency pursuant to Section 6-129 shall be submitted under penalty of perjury and any false or misleading statement or omission shall be grounds for the application of any applicable criminal and/or civil penalties for perjury. The making of a false or fraudulent statement by an MBE and/or WBE in any instrument submitted pursuant to Section 6-129 shall, in addition, be grounds for revocation of its certification.

7. The Contractor's record in implementing its **M/WBE** Utilization Plan shall be a factor in the evaluation of its performance. Whenever Agency determines that a Contractor's compliance with an **M/WBE** Utilization Plan has been unsatisfactory, Agency shall, after consultation with the City Chief Procurement Officer, file an advice of caution form for inclusion in VENDEX as caution data.

IN WITNESS WHEREOF, the Commissioner, on behalf of the City of New York, and the Contractor, have executed this agreement in quadruplicate, two parts of which are to remain with the Commissioner, another to be filed with the Comptroller of the City, and the fourth to be delivered to the Contractor.

THE CITY OF NEW YORK

By: _____
Commissioner

CONTRACTOR: Perfetto Contracting Co. Inc.

By: _____
(Member of Firm or Officer of Corporation)

Title: Pres

(Where Contractor is a Corporation, add):
Attest:

_____
Secretary

(Seal)

_____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Queens ss:

On this 17 day of JAN., 20, before me personally came Cesare Perfetto to me known who, being by me duly sworn did depose and say that he resides at Brooklyn N.Y. that he is the Pres. of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

MARIA JOHNSTON
Notary Public, State of New York
No. 01JO6351081
Qualified in Queens County
Commission Expires Nov. 28, 2020

Notary Public or Commissioner of Deeds

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

Notary Public or Commissioner of Deeds

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

Notary Public or Commissioner of Deeds

ACKNOWLEDGEMENT BY COMMISSIONER

State of New York County of Queens ss:

On this 21st day of Jan, 2020, before me personally came Lorraine Grillo to me known, and known to be the Commissioner of the Department of Design and Construction of The City of New York, the person described as such in and who as such executed the foregoing instrument and acknowledged to me that he executed the same as Commissioner for the purposes therein mentioned.

Notary Public or Commissioner of Deeds

MARIA JOHNSTON
Notary Public, State of New York
No. 01JO6351081
Qualified in Queens County
Commission Expires Nov. 28, 2020

AUTHORITY

MAYOR'S CERTIFICATE NO. CBX DATED
BUDGET DIRECTOR'S CERTIFICATE NO. DATED

APPROPRIATION
COMMISSIONER'S CERTIFICATE

In conformity with the provisions of Section 6-101 of the Administrative Code of the City of New York, it is hereby certified that the estimated cost of the work, materials and supplies required by the within Contract, amounting to

Fifteen Million, Four Hundred Ninety-Seven Thousand,
Four Hundred Seventy-One

Dollars ($ 15,497,471.00)

is chargeable to the fund of the Department of Design and Construction entitled Code

_____

_____

_____
Department of Design and Construction

I hereby certify that the specifications contained herein comply with the terms and conditions of the BUDGET.

_____
Commissioner

COMPTROLLER'S CERTIFICATE

The City of New York_____

Pursuant to the provisions of Section 6-101 of the Administrative Code of the City of New York, I hereby certify that there remains unapplied and unexpended a balance of the above mentioned fund applicable to this Contract sufficient to pay the estimated expense of executing the same viz:

$_____

_____
Comptroller

MAYOR'S CERTIFICATE OR CERTIFICATE OF THE DIRECTOR OF THE BUDGET

<u>Performance Bond #1 (Pages 100 to 103)</u>: Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

PERFORMANCE BOND #1

KNOW ALL PERSONS BY THESE PRESENTS:,
That we, _____

_____

_____

hereinafter referred to as the "Principal,"
and, _____

_____

_____

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns in the penal sum of _____

_____

_____

($_____) Dollars, lawful money of the United States for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

_____

_____

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to (1) pay the City the cost to complete the contract as determined by the City in excess of the balance of the Contract held by the City, plus any damages or costs to which the City is entitled, up to the full amount of the above penal sum, (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof, or (3) tender a completion Contractor that is acceptable to the City. The Surety (Sureties) further agrees, at its option, either to notify the City that it elects to pay the city the cost of completion plus any applicable damages and costs under option (1) above, or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and, if the Surety elects to fully perform and complete the Work, then to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. If the Surety elects to tender payment pursuant to (1) above, then the Surety shall tender such amount within fifteen (15) business days notification from the City of the cost of completion. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and complete all Work as provided herein, or to tender a completion contractor.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said 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 any moneys due or to become due thereunder; and said Surety (Sureties) does hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, and waivers, and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to subcontractors shall have the same effect as to said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal. Notwithstanding the above, if the City makes payments to the Principal before the time required by the contract that in the aggregate exceed $100,000 or 10% of the Contract price, whichever is less, and that have not become earned prior to the Principal being found to be in default, then all payments made to the Principal before the time required by the Contract shall be added to the remaining contract value available to be paid for the completion of the Contract as if such sums had not been paid to the Principal, but shall not provide a basis for non-performance of its obligation to pay the City the cost of completion, to commence and to complete all Work as provided herein, or to tender a completion contractor.

<u>Performance Bond #1 (Pages 100 to 103)</u>: Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this

_____ day of _____, 20_____.

(Seal)

_____(L.S.)
Principal

By:_____

(Seal)

Surety

By:_____

_____

(Seal)

Surety

By:_____

_____

(Seal)

Surety

By:_____

_____

(Seal)

Surety

By:_____

_____

(Seal)

Surety

By:_____

Bond Premium Rate _____

Bond Premium Cost _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Performance Bond #1 (Pages 100 to 103): Use if the total contract price is $5 Million Or Less. Performance Bond #1 has been approved by the U.S. Small Business Administration ("SBA") for participation in its Bond Guarantee Program.

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of _____ County of _____ ss:

On this _____ day of _____, 20_____ before me personally came _____, to me known, who, being by me duly sworn did depose and say that he/she resides at _____ _____; that he/she is the _____ of the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

_____
Notary Public or Commissioner of Deeds.

ACKNOWLEDGMENT OF PRINCIPAL IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, 20_____ before me personally came _____, to me known, who, being by me duly sworn did dispose and say that he/she resides at _____ _____; that he/she is _____ partner of _____, a limited/general partnership existing under the laws of the State of _____, the partnership described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

_____
Notary Public or Commissioner of Deeds.

ACKNOWLEDGMENT OF PRINCIPAL IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, 20_____ before me personally came _____, to me known, who, being by me duly sworn did depose and say that he/she resides at _____ _____, and that he/she is the individual whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

Bond No. PRF9329644

Performance Bond #2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

PERFORMANCE BOND #2

KNOW ALL PERSONS BY THESE PRESENTS:,
That we, PERFETTO CONTRACTING CO., INC.

152 41st Street, BROOKLYN, NY 11232

hereinafter referred to as the "Principal,"
and, Fidelity and Deposit Company of Maryland

1299 Zurich Way, 5th Floor , Schaumburg, IL 60196-1056

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns in the penal sum of Fifteen Million Four Hundred Ninety Seven Thousand Four Hundred Seventy One Dollars and 00/100

($ 15,497,471.00) Dollars, lawful money of the United States for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

FMS ID: S136-367; DDC Pin#:8502019TR0006C; Construction of DSNY Staten Island 1 & 3 Garage/ Construction of Storm water Infrastructure, Phase 1, ETC...Borough of Staten Island - 7000

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

<u>Performance Bond #2 (Pages 104 to 107)</u>: Use if the total contract price is more than $5 Million.

good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the City that the City has determined that the Principal is in default of the Contract, to either (1) pay the full amount of the above penal sum in complete discharge and exoneration of this bond and of all the liabilities of the Surety relating to this bond, or (2) fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof. The Surety (Sureties) further agrees, at its option, either to tender the penal sum or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereof from the City and to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to commence and to complete all Work as provided herein.

The Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties) and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or to the said 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 moneys due or to become due thereunder; and said Surety (Sureties) 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 said Surety (Sureties) as though done or omitted to be done by or in relation to said Principal.

Performance Bond #2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

IN WITNESS WHEREOF, The Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 10th day of January, 2020.

(Seal) PERFETTO CONTRACTING CO., INC. (L.S.)
Principal

By: _____

(Seal) Fidelity and Deposit Company of Maryland
Surety

By: _____
William D Haas, Attorney-in-Fact

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

Bond Premium Rate VAR.

Bond Premium Cost 81,689.00

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Performance Bond #2 (Pages 104 to 107): Use if the total contract price is more than $5 Million.

ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION

State of New York County of kings ss:

On this 13 day of January, 2020 before me personally came Cesare Perfetto,
to me known, who,.being by me duly sworn did depose and say that he/she resides
at 12 Gorge Road
Staten Island, NY 10304; that he/she is the President
of the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

Notary Public or Commissioner of Deeds

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

ACKNOWLEDGMENT OF PRINCIPAL IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, _____ before me personally came _____,
to me known, who,.being by me duly sworn did depose and say that he/she resides
at _____
, _____; that he/she is _____ partner of
_____, a limited/general partnership existing under the laws of the State of
_____, the partnership described in and which executed the foregoing instrument;
and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

_____
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, _____ before me personally came _____,
to me known, who,.being by me duly sworn did depose and say that he/she resides
at _____
, _____, and that he/she is the individual whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

Individual Acknowledgment

State of _____

County of_____

On this _____day of_____, 20____, before me personally came _____to me known, and known to me to be the individual in and who executed the foregoing instrument, and acknowledged to me that he/she executed the same.

My commission expires_____ _____
Notary Public

Corporation Acknowledgment

State of NY
County of Kings

On the 13 day of January, 2020 before me personally came Cesare Perlette to me known; who being by me duly sworn, did depose and say that he/she/they reside(s) in 12 Gorge Road Staten Island that he/she/they is (are) the President of the Perlette Contracting Co. Inc., the corporation described in and which executed the above instrument; that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

My commission expires _____

_____
Notary Public

Surety Acknowledgment

State of **New York**

County of **Westchester**

On the 10th day of **January, 2020** personally came William D. Haas to me known , who being by me duly sworn did depose and say that he/she is an Attorney-in-Fact of **Fidelity and Deposit Company of Maryland** in and which executed the above Instrument know(s) the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he/she/they signed the said instrument and affixed the said seal as Attorney-in-fact by authority of the Board of Directors of said corporation and by authority of this office under the standing resolution thereof.

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01KI4986881
COMMISSION EXPIRES 09-30-2021

My commission expires _____

_____
Notary Public

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **ROBERT D. MURRAY, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **William D. HAAS, Denese THOMPSON, Marnie GINSBURG and Benedict J. TOCKARSHEWSKY, all of White Plains, New York, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 19th day of June, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: _____
Assistant Secretary
Dawn E. Brown

_____
Vice President
Robert D. Murray

State of Maryland
County of Baltimore

On this 19th day of June, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **ROBERT D. MURRAY, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 10th day of January, 20 20.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
1299 Zurich Way Schaumburg, IL 60196

Statement of Financial Condition
As Of December 31, 2018

ASSETS

Bonds		$ 245,255,635
Stocks		22,855,569
Cash and Short Term Investments		3,092,872
Reinsurance Recoverable		73,242,781
Federal Income Tax Recoverable		42,258
Other Accounts Receivable		4,801,363
TOTAL ADMITTED ASSETS		$ 349,290,278

LIABILITIES, SURPLUS AND OTHER FUNDS

Reserve for Taxes and Expenses		$ 106,785
Ceded Reinsurance Premiums Payable		46,727,605
Remittances and Items Unallocated		125,000
Payable to parents, subs and affiliates		28,621,373
Securities Lending Collateral Liability		0
TOTAL LIABILITIES		$ 75,580,762
Capital Stock, Paid Up	$ 5,000,000	
Surplus	268,709,716	
Surplus as regards Policyholders		273,709,716
TOTAL		$ 349,290,478

Securities carried at $162,739,508 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2018 would be $349,736,423 and surplus as regards policyholders $274,155,661.

I, DENNIS F. KERRIGAN, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2018.

Corporate Secretary

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 20th day of March, 2019.

Notary Public

KATHERINE R SCHULTZ
Official Seal
Notary Public - State of Illinois
My Commission Expires Nov 16, 2019

Bond No. PRF9329644

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____

PERFETTO CONTRACTING CO., INC.

152 41st Street, BROOKLYN, NY 11232

hereinafter referred to as the "Principal", and Fidelity and Deposit Company of Maryland

1299 Zurich Way, 5th Floor , Schaumburg, IL 60196-1056

hereinafter referred to as the "Surety" ("Sureties") are held and firmly bound to THE CITY OF NEW YORK, hereinafter referred to as the "City" or to its successors and assigns, in the penal sum of

Fifteen Million Four Hundred Ninety Seven Thousand Four Hundred Seventy One Dollars and 00/100

($ 15,497,471.00) Dollars, lawful money of the United States, for the payment of which said sum of money well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to enter, or has entered, into a Contract in writing with the City for

FMS ID: S136-367; DDC Pin#:8502019TR0006C; Construction of DSNY Staten Island 1 & 3 Garage/

Construction of Storm water Infrastructure, Phase 1, ETC...Borough of Staten Island - 7000

a copy of which Contract is annexed to and hereby made a part of this bond as though herein set forth in full;

NOW, THEREFORE, the conditions of this obligation are such that if the Principal, his or its representatives or assigns and other Subcontractors to whom Work under this Contract is sublet and his or their successors and assigns shall promptly pay or cause to be paid all lawful claims for

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so engaged who perform the work of laborers or mechanics at or in the vicinity of the site

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain in full force and effect.

This bond is subject to the following additional conditions, limitations and agreements:

(a) The Principal and Surety (Sureties) agree that this bond shall be for the benefit of any materialmen or laborer having a just claim, as well as the City itself.

(b) All persons who have performed labor, rendered services or furnished materials and supplies, as aforesaid, shall have a direct right of action against the Principal and his, its or their successors and assigns, and the Surety (Sureties) herein, or against either or both or any of them and their successors and assigns. Such persons may sue in their own name, and may prosecute the suit to judgment and execution without the necessity of joining with any other persons as party plaintiff.

(c) The Principal and Surety (Sureties) agree that neither of them will hold the City liable for any judgment for costs of otherwise, obtained by either or both of them against a laborer or materialman in a suit brought by either a laborer or materialman under this bond for moneys allegedly due for performing work or furnishing material.

(d) The Surety (Sureties) or its successors and assigns shall not be liable for any compensation recoverable by an employee or laborer under the Workmen's Compensation Law.

(e) In no event shall the Surety (Sureties), or its successors or assigns, be liable for a greater sum than the penalty of this bond or be subject to any suit, action or proceeding hereon that is instituted by any person, firm, or corporation hereunder later than two years after the complete performance of said Contract and final settlement thereof.

The Principal, for himself and his successors and assigns, and the Surety (Sureties), for itself and its successors and assigns, do hereby expressly waive any objection that might be interposed as to the right of the City to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be place in this bond.

And the Surety (Sureties), for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of said Surety (Sureties), and its bonds shall be in no way impaired or affected by any extension of time, modification, omission, addition, or change in or of the said 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 part thereof, or of any Work to be performed, or any moneys due to become due thereunder and said Surety (Sureties) 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 said Surety (Sureties) as though done or omitted to be done or in relation to said Principal.

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereunto affixed and these presents to be signed by their proper officers, this 10th day of January, 2020.

(Seal) PERFETTO CONTRACTING CO., INC. (L.S.)
Principal

By: _____

(Seal) Fidelity and Deposit Company of Maryland
Surety

By: _____
William D Haas, Attorney-in-Fact

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

(Seal) _____
Surety

By: _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract.

Payment Bond (Pages 108 to 111): Use for any contract for which a Payment Bond is required.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Kings ss:

On this 13 day of January, 2020, before me personally came Cesare Perlena to me known, who, being by me duly sworn did depose and say that he resides at 12 George Road Staten Island, NY 10304 that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

Notary Public or Commissioner of Deeds

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be one of the members of the firm of _____ _____ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

_____
Notary Public or Commissioner of Deeds

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____ County of _____ ss:

On this _____ day of _____, _____, before me personally appeared _____ to me known, and known to me to be the person described in and who executed the foregoing instrument; and acknowledged that he executed the same.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

Individual Acknowledgment

State of _____

County of_____

On this _____day of_____, 20____, before me personally came _____to me known, and known to me to be the individual in and who executed the foregoing instrument, and acknowledged to me that he/she executed the same.

My commission expires_____ _____

Notary Public

Corporation Acknowledgment

State of NY
County of kings

On the 13 day of January, 2020 before me personally came Cesare Perletto to me known; who being by me duly sworn, did depose and say that he/she/they reside(s) in 12 Circle Road Staten Island that he/she/they is (are) the President of the Perletto Contracting Co. Inc., the corporation described in and which executed the above instrument; that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

BRITNEY M. FRANKE
Notary Public, State of New York
No. 01FR6382077
Qualified in Kings County
Commission Expires October 15, 2022

My commission expires _____

Notary Public

Surety Acknowledgment

State of **New York**

County of **Westchester**

On the 10th day of **January, 2020** personally came William D. Haas to me known , who being by me duly sworn did depose and say that he/she is an Attorney-in-Fact of **Fidelity and Deposit Company of Maryland** in and which executed the above Instrument know(s) the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate seal, and that he/she/they signed the said instrument and affixed the said seal as Attorney-in-fact by authority of the Board of Directors of said corporation and by authority of this office under the standing resolution thereof.

My commission expires _____

MAUREEN A KITTRICK
NOTARY PUBLIC STATE OF NEW YORK
LIC. #01KI4986881
COMMISSION EXPIRES 09-30-2021

Notary Public

BRITNEY M. FRANKEL
Notary Public, State of New York
No. 01FR6282477
Qualified in Kings County
Commission Expires October 12, 20

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **ROBERT D. MURRAY, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **William D. HAAS, Denese THOMPSON, Marnie GINSBURG and Benedict J. TOCKARSHEWSKY, all of White Plains, New York, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 19th day of June, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: _____
Assistant Secretary
Dawn E. Brown

_____
Vice President
Robert D. Murray

State of Maryland
County of Baltimore

On this 19th day of June, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **ROBERT D. MURRAY, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 10th day of January, 2020.

FIDELITY AND DEPOSIT COMPANY OF MARYLAND — INCORPORATED — 1890

ZURICH AMERICAN INSURANCE COMPANY — INCORPORATED — 1998

COLONIAL AMERICAN CASUALTY AND SURETY COMPANY — SEAL

Brian M. Hodges

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
1299 Zurich Way Schaumburg, IL 60196

Statement of Financial Condition
As Of December 31, 2018

ASSETS

Bonds		$ 245,255,635
Stocks		22,855,569
Cash and Short Term Investments		3,092,872
Reinsurance Recoverable		73,242,781
Federal Income Tax Recoverable		42,258
Other Accounts Receivable		4,801,363
TOTAL ADMITTED ASSETS		$ 349,290,278

LIABILITIES, SURPLUS AND OTHER FUNDS

Reserve for Taxes and Expenses		$ 106,785
Ceded Reinsurance Premiums Payable		46,727,605
Remittances and Items Unallocated		125,000
Payable to parents, subs and affiliates		28,621,373
Securities Lending Collateral Liability		0
TOTAL LIABILITIES		$ 75,580,762
Capital Stock, Paid Up	$ 5,000,000	
Surplus	268,709,716	
Surplus as regards Policyholders		273,709,716
TOTAL		$ 349,290,478

Securities carried at $162,739,508 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2018 would be $349,736,423 and surplus as regards policyholders $274,155,661.

I, DENNIS F. KERRIGAN, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2018.

Corporate Secretary

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 20th day of March, 2019.

Notary Public

KATHERINE R SCHULTZ
Official Seal
Notary Public - State of Illinois
My Commission Expires Nov 16, 2019

Client#: 1667785 PERFECON7

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 1/13/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Katlen M. Yesse
USI Insurance Svcs - KORE CL 180 Park Avenue Suite 103 Florham Park, NJ 07932	PHONE (A/C, No, Ext): 973 965-3100 FAX (A/C, No): 610 537-2349 E-MAIL ADDRESS: katlen.yesse@usi.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : New York Marine & General Insurance Co.	16608
INSURER B : Zurich American Insurance Company	16535
INSURER C : Navigators Insurance Company	42307
INSURER D : Hartford Life & Accident Insurance Co.	70815
INSURER E : North River Insurance Company	21105
INSURER F :	

INSURED
Perfetto Contracting Co. Inc.
152 41st Street
Brooklyn, NY 11232

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			PK201900015274	12/22/2019	12/22/2020	EACH OCCURRENCE	$2,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
							MED EXP (Any one person)	$5,000
							PERSONAL & ADV INJURY	$2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$4,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$4,000,000
	OTHER:							$
F	AUTOMOBILE LIABILITY			1337449248	12/22/2019	12/22/2020	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS			Comp Ded: $1,000			BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			Coll Ded: $1,000			PROPERTY DAMAGE (Per accident)	$
	X Phys Damage							$
A	X UMBRELLA LIAB X OCCUR			UM201900007604	12/22/2019	12/22/2020	EACH OCCURRENCE	$8,000,000
B	X EXCESS LIAB CLAIMS-MADE			AEC023055303	12/22/2019	12/22/2020	AGGREGATE	$8,000,000
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N			WC201900018546	12/22/2019	12/22/2020	X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N	N/A					E.L. EACH ACCIDENT	$1,000,000
	(Mandatory in NH)						E.L. DISEASE - EA EMPLOYEE	$1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT	$1,000,000
C	Pollution Li			NY19ECPX00096NV	12/22/2019	12/22/2020	Occ/Agg: $5,000,000	
D	NY Disability			LNY617471	10/01/2018	Continuous	Statutory Limits	
A	Inst. Floater			PK201900015274	12/22/2019	12/22/2020	Limit: $100K/$1K Ded	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: FMS ID: S136-367, E-Pin: 85019B0097001, DDC Pin: 8502019TR0006C. Construction of DSNY Staten Island 1 & 3 Garage/Construction of Stormwater Infrastructure, Phase 1, Etc, Borough of Staten Island.
The General Liability, Automobile Liability and Umbrella Liability policies include an automatic Additional Insured endorsement that provides Additional Insured status to The City of New York Department of Design and Construction, The City of New York, including its officials and employees, Consolidated
(See Attached Descriptions)

CERTIFICATE HOLDER

NYC Department of Design and Construction
30-30 Thomson Avenue
Long Island City, NY 11101

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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KMYCL

DESCRIPTIONS (Continued from Page 1)

Edison, Verizon and National Grid, only when there is a written contract that requires such status, and only with regard to work performed on behalf of the named insured.
The General Liability, Business Auto & Umbrella policy(s) contains a special endorsement with "Primary and Noncontributory" wording, when required by written contract.
The General Liability, Business Auto & Umbrella policy(s) provide a Blanket Waiver of Subrogation when required by written contract, except as prohibited by law.

Project ID.: S136-367

CITY OF NEW YORK

CERTIFICATION BY INSURANCE BROKER OR AGENT

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

USI Insurance Services, LLC
[Name of broker or agent (typewritten)]

180 Park Avenue, 1st Floor, Florham Park, NJ 07932
[Address of broker or agent (typewritten)]

katlen.yesse@usi.com
[Email address of broker or agent (typewritten)]

973-965-3166/610-537-4508
[Phone number/Fax number of broker or agent (typewritten)]

[Signature of authorized official, broker, or agent]

John Whitley, Broker
[Name and title of authorized official, broker, or agent (typewritten)]

State of New Jersey)
) ss.:
County of Morris)

Sworn to before me this 13th day of January, 2020

NOTARY PUBLIC FOR THE STATE OF New Jersey

CATHY M KNOKE
NOTARY PUBLIC
STATE OF NEW JERSEY
ID # 50009608
MY COMMISSION EXPIRES FEB. 4, 2020

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE

1a. Legal Name & Address of Insured (use street address only) Perfetto Contracting Co. Inc. 152 41st Street Brooklyn, NY 11232 Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)*	1b. Business Telephone Number of Insured 718-858-8600 1c. NYS Unemployment Insurance Employer Registration Number of Insured 48-50945 1d. Federal Employer Identification Number of Insured or Social Security Number 11-2814026
2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) NYC Department of Design and Construction 30-30 Thomson Avenue Long Island, NY 11101	3a. Name of Insurance Carrier NY Marine & General Insurance Company 3b. Policy Number of Entity Listed in Box "1a" WC201900018546 3c. Policy effective period 12/22/2019 to 12/22/2020 3d. The Proprietor, Partners or Executive Officers are [X] included. (Only check box if all partners/officers included) [ ] all excluded or certain partners/officers excluded.

This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. **(To use this form, New York (NY) must be listed under Item 3A on the INFORMATION PAGE of the workers' compensation insurance policy).** The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

The insurance carrier must notify the above certificate holder and the Workers' Compensation Board within 10 days IF a policy is canceled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from the coverage indicated on this Certificate. (These notices may be sent by regular mail.) **Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in box "3c", whichever is earlier.**

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Workers' Compensation contract of insurance only while the underlying policy is in effect.

Please Note: Upon cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has the coverage as depicted on this form.

Approved by: Andy Castle
(Print name of authorized representative or licensed agent of insurance carrier)

Approved by: _____ 12/23/2019
(Signature) (Date)

Title: Broker

Telephone Number of authorized representative or licensed agent of insurance carrier: 973-965-3166

Please Note: Only insurance carriers and their licensed agents are authorized to issue Form C-105.2. Insurance brokers are NOT authorized to issue it.

Workers' Compensation Law

Section 57. Restriction on issue of permits and the entering into contracts unless compensation is secured.

1. The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, and notwithstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any compensation to any such employee if so employed.

2. The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in a hazardous employment defined by this chapter, notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that compensation for all employees has been secured as provided by this chapter.

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF INSURANCE COVERAGE

DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

PART 1. To be completed by Disability and Paid Family Leave Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name & Address of Insured (use street address only)

PERFETTO CONTRACTING CO INC.
152 41ST STREET
BROOKLYN, NY 11232

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., Wrap-Up Policy)*

1b. Business Telephone Number of Insured

718-858-8600

1c. Federal Employer Identification Number of Insured or Social Security Number

112814026

2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)

NYC Department of Design & Construction
30-30 Thomson Avenue
Long Island City, NY 11101

3a Name of Insurance Carrier

HARTFORD LIFE AND ACCIDENT

3b Policy Number of Entity Listed in Box "1a"

LNY617471

3c Policy effective period

10-01-2019 to 09-30-2020

4. Policy provides the following benefits:

- [x] **A. Both disability and paid family leave benefits.**
- [ ] **B. Disability benefits only.**
- [ ] **C. Paid family leave benefits only.**

5. Policy covers:

- [x] **A. All of the employer's employees eligible under the NYS Disability and Paid Family Leave Benefits Law.**
- [ ] **B. Only the following class or classes of employer's employees:**

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability and/or Paid Family Leave Benefits insurance coverage as described above.

Date Signed 09-30-2019 *Elizabeth Tello*

(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number (212) 553-8074 **Name and Title:** Elizabeth Tello – Assistant Director, Statutory Services

IMPORTANT: If Boxes 4A and 5A are checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.

If Box 4B, 4C or 5B is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the NYS Disability and Paid Family Leave Benefits Law. It must be mailed for completion to the Workers' Compensation Board, Plans Acceptance Unit, PO Box 5200, Binghamton, NY 13902-5200.

PART 2. To be completed by the NYS Workers' Compensation Board (Only if Box 4C or 5B of Part 1 has been checked)

State of New York
Workers' Compensation Board

According to information maintained by the NYS Workers' Compensation Board, the above-named employer has complied with the NYS Disability and Paid Family Leave Benefits Law with respect to all of his/her employees.

Date Signed **By**

(Signature of Authorized NYS Workers' Compensation Board Employee)

Telephone Number **Name and Title**

Please Note: Only insurance carriers licensed to write NYS disability and paid family leave benefits insurance policies and NYS licensed insurance agents of those insurance carriers are authorized to issue Form DB-120.1. Insurance brokers are NOT authorized to issue this form.

Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in Box 3 on this form is certifying that it is insuring the business referenced in box "1 a" for disability and/or paid family leave benefits under the New York State Disability and Paid Family Leave Benefits Law. The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed as the certificate holder in Box 2.

The insurance carrier must notify the above certificate holder and the Workers' Compensation Board within 10 days IF a policy is cancelled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from coverage indicated on this Certificate. (These notices my be sent by regular mail.) Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in Box 3c, whichever is earlier

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policy listed, nor does it confer any rights or responsibilities beyond those contained in the referenced policy.

This certificate may be used as evidence of a Disability and/or Paid Family Leave Benefits contract of insurance only while the underlying policy is in effect.

Please Note: Upon the cancellation of the disability and/or paid family leave benefits policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of NYS Disability and/or Paid Family Leave Benefits Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Disability and Paid Family Leave Benefits Law.

DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

§220. Subd. 8

a) The head of a state or municipal department, board, commission or office authorized or required by law to issue any permit for or in connection with any work involving the employment of employees in employment as defined in this article, and not withstanding any general or special statute requiring or authorizing the issue of such permits, shall not issue such permit unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand and twenty-one, the payment of family leave benefits for all employees has been secured as provided by this article. Nothing herein, however, shall be construed as creating any liability on the part of such state or municipal department, board, commission or office to pay any disability benefits to any such employee if so employed.

(b) The head of a state or municipal department, board, commission or office authorized or required by law to enter into any contract for or in connection with any work involving the employment of employees in employment as defined in this article and notwithstanding any general or special statute requiring or authorizing any such contract, shall not enter into any such contract unless proof duly subscribed by an insurance carrier is produced in a form satisfactory to the chair, that the payment of disability benefits and after January first, two thousand eighteen, the payment of family leave benefits for all employees has been secured as provided by this article.

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
CONSTRUCTION WORKER PREVAILING WAGE SCHEDULE

LABOR LAW ARTICLE 8 - NYC PUBLIC WORKS

Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Pursuant to Labor Law Article 8 the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work projects. Prevailing rates are required to be annexed to and form part of the public work contract pursuant to § 220 (3).

This schedule is a compilation of separate determinations of the prevailing rate of wage and supplements made by the Comptroller for each trade classification listed herein pursuant to New York State Labor Law section § 220 (5). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.

Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City public work contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public work contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public work contracts in the procurement stage must contact the contracting agency responsible for the procurement.

Any error as to compensation under the prevailing wage law or other information as to trade classification, made by the contracting agency in the contract documents or in any other communication, will not preclude a finding against the contractor of prevailing wage violation.

Any questions concerning trade classifications, prevailing rates or prevailing practices on New York City public work contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-4443. All callers must have the agency name and contract registration number available when calling with questions on public work contracts. Please direct all other compliance issues to: Bureau of Labor Law, Attn: Wasyl Kinach, P.E., Office of the Comptroller, 1 Centre Street, Room 651, New York, N.Y. 10007; Fax (212) 669-4002.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law § 220 (3-a) (a).

This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site comptroller.nyc.gov/wages. Contractors must pay the wages and supplements in effect when the worker, laborer, mechanic performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on our web site comptroller.nyc.gov/wages.

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4443, Monday through Friday between the hours of 9 a.m. and 5 p.m.

Prevailing rates and ratios for apprentices are published in the Construction Apprentice Prevailing Wage Schedule. Pursuant to Labor Law § 220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be paid at the apprentice rates. Apprentices who are not so registered must be paid as journey persons.

New York City public work projects awarded pursuant to a Project Labor Agreement ("PLA") in accordance with Labor Law section 222 may have different labor standards for shift, premium and overtime work. Please refer to the PLA's pre-negotiated labor agreements for wage and benefit rates applicable to work performed outside of the regular workday. More information is available at the Mayor's Office of Contract Services (MOCS) web page at:

https://www1.nyc.gov/site/mocs/legal-forms/project-labor-agreements.page

All the provisions of Labor Law Article 8 remain applicable to PLA work including, but not limited to, the enforcement of prevailing wage requirements by the Comptroller in accordance with the trade classifications in this schedule; however, we will enforce shift, premium, overtime and other non-standard rates as they appear in a project's pre-negotiated labor agreement.

In order to meet their obligation to provide prevailing supplemental benefits to each covered employee, employers must either:

1) **Provide bona fide fringe benefits which cost the employer no less than the prevailing supplemental benefits rate; or**
2) **Supplement the employee's hourly wage by an amount no less than the prevailing supplemental benefits rate; or**
3) **Provide a combination of bona fide fringe benefits and wage supplements which cost the employer no less than the prevailing supplemental benefits rate in total.**

Although prevailing wage laws do not require employers to provide bona fide fringe benefits (as opposed to wage supplements) to their employees, other laws may. For example, the Employee Retirement Income Security Act, 29 U.S.C. § 1001 et seq., the Patient Protection and Affordable Care Act, 42 U.S.C. § 18001 et seq., and the New York City Paid Sick Leave Law, N.Y.C. Admin. Code § 20-911 et seq., require certain employers to provide certain benefits to their employees. Labor agreements to which employers are a party may also require certain benefits. The Comptroller's Office does not enforce these laws or agreements.

Employers must provide prevailing supplemental benefits at the straight time rate for each hour worked unless otherwise noted in the classification.

Paid Holidays, Vacation and Sick Leave when listed must be paid or provided in addition to the prevailing hourly supplemental benefit rate.

For more information, please refer to the Comptroller's Prevailing Wage Law Regulations in Title 44 of the Rules of the City of New York, Chapter 2, available at comptroller.nyc.gov/wages.

Wasyl Kinach, P.E.
Director of Classifications
Bureau of Labor Law

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ASBESTOS HANDLER
SEE HAZARDOUS MATERIAL HANDLER

BLASTER

Blaster

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.86
Supplemental Benefit Rate per Hour: $44.48

Blaster- Hydraulic Trac Drill

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.00
Supplemental Benefit Rate per Hour: $44.48

Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.17
Supplemental Benefit Rate per Hour: $44.48

Blaster - Journeyperson

(Laborer, Chipper/Jackhammer including Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers and Hydro (Water) Demolition, Powder Carrier, Hydraulic Chuck Tender, Chuck Tender and Nipper)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.65
Supplemental Benefit Rate per Hour: $44.48

Blaster - Magazine Keepers: (Watch Person)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.33
Supplemental Benefit Rate per Hour: $44.48

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays

Labor Day
Thanksgiving Day

Shift Rates

When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

BOILERMAKER

Boilermaker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $59.17
Supplemental Benefit Rate per Hour: $44.59
Supplemental Note: For time and one half overtime - $66.44 For double overtime - $88.28

Overtime Description

For Repair and Maintenance work:
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
For New Construction work:
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day

Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Quadruple time the regular rate for work on the following holiday(s).
Labor Day

Paid Holidays
Good Friday
Day after Thanksgiving
Day before Christmas
Day before New Year's Day

Shift Rates
When shifts are required, the first shift shall work eight (8) hours at the regular straight-time hourly rate. The second shift shall work seven and one-half (7 ½) hours and receive eight hours at the regular straight time hourly rate plus twenty-five cents ($0.25) per hour. The third shift shall work seven (7) hours and receive eight hours at the regular straight time hourly rate plus fifty cents ($0.50) per hour. A thirty (30) minute lunch period shall not be considered as time worked. Work in excess of the above shall be paid overtime at the appropriate new construction work or repair work overtime wage and supplemental benefit hourly rate.

(Local #5)

BRICKLAYER

Bricklayer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $56.32
Supplemental Benefit Rate per Hour: $33.11

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day

Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Overtime rates to be paid outside the regular scheduled work day.

(Bricklayer District Council)

CARPENTER - BUILDING COMMERCIAL

Building Commercial

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $52.50
Supplemental Benefit Rate per Hour: $46.38

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
The employer may work two (2) shifts with the first shift at the straight time wage rate starting at the established time between 7 a.m. and 9 a.m. The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight (8) hours pay for seven (7) hours of work, nine (9) hours pay for eight (8) hours of work.

When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Carpenters District Council)

CARPENTER - HEAVY CONSTRUCTION WORK
(Construction of Engineering Structures and Building Foundations)

Heavy Construction Work

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.68
Supplemental Benefit Rate per Hour: $51.73

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Excludes Engineering Structures and Building Foundations)

Carpenter High Rise A

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.78
Supplemental Benefit Rate per Hour: $43.44

Carpenter High Rise B

Carpenter High Rise B worker is excluded from high risk operations such as erection decking, perimeter debris netting, leading edge work, self-climbing form systems, and the installation of cocoon systems unless directly supervised by a Carpenter High Rise A worker.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.19
Supplemental Benefit Rate per Hour: $16.75

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
The second shift wage rate shall be 113% of the straight time hourly wage rate. There must be a first shift in order to work a second shift.

(Carpenters District Council)

CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

Carpenter - Hod Hoist

(Assisted by Mason Tender)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.50
Supplemental Benefit Rate per Hour: $39.56

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight hours pay for seven hours of work, nine hours pay for eight hours of work. There must be a first shift in order to work a second shift.

(Carpenters District Council)

CARPENTER - WOOD WATER STORAGE TANK

Tank Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.14
Supplemental Benefit Rate per Hour: $19.00

Tank Helper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.30
Supplemental Benefit Rate per Hour: $19.00

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on a holiday plus the day's pay.

Paid Holidays
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Day after Thanksgiving
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Vacation
Employed for one (1) year.....one (1) week vacation (40 hours)
Employed for three (3) years.....two (2) weeks vacation (80 hours)
Employed for more than twenty (20) years.....three (3) weeks vacation (120 hours)

SICK LEAVE:
Two (2) sick days after being employed for twenty (20) years.

(Carpenters District Council)

CEMENT & CONCRETE WORKER

Cement & Concrete Worker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.53

Supplemental Benefit Rate per Hour: $28.95
Supplemental Note: $32.45 on Saturdays; $35.95 on Sundays & Holidays

Cement & Concrete Worker - (Hired after 2/6/2016)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $33.05
Supplemental Benefit Rate per Hour: $20.95
Supplemental Note: $22.45 on Saturdays; $23.95 on Sundays & Holidays

Overtime Description
Time and one half the regular rate after 7 hour day (time and one half the regular rate after an 8 hour day when working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk-brick shelf, when working on the foundation and structure.)

Overtime
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day before Christmas Day
1/2 day before New Year's Day

Shift Rates
On shift work extending over a twenty-four hour period, all shifts are paid at straight time.

(Cement Concrete Workers District Council)

CEMENT MASON

Cement Mason

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $44.97
Supplemental Benefit Rate per Hour: $40.56
Supplemental Note: Supplemental benefit time and one half rate: $71.19; Double time rate: double the base supplemental benefit rate.

Overtime Description

Time and one-half the regular rate after an 8 hour day, double time the regular rate after 10 hours. Time and one-half the regular rate on Saturday, double time the regular rate after 10 hours. Double time the regular rate on Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

Shift Rates

For an off shift day, (work at times other than the regular 7:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential. Four Days a week at Ten (10)hour day.

(Local #780) (BCA)

CORE DRILLER

Core Driller

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.44
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $32.12
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper(Third year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.91
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper (Second year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.70
Supplemental Benefit Rate per Hour: $26.70

Core Driller Helper (First year in the industry)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.48
Supplemental Benefit Rate per Hour: $26.70

Overtime Description
Time and one half the regular rate for work on a holiday plus Holiday pay when worked.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Shift Rates
The shift day shall be the continuous eight and one-half (8½) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (½) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five cents ($0.75) per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 ½) hours paid for eight (8) hours of labor and be permitted one-half (½) hour for mealtime.

(Carpenters District Council)

DERRICKPERSON AND RIGGER

Derrick Person & Rigger

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.91
Supplemental Benefit Rate per Hour: $54.11
Supplemental Note: The above supplemental rate applies for work performed in Manhattan, Bronx, Brooklyn and Queens. $55.53 - For work performed in Staten Island.

Derrick Person & Rigger - Site Work

Assists the Stone Mason-Setter in the setting of stone and paving stone.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.59
Supplemental Benefit Rate per Hour: $42.37

Overtime Description
The first two hours of overtime on weekdays and the first seven hours of work on Saturdays are paid at time and one half for wages and supplemental benefits. All additional overtimes is paid at double time for wages and supplemental benefits. Deduct $1.42 from the Staten Island hourly benefits rate before computing overtime.

Overtime
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.

(Local #197)

DIVER

Diver (Marine)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.22
Supplemental Benefit Rate per Hour: $51.73

Diver Tender (Marine)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.14
Supplemental Benefit Rate per Hour: $51.73

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
When three shifts are utilized each shift shall work seven and one half-hours (7 1/2 hours) and paid for 8 hours, allowing for one half hour for lunch.

(Carpenters District Council)

DOCKBUILDER - PILE DRIVER

Dockbuilder - Pile Driver

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.63
Supplemental Benefit Rate per Hour: $51.73

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays

None

Shift Rates

Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Carpenters District Council)

DRIVER: TRUCK (TEAMSTER)

Driver - Dump Truck

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $41.18
Supplemental Benefit Rate per Hour: $49.65
Supplemental Note: Over 40 hours worked: at time and one half rate - $22.08; at double time rate - $29.44

Driver - Tractor Trailer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.84
Supplemental Benefit Rate per Hour: $49.03
Supplemental Note: Over 40 hours worked: at time and one half rate - $19.80; at double time rate - $26.40

Driver - Euclid & Turnapull Operator

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $44.40
Supplemental Benefit Rate per Hour: $49.03
Supplemental Note: Over 40 hours worked: at time and one half rate - $19.80; at double time rate - $26.40

Overtime Description
For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay. For Thanksgiving week, the prorated share shall be 5 1/3 hours of holiday pay for each day worked in Thanksgiving week.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Off single shift work commencing between 6:00 P.M. and 5:00 A.M. shall work eight and one half (8 1/2) hours allowing for one half hour for lunch and be paid 117.3% of the straight time hourly wage rate.

Driver Redi-Mix (Sand & Gravel)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.00

Supplemental Benefit Rate per Hour: $45.52
Supplemental Note: Over 40 hours worked: time and one half rate $16.78; double time rate $22.37

Overtime Description
For Paid Holidays: Employees working two (2) days in the calendar week in which the holiday falls are to paid for these holidays, provided they shape each remaining workday during that calendar week.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
President's Day
Columbus Day
Veteran's Day

Triple time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Christmas Day

(Local #282)

ELECTRICIAN
(Including installation of low voltage cabling carrying data, video and/or voice on building construction/alteration/renovation projects.)

Electrician "A" (Regular Day / Day Shift)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $56.00
Supplemental Benefit Rate per Hour: $56.54

Electrician "A" (Regular Day Overtime after 7 hrs / Day Shift Overtime after 8 hrs)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.00
Supplemental Benefit Rate per Hour: $60.07

Electrician "A" (Swing Shift)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.71
Supplemental Benefit Rate per Hour: $64.36

Electrician "A" (Swing Shift Overtime After 7.5 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $98.57
Supplemental Benefit Rate per Hour: $68.51

Electrician "A" (Graveyard Shift)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $73.60
Supplemental Benefit Rate per Hour: $70.94

Electrician "A" (Graveyard Shift Overtime After 7 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $110.40
Supplemental Benefit Rate per Hour: $75.59

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on a holiday.
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving

Christmas Day

Paid Holidays
None

Shift Rates
When so elected by the Employer, one or more shifts of at least five days duration may be scheduled as follows: Day Shift: 8:00 am to 4:30 pm, Swing Shift 4:30 pm to 12:30 am, Graveyard Shift: 12:30 am to 8:00 am.

For multiple shifts of temporary light and/or power, the temporary light and/or power employee shall be paid for 8 hours at the straight time rate. For three or less workers performing 8 hours temporary light and/or power the supplemental benefit rate is $24.92.

Electrician "M" (First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.00
Supplemental Benefit Rate per Hour: $23.43
First and Second Year "M" Wage Rate Per Hour: $24.50
First and Second Year "M" Supplemental Rate: $21.07

Electrician "M" (Overtime After First 8 hours)

"M" rated work shall be defined as jobbing: electrical work of limited duration and scope, also consisting of repairs and/or replacement of electrical and tele-data equipment. Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.50
Supplemental Benefit Rate per Hour: $25.26
First and Second Year "M" Wage Rate Per Hour: $36.75
First and Second Year "M" Supplemental Rate: $22.62

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day

President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Local #3)

ELECTRICIAN - ALARM TECHNICIAN
(Scope of Work - Inspect, test, repair, and replace defective, malfunctioning, or broken devices, components and controls of Fire, Burglar and Security Systems)

Alarm Technician

Effective Period: 7/1/2019 - 3/9/2020
Wage Rate per Hour: $33.40
Supplemental Benefit Rate per Hour: $17.68
Supplemental Note: $16.06 only after 8 hours worked in a day

Effective Period: 3/10/2020 - 6/30/2020
Wage Rate per Hour: $33.90
Supplemental Benefit Rate per Hour: $18.43
Supplemental Note: $16.80 only after 8 hours worked in a day

Overtime Description
Time and one half the regular rate for work on the following holidays: Columbus Day, Veterans Day, Day after Thanksgiving.
Double time the regular rate for work on the following holidays: New Year's day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Paid Holidays
New Year's Day

Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Night Differential is based upon a ten percent (10%) differential between the hours of 4:00 P.M. and 12:30 A.M. and a fifteen percent (15%) differential for the hours 12:00 A.M. to 8:00 A.M.

Vacation

At least 1 year of employment.....ten (10) days
5 years or more of employment.....fifteen (15) days
10 years of employment.....twenty (20) days
Plus one Personal Day per year

Sick Days:
One day per Year. Up to 4 vacation days may be used as sick days.

(Local #3)

ELECTRICIAN-STREET LIGHTING WORKER

Electrician - Electro Pole Electrician

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $56.00
Supplemental Benefit Rate per Hour: $58.44

Electrician - Electro Pole Foundation Installer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.66
Supplemental Benefit Rate per Hour: $43.52

Electrician - Electro Pole Maintainer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.61
Supplemental Benefit Rate per Hour: $39.16

Overtime Description

Electrician - Electro Pole Electrician: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week.
Electrician - Electro Pole Foundation Installer: Time and one half the regular rate after 8 hours within a 24 hour period and Saturday and Sunday.
Electrician - Electro Pole Maintainer: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week. Saturdays and Sundays may be used as a make-up day at straight time when a day is lost during the week to inclement weather.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

(Local #3)

ELEVATOR CONSTRUCTOR

Elevator Constructor

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate per Hour: $66.95
Supplemental Benefit Rate per Hour: $36.65

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate per Hour: $69.56
Supplemental Benefit Rate per Hour: $37.47

Overtime Description

For New Construction: work performed after 7 or 8 hour day, Saturday, Sunday or between 4:30pm and 7:00am shall be paid at double time rate.

Existing buildings: work performed after an 8 hour day, Saturday, Sunday or between 5:30pm and 7:00 am shall be paid time and one half.

Overtime

Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

ELEVATOR REPAIR & MAINTENANCE

Elevator Service/Modernization Mechanic

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate per Hour: $52.44
Supplemental Benefit Rate per Hour: $36.55

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate per Hour: $54.56
Supplemental Benefit Rate per Hour: $37.37

Overtime Description

For Scheduled Service Work: Double time - work scheduled in advance by two or more workers performed on Sundays, Holidays, and between midnight and 7:00am.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on a holiday plus the day's pay.

Paid Holidays

New Year's Day
President's Day

Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Afternoon shift - regularly hourly rate plus a (15%) fifteen percent differential. Graveyard shift - time and one half the regular rate.

Vacation

Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.

(Local #1)

ENGINEER

Engineer - Heavy Construction Operating Engineer I

Cherrypickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **$70.71**
Supplemental Benefit Rate per Hour: **$39.74**
Supplemental Note: $72.08 on overtime
Shift Wage Rate: **$113.14**

Engineer - Heavy Construction Operating Engineer II

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) & machines of similar nature. Operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of similar nature, Vac-Alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers and Turn-a-Pulls: Tugger Hoists (Used exclusively for handling excavated material); Tractors with attachments, Hyster and Roustabout Cranes, Cherrypickers. Austin Western, Grove and machines of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers: Loaders-Rubber Tired and Tractor: Barber Greene and Eimco Loaders and Eimco Backhoes; Mighty Midget and similar breakers and Tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature. Locomotives 10 Tons or under. Mini-Max, Break-Tech and machines of a similar nature; Milling machines, robotic and demolition machines and machines of a similar nature, shot blaster, skid steer machines and machines of a similar nature including bobcat, pile rig rubber-tired excavator (37,000 lbs. and under), 2 man auger.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $68.58
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $109.73

Engineer - Heavy Construction Operating Engineer III

Minor Equipment such as Tractors, Post Hole Diggers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers five tons and under, Tugger Hoists, Dual Purpose Trucks, Fork Lifts, and Dempsey Dumpers, Fireperson.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.00
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $104.00

Engineer - Heavy Construction Maintenance Engineer I

Installing, Repairing, Maintaining, Dismantling and Manning of all equipment including Steel Cutting, Bending and Heat Sealing Machines, Mechanical Heaters, Grout Pumps, Bentonite Pumps & Plants, Screening Machines, Fusion Coupling Machines, Tunnel Boring Machines Moles and Machines of a similar nature, Power Packs, Mechanical Hydraulic Jacks; all drill rigs including but not limited to Churn, Rotary Caisson, Raised Bore & Drills of a similar nature; Personnel, Inspection & Safety Boats or any boats used to perform functions of same, Mine Hoists, Whirlies, all Climbing Cranes, all Tower Cranes, including but not limited to Truck Mounted and Crawler Type and machines of similar nature; Maintaining Hydraulic Drills and machines of a similar nature; Well Point System-Installation and dismantling; Burning, Welding, all Pumps regardless of size and/or motor power, except River Cofferdam Pumps and Wells Point Pumps; Motorized Buggies (three or more); equipment used in the cleaning and televising of sewers, but not limited to jet-rodder/vacuum truck, vacall/vactor, closed circuit television inspection equipment; high powered water pumps, jet pumps; screed machines and concrete finishing machines of a similar nature; vermeers.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $68.25
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $109.20

Engineer - Heavy Construction Maintenance Engineer II

On Base Mounted Tower Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $90.00
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $144.00

Engineer - Heavy Construction Maintenance Engineer III

On Generators, Light Towers

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $44.64
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $71.42

Engineer - Heavy Construction Maintenance Engineer IV

On Pumps and Mixers including mud sucking

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.83
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $73.33

Engineer - Steel Erection Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.31
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $104.50

Engineer - Steel Erection Oiler I

On a Truck Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $61.05
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $97.68

Engineer - Steel Erection Oiler II

On a Crawler Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.18
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime
Shift Wage Rate: $73.89

Overtime Description

On jobs of more than one shift, if the next shift employee fails to report for work through any cause over which the employer has no control, the employee on duty who works the next shift continues to work at the single time rate.

Overtime

Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

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Engineer - Building Work Maintenance Engineers I

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights), skid steer machines of a similar nature including bobcat.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $62.45
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Maintenance Engineers II

On Pumps, Generators, Mixers and Heaters

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $48.26
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Oilers I

All gasoline, electric, diesel or air operated Gradealls: Concrete Pumps, Overhead Cranes in Power Houses: Their duties shall be to assist the Engineer in oiling, greasing and repairing of all machines; Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks, Cherrypickers (hydraulic cranes) over 70,000 GVW, and machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $59.33
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Engineer - Building Work Oilers II

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors (three or more in Battery).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.78
Supplemental Benefit Rate per Hour: $39.74
Supplemental Note: $72.08 on overtime

Overtime Description
On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates
Off Shift: double time the regular hourly rate.

(Local #15)

ENGINEER - CITY SURVEYOR AND CONSULTANT

Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.41
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $33.13
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.54
Supplemental Benefit Rate per Hour: $22.75
Supplemental Note: Overtime Benefit Rate - $27.25 per hour (time & one half) $31.75 per hour (double time).

Overtime Description

Time and one half the regular rate after an 8 hour day, Time and one half the regular rate for Saturday for the first eight hours worked, Double time the regular time rate for Saturday for work performed in excess of eight hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - FIELD (BUILDING CONSTRUCTION)
(Construction of Building Projects, Concrete Superstructures, etc.)

Field Engineer - BC Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.44
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.83
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Field Engineer - BC Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $32.84
Supplemental Benefit Rate per Hour: $35.12
Supplemental Note: Overtime Benefit Rate - $49.33 per hour (time & one half) $63.54 per hour (double time).

Overtime Description
Time and one half the regular rate after a 7 hour work and time and one half the regular rate for Saturday for the first seven hours worked, Double time the regular time rate for Saturday for work performed in excess of seven hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

Paid Holidays
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - FIELD (HEAVY CONSTRUCTION)

(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations, Engineering Structures etc.)

Field Engineer - HC Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $74.18
Supplemental Benefit Rate per Hour: $36.51
Supplemental Note: Overtime benefit rate - $51.29 per hour (time & one half), $66.07 per hour (double time).

Field Engineer - HC Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.47
Supplemental Benefit Rate per Hour: $36.51
Supplemental Note: Overtime benefit rate - $51.29 per hour (time & one half), $66.07 per hour (double time).

Field Engineer - HC Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.70
Supplemental Benefit Rate per Hour: $36.51
Supplemental Note: Overtime benefit rate - $51.29 per hour (time & one half), $66.07 per hour (double time).

Overtime Description

Time and one half the regular rate after an 8 hour day, Time and one half the regular rate for Saturday for the first eight hours worked, Double time the regular time rate for Saturday for work performed in excess of eight hours, Double time the regular rate for Sunday and Double time the regular rate for work on a holiday.

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - FIELD (STEEL ERECTION)

Field Engineer - Steel Erection Party Chief

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.15
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Instrument Person

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.88
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Field Engineer - Steel Erection Rodperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.04
Supplemental Benefit Rate per Hour: $36.01
Supplemental Note: Overtime benefit rate - $50.54 per hour (time & one half), $65.07 per hour (double time).

Overtime Description
Time and one half the regular rate for Saturday for the first eight hours worked.
Double time the regular rate for Saturday for work performed in excess of eight hours.

Overtime
Time and one half the regular rate after an 8 hour day.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Operating Engineer Local #15-D)

ENGINEER - OPERATING

Operating Engineer - Road & Heavy Construction I

Back Filling Machines, Cranes, Mucking Machines and Dual Drum Paver.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $81.17
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $129.87

Operating Engineer - Road & Heavy Construction II

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.01
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $134.42

Operating Engineer - Road & Heavy Construction III

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $86.69
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $138.70

Operating Engineer - Road & Heavy Construction IV

Gradealls, Keystones, Cranes on land or water (with digging buckets), Bridge Cranes, Vermeer Cutter and machines of a similar nature, Trenching Machines.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.62
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $135.39

Operating Engineer - Road & Heavy Construction V

Pile Drivers & Rigs (employing Dock Builder foreperson): Derrick Boats, Tunnel Shovels.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $82.96
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $132.74

Operating Engineer - Road & Heavy Construction VI

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power Houses (Low Air Pressure Units).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $78.85
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $126.16

Operating Engineer - Road & Heavy Construction VII

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $63.81
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $102.10

Operating Engineer - Road & Heavy Construction VIII

Utility Compressors

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.67
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $62.44

Operating Engineer - Road & Heavy Construction IX

Horizontal Boring Rig

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $75.02
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $120.03

Operating Engineer - Road & Heavy Construction X

Elevators (manually operated as personnel hoist).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.01
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $110.42

Operating Engineer - Road & Heavy Construction XI

Compressors (Portable 3 or more in battery), Driving of Truck Mounted Compressors, Well-point Pumps, Tugger Machines Well Point Pumps, Churn Drill.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.74
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $85.98

Operating Engineer - Road & Heavy Construction XII

All Drills and Machines of a similar nature.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $79.68
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $127.49

Operating Engineer - Road & Heavy Construction XIII

Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoist, Power Houses (other than above).

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $77.19
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $123.50

Operating Engineer - Road & Heavy Construction XIV

Concrete Mixer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $73.82
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $118.11

Operating Engineer - Road & Heavy Construction XV

Compressors (Portable Single or two in Battery, not over 100 feet apart), Pumps (River Cofferdam) and Welding Machines, Push Button Machines, All Engines Irrespective of Power (Power-Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.99
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $79.98

Operating Engineer - Road & Heavy Construction XVI

Concrete Breaking Machines, Hoists (Single Drum), Load Masters, Locomotives (over ten tons) and Dinkies over ten tons, Hydraulic Crane-Second Engineer.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $70.53
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $112.85

Operating Engineer - Road & Heavy Construction XVII

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $71.06
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $113.70

Operating Engineer - Road & Heavy Construction XVIII

Tower Crane

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $101.71
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $162.74

Operating Engineer - Paving I

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $78.85
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Shift Wage Rate: $126.16

Operating Engineer - Paving II

Asphalt Roller

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $76.83
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $122.93

Operating Engineer - Paving III

Asphalt Plants

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.08
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $104.13

Operating Engineer - Concrete I

Cranes

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $84.25
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Concrete II

Compressors

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.37
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Concrete III

Micro-traps (Negative Air Machines), Vac-All Remediation System.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $67.45
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Steel Erection I

Three Drum Derricks

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $87.14
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $139.42

Operating Engineer - Steel Erection II

Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $83.75
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $134.00

Operating Engineer - Steel Erection III

Compressors, Welding Machines.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.95
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95overtime hours
Shift Wage Rate: $79.92

Operating Engineer - Steel Erection IV

Compressors - Not Combined with Welding Machine.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.58
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
Shift Wage Rate: $76.13

Operating Engineer - Building Work I

Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.51
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work II

Compressors, Welding Machines (Cutting Concrete-Tank Work), Paint Spraying, Sandblasting, Pumps (with the exclusion of Concrete Pumps), All Engines irrespective of Power (Power-Pac) used to drive Auxiliary Equipment, Air, Hydraulic, Jacking System, etc.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $52.21
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work III

Double Drum

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $79.02
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work IV

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $83.68
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work V

Dismantling and Erection of Cranes, Relief Engineer.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $77.15
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work VI

4 Pole Hoist, Single Drum Hoists.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $76.35
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours

Operating Engineer - Building Work VII

Rack & Pinion and House Cars

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $32.95
Supplemental Note: $59.95 overtime hours
For New House Car projects Wage Rate per Hour $48.70

Overtime Description

On jobs of more than one shift, if an Employee fails to report for work through any cause over which the Employer has no control, the Employee on duty will continue to work at the rate of single time.

For House Cars and Rack & Pinion only: Overtime paid at time and one-half for all hours in excess of eight hours in a day, Saturday, Sunday and Holidays worked.

Overtime

Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

Shift Rates

For Steel Erection Only: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work ONLY: Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.

(Operating Engineer Local #14)

FLOOR COVERER

(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)

Floor Coverer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.50
Supplemental Benefit Rate per Hour: $45.98

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates
Two shifts may be utilized with the first shift working 8 a.m. to the end of the shift at straight time rate of pay. The wage rate for the second shift consisting of 7 hours shall be paid at 114.29% of straight time wage rate. The wage rate for the second shift consisting of 8 hours shall be paid 112.5% of the straight time wage rate.
There must be a first shift to work the second shift.

(Carpenters District Council)

GLAZIER
(New Construction, Remodeling, and Alteration)

Glazier

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.05
Supplemental Benefit Rate per Hour: $43.39
Supplemental Note: Supplemental Benefit Overtime Rate: $65.10

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Shifts shall be any 8 consecutive hours after the normal working day for which the Glazier shall receive 9 hours pay for 8 hours worked.

(Local #1281)

GLAZIER - REPAIR & MAINTENANCE
(For the Installation of Glass - All repair and maintenance work on a particular building, whenever performed, where the total cumulative contract value is under $141,750)

Craft Jurisdiction for repair, maintenance and fabrication

Plate glass replacement, Residential glass replacement, Residential mirrors and shower doors, Storm windows and storm doors, Residential replacement windows, Herculite door repairs, Door closer repairs, Retrofit apartment house (non-commercial buildings), Glass tinting.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.64
Supplemental Benefit Rate per Hour: $22.29

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day
Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday

(Local #1281)

HAZARDOUS MATERIAL HANDLER

(Removal, abatement, encapsulation or decontamination of asbestos, lead, mold, or other toxic or hazardous waste/materials)

Handler

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: **$36.50**
Supplemental Benefit Rate per Hour: **$16.45**

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Sunday.
Time and one half the regular hourly rate after 40 hours in any work week.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day
Easter

Paid Holidays

None

(Local #78 and Local #12A)

HEAT AND FROST INSULATOR

Heat & Frost Insulator

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $61.46
Supplemental Benefit Rate per Hour: $40.46

Overtime Description
Double time shall be paid for supplemental benefits during overtime work.
8th hour paid at time and one half.

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Triple time the regular rate for work on the following holiday(s).
Labor Day

Paid Holidays
None

Shift Rates
The first shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours the regular straight time hourly rate plus a fourteen percent wage and benefit premium.

(Local #12) (BCA)

HOUSE WRECKER
(TOTAL DEMOLITION)

House Wrecker - Tier A

On all work sites the first, second, eleventh and every third House Wrecker thereafter will be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th etc). Other House Wreckers may be Tier B House Wreckers.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $29.77

House Wrecker - Tier B

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.41
Supplemental Benefit Rate per Hour: $22.18

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL

Iron Worker - Ornamental

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $45.15
Supplemental Benefit Rate per Hour: $55.62
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Overtime Description
Time and one half the regular rate after a 7 hour day for a maximum of two hours on any regular work day (the 8th and 9th hour) and double time shall be paid for all work on a regular work day thereafter, time and one half the regular rate for Saturday for the first seven hours of work and double time shall be paid for all work on a Saturday thereafter.

Overtime
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
For off shift work - 8 hours pay for 7 hours of work. When two or three shifts are employed on a job, Monday through Friday, the workday for each shift shall be seven hours and paid for ten and one-half hours at the single time rate. When two or three shifts are worked on Saturday, Sunday or holidays, each shift shall be seven hours and paid fifteen and three-quarters hours.

(Local #580)

IRON WORKER - STRUCTURAL

Iron Worker - Structural

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $51.05
Supplemental Benefit Rate per Hour: $76.89
Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

Overtime Description

Monday through Friday- the first eight hours are paid at straight time, the 9th and 10th hours are paid at time and one-half the regular rate, all additional weekday overtime is paid at double the regular rate. Saturdays- the first eight hours are paid at time and one-half the regular rate, double time thereafter. Sunday-all shifts are paid at double time.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates

Monday through Friday - First Shift: First eight hours are paid at straight time, the 9th & 10th hours are paid at time and a half, double time paid thereafter. Second and third Shifts: First eight hours are paid at time and one-half, double time thereafter. Saturdays: All shifts, first eight hours paid at time and one-half, double time thereafter: Sunday all shifts are paid at double time.

(Local #40 & #361)

LABORER
(Foundation, Concrete, Excavating, Street Pipe Layer and Common)

Laborer

Excavation and foundation work for buildings, heavy construction, engineering work, and hazardous waste removal in connection with the above work. Landscaping tasks in connection with heavy construction work, engineering work and building projects. Projects include, but are not limited to pollution plants, sewers, parks, subways, bridges, highways, etc.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.65
Supplemental Benefit Rate per Hour: $44.48

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
Labor Day
Thanksgiving Day

Shift Rates
When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

LANDSCAPING
(Landscaping tasks, as well as tree pruning, tree removing, spraying and maintenance in connection with the planting of street trees and the planting of trees in city parks but not when such activities are performed as part of, or in connection with, other construction or reconstruction projects.)

Landscaper (Year 6 and above)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.75
Supplemental Benefit Rate per Hour: $16.05

Landscaper (Year 3 - 5)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.72
Supplemental Benefit Rate per Hour: $16.05

Landscaper (up to 3 years)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.14
Supplemental Benefit Rate per Hour: $16.05

Groundperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.14
Supplemental Benefit Rate per Hour: $16.05

Tree Remover / Pruner

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.92
Supplemental Benefit Rate per Hour: $16.05

Landscaper Sprayer (Pesticide Applicator)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.59
Supplemental Benefit Rate per Hour: $16.05

Watering - Plant Maintainer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.40
Supplemental Benefit Rate per Hour: $16.05

Overtime Description

For all overtime work performed, supplemental benefits shall include an additional seventy-five ($0.75) cents per hour.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular rate for work on a holiday plus the day's pay.

Paid Holidays

New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Shift Rates

Work performed on a 4pm to 12am shift has a 15% differential. Work performed on a 12am to 8am shift has a 20% differential.

(Local #175)

MARBLE MECHANIC

Marble Setter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.44
Supplemental Benefit Rate per Hour: $40.77

Marble Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.86
Supplemental Benefit Rate per Hour: $38.22

Marble Polisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.81
Supplemental Benefit Rate per Hour: $30.35

Marble Maintenance Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.31
Supplemental Benefit Rate per Hour: $13.34

Overtime Description
Supplemental Benefit contributions are to be made at the applicable overtime rates. Time and one half the regular rate after a 7 hour day or time and one half the regular rate after an 8 hour day - chosen by Employer at the start of the project and then would last for the full duration of the project.

Overtime
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday

Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Local #7)

MASON TENDER

Mason Tender

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
The employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for seven (7) hours work at the straight time wage rate. When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.

(Local #79)

MASON TENDER (INTERIOR DEMOLITION WORKER)

Mason Tender Tier A

Tier A Interior Demolition Worker performs all burning, chopping, and other technically skilled tasks related to interior demolition work.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $36.44
Supplemental Benefit Rate per Hour: $24.50

Mason Tender Tier B

Tier B Interior Demolition Worker performs manual work and work incidental to demolition work, such as loading and carting of debris from the work site to an area where it can be loaded in to bins/trucks for removal. Also performs clean-up of the site when demolition is completed.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.63
Supplemental Benefit Rate per Hour: $18.82

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(Local #79)

METALLIC LATHER

Metallic Lather

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.23
Supplemental Benefit Rate per Hour: $46.67
Supplemental Note: Overtime Supplemental Benefit rate - $57.92

Overtime Description
Overtime would be time and one half the regular rate after a seven (7) or eight (8) hours workday, which would be set at the start of the job.

Overtime
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates
There will be no shift differential paid on the first shift if more than one shift is employed. The shift differential will remain $12/hour on the second and third shift for the first eight (8) hours if worked. There will be no pyramiding on overtime worked on second and third shifts. The time and one half (1.5x) rate will be against the base wage rate, not the shift differential

(Local #46)

MILLWRIGHT

Millwright

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $54.20
Supplemental Benefit Rate per Hour: $53.81

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.
1/2 day on New Year's Eve if work is performed in the A.M.

Shift Rates

The first shift shall receive the straight time rate of pay. The second shift receives the straight time rate of pay plus fifteen (15%) per cent. Members of the second shift shall be allowed one half hour to eat, with this time being included in the hours of the workday established. There must be a first shift to work a second shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) per cent for weekday hours.

(Local #740)

MOSAIC MECHANIC

Mosaic Mechanic - Mosaic & Terrazzo Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.91
Supplemental Benefit Rate per Hour: $43.24

Mosaic Mechanic - Mosaic & Terrazzo Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $48.31
Supplemental Benefit Rate per Hour: $43.24

Mosaic Mechanic - Machine Operator Grinder

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $48.31
Supplemental Benefit Rate per Hour: $43.24

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Good Friday
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Local #7)

PAINTER

Painter - Brush & Roller

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.00
Supplemental Benefit Rate per Hour: $32.49
Supplemental Note: $ 37.75 on overtime

Spray & Scaffold / Decorative / Sandblast

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.00

Supplemental Benefit Rate per Hour: $32.49
Supplemental Note: $ 37.75 on overtime

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

(District Council of Painters #9)

PAINTER - LINE STRIPING (ROADWAY)

Striping - Machine Operator

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $35.00
Supplemental Benefit Rate per Hour: $12.37
Supplemental Note: Overtime Supplemental Benefit rate - $8.02; New Hire Rate (0-3 months) - $0.00

Lineperson (Thermoplastic)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.00
Supplemental Benefit Rate per Hour: $12.37
Supplemental Note: Overtime Supplemental Benefit rate - $8.02; New Hire Rate (0-3 months) - $0.00

Overtime Description
For Paid Holidays: Employees will only receive Holiday Pay for holidays not worked if said employee worked both the weekday before and the weekday after the holiday.

Overtime
Time and one half the regular rate after an 8 hour day.

Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

Vacation

Employees with one to two years service shall accrue vacation based on hours worked: 250 hours worked - 1 day vacation; 500 hours worked - 2 days vacation; 750 hours worked - 3 days vacation; 900 hours worked - 4 days vacation; 1,000 hours worked - 5 days vacation. Employees with two to five years service receive two weeks vacation. Employees with five to twenty years service receive three weeks vacation. Employees with twenty to twenty-five years service receive four weeks vacation. Employees with 25 or more years service receive five weeks vacation. Vacation must be taken during winter months.

(Local #1010)

PAINTER - METAL POLISHER

METAL POLISHER

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.58
Supplemental Benefit Rate per Hour: $7.16

METAL POLISHER - NEW CONSTRUCTION

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.53
Supplemental Benefit Rate per Hour: $7.16

METAL POLISHER - SCAFFOLD OVER 34 FEET

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $34.08
Supplemental Benefit Rate per Hour: $7.16

Overtime Description
All work performed on Saturdays shall be paid at time-in-a half. The exception being; for suspended scaffold work and work deemed as a construction project; an eight (8) hour shift lost during the week due to circumstances beyond the control of the employer, up to a maximum of eight (8) hours per week, may be worked on Saturday at the straight time rate.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
Triple time the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Four Days a week at Ten (10) hours straight a day.

Local 8A-28A

PAINTER - SIGN

Sign Painter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $41.98
Supplemental Benefit Rate per Hour: $20.10

Assistant Sign Painter

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $35.67
Supplemental Benefit Rate per Hour: $18.47

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Double time the regular rate for work on the following holiday(s).

Paid Holidays

New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Vacation

At least 1 year of employment.....1 week
2 years or more of employment.....2 weeks
8 years or more of employment.....3 weeks

(Local #8A-28A)

PAINTER - STRUCTURAL STEEL

Painters on Structural Steel

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.50
Supplemental Benefit Rate per Hour: $41.83

Painter - Power Tool

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.50
Supplemental Benefit Rate per Hour: $41.83
Overtime Wage Rate: $6.00 above the "Painters on Structural Steel" overtime rate.

Overtime Description

Supplemental Benefits shall be paid for each hour worked, up to forty (40) hours per week for the period of May 1st to November 15th or up to fifty (50) hours per week for the period of November 16th to April 30th.

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Regular hourly rates plus a ten per cent (10%) differential

(Local #806)

PAPERHANGER

Paperhanger

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.40
Supplemental Benefit Rate per Hour: $34.74
Supplemental Note: Supplemental benefits are to be paid at the appropriate straight time and overtime rate.

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.

(District Council of Painters #9)

PAVER AND ROADBUILDER

Paver & Roadbuilder - Formsetter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.85
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Paver & Roadbuilder - Laborer

Paving and road construction work, regardless of material used, including but not limited to preparation of job sites, removal of old surfaces, asphalt and/or concrete, by whatever method, including but not limited to milling; laying of concrete; laying of asphalt for temporary, patchwork, and utility paving (but not production paving); site preparation and incidental work for installation of rubberized materials and similar surfaces; installation and repair of temporary construction fencing; slurry/seal coating, paving stones, maintenance of safety surfaces; play equipment installation, and other related work.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.98
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Production Paver & Roadbuilder - Screed Person

(Production paving is asphalt paving when using a paving machine or on a project where a paving machine is traditionally used)

Adjustment of paving machinery on production paving jobs.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.45
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Production Paver & Roadbuilder - Raker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.85
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Production Paver & Roadbuilder - Shoveler

General laborer (except removal of surfaces - see Paver and Roadbuilder-Laborer) including but not limited to tamper, AC paint and liquid tar work.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.98
Supplemental Benefit Rate per Hour: $44.86
Supplemental Note: For time and one half overtime - $48.74 For double overtime - $52.61

Overtime Description
If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.

For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay.

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day

Paid Holidays
Memorial Day
Independence Day
Labor Day
Thanksgiving Day

Shift Rates
When two shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three shifts are employed, each shift will work seven and one half (7 ½) hours but will be paid for eight (8) hours since only one half (1/2) hour is allowed for meal time.
When two or more shifts are employed, single time will be paid for each shift.

Night Work - On night work, the first eight (8) hours of work will be paid for at the single time rate, except that production paving work shall be paid at 10% over the single time rate for the screed person, rakers and shovelers directly involved only. This differential is to be paid when there is only one shift and the shift works at night. All other workers will be exempt. Hours worked over eight (8) hours during said shift shall be paid for at the time and one-half rate.

(Local #1010)

PLASTERER

Plasterer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.93
Supplemental Benefit Rate per Hour: $26.52

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
When it is not possible to conduct work during regular working hours (between 6:30am and 4:30pm), a shift differential shall be paid at the regular hourly rate plus a twelve per cent (12%) per hour differential. Workers on shift work shall be allowed a paid one-half hour meal break.

(Local #262)

PLASTERER - TENDER

Plasterer - Tender

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.40
Supplemental Benefit Rate per Hour: $31.04

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
When work commences outside regular work hours, workers receive an hour additional (differential) wage and supplement payment. Eight hours pay for seven hours work or nine hours pay for eight hours work.

(Mason Tenders District Council)

PLUMBER

Plumber

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $69.00
Supplemental Benefit Rate per Hour: $37.20
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Plumber - Temporary Services

Temporary Services - When there are no Plumbers on the job site, there may be three shifts designed to cover the entire twenty-four hour period, including weekends if necessary, at the following rate straight time.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.28
Supplemental Benefit Rate per Hour: $29.68

Overtime Description
Double time the regular rate after a 7 hour day - unless for new construction site work where the plumbing contract price is $1.5 million or less, the hours of labor can be 8 hours per day at the employers option. On Alteration jobs when other mechanical trades at the site are working an eighth hour at straight time, then the plumber shall also work an eighth hour at straight time.

Overtime
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Shift work, when directly specified in public agency or authority documents where plumbing contract is $8 million or less, will be permitted. 30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER (MECHNICAL EQUIPMENT AND SERVICE)
(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

Plumber

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.05
Supplemental Benefit Rate per Hour: $17.71

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

(Plumbers Local # 1)

PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.89
Supplemental Benefit Rate per Hour: $26.74

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
30% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shifts Monday to Friday. 50% shift premium shall be paid for wages and fringe benefits for 4:00 pm and midnight shift work performed on weekends. For shift work on holidays, double time wages and fringe benefits shall be paid.

(Plumbers Local #1)

PLUMBER: PUMP & TANK
Oil Trades (Installation and Maintenance)

Plumber - Pump & Tank

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $67.45
Supplemental Benefit Rate per Hour: $25.26

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
All work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER
(Exterior Building Renovation)

Journeyperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.42
Supplemental Benefit Rate per Hour: $26.52

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

ROOFER

Roofer

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.50
Supplemental Benefit Rate per Hour: $33.81

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays
Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Second shift - Regular hourly rate plus a 10% differential. Third shift - Regular hourly rate plus a 15% differential.

(Local #8)

SHEET METAL WORKER

Sheet Metal Worker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.15
Supplemental Benefit Rate per Hour: $50.55
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Sheet Metal Worker - Fan Maintenance

(The temporary operation of fans or blowers in new or existing buildings for heating and/or ventilation, and/or air conditioning prior to the completion of the project.)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $40.12
Supplemental Benefit Rate per Hour: $50.55

Sheet Metal Worker - Duct Cleaner

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $16.08
Supplemental Benefit Rate per Hour: $11.63

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Work that can only be performed outside regular working hours (eight hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate. Second shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

For Fan Maintenance: On all full shifts of fan maintenance work the straight time hourly rate of pay will be paid for each shift, including nights, Saturdays, Sundays, and holidays.

(Local #28

SHEET METAL WORKER - SPECIALTY
(Decking & Siding)

Sheet Metal Specialty Worker

The first worker to perform this work must be paid at the rate of the Sheet Metal Worker. The second and third workers shall be paid the Specialty Worker Rate. The ratio of One Sheet Metal Worker, then Two Specialty Workers shall be utilized thereafter.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $46.30
Supplemental Benefit Rate per Hour: $25.95
Supplemental Note: Supplemental benefit contributions are to be made at the applicable overtime rates.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day

Paid Holidays

None

(Local #28)

SHIPYARD WORKER

Shipyard Mechanic - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.50
Supplemental Benefit Rate per Hour: $3.95

Shipyard Mechanic - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.07
Supplemental Benefit Rate per Hour: $3.59

Shipyard Laborer - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.40
Supplemental Benefit Rate per Hour: $3.75

Shipyard Laborer - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.38
Supplemental Benefit Rate per Hour: $3.52

Shipyard Dockhand - First Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.57
Supplemental Benefit Rate per Hour: $3.68

Shipyard Dockhand - Second Class

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.28
Supplemental Benefit Rate per Hour: $3.52

Overtime Description

Work performed on holiday is paid double time the regular hourly wage rate plus holiday pay.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays

New Year's Day
Martin Luther King Jr. Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Based on Survey Data

SIGN ERECTOR
(Sheet Metal, Plastic, Electric, and Neon)

Sign Erector

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $49.35
Supplemental Benefit Rate per Hour: $54.63

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.
Time and one half the regular rate for work on the following holiday(s).

Paid Holidays
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Time and one half the regular hourly rate is to be paid for all hours worked outside the regular workday either (7:00 A.M. through 2:30 P.M.) or (8:00 A.M. through 3:30 P.M.)

(Local #137)

STEAMFITTER

Steamfitter I

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $57.50
Supplemental Benefit Rate per Hour: $57.29
Supplemental Note: Overtime supplemental benefit rate: $113.84

Steamfitter -Temporary Services

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.70
Supplemental Benefit Rate per Hour: $46.54

Overtime
Double time the regular rate after a 7 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
Work performed between 3:30 P.M. and 7:00 A.M. and on Saturdays, Sundays and Holidays shall be at double time the regular hourly rate and paid at the overtime supplemental benefit rate above.

Steamfitter II

For heating, ventilation, air conditioning and mechanical public work contracts with a dollar value not to exceed $30,000,000 and for fire protection/sprinkler public work contracts not to exceed $3,000,000.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $57.50
Supplemental Benefit Rate per Hour: $57.29
Supplemental Note: Overtime supplemental benefit rate: $113.84

Steamfitter -Temporary Services

The steamfitters shall not do any other work and shall not be permitted to work more than one shift in a twenty-four hour day. When steamfitters are present during the regular working day, no temporary services steamfitter will be required.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $43.70
Supplemental Benefit Rate per Hour: $46.54

Overtime
Double time the regular rate after an 8 hour day.
Double time the regular time rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays
None

Shift Rates
May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a 15% percent premium on wage and 15% percent premium on supplemental benefits.

On Transit Authority projects, where work is performed in the vicinity of tracks all shift work on weekends and holidays may be performed at the regular shift rates.

Local #638

STEAMFITTER - REFRIGERATION AND AIR CONDITIONER
(Maintenance and Installation Service Person)

Refrigeration and Air Conditioner Mechanic

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.35
Supplemental Benefit Rate per Hour: $17.46

Refrigeration and Air Conditioner Service Person V

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.80
Supplemental Benefit Rate per Hour: $15.59

Refrigeration and Air Conditioner Service Person IV

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.83
Supplemental Benefit Rate per Hour: $14.05

Refrigeration and Air Conditioner Service Person III

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.74
Supplemental Benefit Rate per Hour: $12.91

Refrigeration and Air Conditioner Service Person II

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $20.51
Supplemental Benefit Rate per Hour: $11.83

Refrigeration and Air Conditioner Service Person I

Filter changing and maintenance thereof, oil and greasing, tower and coil cleaning, scraping and painting, general housekeeping, taking of water samples.

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $15.01
Supplemental Benefit Rate per Hour: $10.60

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
Independence Day
Labor Day
Veteran's Day
Thanksgiving Day
Christmas Day

Double time and one half the regular rate for work on the following holiday(s).
Martin Luther King Jr. Day
President's Day
Memorial Day
Columbus Day

Paid Holidays

New Year's Day
Martin Luther King Jr. Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Christmas Day

(Local #638B)

STONE MASON - SETTER

Stone Mason - Setter

(Assisted by Derrickperson and Rigger)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.17
Supplemental Benefit Rate per Hour: $42.65

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day

Washington's Birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

Paid Holidays

1/2 day on Christmas Eve if work is performed in the A.M.

Shift Rates

For all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

TAPER

Drywall Taper

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.82
Supplemental Benefit Rate per Hour: $26.81

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Martin Luther King Jr. Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day
Christmas Day

Paid Holidays

Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.

(Local #1974)

TELECOMMUNICATION WORKER

(Install/maintain/repair telecommunications cables carrying data, video, and/or voice except for installation on building construction/alteration/renovation projects.)

Telecommunication Worker

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $44.75
Supplemental Benefit Rate per Hour: $23.15
Supplemental Note: The above rate applies for Manhattan, Bronx, Brooklyn, Queens. $22.84 for Staten Island only.

Overtime

Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Time and one half the regular rate for Sunday.

Overtime Holidays

Time and one half the regular rate for work on the following holiday(s).
New Year's Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Paid Holidays

New Year's Day
Lincoln's Birthday
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

Employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday

Shift Rates

For any workday that starts before 8A.M. or ends after 6P.M. there is a 10% differential for the applicable worker's hourly rate.

Vacation

After 6 months.....one week.
After 12 months but less than 7 years.....two weeks.
After 7 or more but less than 15 years.....three weeks.
After 15 years or more but less than 25 years.....four weeks.

(C.W.A.)

TILE FINISHER

Tile Finisher

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $42.72
Supplemental Benefit Rate per Hour: $33.57

Overtime

Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays

Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Paid Holidays

None

Shift Rates

Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

TILE LAYER - SETTER

Tile Layer - Setter

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $54.84
Supplemental Benefit Rate per Hour: $38.32

Overtime
Time and one half the regular rate after a 7 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veteran's Day
Thanksgiving Day
Day after Thanksgiving
Christmas Day

Shift Rates
Off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

TIMBERPERSON

Timberperson

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.05
Supplemental Benefit Rate per Hour: $51.03

Overtime
Time and one half the regular rate after an 8 hour day.
Time and one half the regular rate for Saturday.
Double time the regular rate for Sunday.
Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
Time and one half the regular hourly rate after 40 hours in any work week.

Overtime Holidays
Double time the regular rate for work on the following holiday(s).
New Year's Day
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Presidential Election Day
Thanksgiving Day
Christmas Day

Paid Holidays
None

Shift Rates
Off shift work commencing between 5:00 P.M. and 11:00 P.M. shall work eight and one half hours allowing for one half hour for lunch. The wage rate shall be 113% of the straight time hourly wage rate.

(Local #1536)

TUNNEL WORKER

Blasters, Mucking Machine Operators (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $65.42
Supplemental Benefit Rate per Hour: $56.42

Tunnel Workers (Compressed Air Rates)

Includes shield driven liner plate portions or solidification portions work (8 hour shift) during excavation phase.

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate per Hour: $63.21
Supplemental Benefit Rate per Hour: $54.60

Top Nipper (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $62.02
Supplemental Benefit Rate per Hour: $53.57

Outside Lock Tender, Outside Gauge Tender,Muck Lock Tender (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $52.63

Bottom Bell & Top Bell Signal Person: Shaft Person (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $60.84
Supplemental Benefit Rate per Hour: $52.63

Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $53.40
Supplemental Benefit Rate per Hour: $49.60

Blasters (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $62.41
Supplemental Benefit Rate per Hour: $54.17

Tunnel Workers (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $59.72
Supplemental Benefit Rate per Hour: $51.89

All Others (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $55.18
Supplemental Benefit Rate per Hour: $48.03

Microtunneling (Free Air Rates)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $47.78
Supplemental Benefit Rate per Hour: $41.51

Overtime Description

For work performed during excavation and primary concrete tunnel lining phases - Double time the regular rate after an 8 hour day and Saturday, Sunday and on the following holiday(s) listed below.
For Repair-Maintenance Work on Existing Equipment and Facilities - Time and one half the regular rate after a 7 hour day, Saturday, Sunday and double time the regular rate for work on the following holiday(s) listed below.
For Small-Bore Micro Tunneling Machines - Time and one-half the regular rate shall be paid for all overtime.
For work not listed above - Time and one half the regular rate after an 8 hour day and Saturday and double time the regular rate on Sunday and on the following holiday(s) listed below.

Paid Holidays

New Year's Day
Lincoln's Birthday
President's Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Election Day
Veteran's Day
Thanksgiving Day
Christmas Day

(Local #147)

UTILITY LOCATOR
(Locate & mark underground utilities for street excavation.)

Utility Locator (Year 7 and above)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.56
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 5 - 6)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.85
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 4)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.54
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 3)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $20.30
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 2)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.13
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Year 1)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $18.04
Supplemental Benefit Rate per Hour: $1.93

Utility Locator (Up to 1 year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.00
Supplemental Benefit Rate per Hour: $1.93
Supplemental Note: No benefits for the first 90 days of employment.

Overtime
Time and one half the regular rate for work on the following Paid Holiday(s).
Time and one half the regular hourly rate after 40 hours in any work week.

Paid Holidays
New Year's Day
Memorial Day
Independence Day
Thanksgiving Day
Christmas Day

Shift Rates
10% shift differential to employees working any shift starting between noon and 5 AM.

Vacation
For up to 1 year ..... 0 hours
For year 1 - 2 ..... 48 hours per year
For year 3 - 9 ..... 96 hours per year
For year 10 or more ..... 144 hours per year

Sick Days:
For up to 1 year employee receives 40 hours paid sick leave.
For year 1 employee earns 2 hours of paid sick leave for every 100 overtime hours worked.
For year 2 - 9 years employee earns 4 hours of paid sick leave for every 100 overtime hours worked.
For year 10 or more employee earns 6 hours of paid sick leave for every 100 overtime hours worked.

(C.W.A.)

WELDER
TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE PERFORMING THE WORK.

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

CONSTRUCTION APPRENTICE PREVAILING WAGE SCHEDULE

Pursuant to Labor Law § 220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant and registered with the New York State Department of Labor, may be paid at the apprentice rates in this schedule. Apprentices who are not so registered must be paid as journey persons in accordance with the trade classification of the work they actually performed.

Apprentice ratios are established to ensure the proper safety, training and supervision of apprentices. A ratio establishes the number of journey workers required for each apprentice in a program and on a job site. Ratios are interpreted as follows: in the case of a 1:1, 1:4 ratio, there must be one journey worker for the first apprentice, and four additional journey workers for each subsequent apprentice.

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BOILERMAKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Boilermaker (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $31.76

Boilermaker (Second Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $33.59

Boilermaker (Second Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $35.43

Boilermaker (Third Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $37.25

Boilermaker (Third Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $39.08

Boilermaker (Fourth Year: 1st Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $40.93

Boilermaker (Fourth Year: 2nd Six Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $42.75

(Local #5)

BRICKLAYER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Bricklayer (First 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Second 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Third 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Fourth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Fifth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

Bricklayer (Sixth 750 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.61

(Bricklayer District Council)

CARPENTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Carpenter (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

Carpenter (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

Carpenter (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

Carpenter (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour For Building Apprentice: $31.44
Supplemental Benefit Rate Per Hour For Heavy Apprentice: $33.49

(Carpenters District Council)

CARPENTER - HIGH RISE CONCRETE FORMS
(Ratio of Apprentice to Journeyperson: 1 to 1, 2 to 5)

Carpenter - High Rise (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.52
Supplemental Benefit Rate per Hour: $16.30

Carpenter - High Rise (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.95
Supplemental Benefit Rate per Hour: $16.43

Carpenter - High Rise (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.53
Supplemental Benefit Rate per Hour: $16.56

Carpenter - High Rise (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.15
Supplemental Benefit Rate per Hour: $16.71

(Carpenters District Council)

CEMENT MASON
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cement Mason (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's Rate

Cement Mason (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's Rate

Cement Mason (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's Rate

(Local #780)

CEMENT AND CONCRETE WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Cement & Concrete Worker (First 1333 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.00

Cement & Concrete Worker (Second 1333 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $25.45

Cement & Concrete Worker (Last 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $26.95

Cement & Concrete Worker (Hired after 2/6/2016 - First 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 53% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.04

Cement & Concrete Worker (Hired after 2/6/2016 - Second 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 69% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $18.97

Cement & Concrete Worker (Hired after 2/6/2016 - Last 1334 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 85% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.05

(Cement Concrete Workers District Council)

DERRICKPERSON & RIGGER (STONE)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Derrickperson & Rigger (stone) - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 50% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

Derrickperson & Rigger (stone) - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate

(Local #197)

DOCKBUILDER/PILE DRIVER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Dockbuilder/Pile Driver (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

Dockbuilder/Pile Driver (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

Dockbuilder/Pile Driver (Third Year)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

Dockbuilder/Pile Driver (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $34.12

(Carpenters District Council)

ELECTRICIAN
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Electrician (First Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $15.75
Supplemental Benefit Rate per Hour: $14.03
Overtime Supplemental Rate Per Hour: $15.07

Electrician (First Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $16.25
Supplemental Benefit Rate per Hour: $14.28
Overtime Supplemental Rate Per Hour: $15.36

Electrician (Second Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.25
Supplemental Benefit Rate per Hour: $14.79
Overtime Supplemental Rate Per Hour: $15.94

Electrician (Second Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $18.25
Supplemental Benefit Rate per Hour: $15.30
Overtime Supplemental Rate Per Hour: $16.51

Electrician (Third Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.25
Supplemental Benefit Rate per Hour: $15.81
Overtime Supplemental Rate Per Hour: $17.09

Electrician (Third Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $20.25
Supplemental Benefit Rate per Hour: $16.32
Overtime Supplemental Rate Per Hour: $17.67

Electrician (Fourth Term: 0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.25
Supplemental Benefit Rate per Hour: $16.83
Overtime Supplemental Rate Per Hour: $18.24

Electrician (Fourth Term: 7-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.25
Supplemental Benefit Rate per Hour: $17.85
Overtime Supplemental Rate Per Hour: $19.39

Electrician (Fifth Term: 0-12 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.50
Supplemental Benefit Rate per Hour: $21.07
Overtime Supplemental Rate Per Hour: $22.62

Electrician (Fifth Term: 13-18 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.00
Supplemental Benefit Rate per Hour: $23.43
Overtime Supplemental Rate Per Hour: $25.26

Overtime Description

Overtime Wage paid at time and one half the regular rate

(Local #3)

ELEVATOR CONSTRUCTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator (Constructor) - First Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $31.52

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $32.14

Elevator (Constructor) - Second Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $32.03

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $32.67

Elevator (Constructor) - Third Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.06

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.74

Elevator (Constructor) - Fourth Year

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $34.08

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $34.80

(Local #1)

ELEVATOR REPAIR & MAINTENANCE
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Elevator Service/Modernization Mechanic (First Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $31.47

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.09

Elevator Service/Modernization Mechanic (Second Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $31.98

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.62

Elevator Service/Modernization Mechanic (Third Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $32.99

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Benefit Per Hour: $33.67

Elevator Service/Modernization Mechanic (Fourth Year)

Effective Period: 7/1/2019 - 3/16/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.01

Effective Period: 3/17/2020 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Per Hour: $34.73

(Local #1)

ENGINEER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Engineer - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.38
Supplemental Benefit Rate per Hour: $26.69

Engineer - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $31.72
Supplemental Benefit Rate per Hour: $26.69

Engineer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.89
Supplemental Benefit Rate per Hour: $26.69

Engineer - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $38.06
Supplemental Benefit Rate per Hour: $26.69

(Local #15)

ENGINEER - OPERATING
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 5)

Operating Engineer - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour 40% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

Operating Engineer - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's Rate

Supplemental Benefit Per Hour: $22.45

Operating Engineer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's Rate
Supplemental Benefit Per Hour: $22.45

(Local #14)

FLOOR COVERER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Floor Coverer (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

Floor Coverer (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

Floor Coverer (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

Floor Coverer (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $31.24

(Carpenters District Council)

GLAZIER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Glazier (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Glazier (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Glazier (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Glazier (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1281)

HAZARDOUS MATERIAL HANDLER
(Ratio of Apprentice Journeyperson: 1 to 1, 1 to 3)

Handler (First 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 78% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Second 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Third 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 83% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

Handler (Fourth 1000 Hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 89% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $14.25

(Local #78)

HEAT & FROST INSULATOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Heat & Frost Insulator (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 35% of Journeyperson's rate

Heat & Frost Insulator (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Heat & Frost Insulator (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Heat & Frost Insulator (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

(Local #12)

HOUSE WRECKER
(TOTAL DEMOLITION)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

House Wrecker - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.17
Supplemental Benefit Rate per Hour: $19.09

House Wrecker - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.32
Supplemental Benefit Rate per Hour: $19.09

House Wrecker - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.97
Supplemental Benefit Rate per Hour: $19.09

House Wrecker - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.53
Supplemental Benefit Rate per Hour: $19.09

(Mason Tenders District Council)

IRON WORKER - ORNAMENTAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Iron Worker (Ornamental) - 1st Ten Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $40.20

Iron Worker (Ornamental) - 11 -16 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $41.44

Iron Worker (Ornamental) - 17 - 22 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $42.68

Iron Worker (Ornamental) - 23 - 28 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $45.17

Iron Worker (Ornamental) - 29 - 36 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $47.65

(Local #580)

IRON WORKER - STRUCTURAL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Iron Worker (Structural) - 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.62
Supplemental Benefit Rate per Hour: $53.09

Iron Worker (Structural) - 7- 18 Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.22
Supplemental Benefit Rate per Hour: $53.09

Iron Worker (Structural) - 19 - 36 months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.83
Supplemental Benefit Rate per Hour: $53.09

(Local #40 and #361)

LABORER (FOUNDATION, CONCRETE, EXCAVATING, STREET PIPE LAYER & COMMON)

(Ratio Apprentice to Journeyperson: 1 to 1, 1 to 3)

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - First 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Second 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Third 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

Laborer (Foundation, Concrete, Excavating, Street Pipe Layer & Common) - Fourth 1000 hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: $44.48

(Local #731)

MARBLE MECHANICS

(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Cutters & Setters - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Cutters & Setters - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate

Cutters & Setters - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Cutters & Setters - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Cutters & Setters - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Cutters & Setters - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Cutters & Setters - Seventh 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

Cutters & Setters - Eighth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Cutters & Setters - Ninth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Cutters & Setters - Tenth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

Polishers & Finishers - First 900 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST TWO MONTHS (PROBATIONARY PERIOD)

Polishers & Finishers - Second 900 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

Polishers & Finishers - Third 900 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 90% of Journeyperson's rate

(Local #7)

MASON TENDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Mason Tender - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.39
Supplemental Benefit Rate per Hour: $19.90

Mason Tender - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.54
Supplemental Benefit Rate per Hour: $19.90

Mason Tender - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.29
Supplemental Benefit Rate per Hour: $19.90

Mason Tender - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.95
Supplemental Benefit Rate per Hour: $19.90

(Local #79)

METALLIC LATHER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Metallic Lather (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $23.04
Supplemental Benefit Rate per Hour: $20.00

Metallic Lather (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.38
Supplemental Benefit Rate per Hour: $20.66

Metallic Lather (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.68
Supplemental Benefit Rate per Hour: $21.32

Metallic Lather (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $37.18
Supplemental Benefit Rate per Hour: $21.82

(Local #46)

MILLWRIGHT
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Millwright (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.16
Supplemental Benefit Rate per Hour: $34.66

Millwright (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.46
Supplemental Benefit Rate per Hour: $38.31

Millwright (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $39.76
Supplemental Benefit Rate per Hour: $42.61

Millwright (Fourth Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $50.36
Supplemental Benefit Rate per Hour: $49.27

(Local #740)

PAINTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Painter - Brush & Roller - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $17.20
Supplemental Benefit Rate per Hour: $15.05

Painter - Brush & Roller - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.50
Supplemental Benefit Rate per Hour: $19.39

Painter - Brush & Roller - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $25.80
Supplemental Benefit Rate per Hour: $22.79

Painter - Brush & Roller - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.40
Supplemental Benefit Rate per Hour: $29.16

(District Council of Painters)

PAINTER - METAL POLISHER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Metal Polisher (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $13.00
Supplemental Benefit Rate per Hour: $5.13

Metal Polisher (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $13.00
Supplemental Benefit Rate per Hour: $5.13

Metal Polisher (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $15.75
Supplemental Benefit Rate per Hour: $5.13

(Local 8A-28)

PAINTER - STRUCTURAL STEEL
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Painters - Structural Steel (First Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Painters - Structural Steel (Second Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Painters - Structural Steel (Third Year)

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #806)

PAVER AND ROADBUILDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Paver and Roadbuilder - First Year (Minimum 1000 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $28.86
Supplemental Benefit Rate per Hour: $21.40

Paver and Roadbuilder - Second Year (Minimum 1000 hours)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $30.50
Supplemental Benefit Rate per Hour: $21.40

(Local #1010)

PLASTERER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plasterer - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $13.88

Plasterer - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $14.36

Plasterer - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $16.44

Plasterer - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $17.53

Plasterer - Third Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $19.72

Plasterer - Third Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $20.81

(Local #530)

PLASTERER - TENDER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plasterer Tender - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $21.39
Supplemental Benefit Rate per Hour: $19.90

Plasterer Tender - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $22.54
Supplemental Benefit Rate per Hour: $19.90

Plasterer Tender - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $24.29
Supplemental Benefit Rate per Hour: $19.90

Plasterer Tender - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.95
Supplemental Benefit Rate per Hour: $19.90

(Local #79)

PLUMBER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Plumber - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $16.28
Supplemental Benefit Rate per Hour: $5.43

Plumber - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $19.28
Supplemental Benefit Rate per Hour: $6.43

Plumber - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $27.23
Supplemental Benefit Rate per Hour: $19.80

Plumber - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.33
Supplemental Benefit Rate per Hour: $19.80

Plumber - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $32.18
Supplemental Benefit Rate per Hour: $19.80

Plumber - Fifth Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $33.58
Supplemental Benefit Rate per Hour: $19.80

Plumber - Fifth Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $45.65
Supplemental Benefit Rate per Hour: $19.80

(Plumbers Local #1)

POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER

(Exterior Building Renovation)
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $26.36
Supplemental Benefit Rate per Hour: $14.00

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $29.42
Supplemental Benefit Rate per Hour: $18.97

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $34.80
Supplemental Benefit Rate per Hour: $21.72

Pointer, Waterproofer, Caulker, Sandblaster, Steamblaster - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate per Hour: $41.93
Supplemental Benefit Rate per Hour: $22.72

(Bricklayer District Council)

ROOFER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2)

Roofer - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $3.36

Roofer - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $16.92

Roofer - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $20.29

Roofer - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Benefit Rate Per Hour: $25.37

(Local #8)

SHEET METAL WORKER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Sheet Metal Worker (0-6 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 25% of Journeyperson's rate
Supplemental Rate Per Hour: $6.51

Sheet Metal Worker (7-18 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $18.57

Sheet Metal Worker (19-30 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $25.40

Sheet Metal Worker (31-36 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $29.95

Sheet Metal Worker (37-42 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $29.95

Sheet Metal Worker (43-48 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $36.83

Sheet Metal Worker (49-54 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $36.83

Sheet Metal Worker (55-60 Months)

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $41.42

(Local #28)

SIGN ERECTOR
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Sign Erector - First Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 35% of Journeyperson's rate
Supplemental Rate Per Hour: $15.75

Sign Erector - First Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $17.86

Sign Erector - Second Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 45% of Journeyperson's rate
Supplemental Rate Per Hour: $19.98

Sign Erector - Second Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $22.12

Sign Erector - Third Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 55% of Journeyperson's rate
Supplemental Rate Per Hour: $29.92

Sign Erector - Third Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: $32.56

Sign Erector - Fourth Year: 1st Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $35.92

Sign Erector - Fourth Year: 2nd Six Months

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: $38.65

Sign Erector - Fifth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 75% of Journeyperson's rate
Supplemental Rate Per Hour: $41.33

Sign Erector - Sixth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $44.01

(Local #137)

STEAMFITTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)

Steamfitter - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate

Steamfitter - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.

Steamfitter - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate per Hour: 65% of Journeyperson's rate.

Steamfitter - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.

Steamfitter - Fifth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate and Supplemental Rate Per Hour: 85% of Journeyperson's rate.

(Local #638)

STONE MASON - SETTER
(Ratio Apprentice of Journeyperson: 1 to 1, 1 to 2)

Stone Mason - Setters - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 60% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 70% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 90% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

Stone Mason - Setters - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 100% of Journeyperson's rate
Supplemental Rate Per Hour: 50% of Journeyperson's rate

(Bricklayers District Council)

TAPER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Drywall Taper - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate

Drywall Taper - Second Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate

Drywall Taper - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate

(Local #1974)

TILE LAYER - SETTER
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

Tile Layer - Setter - First 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate

Tile Layer - Setter - Second 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate

Tile Layer - Setter - Third 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate

Tile Layer - Setter - Fourth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate

Tile Layer - Setter - Fifth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate

Tile Layer - Setter - Sixth 750 Hours

Effective Period: 7/1/2019 - 6/30/2020
Wage and Supplemental Rate Per Hour: 95% of Journeyperson's rate

(Local #7)

TIMBERPERSON
(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

Timberperson - First Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 40% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

Timberperson - Second Year

Effective Period: 7/1/2019 - 6/30/2020

Wage Rate Per Hour: 50% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

Timberperson - Third Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 65% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

Timberperson - Fourth Year

Effective Period: 7/1/2019 - 6/30/2020
Wage Rate Per Hour: 80% of Journeyperson's rate
Supplemental Rate Per Hour: $33.76

(Local #1536)

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1120
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-3622
FAX NUMBER: (212) 669-8499

Leonard A. Mancusi
SENIOR ASSISTANT COMPTROLLER

ALAN G. HEVESI
COMPTROLLER

MEMORANDUM

November 6, 2000

To ***Agency Chief Contracting Officers***

From: ***Leonard A. Mancusi***

Re: ***Security at Construction Sites***

Prior to the enactment of Administrative Code §6-109, security guards on construction sites were not subject to prevailing wages. Security guards under the New York State labor law are covered under §230 which provides that prevailing wages are to be paid for security guards in existing buildings. §6-109 of the Administrative Code which was enacted in 1996 closed this loophole by including all security guards working pursuant to a city contract as a prevailing wage trade.

Although some construction contract boilerplate language has been amended to include §6-109, sub-contractors performing security services have advised us that they were not aware of this provision and, since traditionally, security guards were not a covered trade on construction sites, and they were not advised by a prime contractor that they would have to pay prevailing wages, they have not been doing so.

To avoid the possibility of issuing stop payments against prime contractors for the failure of their security service sub-contractors to pay

prevailing wages, we suggest that you write to all your existing security guard sub-contractors and their primes and in the future, upon approval of a security guard sub-contractor, advise the contractors of their obligation to pay prevailing wages under §6-109 of the Administrative Code.

As always, your cooperation is appreciated.

LAM:er
ACCO.SECURITY AT SITES

Department of Design and Construction

DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

VOLUME 2 OF 3

_____

Contractor

_____

Dated_____, 20___

_____

APPROVED AS TO FORM
CERTIFIED AS TO LEGAL AUTHORITY

_____

Acting Corporation Counsel

_____

Dated_____, 20___

Department of Design and Construction

DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

VOLUME 2 OF 3

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

FOR THE CONSTRUCTION OF STORMWATER INFRASTRUCTURE, SANITARY SEWERS, FORCE MAIN, LEACHATE WALL PENETRATION INFRASTRUCTURE, AND PILING.

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

Perfetto Contracting Co., Inc.
Contractor

8/20/2019
cep

Dated January 17th, 20 20

APPROVED AS TO FORM
CERTIFIED AS TO LEGAL AUTHORITY

Acting Corporation Counsel

Dated August 20, 20 19

Department of Design and Construction

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY, 11101
TEL: 718.391.1000
WEB: www.nyc.gov/ddc

TO BE FILLED IN BY THE BIDDER:

BIDDER'S NAME:

_____

_____

BID SECURITY (CIRCLE ONE):
BID BOND / CERTIFIED CHECK

NUMBER OF ADDENDUMS RECEIVED AND ATTACHED TO BID:
____ ADDENDUMS

DDC CLIENT AGENCY:
NEW YORK CITY DEPARTMENT OF SANITATION
PREPARED BY:
TEN ARQUITECTOS
DATE PREPARED:
08/02/2019

VOLUME 3 OF 3
BID BOOKLET

FOR FURNISHING ALL LABOR AND MATERIALS NECESSARY AND REQUIRED FOR:

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1

FOR THE CONSTRUCTION OF STORMWATER INFRASTRUCTURE, SANITARY SEWERS, FORCE MAIN, LEACHATE WALL PENETRATION INFRASTRUCTURE, AND PILING.

TOGETHER WITH ALL WORK INCIDENTAL THERETO

BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

VOLUME 3 OF 3

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(NO TEXT ON THIS PAGE)

SPECIFICATIONS AND STANDARDS OF NEW YORK CITY

The following New York City Department of Transportation (NYCDOT) reference documents are available online at: http://www1.nyc.gov/site/ddc/resources/publications.page or for purchase between 9:00 A.M. and 3:00 P.M. Bid Window, at 55 Water St., Ground Floor, NYC, N.Y. 10041. Tel. (212) 839-9435.

1. NYCDOT Standard Highway Specifications, August 1, 2015
2. NYCDOT Standard Highway Details of Construction, July 1, 2010
3. NYCDOT Division of Street Lighting Specifications
4. NYCDOT Division of Street Lighting Standard Drawings
5. NYCDOT Standard Specifications for Traffic Signals
6. NYCDOT Standard Drawings for Traffic Signals

The following reference documents for New York City Department of Environmental Protection (NYCDEP) are available online at: http://www1.nyc.gov/site/ddc/resources/publications.page or for pick up between 8:00 A.M. and 4:00 P.M. at 30-30 Thomson Avenue, 3rd Floor, Division of Infrastructure, Long Island City, N.Y. 11101.
Contact: Mr. Nader Soliman, Tel. (718) 391-1179

1. NYCDEP Standard Sewer and Water Main Specifications, July 1, 2014
2. NYCDEP Instructions for Concrete Specifications, Jan. 92
3. NYCDEP General Specification 11-Concrete, November 1991
4. NYCDEP Sewer Design Standards, (September 2007) Revised August 2018

The following reference documents for New York City Department of Environmental Protection (NYCDEP) are available online at: http://www1.nyc.gov/site/ddc/resources/publications.page or for pick up between 8:00 A.M. and 4:00 P.M. at 30-30 Thomson Avenue, 3rd Floor, Division of Infrastructure, Long Island City, N.Y. 11101.
Contact: Mr. Robert Kuhlmann, Tel. (718) 391-2145

1. NYCDEP Water Main Standard Drawings, November 2010
2. Specifications for Trunk Main Work, July 2014
3. Standard Design and Guidelines for Green Infrastructure Practices, latest version, available only online at: https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/green-infrastructure/green-infrastructure-standard-designs.pdf

Water main work material specifications are available at the Department of Environmental Protection, 59-17 Junction Boulevard, 3rd Floor Low-Rise Building, Flushing, N.Y. 11373-5108.
Contact: Mr. Tarlock Sahansra, P.E., Tel. (718) 595-5302
E-mail: TSAHANSRA@DEP.NYC.GOV

Standard Specifications and Drawings for New York City Fire Department Communications facilities of New York City are available online at https://www1.nyc.gov/assets/fdny/downloads/pdf/about/fdny-plant-operations-standard-drawings-specifications.pdf or for pick up from the FDNY Facilities Management Bureau, Plant Operations Engineering, 316 Sgt. Beers Avenue Cluster 1 Box 16, Fort Totten, N.Y. 11359.
Contact: Mr. Ed Durkin, Tel. (718) 281-3933

Tree Planting Standards of the City of New York Parks & Recreation are available at the following Department of Parks & Recreation website:
http://www.nycgovparks.org/pagefiles/53/Tree-Planting-Standards.pdf

SPECIFICATIONS AND STANDARDS OF PRIVATE UTILITIES

The Following reference document for Private Utility Work is available for pick up between 8:30 A.M. and 4:00 P.M. at 30-30 Thomson Avenue, First Floor Bid Procurement Room, L.I.C., N.Y. 11101.

1. CET SPECIFICATIONS AND SKETCHES dated November 2010.

SCHEDULE A

(GENERAL CONDITIONS TO CONSTRUCTION CONTRACT (INCLUDING GENERAL CONDITIONS RELATED TO ARTICLE 22 – INSURANCE)

PART I. REQUIRED INFORMATION

INFORMATION FOR BIDDERS SECTION 26 BID SECURITY The **Contractor** shall obtain a bid security in the amount indicated to the right.	Required provided the TOTAL BID PRICE set forth on the Bid Form is $1,000,000. or more. Certified Check: 2% of Bid Amount or Bond: 10% of Bid Amount
INFORMATION FOR BIDDERS SECTION 26 PERFORMANCE AND PAYMENT BONDS The **Contractor** shall obtain performance and payment bonds in the amount indicated to the right.	Required for contracts in the amount of $1,000,000 or more. Performance Security and Payment Security shall each be in an amount equal to 100% of the Contract Price.
INFORMATION FOR BIDDERS DEPARTMENT OF DESIGN AND CONSTRUCTION SAFETY REQUIREMENTS The **Contractor** shall provide the safety personnel as indicated to the right.	■ Project Safety Representative ☐ Dedicated, full-time Project Safety Manager
CONTRACT ARTICLE 14 DATE FOR SUBSTANTIAL COMPLETION The **Contractor** shall substantially complete the **Work** in the number of calendar days indicated to the right.	See Page SA-4
CONTRACT ARTICLE 15 LIQUIDATED DAMAGES If the **Contractor** fails to substantially complete the **Work** within the time fixed for substantial completion plus authorized time extensions or if the **Contractor**, in the sole determination of the **Commissioner**, has abandoned the **Work**, the **Contractor** shall pay to the **City** the amount indicated to the right.	$7,000. for each consecutive calendar day over substantial completion time
CONTRACT ARTICLE 17. SUB-CONTRACTOR The **Contractor** shall not make subcontracts totaling an amount more than the percentage of the total **Contract** price indicated to the right.	Not to exceed 49 % of the **Contract** price

CONTRACT ARTICLE 21. RETAINAGE The **Commissioner** shall deduct and retain until the substantial completion of the **Work** the percent value of the **Work** indicated to the right.	5 % of the value of the **Work**
CONTRACT ARTICLE 22. (Per Directions Below)	See pages SA-5 through SA-12
CONTRACT ARTICLE 24. DEPOSIT GUARANTEE As security for the faithful performance of its obligations, the **Contractor**, upon filing its requisition for payment on **Substantial Completion**, shall deposit with the **Commissioner** a sum equal to the percentage of the **Contract** price indicated to the right.	1% of **Contract** price
CONTRACT ARTICLE 24. PERIOD OF GUARANTEE Periods of maintenance and guarantee other than the period set forth in Article 24.1 are indicated to the right.	Eighteen (18) Months, excluding Trees Twenty-four (24) Months for Tree Planting
CONTRACT ARTICLE 74. STATEMENT OF WORK The **Contractor** shall furnish all labor and materials and perform all **Work** in strict accordance with the **Contract Drawings**, **Specifications,** and all **Addenda** thereto, as **shown in the column to the right.**	**Addenda**, numbered: 6
CONTRACT ARTICLE 75. COMPENSATION TO BE PAID TO CONTRACTOR The **City** shall pay and the **Contractor** shall accept in full consideration for the performance of the **Contract**, subject to additions and deductions as provided herein, the total sum **shown in the column to the right,** being the amount at which the **Contract** was awarded to the **Contractor** at a public letting thereof, based upon the **Contractor's** bid for the **Contract.**	Amount for which the **Contract** was Awarded: Fifteen Million, Four Hundred Ninety-Seven Thousand, Four Hundred Seventy-One Dollars ($15,497,471.00)
CONTRACT ARTICLE 79. PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT	See M/WBE Utilization Plan in the Bid Booklet

STANDARD HIGHWAY SPECIFICATIONS SECTION 6.40 LIQUIDATED DAMAGES FOR ENGINEER'S FIELD OFFICE If the Contractor fails to satisfactorily provide the field office and all equipment specified in **Section 6.40 - Engineer's Field Office**, and/or if a cited deficiency exceed seventy two (72) hours after notice from the Engineer in writing, or is permitted to recur, liquidated damages will be assessed in the amount specified herein for each subsequent calendar day or part thereof that a cited deficiency resulting in nonpayment, as described in **Section 6.40.5**, is not corrected.	$ 500.00 for each calendar day of deficiency
STANDARD HIGHWAY SPECIFICATIONS SECTION 6.70 LIQUIDATED DAMAGES FOR MAINTENANCE AND PROTECTION OF TRAFFIC	$ 250.00 for each instance of failure to comply with the Maintenance and Protection of Traffic requirements within three (3) hours after written notice from the Engineer. $ 500.00 for each and every hour of failing to open the entire width of roadway to traffic the morning following a night/weekend work operation.
STANDARD HIGHWAY SPECIFICATIONS SECTION 7.13 LIQUIDATED DAMAGES FOR MAINTENANCE OF SITE If the Contractor fails to comply, within three (3) consecutive hours after written notice from the Engineer, with the requirements of **Section 7.13 - Maintenance of Site**, the Contractor shall pay to the City of New York, until such notice has been complied with or rescinded, the sum specified above per calendar day, for each instance of such failure, as liquidated damages and not as a penalty, for such default.	$ 1,400.00 for each calendar day, for each occurrence

Date for Substantial Completion (Reference: Article 14)

The Contractor shall substantially complete the Work within the Final Contract Duration determined in accordance with the terms and conditions set forth herein.

The Base Contract Duration for this project is 365 consecutive calendar days ("ccds").

The Final Contract Duration shall be the Base Contract Duration when a check mark is indicated before the word "NO", below, and shall be the Base Contract Duration adjusted by the table set forth below when a check mark is indicated before the word "YES", below.

_____ YES __√__ NO

When the Final Contract Duration is indicated above to be adjusted by the table below, the table may increase the Base Contract Duration depending on the date of scheduled substantial completion to avoid a scheduled substantial completion of the Work during the winter months. The date of scheduled substantial completion shall be determined by adding the Base Contract Duration to the date specified to commence work in the written Notice to Proceed. The Final Contract Duration shall then be determined as follows:

(a) Find the row that corresponds to the month of substantial completion based on the Base Contract Duration added to the date specified to commence work in the written Notice to Proceed.

(b) Find the number of days to be added to the Base Contract Duration in the table below. Add that number of days to the Base Contract Duration to obtain the Final Contract Duration in consecutive calendar days.

Month of Substantial Completion based on the Base Contract Duration	Number of Days of adjustment
January	150
February	120
March	90
April	60
May	30
June	0
July	0
August	0
September	0
October	0
November –December 15	0
December 16 – December 31	180

In addition, should Item No. 9.30, "Storm Water Pollution Prevention," exist in the Contract and the required Storm Water Pollution Prevention Plan (SWPPP) does not conform to NYSDEC's recommended Standards, an additional 60 ccd shall be added to the above Final Contract Duration.

(GENERAL CONDITIONS RELATING TO ARTICLE 22 – INSURANCE)

PART II. TYPES OF INSURANCE, MINIMUM LIMITS AND SPECIAL CONDITIONS

Note: All certificate(s) of insurance submitted pursuant to Contract Article 22.3. 3 must be accompanied by a Certification by Broker consistent with Part III below and include the following information:

- **For each insurance policy, the name and NAIC number of issuing company, number of policy, and effective dates;**
- **Policy limits consistent with the requirements listed below;**
- **Additional insureds or loss payees consistent with the requirements listed below; and**
- **The number assigned to the Contract by the City (in the "Description of Operations" field).**

Insurance indicated by a blackened box (■) or by X in a □ to left will be required under this contract

Types of Insurance (per Article 22 in its entirety, including listed paragraph)	Minimum Limits and Special Conditions
■ Commercial General Liability Art. 22.1.1	The minimum limits shall be $ 3,000,000 per occurrence and $ 6,000,000 per project aggregate applicable to this **Contract.** Additional Insureds: 1. City of New York, including its officials and employees, with coverage at least as broad as ISO Form CG 20 10 and CG 20 37, 2. All person(s) or organization(s), if any, that Article 22.1.1(b) of the **Contract** requires to be named as Additional Insured(s), with coverage at least as broad as ISO Form CG 20 26. The Additional Insured endorsement shall either specify the entity's name, if known, or the entity's title (e.g., Project Manager), 3. CONSOLIDATED EDISON 4. VERIZON 5. NATIONAL GRID

■ Workers' Compensation Art. 22.1.2 ■ Disability Benefits Insurance Art. 22.1.2 ■ Employers' Liability Art. 22.1.2 ☐ Jones Act Art. 22.1.3 ☐ U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.3	Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction. **Note:** The following forms are acceptable: (1) New York State Workers' Compensation Board Form No. C-105.2, (2) State Insurance Fund Form No. U-26.3, (3) New York State Workers' Compensation Board Form No. DB-120.1 and (4) Request for WC/DB Exemption Form No. CE-200. The City will not accept an ACORD form as proof of Workers' Compensation or Disability Insurance. Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. Law. ☐ Additional Requirements:
■ Builders' Risk Art. 22.1.4	☐ Required: 100% of total bid amount ■ 100% of total value of Work, as specified in Article 22.1.4 Contractor the Named Insured; the City both an Additional Insured and one of the loss payees as its interests may appear. If the Work does not involve construction of a new building or gut renovation work, the Contractor may provide an installation floater in lieu of Builders Risk insurance. Note: Builders Risk Insurance may terminate upon Substantial Completion of the Work in its entirety

■ Commercial Auto Liability Art. 22.1.5	$ 2,000,000 per accident combined single limit If vehicles are used for transporting hazardous materials, the **Contractor** shall provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90 Additional Insureds: 1. CONSOLIDATED EDISON 2. VERIZON 3. NATIONAL GRID
☐Contractors Pollution Liability Art. 22.1.6	$ 5,000,000 per occurrence $ 5,000,000 aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
☐ Marine Protection and Indemnity Art. 22.1.7(a)	$_____ each occurrence $_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

☐ Hull and Machinery Insurance Art. 22.1.7(b)	$_____ per occurrence $_____ aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____
☐ Marine Pollution Liability Art. 22.1.7(c)	$ 1,000,000 per occurrence $ 1,000,000 aggregate Additional Insureds: 1. City of New York, including its officials and employees, and 2. _____ 3. _____

[OTHER] Art. 22.1.8 ☐ Railroad Protection Liability Policy (ISO-RIMA or equivalent form) approved by Permittor covering the work to be performed at the designated site and affording protection for damages arising out of bodily injury or death, physical damage to or destruction of property, including damage to the Insured's own property and conforming to the following: • Policy Endorsement CG 28 31 - Pollution Exclusion Amendment is required to be endorsed onto the policy when environmental-related work and/or exposures exist. • Indicate the Name and address of the Contractor to perform the work, the Contract # and the name of the railroad property where the work is being performed and the Agency Permit. • Evidence of Railroad Protective Liability Insurance, must be provided in the form of the Original Policy. A detailed Insurance Binder (ACORD or Manuscript Form) will be accepted pending issuance of the Original Policy, which must be provided within 30 days of the Binder Approval.	$ 2,000,000 per occurrence $ 6,000,000 annual aggregate Named Insureds: 1. New York City Transit Authority (NYCTA), the Manhattan and Bronx Surface Transit Operation Authority (MaBSTOA), the Staten Island Rapid Transit Operation Authority (SIRTOA), MTA Capital Construction Co., the Metropolitan Transportation Authority (MTA) including its subsidiaries and affiliates, and the City of New York (as Owner) and all other indemnified parties. 2. The AMTRAK, its subsidiaries and affiliated companies.

[OTHER] Art. 22.1.8

■ Professional Liability

A. The Contractor's Professional Engineer shall maintain and submit evidence of Professional Liability Insurance in the minimum amount of $1,000,000 per claim. The policy or policies shall include an endorsement to cover the liability assumed by the Contractor under this Contract arising out of the negligent performance of professional services or caused by an error, omission or negligent act of the Contractor's Professional Engineer or anyone employed by the Contractor's Professional Engineer.

B. Claims-made policies will be accepted for Professional Liability Insurance. All such policies shall have an extended reporting period option or automatic coverage of not less than two (2) years. If available as an option, the Contractor's Professional Engineer shall purchase extended reporting period coverage effective on cancellation or termination of such insurance unless a new policy is secured with a retroactive date, including at least the last policy year.

[OTHER] Art. 22.1.8 ■ Engineer's Field Office **Section 6.40, Standard Highway Specifications**	Fire insurance, extended coverage and vandalism, malicious mischief and burglary, and theft insurance coverage in the amount of $40,000

[OTHER] Art. 22.1.8

☐ The Following Additional Insurance Must Be Provided:

Umbrella/Excess Liability Insurance - The Contractor shall provide Umbrella/Excess Liability Insurance in the minimum amount of $10,000,000 per Occurrence and $10,000,000 in Aggregate. The policy terms and condition should be at least as broad as the underlying policies. The underlying policies should comply with the insurance provision as outlined by the contract. Defense cost should be in addition to the limit of liability. The City of New York, including its officials and employees, should be included as additional insured as respects to the noted project.

Per **Article 22.2.5** of the **Standard Construction Contract:** The Contractor may satisfy its insurance obligations as defined in this Schedule A through primary policies or a combination of primary and excess/umbrella policies, so long as all policies provide the scope of coverage required herein.

SCHEDULE A
(GENERAL CONDITIONS TO CONSTRUCTION CONTRACT)
(GENERAL CONDITIONS RELATING TO ARTICLE 22 – INSURANCE)

PART III. CERTIFICATES OF INSURANCE

All certificates of insurance (except certificates of insurance solely evidencing Workers' Compensation Insurance, Employer's Liability Insurance, and/or Disability Benefits Insurance) must be accompanied by one of the following:

(1) the Certification by Insurance Broker or Agent on the following page setting forth the required information and signatures;

-- OR --

(2) copies of all policies as certified by an authorized representative of the issuing insurance carrier that are referenced in such certificate of insurance. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

CITY OF NEW YORK

CERTIFICATION BY INSURANCE BROKER OR AGENT

The undersigned insurance broker represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

_____
[Name of broker or agent (typewritten)]

_____
[Address of broker or agent (typewritten)]

_____
[Email address of broker or agent (typewritten)]

_____
[Phone number/Fax number of broker or agent (typewritten)]

_____
[Signature of authorized official, broker, or agent]

_____
[Name and title of authorized official, broker, or agent (typewritten)]

State of .....)
) ss.:
County of .....)

Sworn to before me this _____ day of _____, 20____

_____
NOTARY PUBLIC FOR THE STATE OF _____

SCHEDULE A

(GENERAL CONDITIONS TO CONSTRUCTION CONTRACT)

PART IV. ADDRESS OF COMMISSIONER

Wherever reference is made in Article 7 or Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents shall be sent to the address set forth below or, in the absence of such address, to the **Commissioner's** address as provided elsewhere in this **Contract**.

DDC Director, Insurance Risk Manager

30 – 30 Thomson Avenue, 4th Floor (IDCNY Building)

Long Island City, NY 11101

(NO FURTHER TEXT ON THIS PAGE)

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R - PAGES

REVISIONS TO STANDARD SPECIFICATIONS

NOTICE

The Specification Bulletin(s) ("SB(s)") referenced in this Section (R-Pages) may consist of revisions to the following Standard Specifications:

- New York City Department of Transportation ("NYC DOT") Standard Highway Specifications, dated 8/1/2015;
- New York City Department of Environmental Protection ("NYC DEP") Standard Sewer and Water Main Specifications, dated 7/1/2014; and
- NYC DEP Specifications for Trunk Main Work, dated 7/2014.

The SB(s) modify and supersede portions of the applicable Standard Specifications. The provisions contained in this Contract's I-Pages, S-Pages and SW-Pages may further modify the applicable Standard Specifications.

The following SB(s) are included as part of this contract:

- SB 16-001 – REVISIONS TO THE NYC DOT STANDARD HIGHWAY SPECIFICATIONS.
- SB 16-002 – REVISIONS TO THE NYC DEP STANDARD SEWER AND WATER MAIN SPECIFICATIONS.
- SB 17-001 – UV CURED-IN-PLACE-PIPE (CIPP) LINING METHOD
- *SB 17-002 – SUPERSEDED BY SB 18-001*
- SB 17-003 – ENGINEERS FIELD OFFICE
- SB 17-004 – FIRE DEPARTMENT FACILITIES
- SB 17-005 – DIGITAL PHOTOGRAPHS
- SB 17-006 – RECORDS OF SUBSURFACE STRUCTURES
- SB 17-007 – MOBILIZATION
- SB 17-008 – QUALIFICATION CARDS
- SB 17-009 – SALVAGEABLE MATERIALS
- SB 17-010 – MILLED ASPHALTIC CONCRETE AGGREGATE
- SB 17-011 – DETECTABLE WARNING UNIT COLOR

- SB 17-012 – TEMPORARY HOUSE CONNECTION MATERIAL
- SB 18-001 – RODENT AND WATERBUG PEST CONTROL
- SB 18-002 – COLOR SURFACE TREATMENT FOR PAVEMENTS
- SB 18-003 – WATER AND SEWER GENERAL PROVISIONS
- SB 18-004 – CUTTING DUCTILE IRON PIPE
- SB 18-005 – STOCKPILES
- SB 19-001 – RESTORATION OF PAVEMENT SURFACE

The SB(s) are available online at:
http://www1.nyc.gov/site/ddc/resources/specification-bulletins.page or for pickup between 8:00 AM and 4:00 PM at 30-30 Thomson Avenue, 3rd Floor, Division of Infrastructure, Long Island City, NY 11101. Contacts:

- Mr. Richard Jones, (718) 391-1417
- Mr. Salman Macktoom, (718) 391-2041

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I - PAGES NEW SECTIONS

NOTICE

UNLESS OTHERWISE NOTED, ALL SECTIONS, SUBSECTIONS, ARTICLES, OR SUBARTICLES AS REFERRED TO HEREIN WITHIN THESE NEW SECTION SPECIFICATIONS MUST BE THOSE OF THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION'S (NYCDOT'S) CURRENT STANDARD HIGHWAY SPECIFICATIONS WITH CURRENT ADDITIONS, MODIFICATIONS AND REVISIONS TO THE STANDARD HIGHWAY SPECIFICATIONS (R-PAGES).

THE STANDARD HIGHWAY SPECIFICATIONS ARE NOT INCLUDED IN THESE I-PAGES. SEE THE NYCDOT STANDARD HIGHWAY SPECIFICATIONS BOOKS FOR STANDARD SPECIFICATIONS TEXTS.

(NO TEXT ON THIS PAGE)

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SECTION DSNY-XCE

PROTECTION OF EXISTING UTILITIES

DSNY- XCE.01 INTENT.

A. Definition:

ON-SITE-UTILITY: Any utility line withn the project limits but not in the right-of-way.

B. Section includes:
1. Identification and field markout of all on-site utility lines to remain in operation during construction.
2. Identification and field markout of all on-site utility lines to be removed and/or abandoned.
3. Submission of procedures to be used to ensure the safety of the utility.
4. Restoration from any damage during construction operations.

DSNY- XCE.02 REGULATORY REQUIREMENTS

C. Notify affected utility companies before starting work and comply with their requirements.

D. Contractor shall contact the "Call Before You Dig" service for an official utility mark out prior to excavation.

DSNY- XCE.03 PROJECT RECORD DOCUMENTS

Accurately record actual locations of capped utilities and utility lines encountered during construction.

DSNY-WQU.04 METHODS.

4.1 IDENTIFICATION

A. Locate all existing utilities which are to remain in service during construction as shown on the contract drawings.

B. Any conditions found to differ from what is shown on the contract drawings shall be immediately brought to the attention of the Commissioner.

4.2 PROTECTION

A. The Contractor shall utilize appropriate methods of operation/construction, special operations and sequencing, and by employing hand labor, using hand tools only, under the direction of the Commissioner when working adjacent to existing utilities and utility structures.

B. Flag, barricade or suitably protect existing utilities during construction operations and equipment movement.

4.3 LATERAL DISCONNECTION

A. Where a utility line is to be disconnected from portions to remain following construction, the lateral pipes shall be cut and suitably plugged/capped in accordance with the contract documents and NYC DEP regulations.

4.4 REPAIRS

A. Any damage to existing, operational utilities by the Contractor during the on-going construction operation shall be immediately restored to operational standards at the contractor's expense. If the repairs are not immediately addressed by the contractor, the utility owner and/or The City of New York will contract for the repair at the contractor's expense.

DSNY- XCE.05 MEASUREMENT.

The quantity of "PROTECTION OF EXISTING UTILITIES" to be measured for payment shall be the actual number of cubic yards of material excavated under other contract items for City work from within three feet of the on-site utilites in compliance with the requirements of this Section.

DSNY- XCE.06. PRICE TO COVER.

The contract price per cubic yard for the "PROTECTION OF EXISTING UTILITIES" shall be the incremental cost difference of all labor, material, equipment, and incidentals required to complete all work under other scheduled contract items for City work within three feet of the on-site utilites, using hand excavation and extra-care work methods in order to maintain, support, and protect the integrity of Transit Facilities and building vaults.

Payment will be made under:

Item No.	Item	Pay Unit
DSNY-XCE	PROTECTION OF EXISTING UTILITIES	C.Y.

SECTION DSNY-WQU

DSNY WATER QUALITY UNIT

DSNY-WQU.01 INTENT.

1. Furnishing and installation of the Water Quality Unit (WQU), complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
2. The Contractor shall furnish all labor, equipment and materials necessary to install the water quality units and appurtenances specified in the Drawings and these specifications.

DSNY-WQU.02 MATERIALS.

A. Water Quality Unit treatment capacity rate shall be a minimum of 14.35 cfs. The basis of design is two (2) Water Quality Units, each providing a treatment capacity rate of 7.5 cfs.

B. Precast Concrete Structure: Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

1. Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
2. Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
3. Cement shall be Type III Portland Cement conforming to ASTM C 150;
4. Aggregates shall conform to ASTM C 33;
5. Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
6. Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
7. Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

C. Internal Components and appurtenances shall conform to the following:

1. Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
2. Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
3. Fiberglass components shall conform to the ASTM D-4097

D. Access system(s) conform to the following:

1. Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

E. The WQU shall be sized to either achieve an 80 percent average annual reduction in the total suspended solid load or treat a flow rate designated by the jurisdiction in which the project is located. Both methods should be sized using a particle size distribution having a mean particle size (d50) of 125 microns unless otherwise stated.

F. The WQU shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The WQU shall be designed to retain all previously captured pollutants addressed by this subsection under all flow conditions. The WQU shall be capable of capturing and retaining total petroleum hydrocarbons. The WQU shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff (20 ± 5 mg/L). The WQU shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.

G. The WQU shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be 5.6 cubic yards. The boundaries of the sump chamber shall be limited to that which do not degrade the WQU's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the WQU to minimize the probability of fine particle re-suspension. In order to not restrict the City of New York's ability to maintain the WQU, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.

H. The WQU shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed 568 gallons.

I. The WQU shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Commissioner. If a substitute WQU is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of New York. All expenses associated with preparing and certifying this documentation shall be born solely by the Contractor.

J. The WQU shall have completed field testing by following TARP Tier II protocol requirements.

DSNY-WQU.03 SUBMITTALS.

A. Shop Drawings: Indicate manholes locations, elevations, invert elevations, piping, sizes and elevations of penetrations.

B. Product Data: Provide manhole covers, component construction, features, configuration, and dimensions.

DSNY-WQU.04 METHODS.

4.1 EXAMINATION

A. Verify items provided by other sections of work are properly sized and located.

B. Verify that built in items are in proper location, and ready for roughing into Work.

C. Verify excavation for manholes is to the correct depth and that the bottom is hard and smooth.

4.2 PREPARATION

A. Set all lines, elevations, and grades for utility and drainage system work and maintain for the duration of work. Provide careful maintenance of bench marks, property corners, monuments, or other reference points.

B. Protect and maintain in operating condition, existing utilities encountered during utility installation. Repair any damage to surface or subsurface improvements shown on the drawings.

C. Verify location, size, elevation, and other pertinent data required to make connections with existing sewer systems indicated on the Contract Drawings.

D. Coordinate structure placement with inlet and outlet pipe or duct sleeve locations and inverts required by other sections.

E. Install dewatering systems that will be required to construct the proposed utilities to the design elevations and using the methods described herein. Water pumped out of excavations shall be disposed of on-site for sedimentation removal, and will not be discharged directly to the City's storm drainage system.

F. Subgrade areas identified by the Commissioner as not being capable of supporting the proposed structure shall be excavated to suitable material or a maximum of two (2) additional feet, backfill with bedding material and compact as specified.

4.3 INSTALLATION OF STORM WATER TREATMENT DEVICE (WQU)

A. The Contractor shall exercise care in the storage and handling of the WQU components prior to and during installation. Any restoration or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the Contractor.

B. The WQU shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the Contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional cost to the City. A minimum of 72 hours' notice shall be

provided to the manufacturer prior to their performance of the services included under this subsection.

C. The Contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The Contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

D. The Contractor shall remove all loose material and pooling water from the WQU.

DSNY-WQU.05 MEASUREMENT.

The quantities of WATER QUALITY UNIT to be measured for payment shall be the number of WATER QUALITY UNIT of each size and type, incorporated in the work, complete, as shown, specified or required by the Engineer.

DSNY-WQU.06. PRICE TO COVER.

The contract price for "WATER QUALITY UNIT" shall be the unit price bid per each size and type of water quality unit and shall cover the cost of all labor, materials, plant, equipment, samples, tests and insurance required and necessary to construct the water quality unit of the sizes and dimensions and at the locations and to the elevations shown, including the earth excavation of all materials of whatever nature encountered (See Section 40.03 - Earth Excavation); reinforcement and structural steel; all sheeting and bracing; pumping; fluming; bridging; breaking down and filling in of abandoned sewer appurtenances; connections; maintaining flow in sewers; backfilling; cleaning up; and furnishing and installing all other items necessary to complete this work and do all work incidental thereto, all in accordance with the plans and specifications, and as directed by the Engineer. Included in the price hereunder shall be the cost for all labor and materials required to install manhole frames and covers, manhole steps and all other hardware in accordance with the plans, specifications and standards, or as directed by the Engineer.

The contract price hereunder shall also include the cost of all labor and materials required to connect at the water quality unit all existing and new sewers and basin connections; and all required structural steel, reinforcement and bulkheads for future sewer connections, as shown on the plans or as directed by the Engineer.

In addition, included in the price hereunder shall be the cost of all labor and materials necessary to remove all specified or ordered existing sewers, manholes, structures and appurtenances that may be in the line of the work and do all work incidental thereto, all in accordance with the specifications and as directed by the Engineer

Payment will be made under:

Item No.	Description	Pay Unit
DSNY-WQU	DSNY WATER QUALITY UNIT	EA

SECTION DSNY-L-INF

DSNY LEACHATE WALL INFRASTRUCTURE

DSNY-L-INF.01 INTENT.

Furnish labor, materials, services, equipment, and other necessary items required to excavate and install, and modify the following Leachate Infrastructure in accordance with the Contract Documents:

1. Geotextile Filters
2. High Density Polyethylene (HDPE) Pressure Pipe
3. Select Fill
4. Cement Bentonite Seal
1.

DSNY-L-INF.02 MATERIALS.

2.1 HIGH DENSITY Polyethylene (HDPE) Pressure Pipe

A. Pipe

2. Leachate Collection Header Pipe shall be High Density Polyethylene (HDPE) SDR-26. The HDPE pipe shall be constructed from PE 3408 high molecular weight polyethylene piping having a cell classification of PE 345434C and specified by ASTM D3350.

B. Fittings and Couplings

1. HDPE pipe fittings and couplings shall conform to the requirements of HDPE pipe for classification and size.
2. HDPE pipe fittings and couplings shall be capable of withstanding the pressure required for the Leakage Test as stated in this specification.

C. Joints

1. Joints for HDPE pipe and fitting shall be high temperature fusion bonded unless otherwise specified.

2.2 GEOTEXTILE FILTERS

A. The geotextile fabric shall be non-woven geotextile.

B. The geotextile filter fabric shall conform to the following minimum average roll values:

Property	Standard	Criteria
Mullen Burst	ASTM D3786	220 psi
Elongation	ASTM D4632	50%
Grab Strength (Min.)	ASTM D4632	160 lbs
Property	Standard	Criteria
Tear Strength (Min.)	ASTM D4533	70 lbs
Puncture Strength (Min.)	ASTM D4833	75 lbs
Permittivity (Min.)	ASTM D4491	0.18 / sec.
UV Resistance	ASTM D4355 (after 150 hours)	70% Strength retained

C. The geotextile filter openings shall be sized in accordance with the following criteria, which take into consideration the soil found in layers located to the geotextile filter:

4.5 O_{95} of the geotextile / d_{85} of the soil = less than 2, and

4.6 O_{95} of the geotextile / d_{15} of the soil = greater than 2

4.7 Where d_{85} is the soil particle size at which 85 percent of the particles are finer, and d_{15} is the soil particle size at which 15 percent of the particles are finer. The O_{95} is the apparent opening size of the geotextile, the pore size of the geotextile at which 95 percent of glass bead particles will be retained on the geotextile, determined in accordance with ASTM D4751.

D. The clogging potential of the soil/geotextile system shall be assessed by using the proposed geotextile and soils which will be in contact with the geotextile. The testing shall be performed in accordance with ASTM D5101. Any geotextile with a gradient ratio test result greater than 3.0 shall not be accepted.

2.3 SELECT FILL

A. Leachate collection trench stone shall be obtained from a source accepted by the Engineer.

1. Stone shall be NYSDOT No. 2 Gravel. Stone shall consist of clean, durable gravel free from coatings.
2. The Contractor shall submit to the Commissioner an affidavit from the owner(s) of the source(s) of the leachate collection trench material stating that to the best of their knowledge, the site was never used as a dump site for chemical, toxic, hazardous or radioactive materials and it is not now, nor has ever been listed as a suspected depository for chemical, toxic, hazardous, or radioactive materials by a federal, state, or other governmental agency, department, or bureau.

3. If off-site borrow sources are proposed, each different type of off-site material imported to the site for incorporation into the work shall be sampled by the Contractor at a location or locations identified by the CQA/CQC Manager. Each grab or composite sample shall be analyzed for all characteristics of a hazardous waste found under Subpart C of 40 CFR 261.20 including percent solids, pH, flashpoint, reactive cyanide, and sulfide, as well as for each and every constituent identified on Table 1 contained in 40 CFR 261.20, which identifies Maximum Concentration of Contaminants for the Toxicity Characteristic. Laboratory detection limits for each analyte shall be less than the regulatory levels identified. Laboratory data shall be submitted to the City of New York and the CQA/CQC Manager immediately upon receipt and prior to use of the material on-site. The CQA/CQC Manager shall be the sole judge as to what constitutes each different type of material. However, the definition of "different" shall include, but not necessarily be limited to, variances in the physical properties of the same material, as well as the same material derived from separate borrow sources or separate areas in the same borrow pit. If the soils are found to be unacceptable by the CQA/CQC Manager, the Contractor shall remove and dispose of the leachate collection trench material at the Contractor's expense.

B. The Contractor shall submit testing methods (prior to conducting tests), test results, and a certification from the approved soils testing laboratory that the leachate collection trench material meets the requirements of this Section. The results of all soils testing specified herein shall be submitted to the Engineer for review.

Prior to installation of the leachate collection trench material, material from the borrow source shall be tested in accordance with the following standards:

Parameter	Standards	Criteria
Particle Size	ASTM D422	100% passing 1-1/2 inch sleeve
		90-100% passing 1-inch sleeve
		0-15% passing 1/2-inch sleeve
Permeability	ASTM D2434	1 cm/sec minimum

The sample to be used for permeability testing shall be compacted to 90 percent of maximum dry density as determined by ASTM D698-91.

C. The Contractor shall submit a 50-pound sample of the leachate collection trench material to the Engineer.

D. The leachate collection header pipe shall be backfilled as shown in the Contract Documents.

1. Backfill placed 6-inches above, below and within the excavation limits of the leachate collection header pipe shall be NYSDOT Type 'F' Granular Fill

2. Backfill above the leachate collection header pipe within the excavation limits shall be NYSDOT Select Fill – Type F.

2.4 CEMENT BENTONITE SLURRY MIX

A. Bentonite

1. The bentonite used in the cement bentonite seal shall be a premium-grade, sodium cation montmorillonite in accordance with API 13A. Certification of Compliance of the bentonite material with the specification shall be obtained from the manufacturer and submitted to the Commissioner. Any changes in manufacturers or manufacturer's brands during the project must be accepted by the Commissioner in advance of their use.

B. Water

1. Contractor shall be responsible for providing all water required for construction of the cement bentonite seal
2. Water to be used for preparation of the cement bentonite seal shall be obtained from a potable water source
3. The Contractor shall submit to the Commissioner for acceptance the location of the source or sources of water. A laboratory analysis of the water to be used shall be submitted to the Engineer and the bentonite manufacturer for acceptance. It is the responsibility of the Contractor that the water utilized always meet the requirements of this Section and the requirements of the bentonite and cement manufacturers.

C. Cement

1. Cement shall be Portland, Type II, in accordance with ASTM C150.

D. Cement bentonite slurry

1. Cement bentonite slurry shall consist of a stable colloidal suspension of premium grade sodium bentonite and cement in water.
2. At the time of introducing the cement bentonite slurry into the excavation, the cement bentonite slurry shall have a density between 67 and 75 pounds per cubic foot, with a corresponding minimum Marsh Funnel viscosity of 38 seconds.
3. Cement Bentonite seal shall have an unconfined compressive strength of at least 100 pounds per square inch (psi) and a hydraulic conductivity of about 1 x 10-6 inches per second.
4. Per ASTM D2166, cement bentonite seal shall achieve a minimum unconfined compressive strength of 1,600 psf at 14 days.Cement bentonite slurry shall not be allowed to freeze.
5. No cement bentonite slurry shall be made in the trench.

B. Additives and bulking agents

1. If additives or bulking agents are to be used, the type, trade name, manufacturer, function and quantity shall be submitted to the Engineer.

2. No additives or bulking agents shall be used without written acceptance of the Commissioner.

C. Equipment

1. Cement Bentonite Slurry Batching Plant

a. The cement bentonite slurry batching plant shall include all necessary equipment, including a mixer capable of producing a colloidal suspension of bentonite and cement in water, pumps, storage vessels, valves, hoses, supply lines, and all other equipment required to supply cement bentonite slurry to the trench. The location of the cement bentonite slurry batching plant shall be approved by the Commissioner. Storage ponds and/or tanks shall be provided to store the mixed cement bentonite slurry during hydration and to serve as a reserve in cases where substantial cement bentonite slurry loss from the trench may occur. The cement bentonite slurry shall be agitated or recirculated in the storage ponds and/or tanks as required to maintain a fully hydrated homogenous mix. The cement bentonite slurry batching plant shall also be capable of incorporating any additives, weighing agents, or bulking agents as specified in Section 2.4.

2. Cement Bentonite Slurry Mixers

a. The cement shall be mixed with the bentonite slurry by using a paddle wheeled flash mixer or smaller equipment.

b. A recycling pump shall be used to recycle cement bentonite slurry from the mixer to provide continuous agitation.

2.5

A. The leachate collection header pipe shall be backfilled as shown in the Contract Documents.

2. 1. Backfill placed 6-inches above, below and within the excavation limits of the leachate collection header pipe shall be NYSDOT Type 'F' Granular Fill

3. 2. Backfill above the leachate collection header pipe within the excavation limits shall be NYSDOT Select Fill – Type F.

DSNY-L-INF.03 SUBMITTALS.

A. Sheeting, shoring, bracing and/or lateral support system to be used.

B. Proposed source and testing results for leachate collection trench stone.

C. The Contractor shall submit detailed, proposed methods of construction of the cement bentonite seal including, but not limited to:

1. Types and sources of materials to be used to construct the cement bentonite seal
2. Construction Procedures
3. Procedures for handling and disposing of contaminated materials

DSNY-L-INF.04 EXECUTION.

4.1 LEAKAGE TESTS ON HDPE PRESSURE PIPING

A. General

4. 1. Pipelines designed to transport fluid under pressure shall be tested hydrostatically and for leakage prior to being placed in service.
5. The length of piping and sections included in the tests shall meet the approval of the Commissioner.
6. Equipment in or attached to the pipes being tested shall be protected. Any damage to such equipment during the test shall be repaired by the Contractor at his expense.
7. All fittings and appurtenances must be properly braced and harnessed before the pressure is applied.
8. If the line fails the test, the Contractor shall explore for the cause of the excessive leakage and, after repairs have been made, the line shall be retested. This procedure shall be repeated until the pipe complies.

B. Pressure Test

a. Test pressure shall be as scheduled or, where no pressure is scheduled, at 100 psi.

9. Test pressure shall be held on the piping for a period of at least two (2) hours.

2 Leakage Test

1. The leakage test shall be conducted concurrently with the pressure test.
2. The rate of leakage shall be determined at 15 minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15 minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.

   a. At the completion of the test, the pressure shall be released at the furthermost point from the point of application.

3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The allowable leakage for pressure pipelines shall not exceed the following in gallons per 24 hours per inch of diameter per mile of pipe:

Type of Pipe	Leakage
HDPE	0

5. Regardless of the above allowable leakage rates, any visible leaks shall be permanently stopped.

4.2 GEOTEXTILE FILTERS

A. The Leachate Collection Trench shall be excavated and shaped to be clear of sharp objects, boulders, stumps, or any materials that may contribute to fabric punctures, shearing, rupturing or tearing.

B. The fabric shall be placed in the manner and at the locations shown. When placing the geotextile, material sections shall be joined by overlapping the fabric a minimum of six inches with field-sewn joint or heat fused, as recommended by the manufacturer. The fabric shall be placed with the long dimension perpendicular to the center line of the trench. Fabric shall be laid smooth and free of tensions, stress, folds, wrinkles, or creases.

C. If geotextile should be damaged during any step of installation, a piece of geotextile material shall be cut and placed over the damaged area subject to the six inch minimum overlap requirement.

D. Any geotextile damaged during its installation or during placement of cover materials shall be replaced by the Contractor at no additional cost to the City of New York.

E. The work shall be scheduled so that the backfilling of the trench and geotextile with aggregate material is accomplished immediately after placement of the geotextile.

4.3 CEMENT BENTONITE SLURRY MIXING AND PLACEMENT

A. The cement bentonite slurry shall be stored with constant agitation between time of manufacture and placement in the trench.

B. Cement bentonite Slurry shall be placed within one shift in such a manner that no cold-joints are formed in the cement bentonite material.

C. No cement bentonite slurry will be allowed to flow off of the work area onto the surrounding property. The Contractor shall be responsible for containing on-site any cement bentonite contaminated runoff. Any required cleanup activities shall be the Contractor's responsibility.

D. The Contractor shall not mix excessive amounts of cement bentonite slurry.

E. The cement bentonite shall not be allowed to dry, become excessively wet, or freeze prior to placement in the trench.

F. Dilution of cement bentonite slurry by surface waters shall be prevented. The Contractor shall become familiar with the surface drainage characteristics at the site and the sediment and erosion control plans. The Contractor shall insure that runoff from rain or other sources shall not be allowed to flow into the trench at any time.

G. All miscellaneous debris, solid waste, and/or foreign matter shall be kept out of the cement bentonite slurry before, during, and after placement of the trench. Debris, solid waste, and/or foreign matter shall not be deposited in the trench by construction personnel. The removal of such debris by the Contractor shall be at the direction of the Commissioner.

4.4 CLEANUP

A. Following completion of the cement bentonite seal, any unused cement bentonite slurry shall be removed to a location accepted by the Commissioner.

DSNY-L-INF.05 MEASUREMENT.

The Contractor will be paid the lump sum price bid for completing all of the work required to be done hereunder.

DSNY-L-INF.06. PRICE TO COVER.

The lump sum price bid shall cover the cost of furnishing all labor, surveyors,excavation, filling, professional engineer or land Surveyors, materials, plant, equipment of all kinds, insurance, and necessary incidentals required and completing the work in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
DSNY-L-INF	DSNY LEACHATE WALL INFRASTRUCTURE	L.S

SECTION DSNY-PTBR

DSNY PETROLEUM TANK BULK REMOVAL

DSNY- PTBR.01 INTENT.

A. Section includes:

1. The general scope of work will include cleaning, inerting, excavation, removal, waste characterization, transportation and disposal of the tanks, tank enclosures, tank system piping that may be encountered, and any product, water, sludge or other materials (including concrete, sand) contained in the tanks.
2. The Contractor shall obtain all necessary permits, provide proper notification to all city and state agencies and utility companies; and furnish all labor, materials, equipment and incidentals required for the proper decontamination, decommissioning, and removal of the tanks and associated electrical, structural, process piping and product equipment. This includes, but is not limited to, concrete, anchor straps, manways, pumps, remote fill lines, supply and return lines, vent lines, remote fill ports, etc.
3. The Contractor also shall be responsible for providing tank closure documentation (i.e., manifests, bills of lading, New York City Fire Department (FDNY) Affidavit for proper tank closure) to the City of New York in accordance with existing New York State Department of Environmental Conservation (NYSDEC) guidance and regulatory policy. Copies of FDNY certifications shall be provided to the City of New York and Commissioner. The Commissioner will be responsible for any change in registration status and closure reporting as required by NYSDEC, including submission of the NYSDEC Petroleum Bulk Storage (PBS) Registration/Renewal form documenting the updated status of the tanks. The City of New York will be responsible for any fees required for change in NYSDEC PBS registration status. Other than the PBS permitting noted above, the Contractor is responsible for all permits and associated costs.
4. Any asbestos-containing material (ACM) present on the tank piping shall be removed and disposed prior to tank and piping removal in accordance with 15 RCNY Chapter 1 and referenced regulation.
5. The Contractor shall be responsible for the excavation, segregation, stockpiling, transportation, and disposal of all materials (soil, sludge, debris, concrete, etc.) within and including any enclosures, the tank contents, piping, and for pumping, testing, and disposal of free phase product and water removed from the excavation (if applicable).
6. The Contractor shall be responsible for continuously monitoring the work area. This includes, but is not limited to, monitoring for the presence of flammable, toxic, or oxygen deficient atmospheres prior to and during removal of the tank system.
7. The Contractor shall be responsible for demolition, removal and disposal of concrete associated with tank enclosures, retaining walls, bottom pads, and anchor straps, and any underlying contaminated material, as directed by the Commissioner. Any petroleum-contaminated concrete removed from the excavation shall not be disposed of at a recycling

facility or other facility permitted to accept clean concrete or construction debris. All petroleum-contaminated concrete must be handled and disposed as petroleum-impacted material.

8. The Contractor shall conduct all required testing for disposal classification of any contaminated materials including, but not limited to, oil, sludge, water or water containing oil or separate phase product, rock, concrete or concrete products, brick, and other ancillary tank system related materials such as piping, conduit, wiring, tank fill facilities, and monitoring devices, to be removed from the Site.
9. All post-excavation endpoint soil samples will be collected by the Commissioner. The Contractor shall assist the Commissioner with collection of post-excavation endpoint soil samples from the excavation bottom and sidewalls of the excavation.
10. The Contractor shall be responsible for any necessary support of excavation required to stabilize the sidewalls of the excavation and other structures, utilities, etc. adjacent to the work area. This shall be done in accordance with New York City Building Code, OSHA regulations, and the Contract Documents. All permits required to conduct such work will be the responsibility of the Contractor to obtain and any costs incurred to install such shall be the responsibility of the Contractor.
11. The Contractor shall prepare all necessary plans, obtain all necessary permits, and provide all necessary plans, notifications and submittals to State of New York, City of New York and Commissioner before, during, and after performance of the removal work.
12. No work shall be performed under this Contract without the direct, on-site supervision of the Commissioner.

DSNY- PTBR.02 MATERIALS.

A. All reused material must meet the requirements specified in Section 8.01 C.

B. The product(s)/materials listed below shall be submitted to the Commissioner and the City of New York for approval.

1. The use of imported recycled concrete aggregate or crushed stone as general fill shall be permitted provided it meets the requirements of NYSDEC DER-10 Section 5.4(e)5, Specifications related to Earthwork, and NYCDEP Specification Section 40.06 Environmental Requirements.
2. The use of imported soil as general fill shall be permitted provided it meets the requirements of Part 2.1-B(1).
3. Excavated petroleum-impacted soil that may be derived from the tank removal excavation or the concrete enclosure shall not be re-used on-site.
4. Management of any soil excavated in conjunction with tank removal must be conducted in accordance with the Specifications.

DSNY- PTBR.03 SUBMITTALS.

A. The Contractor shall provide the required submittals to Commissioner during the specific phases of the project as described below.

1. Pre-Mobilization Submittals – The following shall be provided to Commissioner for review no later than seven calendar days prior to the start of any field activities.

   a. Proof of the completion of health and safety training in accordance with 29 CFR 1910.120(e) and 29 CFR 1919.146(g) as specified in Part 4.2.

   b. Copies of permits or licenses for the Contractor's selected disposal facility or reclaimer. A letter of commitment and detailed listing of the disposal facility's or reclaimer's required analytical testing for proper manifesting and disposal shall also be provided.

   c. All required insurance certificates for Contractor and Contractor's subcontractors consistent with the attached requirements.

   d. Copies of all permits required for UST removal.

   e. A detailed project schedule.

   f. Details for relocation of existing utilities away from work, if necessary.

   g. Confirmation that all Site utilities in the work area have been identified and work shall be performed in a manner to protect these utilities from damage. Confirmation that all Site utilities directly associated with the work, including, but not limited to, electrical, steam, product supply and return lines, or other utility lines within the proposed work area have been identified, marked, locked, and tagged out.

   h. An Excavated Material Disposal Plan which includes the following information:

      1) The name and address of the company(ies)/ facility(ies) that shall accept the contaminated materials and liquids, including free product, remaining contents of the tanks, and all free product and contaminated water collected during tank and pipe cleaning, and from the excavation following tank removal.

      2) The name and address of the licensed tank disposal facility that shall accept the tanks and piping.

      3) Written confirmation shall be submitted from each of the disposal or recycling facilities indicating that they shall accept the tank and piping, and remaining product or sludge, and other excavated materials to be removed as part of this work.

      4) A copy of certification that the Contractor removing the underground storage tank is certified for the work by the FDNY.

   i. All pertinent information relating to the transport of materials specified herein. For transporters to be considered, the following information, at a minimum, shall be submitted:

      1) Name and address of all transporters.

      2) USEPA identification number and license expirations date, where applicable.

3) Proof of permit, license or authorization to transport waste in all affected states.

4) Relevant audit packages and insurance certificates

j. Obtain and submit all applicable NYSDEC, USEPA, and NYSDOT permits required for the transport and disposal of all excavated materials resulting from the performance of the work. The licenses and permits that may apply include, but are not limited to, NYSDEC Part 364 permits and hazardous waste transporter permits issued under 6 NYCRR Part 372.3.

k. Information on each USEPA and state-approved off-site disposal facility that is proposed to receive contaminated materials and hazardous wastes, if applicable, 14 calendar days prior to the disposal of any waste stream. For each proposed facility, the following information shall be submitted:

1) Name, address, and location of the facility, including the City of New York's name, address, telephone number, and fax number and the contact person at the facility.

2) The USEPA identification number, as applicable

3) The amounts and types of contaminated material and/or hazardous wastes that shall be accepted at the facility on a daily basis.

4) Facility testing requirements and acceptance criteria.

5) The USEPA region, state regulatory agency, and the local regulatory agency for which permits are required.

6) Copies of valid, current, operating permits for the facility from the applicable regulatory agencies.

7) Relevant audit packages and insurance certificates

l. Submit a site-specific Environmental, Health, and Safety Plan.

B. Post-UST Removal Submittals – The following shall be submitted 21 calendar days after completion of field work.

1. Copy of Tank Removal Affidavit signed by a FDNY-licensed New York City Tank Contractor and verification that such affidavit has been provided to the FDNY
2. Certification from the disposal facility that the tank has been properly disposed and all scrap steel has been property disposed or recycled.
3. Copies of fully executed (i.e., signed by transporter and accepting disposal facility) waste disposal documentation including manifests and bill of lading for all product, sludge, water, soil and debris transported from the site..

DSNY- PTBR.04 METHODS.

4.1 GENERAL REQUIREMENTS

A. Disposal of tanks, lines, sludge, residual liquids and contaminated soils shall be in accordance with the requirements of this specification and shall be the responsibility of the Contractor.

B. Prior to removal of the UST, all liquids and accumulated sludge shall be removed from the tanks, to the extent possible, in accordance with the National Fire Protection Association Flammable and Combustible Liquids Code (NFPA-30) and any other applicable requirements.

C. Prior to removal from its location, all liquids will be removed, the tank interior will be inerted and void of flammable or explosive vapors, and any lines, wires or pipes will be disconnected from the tank and plugged. The basic procedures for meeting these requirements are defined in the NYSDEC Petroleum Bulk Storage regulatory programs.

C. The Contractor shall continuously test the tank atmosphere and the excavation area for percent oxygen and combustible gas during the tank excavation and removal operations.

4.2 SAFETY

A. Personnel working inside and in the general vicinity of the tanks shall be trained and thoroughly familiar with the safety precautions, procedures and equipment required for controlling the potential hazards associated with this work. Personnel shall use proper protection and safety equipment during work in and around the tanks.

B. Completion of an initial 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training program (or its equivalent) as detailed in OSHA's 29 CFR 1910.120(e) is required for all employees who will perform activities associated with UST removal. Annual 8-hour refresher training is also required.

C. Training in accordance with OSHA's 29 CFR 1910.146(g) is required for all employees who will enter a confined space.

D. The Contractor shall maintain safe sidewall slopes or shall provide adequate shoring at no separate cost. The excavation shoring shall comply with New York City Department of Building Codes, including Subchapter 19.

E. Cutting of steel by thermal methods shall at all times, occur in a non-explosive environment. During such work, explosive atmospheres in the tank, piping and of the surrounding atmosphere shall be continuously monitored. The Contractor shall note that residual pockets of fuel or residues may exist in some of the pipelines and the Contractor shall exercise care to prevent harm to employees or the public resulting from the potential explosive nature of the contained materials. Provide and maintain an adequate supply of fire extinguishers and other required safety equipment in close proximity to all demolition activity.

F. All soil and tank removal operations shall be conducted in a manner as required to prevent the spread of dust per observation by the Commissioner. If deemed necessary by the Commissioner, the Contractor shall provide dust control with a water truck or other means approved by the Commissioner.

G. The Commissioner shall conduct ambient air monitoring in the work zone in the immediate vicinity of the excavation area for fugitive dust emissions and organic vapors. If these readings are unacceptable, the Contractor shall institute measures to minimize dust and/or organic vapors. The measures utilized are subject to the approval of the Commissioner.

4.3 PREPARATION

A. The Contractor shall perform all necessary Site preparation, restoration, security and control including but not limited to temporary fencing, backfilling and shoring as necessary to protect structures, workers and public.

B. The Contractor shall inspect the condition of the tanks, and remote fill, if present, to the extent required for safe work performance.

C. Assure that electrical power to the tanks and their ancillary equipment has been deactivated and the actual wiring properly dismantled at the circuit breaker.

D. The Contractor shall remove the audible and visible overfill alarm system, and dismantle the UST leak detection systems, if present.

4.4 CLEANING AND REMOVAL OF UST SYSTEM

A. The Contractor shall disconnect associated product, vapor recovery and vent lines and drain the remaining liquid inside the product lines into the tanks. The Contractor shall proceed with caution to ensure no product is spilled during this process.

B. The Contractor shall pump all residual waste from the tank via a temporary closed system into USDOT approved drums, containers or vacuum truck. If drums or containers are used, seal the drums or containers, identify contents and store the containers on pallets underlain by 12 mil plastic sheeting.

1. Drums or containers shall be labeled as follows:
   a. Specific work site (e.g. Muldoon Avenue (private) and West Shore Expressway service road in Staten Island, New York)
   b. Drum (container) number (in increasing sequence as filled)
   c. Contents (e.g. rinse water from tank cleaning)
   d. Date filled
   a.

2. The Contractor shall maintain a written inventory of drums and containers.

C. The Contractor shall clean and vent all associated product, vapor recovery and vent lines before disconnecting from the tank.

D. The Contractor shall clean the inside of the tanks in accordance with API 2015 using high-pressure water rinse. The Contractor shall pump rinse water via a temporary closed system into USDOT approved drums, containers or vacuum truck. If drums or containers are used, seal the drums or containers, identify contents and store the containers on pallets underlain by 12 mil plastic sheeting. Drums or containers shall be labeled as described in Article 4.4 B.

E. The Contractor shall purge the tank of all flammable vapors and oxygen by displacement with inert gas using one of the following methods:

1. Displacement with bottled, inert gas (e.g. carbon dioxide)
2. Displacement with dry ice (minimum 15 lbs. per 1,000 gallon tank volume). The dry ice shall be crushed and distributed evenly over the greatest possible area to ensure rapid sublimation. All available tank openings shall be open to the atmosphere during this procedure to ensure rapid dissipation of the dry ice.

D. To evaluate the effectiveness of the dry ice procedure, the Contractor shall use an explosimeter to determine if the resultant vapor mixture within the tank(s) exceeds ten percent of the Lower Explosive Limit (LEL). Readings shall be taken throughout the tank's depth wherever access is possible. If the vapors within the tanks exceed ten percent of the LEL, the displacement procedure shall be repeated followed by a recheck of the LEL until the vapors are less than 10 percent of the LEL.

E. The Contractor shall remove the tank and all piping, including, but not limited to, supply piping, return piping, petrometer, heat piping, remote fill piping, vent piping and the vent riser, from the excavation.

F. The Contractor shall remove any tank foundations or tie down slabs, cradles, retaining walls, etc., if present and transport and dispose off-site at an approved facility.

G. The Contractor shall make provisions for leaving the excavation open until the Commissioner deems the work complete. The Contractor must assist the Commissioner in the collection of soil samples and keep the excavation open until the requirements of the Commissioner are met.

4.5 CLEANING AND PREPARATION FOR DISPOSAL

A. The Contractor shall use an approved biodegradable cleaning solution, suitable for removal of petroleum, to clean all residual material and soil from the interior and exterior surfaces of the piping. (Note that solutions containing chlorinated solvents or volatile organic compounds are not acceptable. The Contractor shall submit applicable Safety Data Sheets (SDS) to the Commissioner and obtain approval for the cleaning solution in advance.).

B. Cleaning shall be done in an area specifically set up by the Contractor for that purpose, curbed, and lined with an impermeable membrane, to contain the used cleaning solution, including any overspray, and any contaminated debris removed during the cleaning process. All cleaning related materials and operations, and disposal of used cleaning solution and associated contaminated debris, shall be provided and performed by the Contractor at no additional cost to the City of New York.

C. The integrity of the tank and piping shall be inspected for signs of corrosion, cracks, structural damage, staining or any other evidence of leakage. Tank inspection shall be documented in writing and by photographs, with particular emphasis on any evidence of corrosion, cracks, structural damage, or leakage.

D. Tank may be reduced in size, if necessary, for removal and disposal. If tanks are not cut into pieces, they shall be perforated or in some other manner rendered unusable.

E. The tank API identification numbers shall be removed from tank surfaces by the Contractor.

F. The tank shall be properly labeled in accordance with NYSDOT regulations. The Contractor shall permanently and legibly label both sides of the exterior shell of the tank with letters in orange spray paint not less than 2 inches high as follows:

TANK HAS CONTAINED (LIST TANK CONTENTS)

NOT VAPOR FREE, DO NOT ENTER

DATE OF REMOVAL (month, day, and year)

G. The tank shall be removed from the Site as promptly as possible after cleaning, rendering inoperable, dismantling and labeling procedures are completed. Tanks shall not be stored on-site after they are removed.

4.6 TANK AND WASTE DISPOSAL

A. The fluid wastes generated and collected as a result of the tank emptying, tank cleaning, and limited dewatering, as necessary, shall be sampled and classified by the Contractor in accordance with the approved disposal facilities' requirements. The Contractor shall provide the Commissioner with a copy of the analytical results, the facility information required in the Submittal section, prior to transporting to the approved disposal facility. Any petroleum-impacted soil that may be generated during the tank excavation shall be sampled and classified by the Commissioner in accordance with the approved disposal facilities' requirements. Waste characterization soil sampling requirements are addressed in Section 8.01 C2 – Sampling & Testing of Contaminated/Potentially Hazardous Soil for Disposal Parameters.

B. Once classified and accepted by the approved facility in accordance with the facility permit, the Contractor shall provide the Commissioner with a copy of any required hazardous or non-hazardous waste manifests, if applicable. The Contractor shall obtain all permits necessary to conform to these regulations. The Contractor shall identify, in writing, the facility at which this material shall be disposed.

C. The Contractor shall be responsible for loading the removed tank, transporting and disposing of the tanks at an approved and permitted disposal facility.

D. The Contractor shall provide the Commissioner with all waste disposal documentation, including permits, manifests and bills of lading for soil, liquids, and the tanks.

E. The Commissioner,working with the NYC Department of Sanitation (DSNY) is responsible for registering the tank with the NYSDEC Petroleum Bulk Storage (PBS) unit.

A. The Contractor shall be responsible for the collection and analysis of all samples of tank contents, for waste characterization as required by the disposal facility. All lab testing conducted for this project shall be performed by an NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory. The Contractor shall provide to the Commissioner in the Procedural Plan, the testing requirements of the disposal facility(ies) it intends to use.

B. All transport vehicles shall be inspected, prior to leaving the Site, by the Contractor to ensure that no material adheres to the wheels, undercarriage, tailgates, covers or other areas of transport vehicles. All vehicles shall be cleaned by washing tires, undercarriage, and any other contaminated parts prior to leaving the Site using a high-pressure water and/or steam spray. Contractor shall collect all wash water for treatment and disposal as required.

C. The Contractor shall transport and deliver material only to the approved disposal facilities. Disposal facilities must be reviewed and approved by the Commissioner prior to transporting waste off-site.

D. The Contractor shall be responsible for appropriate measurement of unit quantity of material removed from the Site. The Contractor shall coordinate vehicle inspection and recording of quantities leaving the Site. The Contractor shall keep an accurate record (log) of the contaminated material transported off-site and fill imported to the Site, and maintain a file of all facility-signed (completed) manifests for all materials leaving the Site and documentation for all fill entering the Site. These quantities shall be compared to recorded quantities received at the disposal facilities. The Contractor shall immediately resolve any discrepancies that occur and determine the probable cause for the discrepancy. Daily logs shall be submitted to the Commissioner daily. Manifests and fill documentation shall be submitted to the Commissioner when received.

E. The Contractor shall be solely responsible for any and all actions necessary to remedy situations involving material spilled in transit or disposed of at an incorrect location.

F. The Contractor shall have access to back-up vehicles and equipment to ensure that there is no downtime in connection with soil transport operations.

G. The disposal containers shall be ISO type, dump trailers, or approved equal, constructed of sufficient metal, have watertight bodies and sealed tailgates equipped with positive locking devices and provisions for control of free liquids. No liquid shall leak from any part of the loaded container or trailer. The Contractor shall furnish and install a metal or tarpaulin cover on each container immediately after the container is full. The cover shall be secured in an approved manner and shall remain in place until the container has reached the disposal facility.

H. The Contractor shall be responsible for transportation safety. All vehicles shall be properly maintained, driven properly, follow all rules and regulations, observe all speed limits, etc. The on-site speed limit shall be five miles per hour. All vehicles shall be inspected before every trip as part of Contractor's preventive maintenance program. The Contractor shall inspect each vehicle to ensure that all doors, covers, etc. are secure and that no material can spill or otherwise be released or leak. Each vehicle shall bear, at a minimum, the name and phone number of the Contractor plainly visible on both cab doors. Each vehicle shall be uniquely numbered in lettering at least four inches high and shall be placarded in accordance with USEPA and NYSDOT requirements. Likewise, each trailer or container shall be so labeled on both sides and the tailgate if possible.

I. The Contractor shall submit a copy of the completed manifest and scale tickets for each container to document the proper transportation of disposed material to an approved permitted facility by permitted vehicles within thirty calendar-days of the completion of field operations. No payments shall be made until copies have been furnished.

J. All trucks leaving the Site containing solid material for off-site disposal will be covered with tight-fitting covers, and will be checked to ensure that the cargo is not leaking. Excavated soil supersaturated with water will be dried, dewatered or mixed with a drying compound (e.g. quick lime) prior to loading into a transport vehicle for off-site disposal.

4.7 DECONTAMINATION OF EQUIPMENT AND MATERIALS

A. All decontamination procedures for equipment and materials shall conform to the requirements of applicable USEPA and NYSDEC regulations, as appropriate.

B. All recoverable equipment and materials which have been in contact with excavated soil shall be decontaminated prior to removal from the Site. As used herein "recoverable" shall mean all items which are non-absorptive in nature and which can be successfully decontaminated. All items for which decontamination is difficult or uncertain shall be considered non-recoverable, as determined by the Commissioner.

C. Decontamination shall be completed within a specifically prepared Decontamination Area, preferably adjacent to the contaminated stockpile. A minimum 12 mil plastic, non-porous barrier membrane of appropriate size shall be laid down under items being decontaminated. The side boundaries of the Decontamination Area shall be bermed to catch and hold rinse fluids and protect adjacent grade area. This barrier membrane and the rinse fluids shall be considered non-recoverable.

D. Recoverable Contractor-owned equipment and materials shall be decontaminated with pressurized steam. Do not utilize any detergent agents. Decontamination liquids shall be collected and pumped into USDOT containers/drums and disposed of properly.

D. Deposit non-liquid non-recoverable materials into USDOT containers as directed by the Commissioner and dispose off-site properly.

E. Mark and placard drummed decontamination materials and place in the contaminated stockpile area. The decontamination waste shall be sampled and classified by the Contractor in accordance with the

approved disposal facilities' requirements. Once classified and accepted by the approved facility, the Contractor shall provide the Commissioner with a photocopy of any required manifests.

4.8 GENERAL BACKFILL

A. Upon approval by the Commissioner, excavations shall be backfilled promptly with controlled fill per NYCDEP Specification Section 40.06 – Backfilling at no separate cost.

B. Controlled, imported fill and in-kind surface cover replacement (i.e., concrete, asphalt, etc.) shall be used to backfill the excavation to pre-excavation grade.

C. Contractor backfill shall be performed in accordance with the contract documents and as detailed in NYCDEP Specification Section 40.06 - Backfilling.

DSNY- PTBR.05 QUALIFICATIONS

A. The Contractor shall be approved by City of New York, and shall be a FDNY-licensed tank Contractor. The Contractor shall be any person or persons, corporation, or proprietorship deemed competent and experienced to perform work involving the closures of UST, and the hauling, disposal, transportation, or abatement of hazardous and non-hazardous materials. For the purposes of this contract, the Contractor shall possess the following:

1. A valid "Part 364" permit for waste transport and disposal of petroleum-impacted material
2. Facilities to handle, dispose, and/or abate hazardous or non-hazardous material
3. FDNY licensing for tank closure, OSHA certification for confined space entry, and accordingly trained personnel
4. Labor and materials to immediately execute work under this contract
5. Experience directly related to work under this contract
6. A comprehensive understanding of all the regulations and requirements governing this contract
7. Any item pertinent to work described in this contract
8. When it is necessary for the Contractor to utilize the services of a subcontractor to perform work, the Contractor shall be responsible for supplying the identification and contact information of the subcontractor

DSNY- PTBR.06 PROJECT CONDITIONS

A. The Department of Sanitation garage rehabilitation project (site) is located at the northwest corner of Muldoon Avenue (private) and West Shore Expressway service road in Staten Island, New York (the Site) and is identified as Block 5900, Lot 500 on the Staten Island Tax Map. The Site occupies an area of approximately 680,000 square feet and is improved with the existing Staten Island District 3 repair garage, recycling area, wastewater treatment facility, and asphalt-paved and gravel-topped parking lots. According to the 29 March 2018 topographical survey prepared by Langan, the grade fronting the Site along Muldoon Avenue slopes down from about el. 23 feet (north) to el. 10 feet (south), and the grade in front of the site along the West Service Road slopes down from about el. 32 feet (northeast) to el. 10 feet (south). All elevations are referenced to the North American Vertical Datum of 1988 (NAVD88).

B. Based on the findings of the 22 June 2018 Phase I ESA prepared by Louis Berger, the Site contains nine active underground storage tanks (USTs) and two active aboveground storage tanks (ASTs), which are used for waste oil, hydraulic oil, motor oil, No. 2 fuel oil, and biodiesel. The Contractor is responsible for removal of product and sludge from the tanks, inerting the tanks to allow for removal and dismantling, removal of the tanks and all associated piping, and loading, transportation and disposal of the tanks, piping, and tank contents for proper disposal – including any sampling required for disposal of the tank contents. Contractor must also include removal of any concrete or other vaulted structures that may enclose or support the tanks.

C. The City of New York and Commissioner make no predictions or representations regarding the character or extent of soil, obstructions or other subsurface conditions to be encountered during the Work. The Contractor shall make their own deductions of the subsurface conditions that may affect the methods or cost of construction of the Work hereunder, and they agree that they will make no claims for damages or compensations, except as are provided under the agreement, should they find conditions during the progress of the Work different from those as calculated and/or anticipated by them. Other exploratory operations may be performed by the Contractor, at the Contractor's option and following the City of New York's approval. No change in the Contract Sum will be authorized for such additional exploration undertaken by the Contractor.

D. The Contractor, by careful examination, shall inform themselves as to the nature and location of the Work; the conformation of the ground and the nature of the subsurface conditions; the locations of the groundwater table; the character, quality and quantity of the materials to be encountered; the character of the equipment and facilities needed preliminary to and during the execution of the Work; and all other matters which can in any way affect the Work.

E. The Contractor shall be held to have visited the Site and to have familiarized themselves with the existing conditions of adjoining properties, utilities, and buildings.

F. The Contractor shall investigate the conditions of public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affecting transportation to, ingress and egress of the Work Site. The Contractor shall conform to NYSDOT, USEPA, and NYSDEC regulations in regard to the transportation of materials to and from and at the job Site.

G. Existing Utilities: Locate existing underground utilities in and beyond the areas of work. If utilities are indicated to remain in place, provide adequate means of support and protection during the Work.

1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with City of New York and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
2. Coordinate with utility companies for shutoff of services prior to the removal of any on-site utilities.

H. Examine drawings to determine the sequence of operations in relation to the work of other trades, if they are present. Start of work will signify acceptance of field conditions and will acknowledge coordination with other trades.

DSNY- PTBR.07 NOTIFICATION

A. The Contractor shall notify all utilities prior to the work, and arrange for mark-outs of underground utilities, as needed.

B. The Contractor shall notify any city or state agencies as required prior to initiation of UST system removal.

DSNY- PTBR.08 PROTECTION

A. All Contractor personnel shall wear personal protective equipment and protective clothing consistent with the levels of protection required for this Work as specified by OSHA and the Contractor's Environmental Health, and Safety Plan [HASP].

B. The Contractor shall maintain safe sidewall slopes. Excavations shall meet all applicable New York City Department of Building Codes and OSHA requirements, including 29 CFR 1926.

C. Monuments, bench marks and other reference features on streets bounding this project, shall be protected. Should these be disturbed in any manner, the Contractor shall have them replaced at own expense.

D. In order to prevent damage, injury or loss, the Contractor's actions shall include, but not be limited to, the following:

1. Storing apparatus, materials, supplies, and equipment in an orderly and safe manner that shall not unduly interfere with the progress of the work.
2. Providing suitable storage facilities for all materials.
3. Placing upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.
4. Handling of all refuse, rubbish, scrap materials, and debris caused by on-site operations. The Site work shall be conducted in a safe, orderly fashion and maintain a work-man-like appearance at all times.

E. The Contractor shall not enter or occupy other areas with people, tools, materials or equipment, except on areas approved by City of New York, after written consent is obtained from the proper parties.

F. Dust, dirt, odor and vapor control shall be implemented at the direction of the Commissioner. The Contractor shall respond immediately to nuisance odors or dust, as directed by the Commissioner.

DSNY- PTBR.09 GENERAL REQUIREMENTS

A. The Contractor shall furnish all labor and materials, equipment and incidentals required for the proper decommissioning, removal, and closure of on-site petroleum bulk storage tanks and associated piping. If identified, removal and off-site disposal of petroleum-contaminated soil and concrete should follow specification 8.01 – Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials

B. Contractor shall be responsible for excavation of any contaminated soil or liquids as directed by the Commissioner and for loading, transportation and disposal of petroleum-impacted materials and of impacted concrete that may be encountered during the tank removal. Contractor's work shall include all labor and equipment required to complete this scope and shall be inclusive of any waste classification sampling and disposal facility coordination for removal and disposal of soil, liquids and concrete. Any excavation must be supported to accommodate tank removal, excavation of soil and fluids, as necessary.

C. If needed, Contractor shall provide all equipment, labor and material required to backfill and compact the underground storage tank (UST) excavation subsequent to UST removal to replace the tank system void, at no separate cost.

D. Contractor is responsible for health and safety of their employees and subcontractors that are required to complete the scope of work. The Contractor must implement any required health and safety measures and provide trained personnel in accordance with 29 CFR 1910.120(e) and 29 CFR 1919.146(g) for completion of work specified herein.

DSNY- PTBR.10 MEASUREMENT.

The fixed price lump sum shown in the Bid Schedule for this item will be included in the total bid price; however, actual payment to the Contractor will be based on the actual invoices submitted for petroleum tank removal by the Contractor.

DSNY- PTBR.11 PRICE TO COVER.

The fixed sum for Petroleum Tank Bulk Removal will be considered the price bid for this item. The fixed sum is not to be altered in any manner by the bidder. Should the amount shown be altered, the new figures will be disregarded and the original price will be used to determine the total amount bid for the contract.

The fixed sum payment made under this item will be equal to the sum of all invoices submitted for petroleum tank removal as proof of work performed for this item, as approved by the Engineer, plus an allowance of 12% overhead and 10% profit.

The total estimated cost of this item is the "fixed sum" amount shown for this item in the Bid Schedule and must not be varied in the bid. The "fixed sum" amount is included in the bid solely to ensure that sufficient monies will be available to pay the Contractor for this work, which may be more or less than the fixed sum amount.

The unit price will cover the cost of all labor, materials, equipment, insurance, and incidentals necessary to complete the work under this section in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
DSNY-PTBR	DSNY PETROLEUM TANK BULK REMOVAL	F.S

SECTION 61.41 ICV

INLINE CHECK VALVE

DSNY-61.41 ICV.1 INTENT.

1. Furnishing, delivering, and installing storm sewer inline check valves complete.

DSNY-61.41 ICV.2 MATERIALS.

2.1 INLINE CHECK VALVE

A. Inline check valve shall be a flow rubber operated check type with slip-in cuff connection.

B. Inline check valve shall be ply reinforced throughout the body, saddle and bill, and cured and vulcanized into a one-piece unibody construction.

C. The port area of the saddle shall contour into a circumferential sealing area that is concentric with the pipe. The saddle area of the valve must be flat and integral with the rubber body above centerline in order to not produce any areas or voids that can collect or trap debris.

D. The inline check valve shall incorporate concave grooves molded into the flat saddle wall thickness extending longitudinally a minimum of 80% of the length of the saddle.

E. The inline check valve shall incorporate a shaped notch in the end of the bill. The notch shall be at the invert/bottom of the bill and symmetrical about the centerline. The longitudinal length of the notch shall be no greater than half the length of the bill.

F. The inline check valve shall be furnished with stainless steel expansion clamps. The clamps shall be installed in the upstream or downstream cuff of the valve and shall expand outwards by means of a turnbuckle. Each band shall be pre-drilled, allowing for the valve to be pinned and secured into position in accordance with the manufacturer's instructions.

G. The entire inline check valve shall fit within the pipe inside diameter.

H. The inline check valve shall not protrude beyond the face of the structure or end of pipe.

DSNY-61.41 ICV.03 SUBMITTALS.

Shop drawings shall clearly identify the valve materials of construction and dimensions.

DSNY-61.41 ICV.04 METHODS.

4.1 INSTALLATION

A. Inline check valve shall be installed in accordance with manufacturer's written installation and Operation Manual and approved submittals

DSNY-61.41 ICV.05 MEASUREMENT.

The quantity of inline check valve measured for payment shall be the number of INLINE CHECK VALVE of each size actually furnished, delivered and installed by the Contractor and approved by the Engineer.

DSNY-61.41 ICV.06. PRICE TO COVER.

(A) The contract price for "FURNISHING, DELIVERING AND INSTALLING INLINE CHECK VALVE" shall be the unit price bid per each size and kind of inline check valve furnished, delivered and installed and shall cover the cost of all labor, equipment, materials, plant, samples, tests and insurance required and necessary to furnish, deliver and install inline check valve in the manner specified herein. No separate or additional payment will be made for any costs associated with the work of furnishing, delivering and installing inline check valve.

(B) Payment for the chamber concrete, reinforcing steel, structural steel, miscellaneous steel, manhole steps, brick masonry and pipe-to-wall penetration seals; and for gate valves, piping and castings shall be made under their respective bid items.

There will be no direct payment for furnishing and installing waterproofing for chambers, including waterstops. Payment will be deemed included in the prices bid for all items of work.

Payment for Furnishing, Delivering And Installing inline check valve will be made under the Item

Number as calculated below:

The Item Numbers for Furnishing, Delivering And Installing inline check valve have ten characters. (The decimal point is considered a character, the third character.)

(1) The first five characters shall define Furnishing, Delivering And Installing Pressure Regulator Valves:

61.41

(2) The sixth and seventh characters shall define Pressure Regulator Valves:

ICV - inline check valve

(3) The eighth and ninth characters shall define the Size (Diameter) of the inline check valve. (The seventh and eighth characters representing the unit of inches for the Size (Diameter) of the Pressure Regulator Valves.) See examples below:

08 - 8-Inch

24 - 24-Inch

(4) The Item Numbers together with Description and Pay Unit as provided in the Bid Schedule are provided below:

Payment will be made under:

Item No.	Description	Pay Unit
61.41ICV08	INLINE CHECK VALVE, 8 Inches	EA
61.41ICV24	INLINE CHECK VALVE, 24 Inches	EA

SECTION DSNY-UPI

INSTALL TIMBER UTILITY POLES

DSNY-UPI.01 INTENT.

Requirements for treated wood poles and pole installation, for use in overhead utility lines.

DSNY-UPI.02 MATERIALS.

2.1 MARKING

A. All poles covered by this specification shall be branded and/or tagged as follows: Southern Yellow Pine poles shall be burn branded on the face of the pole with information in accordance with ANSI 05.1, Paragraph 6.5.

2.2 POLE TOPS

A. Pole tops shall be cut on an angle at 15 degrees to horizontal to facilitate water runoff.

2.3 TREATMENT

A. Initial Treatment: Shortly after shaving, the poles shall receive a fungicide treatment or an accelerated seasoning cycle, or both, to prevent air-borne infection during the seasoning.

B. Seasoning: Pine poles shall be seasoned by the kiln drying process in accordance with ANSI 05.1, latest revision, paragraph 4.11.2.3 except the temperature shall be held to a maximum of 170oF dry bulb. Moisture content shall be determined by either the moisture meter method or the oven drying method as per AWPA Standard M2. The average moisture content shall be 25% in the outer 3 inches. A minimum of 10% of the number of pieces in a charge or lot shall be tested for moisture content.

B. Final Treatment: The treatment shall comply with AWPA standards C1 and C4 using a minimum of 5% solution of pentachlorophenol dissolved in a selected petroleum vehicle. The solution shall conform to AWPA Standards P8 and P9 (Heavy Petroleum Solvent). The treatment shall be done by the empty cell process.

C. Retention: The solution retained shall not be less than 0.4 lbs. of dry chemical per cubic foot as determined by assay of the 0.5 to 2.0 inch zone per AWPA Standard C4.

DSNY-UPI.03 METHODS.

3.1 INSTALLATION

A. Utility Poles shall be installed at depths as shown on Con Edison Specification EO-16883-B on this link https://www.coned.com/-/media/files/coned/documents/es/specs/EO-16883-B.pdf. Poles shall be installed in augured holes. Concrete bearing pads and crib assemblies shall be provided at each pole to minimize the probability of pole settlement or shifting.

B. Poles shall be set in alignment and plumb.

DSNY-UPI.04 MEASUREMENT.

The quantity of TIMBER UTILITY POLES measured for payment shall be the number of regulators of each size actually furnished, delivered and installed by the Contractor and approved by the Engineer.

DSNY-UPI.05 PRICE TO COVER.

The contract prices bid per each of the several sizes of TIMBER UTILITY POLES shall cover the cost of furnishing all labor, materials, plant, equipment, insurance, and necessary incidentals required and completing the work, including, but not limited to, and all other necessary incidental work, in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
DSNY-UPI	INSTALL TIMBER UTILITY POLES	EA

SECTION 70.11TS

TAPERED STEEL PILES

DSNY-70.11TS.01 INTENT.

(A) Piles of the kinds and types, and of the sizes and shapes shown, specified or ordered shall be furnished, driven and/or installed and cut off and capped at the locations, to the slopes, to the depths and to the elevations shown or required on the plans and standards, and as specified in the specifications, and as directed by the Engineer. This work shall include the providing and installation of driving shoes and all other hardware where required, flame-cutting, placement of concrete fill in steel pipe piles, welding, bolting, riveting, splicing, spudding, augering, rotary drilling, pile surveys, drawings, schedules, decking, plating, analysis and corrective measures, and all other work hereinafter outlined and such other related work to insure a satisfactory pile foundation installation.

(B) Examination Of The Site:

(1) Prior to starting pile driving and/or installations, the Contractor shall make a documented inspection of the existing structures, site conditions, pavement and improvements within the radius of influence and adjacent to the pile driving and/or installation site to examine and record their present condition.

The Contractor shall prepare a preconstruction report in accordance with Section 76.11-Construction Report.

(2) The Contractor shall fully examine the existing conditions within the project limits to ensure that the Contractor's equipment can operate without damage to or relocation of existing infrastructure, facilities or structures. The Contractor shall provide all required equipment, modified if needed to accommodate site conditions, including restricted headroom and other headroom limitations. If available, the Contractor must review the boring logs showing subsurface conditions.

(3) The Contractor shall be required to prepare a report of all such conditions, verified by the photographs and signed by the Contractor's Professional Engineer, which shall be reviewed by the Engineer to verify the existing site conditions and all pre-existing damage that may be affected by the piling work. Such work shall be included in the preconstruction report.

(C) Qualifications:

(1) The work shall be performed by the Contractor or a subcontractor experienced in the specified foundation system and piling under similar subsurface conditions. The Contractor performing the work described in this specification shall submit proof that the Contractor or subcontractor has successfully completed a minimum of two (2) projects in the last three (3) years on which the Contractor or subcontractor has successfully designed, tested and driven and/or installed piles.

(2) The Contractor shall also submit proof that the Contractor has employed a Licensed Professional Engineer, currently registered in the State of New York, having experience in the construction (designing, planning, testing and inspection phases) of at a minimum two (2) completed pile driving and/or installation projects over the past three (3) years. The Professional Engineer shall be directly responsible for the work. The Contractor shall not use manufacturers' representatives to satisfy the Contractor's responsible engineer requirements of this section.

In addition, the Engineer will review and approve the Contractor's key field personnel to be employed during driving and/or installation of the piles.

DSNY-70.11TS.02 MATERIALS.

(A) STEEL TAPERED PILES

(1) The lower tapered section to be polygonal in section, having 12 equal sides joined by a single longitudinal butt weld, and having a top and bottom diameter, length and minimum thickness as shown on the drawings. The Tapered Pile steel will have a minimum yield stress of 50,000 psi. The tapered seam(s) shall be welded with a minimum 90% weld penetration with a 12" return each end. A cast steel conical driving point made from ASTM A-148 90/60 material shall be welded to the bottom of this section.

(2) The upeer cylindrical pipe section to have a diameter and minimum thickness as shown on the drawings. Pipe to meet all requirements of ASTM A 252 Gr. 3; minimum yield strength of 50,000 psi. The steel pipe piles shall further conform to the requirements specified herein and to the applicable requirements of the New York City Building Code.

(3) The top of the tapered section is to be rounded so that the inside diameter will match the inside diameter of the pipe section. The sections shall be joined by a 100% butt weld. The piles shall be new and shall meet all tolerances specified by the manufacturer. Deformations, defects, camber, and sweep of piles placed in the leads shall be no more than allowed by ASTM Specifications. Shop welded piles shall be considered only if the welds are certified full-penetration butt weld by a certified welder.

(4) The tapered piles will consist of an upper 50-foot-long 16-inch-diameter uniform section with a lower 30-foot long tapered section with a 16-inch-butt-diameter and an 8-inch-tip-diameter. The piles are recommended to be driven to 80 feet below the bottom of pile caps.

(5) All steel pipe piles shall be filled with concrete. Concrete shall comply with the requirements of **General Specification 11 - Concrete, as modified in Section 23.01.**

(B) LOAD-TEST EQUIPMENT

(1) Hydraulic Jack(s) and Pressure Gauges:

(a) Hydraulic jack(s) shall be equipped with the necessary gauges and piping which shall transmit constant load to the pile.

(b) Hydraulic jack(s) shall be rated for a load capacity of at least 1.5 times the total test load.

(c) Hydraulic jack(s) shall have sufficient ram so that the full test load can be applied at no more than 80% of its extension.

(d) Pressure gauge shall be able to read pressures accurately to the nearest 50 psi and shall have a range equivalent to at least twice the pressure required to maintain the full test load.

(e) Hydraulic jack(s) and pressure gauge shall be calibrated as a unit by a certified testing laboratory not more than one month prior to their use at the site. A calibration report indicating jack and pressure gauge identification numbers and a calibration curve shall be submitted to the Owner's Geotechnical Engineer at least one week prior to beginning any load tests.

(2) Dial Indicators – Dial gauges shall be capable of reading to the nearest 0.001 inches and shall have a travel of at least 3 inches. Dial gauges shall be mounted on an independent steel test frame to prevent relative movement during the load test

(3) Mirror-wire – Establish a separate mirror, wire, scale set-up, with scale capable of measuring to the nearest 0.01 inches.

DSNY-70.11TS.03 SUBMITTALS

(A) The Contractor shall prepare and submit the following items to the Engineer for review and approval by the Commissioner at least 15 days before the start of said work. All calculations and shop drawings shall be signed and sealed by a Professional Engineer licensed in the State of New York.

(1) Mill certificates for steel tapered piles.

(2) Pile manufacturers and or suppliers certificate certifying pile materials conform to the requirements specified herein. Include mill certificates covering physical and chemical tests, and ladle analyses of each melt.

(3) Provide installation procedures for the driven piles, including pile installation program giving the amount and character of equipment, to be used in the work, schedule for performing the work and method and sequence of pile driving.

(4) Submit proposed final driving criteria to achieve the specified design load (i.e., WEAP analysis or equivalent).

(5) Specifications and procedures on the proposed pile splice, if necessary, including welders qualifications.

(6) Submit qualifications, equipment data sheets, and procedures for driving the piles with aPile Driving Analyzer (PDA), and estimating the static pile load capacity using the Case Method. Submit a Wave Equation analysis specific to the pile and the hammer. The Wave equation shall provide the anticipated penetration resistance to achieve the design capacity and the estimated driving stresses in the pile.

(7) Submit within three days of pile driving, the results of the PDA/Case Method analyses.

(8) Submit compressive load test procedures including drawing showing the layout of load frame and reference.

(9) Submit lateral load test procedures including drawing showing the layout of load frame and reference frame.

(10) Submit identification numbers and calibration curve for the hydraulic jacks and pressure gauge.

(11) At the completion of the load test, submit a report signed and sealed by a Professional Engineer licensed in the State of New York, summarizing the load-settlement response for each pile, in conformance with the Building Code allowable settlement. Include proposed final driving criteria for production driven piles and drilled piles.

DSNY-70.11TS.04 METHODS.

(A) TEST PILES

(1) Furnish and install at least three (3) test piles, all with a Pile Driving Analyzer (PDA).

(2) Perform one (1) compression load test on a selected test pile. The allowable pile compressive capacity is 100 tons. Load-test procedures and schedule shall conform to the requirements of ASTM D1143.

(3) Perform one (1) lateral load test on the selected test pile. The allowable pile lateral capacity is 7 tons. Load-test procedures and schedule shall conform to the requirements ASTM D3966.

(B) DRIVING AND/OR INSTALLATION SCHEDULE - Prior to the commencement of pile installation operations the Contractor shall submit to the Engineer, for approval, six (6) copies of a pile plan showing the locations of all proposed piles. All piles indicated on the plan shall be numbered and shall indicate all proposed piles for the sewers, water mains and associated structures, and the sequence of the pile installation operation.

(C) PILE LOCATION SURVEYS - The Contractor shall conduct all required pile location surveys prior to commencement of the Contractor's pile installation operations. The Contractor shall be responsible for establishing and locating all lines and levels, and for the correctness of all pile locations and slopes.

(D) DRIVING AND/OR INSTALLATION OF PILES

(1) Prior to the start of test tapered pile installation, a WEAP Analysis (signed and sealed by a Professional Engineer licensed in the State of New York) shall be completed and submitted to the Commissioner. All tapered test piles shall be installed to final resistance with a PDA. The location of the test piles shall be submitted to the Commissioner for review. Hammer energy being transferred to the top of the pile shall be continuously recorded during the driving of the pile. The penetration resistances in the bearing stratum shall be adjusted by the Geotechnical Engineer to account for any penetration resistance measured in the overlying strata.

(2) Furnish and install driven steel tapered-piles having an allowable compressive capacity of 100 tons.

(E) RESEATING - When installing piles in clusters, or under any conditions of relatively close spacing, observations shall be made to determine any uplift of the piles. If uplift occurs, piles so affected shall be reseated to either the original resistance or elevation or both as required by the Engineer. No separate or additional payment will be made for any required reseating of piles.

(F) OBSTRUCTIONS TO PILE INSTALLATION - In parts of the construction area, debris, boulders, or other obstructions may be encountered, making it difficult to install a pile(s) in the location(s) required by the pile plan and the Engineer. In such cases, the City may order the Contractor to resort to spudding, augering, drilling, or to other means to overcome the obstruction or may order the piles to be abandoned and additional piles installed.

Where the top of an obstruction is encountered three (3) feet or less below the subgrade of a trench, the Engineer may order the removal of the obstruction so as to clear a way for the pile(s). Payment for the

cost of excavating to whatever depth required to remove obstruction, removing the obstruction and filling to subgrade shall be made under the prices bid for the respective contract item(s) labeled "ADDITIONAL EARTH EXCAVATION INCLUDING TEST PITS", for Item No. 70.51EO - EXCAVATION OF BOULDERS IN OPEN CUT and for Item No. 70.71SB - STONE BALLAST. No separate or additional payment will be made for the removal and reinstallation of the pile at the same location and to the depth at which the top of the obstruction was encountered, the cost shall be deemed included in the price bid per vertical foot for the respective pile item. Payment for the installation of a pile length at the same location can only be made once, no matter how many time the pile has to be removed in order to remove the obstruction. No separate or additional payment will be made for any mobilization or other work incidental thereto.

Where the top of an obstruction is encountered greater than three (3) feet below the subgrade of a trench, and it is deemed necessary by the Engineer to over excavate to remove the obstruction in order to clear a way for the pile(s), payment for the cost of this over excavation to whatever depth required to remove the obstruction, removing the obstruction and filling to subgrade shall be made under the prices bid for the respective contract item(s) labeled "ADDITIONAL EARTH EXCAVATION INCLUDING TEST PITS", for Item No. 70.51EO - EXCAVATION OF BOULDERS IN OPEN CUT and for Item No. 70.71SB - STONE BALLAST. No separate or additional payment will be made for the removal and reinstallation of the pile at the same location and to the depth at which the top of the obstruction was encountered, the cost shall be deemed included in the price bid per vertical foot for the respective pile item. Payment for the installation of a pile length at the same location can only be made once, no matter how many time the pile has to be removed in order to remove the obstruction. No separate or additional payment will be made for any mobilization or other work incidental thereto.

The Contractor shall have on hand suitable equipment for spudding, augering or drilling through buried timbers, cribbing, boulders and other obstructions, and shall employ this equipment, when directed, in a manner satisfactory to the Engineer.

When spudding, augering or drilling is ordered by the City, payment therefore will be made to the Contractor in accordance with the requirements of Subsection 70.11.3(L).

If means other than spudding, augering, drilling or removal as stated herein are ordered for the purpose of overcoming obstructions, payment therefore will be made to the Contractor in accordance with Articles 25 and 26 of the Contract.

Where due to an obstruction the Engineer deems it necessary to abandon a pile in place or remove the pile for installation at a different location, payment for the cost of the length of pile abandoned from the tip of the abandoned pile to the height of cutoff or for the length of pile removed from the tip of the removed pile to the height of the subgrade of the trench shall be made under the prices bid per vertical foot for the respective pile item. No separate or additional payment will be made for any mobilization or other work incidental thereto.

(G) DEFECTIVE OR DAMAGED PILES - When any pile that has been installed is damaged or gets out of alignment by loss of contact with the driving apparatus or exceeds the tolerances hereinafter specified it will be rejected. If in the opinion of the Engineer, the pile is unsuitable or otherwise does not conform to the requirements of the contract, such pile will be rejected. Rejected piles shall be withdrawn or abandoned and cut off below subgrade, as ordered by the Engineer. Additional pile or piles shall be installed in locations designated by the Engineer to replace rejected piles, and pile caps shall be redesigned and enlarged as approved by the Engineer, at no additional cost to the City. No separate or additional payment will be made for the withdrawal or for the abandoning and cutting off below subgrade of rejected piles, the cost together with additional excavation, stone ballast fill and all work incidental thereto shall be deemed included in the prices bid for the respective pile items.

(H) TOLERANCES FOR PILES - Piles as finally placed, shall not have a variation of more than one (1) percent of their exposed length from the vertical or from the batter as shown on the plans or as ordered. The center of each pile at the level of cutoff shall not vary from its designed center more than such distance that would produce stress in any pile group that is more than ten (10) percent greater than its designed stress, or so as to change the shape of the pile group making it necessary to redesign the pile cap.

A tolerance of four (4) inches from the designed lateral location will be permitted in the installation of piles, without reduction in load capacity, provided that such variation does not produce a load on any pile more than ten (10) percent greater than its designed load bearing capacity.

Reference is made to Subsection 70.11.3(B) wherein the Contractor is to submit a pile location plan. If piles are installed at locations other than as shown on the approved pile plan and fail to satisfy all conditions for tolerances as stated herein then additional piles and enlarged pile caps shall be installed as directed by the Engineer and solely at the Contractor's expense.

Where piles are installed off the designed location but within the allowable tolerances, the distance from the edge of piles to the outside of concrete pile cap shall be a minimum of twelve (12) inches and any additional costs involved in meeting these requirements shall be at the expense of the Contractor.

Payment will be made in accordance with the Subsection 70.11.3(I) for piles driven outside of tolerances due to obstructions. The Engineer shall determine whether or not a pile(s) was driven outside of tolerances due to obstructions and the Engineer's determination will be final.

(I) SHIFTING OF PILE(S) DUE TO OBSTRUCTIONS - Where piles are ordered by the Engineer to be shifted due to obstructions, the Engineer shall prepare a redesign of the pile cap (if required). This redesign may entail the installation of additional piles and/or the construction of a larger pile cap. Payment for the installation of additional piles due to obstructions will be made under the respective pile item. Payment for the increased quantities of earth excavation, stone ballast, concrete and steel reinforcing bars required due to the enlargement of the pile caps caused by obstructions shall be made under the prices bid for the contract item(s) labeled "ADDITIONAL EARTH EXCAVATION INCLUDING TEST PITS", for Item No. 70.71SB - STONE BALLAST, for Item No. 73.21AC -

ADDITIONAL CONCRETE and for Item No. 73.51AS - ADDITIONAL STEEL REINFORCING BARS.

(J) ANALYSIS AND CORRECTIVE MEASURES - The Engineer in accordance with Subsections 70.11.3(G) and 70.11.3(H) shall analyze conditions at each pile cap and shall determine whether corrective measures are required to keep pile loads within allowable limits.

The cost of required additional piles, their installation, any modification of pile cap details, etc. in order to implement corrective measures as ordered by the Engineer shall be borne totally by the Contractor in the case of rejected, defective, damaged or improperly installed piles.

(K) PILE DRIVING INSTALLATION RECORDS - The Engineer will keep records of all piles driven and/or installed. The Contractor shall cooperate with the Engineer to obtain all necessary data. The data shall include type and size of pile, location, the type and size of hammer, type and dimensions of cushion block, actual number of blows per minute delivered throughout the driving by the hammer, number of blows required for each foot of penetration, elevation to which the pile penetrated under its own weight and under the weight of the hammer, final elevation of tip of pile, complete jetting information (if jetting is permitted), notation of interruption during driving including length of time, the elevation of the pile tip and cause of interruption, and such other information as the Engineer may deem necessary.

(L) SPUDDING, AUGERING, DRILLING - Spudding, augering and drilling shall be required for clearing obstructions as indicated in Subsection 70.11.3, paragraph (F), and also for reducing the peak particle velocity of vibrations associated with pile driving, and as ordered by the Engineer.

Spudding, augering or drilling time shall be as computed by the Engineer from the time pile driving stops to the time pile driving resumes as hereinafter described, provided no interim delay occurs due to the fault of the Contractor. Spudding, augering or drilling time shall include the time it takes to extract the pile, the time it takes to place the spud, auger or drill in the leads, the time it take to spud, auger or drill, the actual time it takes to remove the spud, auger or drill and the time it takes to replace the pile in the leads and in the position (at the location and to the depth the pile had penetrated at time pile driving ceased) for driving and/or installation to resume. The diameter of the spud, auger or drill shall be limited to two-thirds (2/3) the diameter of the pile. The depth of spudding, augering or drilling shall be limited to three-quarters (3/4) of the length of the pile being driven.

No spudding, augering or drilling shall be performed unless approved by the Engineer and done in the presence of the Engineer. The method employed (spudding, augering or drilling) shall be performed at the direction of the Engineer.

Payment for spudding, augering and drilling when ordered by the Engineer, will be made at the unit prices bid under the respective contract Item No. 70.11TT - TIMBER PILES (TREATED), or for Item No. 70.11TU - TREATED PILES (UNTREATED), or for Item No. 70.11SH - STRUCTURAL STEEL H PILES, or for Item No. 70.11CS - CONCRETE FILLED STEEL PIPE PILES at the rate of one (1) vertical

foot of pile for each five (5) minutes of spudding, augering or drilling. No separate or additional payment will be made for any mobilization or other work incidental thereto.

(M) JETTING - In driving piles where the desired penetration through dense material (i.e. sand, gravel, etc.) cannot be obtained, the Contractor may be required to use water jets. Piles shall be jetted only with the written approval of the Engineer. Sufficient jets and adequate water pressure shall be used to freely erode the material adjacent to the pile without impairing the bearing capacity of the piles already in place.

Before the desired penetration is reached the jets shall be withdrawn and the piles shall be driven with the hammer alone for the last four (4) feet, or more if necessary, to attain the required bearing capacity value.

No separate payment will be made for jetting when ordered by the Engineer to facilitate the installation of piles through dense material in order to reach the penetration required by the contract documents. The cost of jetting shall be deemed included in the prices bid under the respective contract Item No. 70.11TT - TIMBER PILES (TREATED), or for Item No. 70.11TU - TIMBER PILES (UNTREATED), or for Item No. 70.11SH - STRUCTURAL STEEL H PILES, or for Item No. 70.11CS - CONCRETE FILLED STEEL PIPE PILES.

(N) EXISTING PILES AND ABANDONED PILES - Where existing piles are encountered along the line of the proposed sewer or water main or within the limits of the structure, or where new piles are ordered abandoned, all such existing piles or abandoned piles shall be cut to a minimum of one (1) foot below the subgrade of the trench.

In the event that the location of an existing pile conflicts with the proposed location of a new pile, it shall be the decision of the Engineer as to an alternate location for the installation of the new pile and for any shift of pile cap location or whether to remove the existing pile.

Payment for the cost of excavating, cutting existing piles one (1) foot below the subgrade and filling to subgrade shall be deemed included in the prices bid under the respective contract item(s) labeled "ADDITIONAL EARTH EXCAVATION INCLUDING TEST PITS" and for Item No. 70.71SB - STONE BALLAST.

Payment for the cost of removal of the existing pile(s) as determined by the Engineer shall be made in accordance with Articles 25 and 26 of the Contract, unless there is a specific item for the removal of existing piles in the contract.

All abandoned steel pipe piles shall be compactly filled from the tip of the pile to the height of cutoff with select granular fill material. No separate or additional payment will be made for the compact filling of abandoned steel pipe piles with select granular fill material.

(O) SPLICING - Splicing of piles shall be such that the resultant vertical and lateral loads are adequately transmitted. Splices shall be so constructed so as to maintain the alignment and position of the component parts during installation of the pile and thereafter.

For steel pipe piles a "Drive On Splicer" as manufactured by Associated Pile and Fitting Corporation (Parsippany, NJ) or approved equal shall be acceptable whenever a maximum of two (2) splices are anticipated. Wheresoever more than two (2) splices are anticipated all splices shall be welded.

Shop and field welding on piles shall be done in accordance with AWS D1.1 - Structural Welding Code. Qualifications of welding procedures and operators shall be in accordance with "Standard Qualification Procedure" requirements of AWS. Welding electrodes shall comply with AWS D1.1, and be of proper classification for type of weld and material to be welded.

Records shall be kept of test results, welding procedures and for each qualified welding operator. Copies of these records shall be made available for review by the Engineer.

(P) LIMITS OF PILE SECTION FOR SEWERS OR WATER MAINS - The limits of the pile section for sewers or water mains shown on the plans may be changed by the Engineer at any location, depending upon the conditions encountered during construction.

The length of the pile section for sewer or water main may be increased or decreased where directed by the Engineer, effectively altering the estimated quantities of piles and related items bid under the contract.

The Engineer may also alter affected appurtenant structure locations (i.e. chamber, manhole, etc.), particularly where they are located at the beginning and the end of the pile section sewer or water main limits.

The deletion of items and/or quantities either in part or in whole shall form no basis for any claim for anticipated profits or for loss of profits.

(Q) SPECIAL INSPECTION AND MATERIALS TESTING

(1) The City of New York shall engage, under the requirements of Section 1704.1 of the Building Code, one or more Special Inspection Agencies to observe installation and provide all necessary material testing related to the work of this Section.

(2) Observation of driven pile installation and all necessary materials testing shall be performed by Special Inspectors meeting the minimum qualifications outlined in 1RCNY 101-06.

(3) The Special Inspector for driven pile installation shall be present on a full-time basis during pile driving. The Special Inspector shall log the installation of each pile and determine when it has attained the required depth and driving resistance as established by Contractor's WEAP analysis and Test Pile Program. This shall not relieve the Contractor's responsibility to provide piles of required capacity outlined in the Contract Documents.

(4) The Special Inspector shall prepare and submit daily reports summarizing pile installation and/or material testing activities. The Contractor shall cooperate and assist the Special Inspector in the making of these records.

(5) The Contractor shall have the sole responsibility for coordinating his work with the Special Inspector to assure that all tests and inspection procedures required by the NYCBC and Contract Documents are properly provided. The Contractor shall cooperate fully with the Special Inspector in the performance of their work.

(6) The Special Inspector shall promptly notify the Commissioner of any non-conformances and shall submit all field logs and reports necessary to facilitate any corrective design requirements.

(7) The Special Inspector shall provide all necessary certifications of the work in compliance with Building Code requirements.

(8) The Special Inspector shall notify the Engineer promptly of any part of the work of this section not in compliance with the Contract Documents.

(R) DELIVERY, STORAGE, AND HANDLING

(1) Deliver materials to the project site in such quantities and at such times to assure the continuity of pile driving operations, and to maintain the project schedule. Carefully handle piles by means of rope slings or other means so as not to damage piles; do not use peavies, cant hooks or other sharp tools.

(2) Piles shall be stored in orderly groups above ground, sufficiently blocked to minimize bending stresses. Piles exhibiting variations beyond specified limits will be considered distorted and shall not be used in the work.

(3) Concentrated loads, which occur during stacking or lifting, shall be kept below the level that would produce permanent deformation or overstress of the material. Damaged piles will be rejected from use in the performance of the work and shall be removed from the site.

(S) CLEAN-UP

(1) All debris resulting from excavation of objectionable material, removal of obstructions, cut-off butts, and any material not to remain as part of the construction is to be removed and disposed of off-site by the Contractor in a legal manner at no additional cost to the City of New York.

(2) The site shall be cleaned at frequent intervals, and no material shall be stored on the site in a manner, which would obstruct the easy access of equipment and personnel.

DSNY-70.11TS.05 SAFE OR ALLOWABLE LOAD

(A) The safe or allowable load of the piles shall be determined from the driving formulas stated below:

(1) When specified in the contract documents or in writing by the Engineer that load test are not required for piles, the formula to be used shall be as follows:

$$P = \frac{2E}{S + 0.2}$$

(2) For piles where load tests have been made as required in these specifications, the formula to be used shall be as follows:

$$P = \frac{KE}{S + 0.2}$$

P = Safe or Allowable Load in Pounds

E = Actual (not rated) Energy of Hammer per Blow in Foot Pounds

S = Average Penetration in Inches per Blow for the Last Five (5) to Ten (10) Blows

The Engineer from the results of the load tests shall determine the value of K.

(3) Should subsurface conditions be encountered which, in the opinion of the Engineer, render the above formulas inapplicable, the safe or allowable load of the pile shall be as determined by the Engineer.

(4) The above formulas are applicable under the following conditions:

(a) The hammer has a free fall.

(b) The head of the pile is not bruised or crushed.

(c) The penetration is uniform.

(d) There is no appreciable bounce after the blow.

(e) The strokes per minute of the ram are within the range of strokes per minute established by the manufacturer.

(B) In the event it is discovered that piles are being damaged due to driving, the Contractor when directed by the Engineer, shall change driving equipment so that a hammer with lighter striking parts will be used. Work shall not continue with a hammer or driving equipment that in the opinion of the Engineer is likely to damage the piles.

DSNY-70.11TS.06 TAPERED STEEL PILES INSTALLATION

(A) Piles shall be driven with power hammers developing energy per blow between fifteen thousand (15,000) and twenty-four thousand (24,000) foot-pounds. The hammer used shall have a fixed stroke. Hammers capable of providing multiple driving energies shall not be used, unless approved by the Commissioner. Suitable anvils or cushions, if required, shall be used to prevent undue damage to the pipe pile butt. Anvils and cushions shall be of a material that will not permit excessive loss of hammer energy.

(B) PLACING CONCRETE - Prior to placing concrete the piles shall be internally inspected by the Engineer. All material and equipment necessary or required for internal inspection shall be supplied by the Contractor for the Engineer's use at no additional cost. Any pile shells partly or wholly collapsed or containing water, soil or other foreign materials shall be rejected by the Engineer. Any cost a Contractor shall incur in order to render a rejected pipe pile suitable shall be borne solely by the Contractor.

No concrete shall be placed in any pile of a group until all piles in that group have been driven, internally inspected, found free of water and foreign material and have been approved. Also, no concrete shall be placed in any pipe pile that is within fifty (50) feet of an ongoing pile driving operation.

Concrete shall be placed through a funnel in a continuous operation and shall be solidly consolidated as approved by the Engineer.

DSNY-70.11TS.07 MEASUREMENT.

The quantities of TAPERED STEEL PILES, to be measured for payment shall be the number of vertical feet of each size, type and kind of pile, measured from pile point to cutoff, furnished and permanently incorporated in the work in accordance with the plans, standards and specifications and as directed by the Engineer.

DSNY-70.11TS.08 PRICE TO COVER.

The contract price for Item No. 70.11TS - TAPERED STEEL PILES shall be the unit price bid per vertical foot for each size and type of concrete-filled steel tapered pile and shall cover the cost of all labor, materials, plant, equipment, samples, tests, and insurance required and necessary to furnish, drive and/or install, jet, splice, flame-cut, cap, frame, and permanently incorporate in the work all concrete filled steel tapered piles required or ordered, together with load tests, conical points, concrete fill, and all work incidental thereto, all in accordance with the plans, standards, and specifications, and as directed by the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
70.11TS	TAPERED STEEL PILES	V.F

SECTION DSNY-SPS

DSNY SANITARY PUMP STATION

DSNY-SPS.01 REQUIREMENTS.

PART I - GENERAL

1.1 WORK INCLUDED

A. This specification section includes the following sub- sections related to the wastewater pump station and includes all work necessary to furnish, install and place into operation complete DSNY Wastewater Pump station and wastewater force main, consisting of the specified mechanical and electrical equipment:

1 Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

2 In-Channel Wastewater Grinder

3 Electrical General Conditions

4 Field Tests

5 Demonstration of Complete Electrical Systems

6 Outlet Boxes

7 Pull and Junction Boxes

8 Wire and Cable Terminations

9 Cable and Wires

10 Instrumentation and Control Work

11 Panelboards

12 Motor Controls and Control Centers

13 Cabinets and Enclosures

14 Vendor Supplied Panels

15 Switches and Receptacles

16 Motors

17 Supporting Devices

18 Heating and Ventilation Equipment

19 Electrical and Communication/Telephone Service

B. Contractor shall refer to each sub-section for scope of work requirements.

C. Contractor shall refer to Section DSNY-ELECT for additional information on Raceway and Boxes for Electrical Systems, Enclosed Switches and Circuit Breakers, Identification for Electrical Systems. Grounding and Bonding for Electrical Systems, Common Work Results for Electrical.

1.2 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.3 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

1.4 RELATED SECTIONS

A. Work performed under this section shall be subject to all the Contract Documents including the Drawings.

B. Section - DSNY-ELECT SPS Connection Electrical

SUB-SECTION – WASTEWATER PUMPS, CONCRETE STRUCTURES, FORCE MAIN AND APPURTENANCES

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the Contract [City of New York Standard Construction Contract].

1.2 WORK INCLUDED

A. The specifications shall govern all work necessary to furnish, install and place into operation complete DSNY Wastewater Pump System consisting of the specified pumps to handle the maximum flow and equipment as indicated on the drawings and specified herein. This work shall include, but not limited to the following:

1 Sitework;

2 Excavation, trenching, and backfilling;

3 Shoring and Bracing;

4 Dewatering;

5 Pipe, valve, fittings and appurtenance;

6 Painting, coating;

7 Prefabricated pump station;

8 Pre-cast concrete wet well;

9 Pumps, motors, controls and appurtenances;

10 Mechanical equipment;

11 Plumbing fixtures;

12 Electrical equipment;

13 Startup, Testing and Service Days

14 Operation and Maintenance Manuals

15 Utility connections;

16 All other work required for the complete and satisfactorily operating installation.

1.3 RELATED SECTIONS

A. Work performed under this section shall be subject to all the Contract Documents including the Drawings and documents.

B. New York City Department of Environmental Protection (NYCDEP) Standard Specifications

C. New York City Department of Transportation (NYCDOT) Standard Specifications

D. Section DSNY-ELECT SPS Connection Electrical

E. Contract Drawings

1.4 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM) latest edition

A 48 Gray Iron Castings

C 478 Precast Reinforced Concrete Manhole Sections

C 923 Resilient Connectors between Reinforced Concrete Manhole Structures and Pipes

C 479	Standard Specification for Vitrified Clay Liner Plates
C913	Standard Specification for Precast Concrete Water and Wastewater Structures
C150	Standard Specification for Portland Cement
C33	Standard Specification for Concrete Aggregates
C511	Standard Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
B62	Standard Specification for Aluminum-Alloy Sand Castings
A126	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
A307	Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength
A536	Standard Specification for Ductile Iron Castings
A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

1.5 SUBMITTALS

A. Submittal data shall be provided to show compliance with these specifications, plans or other specifications that will influence the proper operation of the pump(s).

B. After receipt of notice to proceed, the Contractor shall furnish coordinated shop drawings in a single package showing full assembly, detailing the equipment to be furnished including dimensional data and materials of construction. The Commissioner shall review this data, and return a copy as accepted, or with requested modifications. Upon receipt of accepted shop drawings, the Contractor shall proceed immediately with fabrication of the equipment.

C. Standard submittal data for approval shall consist of the following at a minimum:

1. Pump station (wet well, valve vault, and site) layout drawing showing all mechanical, structural and electrical equipment;
2. Signed and Sealed Excavation and dewatering plan by Licensed Professional Engineer in State New York;

3. Signed and Sealed Shoring Plan by Licensed Professional Engineer in State New York
4. Pump cut sheets, performance curves, electrical data, pump outline drawing, and dimensional data;
5. Piping, valves, fittings and appurtenances within and outside the wet well and valve vault;
6. Pressure gauges and appurtenances;
7. Quick disconnect and appurtenances;
8. Guiderails, hangers, and pipe supports;
9. Aluminum Access Hatches;
10. Access Frame Drawing;
11. OSHA compliant aluminum ladder and appurtenances;
12. Yard hydrant and water pipe;
13. Flexible and Transition Couplings;
14. Pipe penetration details;
15. Portable Davit and Slot;
16. Signed and Sealed Structural design calculations by Licensed Professional Engineer in State of New York;
17. Signed and Sealed Buoyancy calculations by Licensed Professional Engineer in State of New York;
18. Concrete design mix for structures and concrete pads;
19. All painting and coatings;
20. Electrical Motor Loading Data;
21. Electrical Control Drawing and Schematic Diagram;
22. Geotextile Liner;
23. Equipment Installation Documentation from Manufacturer;
24. Technical Manuals;
25. Parts List;
26. Printed Warranty for all installed equipment at the pump station site to Commissioner;
27. Manufacturer's Equipment Storage Recommendations;
28. Manufacturer's Standard Recommended Start-Up Report Form; and
29. All submittals required by the electrical specifications.

D. The above list is the minimum required. Contractor shall submit shop drawings for all items required for satisfactory operation of the pump station. Lack of the above requested submittal data is cause for rejection.

E. Record Drawings: At project closeout, Contractor shall submit record (as-built) drawings (signed and sealed by a New York PE or PLS) of installed pumps, piping, appurtenances, and products. Note all pipe lengths, inverts, structure locations, and lateral locations.

1.6 DELIVERY, STORAGE, AND HANDLING OF MATERIALS

A. Delivery and Storage Inspect materials delivered to site for damage.

1. Unload and store with minimum handling.
2. Store materials in enclosures or under protective covering.
3. Rubber gaskets which are not to be installed immediately must be stored under cover, out of direct sunlight.
4. Do not store materials directly on the ground. Keep interior of pipes and fittings free of dirt and debris.

B. Handling

1. Handle pipe, fittings, valves, and other accessories in such manner as to ensure delivery to the trench in sound, undamaged condition. Avoid injury to coatings and linings on pipe and fittings; make repairs if coatings or linings are damaged. Carry pipe to the trench; do not drag it. Do not use any device or fitting inserted into (such as loader forks) or attached to (such as chain hooks) the bell or spigot ends of the pipe to transport pipe. Handle ductile iron pipe, fittings, and accessories in accordance with AWWA C600. Handle PVC pipe, fittings, and accessories in accordance with AWWA C605.

1.7 MANUFACTURER:

A. The pump station, complete with all appurtenances, forms an integral system, and as such, shall be supplied by one pump station vendor. Submissions for multiple vendors shall not be allowed unless approved in writing by the Commissioner. The Contractor shall be responsible for the satisfactory

operation of the entire system. The equipment specified shall be a product of a company experienced in the design and manufacture of pumps for specific use in sewage systems. The company shall submit detailed installation and user instructions for its product, submit evidence of an established service program including complete parts and service manuals, and be responsible for maintaining a continuing inventory of pump replacement parts.

PART II - PRODUCTS

2.1 SUBMERSIBLE WASTEWATER PUMPS

A. This section includes electric submersible pump(s) that the Contractor shall furnish and install complete with motor, close coupled volute, cast iron discharge elbow, guide bar brackets, power cable, discharge force main and accessories.

B. Requirements

1. Furnish and install two (2) submersible non-clog submersible wastewater pump(s). Each pump shall be equipped with a 14 HP submersible electric motor, connected for operation on 460 volts, 3-phase, 60 hertz, 4-wire service, with 50-feet of submersible cable (SUBCAB) suitable for submersible pump applications.

2. The power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval.

3. The pump shall be supplied with a mating cast iron 4-inch discharge connection and be capable of delivering 380-GPM at 57-ft TDH.

4. Each pump shall be fitted with 50-feet of stainless steel cable with a small stainless steel chain section.

5. The working load of the lifting system shall be 50% greater than the pump unit weight.

C. Operating Conditions

Each pump shall have the following performance characteristics:

1. Points on Pump Characteristic Curve (see below):

   b. 500 GPM at 60 ft TDH (70 % pump efficiency)
   c. Operating Point: 425 gpm at 66ft TDH (66.3% pump efficiency)
2. Shut-off head (min): 101ft
3. Impeller diameter: 9 7/16-inches (239mm)
4. Motor RPM: 1,800 rpm
5. Minimum Motor Rating: 14.0 HP (Explosion Proof)
6. Voltage/ phase: 460V/3PH
7. Discharge Connection: 3 15/16-inches
8. Basis of Design Product: Xylem Flygt, Model: NP 3153HT Curve 465 or a comparable product by one of the following manufacturers:
   a. Groundfos
   b. Sulzer ABS
   c. Or Approved Equal

D. Pump Design Configuration

1. The pump shall be supplied with a mating cast iron 4-inch discharge connection and a 4-inch by 6-inch increaser.

2. The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two 2-inch stainless steel guide bars extending from the top of the station to the discharge connection.

3. There shall be no need for personnel to enter the wet-well.

4. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. Sealing of the discharge interface with a diaphragm, O- ring or profile gasket will not be acceptable.

5. No portion of the pump shall bear directly on the sump floor.

6. Each pump shall be fitted a pump removal system, specified in a separate section. The working load of the lifting system shall be 50% greater than the pump unit weight.

E. Pump Construction

1. Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. The lifting handle shall be of stainless steel. All exposed nuts or bolts shall be of stainless steel construction. All metal surfaces coming into contact with the pumps, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump.

2. Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

3. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O- rings, grease or other devices shall be used.

F. Cooling System

1. Motors shall be cooled by the environmental atmosphere or pumped media. Motors that require a water jacket will not be allowed.

G. Cable Entry Seal

1. The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal.

2. The cable entry shall consist of a dual cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter. The grommets shall be compressed by the cable entry unit, thus providing a strain relief function.

3. The assembly shall provide ease of changing the cable when necessary using the same entry seal.

4. The cable entry junction chamber and motor shall be sealed from each other, which shall isolate the stator housing from foreign material gaining access through the pump top.

5. Epoxies, silicones, or other secondary sealing systems shall not be considered equal.

H. Motor

1. The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31.The stator shall be heat-shrink fitted into the cast iron stator housing. The use of multiple step dip and bake-type stator insulation process is not acceptable. The use of pins, bolts, screws or other fastening devices used to locate or hold the stator and that penetrate the stator housing are not acceptable. The motor shall be designed for continuous duty while handling pumped media of up to 104°F. The motor shall be capable of no less than 30 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of aluminum. Three thermal switches shall be embedded in the stator end coils, one per phase winding, to monitor the stator temperature. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the motor control panel.

2. The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.

3. The motor service factor (combined effect of voltage, frequency and specific gravity) shall be 1.15. The motor shall have a voltage tolerance of +/- 10%. The motor shall be designed for continuous operation in up to a 40°C ambient and shall have a NEMA Class B maximum operating temperature rise of 80°C. A motor performance chart shall be provided upon request exhibiting curves for motor torque, current, power factor, input/output kW and efficiency. The chart shall also include data on motor starting and no-load characteristics.

4. Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a minimum depth of 65 feet.

5. The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The power cable shall be of a shielded design in which an overall tinned copper shield is included and each individual phase conductor is shielded with an aluminum coated foil wrap. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber. The cable shall be capable of continuous submergence underwater without loss of watertight integrity to a minimum depth of 65 feet.

I. Bearings

1. The pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease lubricated. The upper bearing shall be a single deep groove ball bearing. The lower bearing shall be a two row angular contact bearing to compensate for axial thrust and radial forces. Sleeve or single row lower bearings are not acceptable. The minimum L10 bearing life shall be a minimum of 50,000 hours at any usable portion of the pump curve.

J. Mechanical Seal

1. Each pump shall be provided with a positively driven dual, tandem mechanical shaft seal system consisting of two seal sets, each having an independent spring. The lower primary seal, located between the pump and seal chamber, shall contain one stationary and one positively driven rotating corrosion and abrasion resistant tungsten-carbide ring. The upper secondary seal, located between the seal chamber and the seal inspection chamber shall be a leakage-free seal. The upper seal shall contain one stationary and one positively driven rotating corrosion and abrasion resistant tungsten-carbide seal ring. The rotating seal ring shall have small back-swept grooves laser inscribed upon its face to act as a pump as it rotates, returning any fluid that should enter the dry motor chamber back into the lubricant chamber. All seal rings shall be individual solid sintered rings. Each seal interface shall be held in place by its own spring system. The seals shall not depend upon direction of rotation for sealing. Mounting of the lower seal on the impeller hub is not acceptable. Shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces are not acceptable. The seal springs shall be isolated from the pumped media to prevent materials from packing around them, limiting their performance.

2. Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion. The seal lubricant chamber shall have one drain and one inspection plug that are

accessible from the exterior of the motor unit. The seal system shall not rely upon the pumped media for lubrication.

3. The area about the exterior of the lower mechanical seal in the cast iron housing shall have cast in an integral concentric spiral groove. This groove shall protect the seals by causing abrasive particulate entering the seal cavity to be forced out away from the seal due to centrifugal action.

4. A separate seal leakage chamber shall be provided so that any leakage that may occur past the upper, secondary mechanical seal will be captured prior to entry into the motor stator housing. Such seal leakage shall not contaminate the motor lower bearing. The leakage chamber shall be equipped with a float type switch that will signal if the chamber should reach 50% capacity.

5. Seal lubricant shall be non-hazardous.

K. Pump Shaft

1. Pump and motor shaft shall be the same unit. The pump shaft is an extension of the motor shaft. Couplings shall not be acceptable. The shaft shall be stainless steel – ASTM A479 S43100-T.

2. If a shaft material of lower quality than stainless steel – ASTM A479 S43100-T is used, a shaft sleeve of stainless steel – ASTM A479 S43100-T is used to protect the shaft material. However, shaft sleeves only protect the shaft around the lower mechanical seal. No protection is provided in the oil housing and above. Therefore, the use of stainless steel sleeves will not be considered equal to stainless steel shafts.

L. Impeller

1. The impeller shall be of ASTM A-48, Class 35B grey iron, dynamically balanced, semi-open, multi-vane, back swept, screw-shaped, non-clog design. The impeller leading edges shall be mechanically self-cleaned automatically upon each rotation as they pass across a spiral groove located on the volute suction. The leading edges of the impeller shall be hardened to Rc 45 and shall be capable of handling solids, fibrous materials, heavy sludge and other matter normally found in wastewater. The screw shape of the impeller inlet shall provide an inducing effect for the handling of up to 5% sludge and rag-laden wastewater. The impeller to volute clearance shall be readily adjustable by the means of a single trim screw. The impeller shall be locked to the shaft, held by an impeller bolt and shall be coated with alkyd resin primer.

M. Volute / Suction Cover

1. Pump volute(s) shall be single-piece grey cast iron, Class 35B, non-concentric design with smooth passages large enough to pass any media that may enter the impeller. Minimum inlet and discharge size shall be as specified.

N. Protection

1. All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. At 125°C (260°F) the thermal switches shall open, stop the motor and activate an alarm.

2. A leakage sensor shall be available as an option to detect water in the stator chamber. The Float Leakage Sensor (FLS) is a small float switch used to detect the presence of water in the stator chamber. When activated, the FLS will send an alarm and, if desired, stop the motor. Use of voltage sensitive solid state sensors and trip temperature above 125°C (260°F) shall not be allowed.

O. Explosion-Proof Pumps:

1. The pump system including the pump, motor and power cable shall be approved for use in areas classified as hazardous locations in accordance with the NEC Class I, Div. 1, Group C and D service as determined and approved by a U.S. nationally recognized testing laboratory (U.L., FM, CSA) at the time of the bidding of the project.
2. As required by Factory Mutual (FM) the motor shall be capable of operating in pumped media up to 104 DEGREES F.
3. Motor thermal switches shall monitor and protect the motor from excessive temperature.
4. An internal Float Switch shall be available in the motor chamber.
5. Service of explosion-proof submersible units shall be performed by qualified FM experienced personnel.

6. The pump manufacturer must provide training schools to qualify personnel in the proper service and repair of explosion-proof pumps.

P. Pump Removal System, Guide Rails and Cable Holder

1. Furnish with each submersible pump one complete pump removal system as recommended by the pump manufacturer. The system shall consist of 35feet stainless steel cord, short length of high tensile strength proof- tested chain and forged steel Grip-Eye for use with mechanical lifting device.

2. System shall be appropriately sized for weight of pump to be lifted.

3. The upper guide rail bracket and guide rails shall be 316 stainless steel and shall be per pump manufacturer's recommendations for the pump used in the pump stations.

4. The cable holder shall be 316 stainless steel and shall be capable of holding the weight of the cables required for each pump station. The cable holder shall be bolted to concrete in the wet well.

5. Basis of Design Product: Xylem Flygt-Lift System or a comparable product by one of the following manufacturers:
   a. Grundfos
   b. Sulzer ABS
   c. Or Approved Equal

Q. Mix-Flush Valve

1. At least one pump in a duplex pumping setup shall incorporate one (1) Mix-Flush system to automatically flush the sump during initial operation of the pump.
2. This valve shall be mounted directly on the pump volute and shall direct a portion of the pumpage into the sump to flush and re-suspend solids and grease by the turbulent action of its discharge.

The turbulent action caused by the flow shall also provide some sump aeration benefits. The valve shall be mounted on the pump volute so that it can be removed from the sump along with the pump during normal and routine maintenance checks and shall be positioned on the volute to provide for non-clogging operation. The valve shall be equipped with an adjustable, wear resistant discharge nozzle which shall be used to direct flow from the valve to optimize mixing action within the sump.

3. The valve shall not require any external power source or control to operate, neither electric nor pneumatic. The use of the external power source is not acceptable. The valve shall be suitable for use in Class I, Division 1 hazardous locations.
4. The valve shall open at the beginning of each pumping cycle and shall automatically close during pump operation after a pre-selected time of operation. The valve shall operate automatically by differential pressure across the valve and shall be actuated through a self- contained hydraulic system which uses an environmentally safe fluid. A method of adjusting the valve operating time shall be provided.
5. Basis of Design Product: Flygt 4901 Flush Valve, impeller and volute or a comparable product by one of the following manufacturers:
   a. Grundfo
   b. Sulzer ABS
   c. Or Approved Equal

R. Wall Slot for Portable Hoist & Portable Davit Crane

1. Furnish for each pump station a wall mounting bracket for portable davit crane as shown on the plans. The pump station wet well shall be designed to handle the additional load due to the installation of the portable davit crane and the equipment that will be lifted using the crane.
2. The crane shall have an adjustable boom with four adjustable lengths. The portable davit crane shall have a lifting capacity of 2,000 lbs and a minimum lifting capacity of 1,000 lbs when extended to the maximum distance. The crane shall be constructed of 316 grade stainless steel with an electro-polished finish for superior corrosion protection.
3. The portable davit crane shall include at least 15 meters of 316 grade stainless steel chain and shall be capable of full 360 degree rotation.
4. Boom shall telescope up to 4 different lengths allowing a maximum hook reach of at least 81 inches measured from mast center to hook center.

5. Hook height shall be adjustable by moving the boom up or down between 5 degrees above horizontal and 45 degrees from vertical, with a minimum of 48 inches between the lowest position and the highest position with the boom fully extended.
6. Boom angle shall be adjustable at all times, with a hand operated screw jack acting to raise or lower the boom between 5 degrees above horizontal and 45 degrees from vertical.
7. Crane components shall be fastened together using stainless steel clevis style pins, secured with lynch pins with lanyards fastening the lynch pins to primary structural components.
8. Davit crane shall break down into portable components with no single component weighing more than 100 pounds. Carrying handles shall be welded to mast and boom.
9. Lifting winches shall be located such that the center point of the drive shaft is behind the centerline of the mast.
10. Winch shall have machine cut gears, an adjustable handle that mounts securely to the drive shaft, bronze and radial ball bearings, stainless steel fasteners, and a positive load holding Weston style brake able to stop and hold the load automatically if the winch handle is released.
11. Basis of Design Product: Subject to Compliance with Requirements provide Thern Series 5124 or comparable product by one of the following:
    a. Halliday Products
    b. Columbian Winches and Hoists
    c. Or approved equal

S. Temperature and Moisture Sensor

1. Furnish and install sensors to monitor the temperature and leakage detectors installed in each pump. The sensors shall be capable of monitoring the thermal switches embedded in the stator end coils, the FLS (float switch type) water-in-stator-housing sensor. The sensors shall monitor both the series connected thermal switches and leakage sensor(s) by outputting 12 VDC on a single two wire circuit.
2. The sensor circuitry shall operate on the current sensing principle whereby a change in temperature or leakage condition shall change the resistance of the associated sensor and thus alter the current in the sensing circuit. The sensor shall contain two sets of form C dry contacts, one for over-temperature and one for leakage.
3. The dry contacts shall change status upon occurrence of an over temperature or leakage condition so as to indicate that condition to other control components in the pump control panel.
4. Basis-of-Design Product: Subject to compliance with requirements provide Xylem MinCAS or comparable product by one of the following:
    a. Grundfos
    b. Sulzer ABS

c. Or approved equal.

2.2 CONCRETE WET WELL AND VALVE VAULT

A. Refer to pump station drawings for location and dimensions of Wet Well and Valve Vault. The wet well and valve vault shall be pre-cast concrete structure and ready for installation. All pipe wall penetrations shall be flexible compression type watertight connections. Connectors requiring manual tightening of screws or pipe clamps will not be acceptable. All electrical penetrations shall be as per the electrical drawings. The watertight sleeves for all electrical conduit and aluminum access hatch shall be cast into the top sections at the pre-cast plant.

B. The pre-cast concrete Wet Well and Valve Vault shall be designed to withstand HS-20 truck wheel loading.The walls must be designed to withstand wall collapse based on the assumption that saturated soil exerts hydrostatic pressure of 135 pounds per cubic foot (pcf). The tank wall must be constructed to withstand or exceed two times the actual imposed loading on any depth of basin. Stress calculations and Shop and Working Drawings signed and sealed by a Professional Engineer in the State of New York must be submitted to the Commissioner verifying the results obtained using 135 pounds per cubic feet saturated soil pressure and two times actual imposed loading of any depth basin including buoyancy calculations based on water elevations up to the finished grade.

C. The Wet Well and Valve Vault sections shall be manufactured in accordance with ASTM C-478/C-913. The minimum compressive strength of the concrete for all sections shall be 5,000 PSI. The maximum allowable absorption of the concrete shall not exceed 8 percent of the dry weight.

D. Wet well shall be designed to handle the additional load from the portable hoist crane, wall slot and the anticipated equipment that will be handled by the crane

E. The Wet Well and Valve Vault shall have a 6" thick ¾" clean stone bedding.

F. Refer to Geotechnical Report and standard NYCDEP and NYCDOT specifications for Earthwork and backfill requirements.

G. Refer to NYCDEP and NYCDOT standard specifications for Handling of Contaminated Materials for excavation material handling and backfill material requirements.

H. The Wet Well and Valve Vault exterior shall have 2 coats of coal tar epoxy. The Wet Well and Valve Vault interior shall have 2 coats TNEMEC "Perma-Glaze Series 435". The coatings shall be installed as per the recommendations of the manufacturer. The Contractor shall take into account the concrete curing time before the paint is applied to develop the project schedule.

I. Pump Station Manufacturer shall be Nationally Certified by the National Precast Concrete Association. (NCPA).

J. Each precast module shall be provided with formed male and female joints in ensure accurate joint surfaces and tolerance for a watertight seal.

K. The pump station and valve pit structures shall be fabricated and cast at the Manufacturer's facility in full accordance with approved structural designs and Shop and Working Drawings.

L. The Pump Station Manufacturer shall have a facility of sufficient size to permit assembly of all structural components and interior mechanical equipment, within an environmentally controlled building. All work associated with fabricating, assembling and testing the pumping station shall be performed within the building except as otherwise noted herein, or allowed by the Commissioner. The building shall keep the structures protected from the elements and be maintained at an ambient temperature of at least 45° F.

M. Concrete used in the manufacture of the various structural components of the precast concrete structures shall meet the following requirements:

1. Cement shall be High Early Strength Portland Cement, Type II or Type III, conforming to ASTM C-150.

2. Fine aggregate shall consist of natural sand conforming to ASTM Specification C-33.

3. Coarse aggregate shall consist of well-graded crushed stone conforming to ASTM specification C-33.

4. Air entrainment shall be 4.5% plus or minus 1%.

5. A superplasticizer may be used and if so, used per manufacturers recommendations.

6. No concrete shall be placed when the ambient temperature in the building is less than 50° F.

7. The concrete used for the structural components shall attain a minimum 28 day compressive strength of 5,000 psi.

8. The pump station manufacturer to have on staff a PCI Certified Technician.

9. As a minimum, six 4 x 8 concrete test cylinders shall be made for each production day from the same concrete batch used in actual components. Two cylinders shall be tested at time of product stripping, two at seven days cured in environment similar to the actual

component, and two at 28 days cured in 100% humidity. Results shall be furnished to the Commissioner. Test cylinders shall be cured in the same manner as the actual components are cured.

N. Reinforcing steel used in the manufacture of the various structural components of the precast concrete components shall meet the following requirements:

1. Steel shall be new billet steel, deformed steel bars conforming to ASTM A-615 (latest revision) Grade 60. Welded steel wire fabric reinforcing shall conform to ASTM A-185 (latest revision)

2. Minimum cover of reinforcement shall be one inch.

2.3 ACCESS COVERS

A. Floor access hatches for the pump station wet well and valve vault shall be watertight, odor tight and gastight capable of withstanding a 300 psf uniform load with minimal deflection.

B. Door leaf shall be 1/4" aluminum checkered plate reinforced with structural aluminum channels and shall be capable of withstanding a 4'-10" head with minimal deflection.

C. The following items shall be type 316 stainless steel: slam locks, brackets, hinges and hardware.

D. The door shall have a 316 stainless steel gas spring with integral hold open device which will assist in opening the door and shall lock automatically in the open position. The door shall open a minimum of 90 degrees.

E. The aluminum extruded frame shall have a thickness not less than 1/4" and shall incorporate a neoprene gasket that will reduce air leakage to less than 1 CFM per lineal foot of frame when the interior of the hatch is subjected to a 2 inch water column vacuum.

F. The access door shall include a gutter frame with a 1 1/2" threaded drain coupling. All fasteners which penetrate into the "Dry" area of the hatch shall be sealed with "O" Ring Seals to prevent incidental water and gas leakage.

G. The portion of the frame which is in contact with the concrete shall receive a protective bituminous coating.

H. Hatches shall be drained outside the wet well and vault.

I. Basis-of-Design Product: Subject to compliance with requirements provide Thompson Fabricating LLC Model THG- or comparable product by one of the following:

1. USF Fabrication
2. Bilco
3. Or Approved Equal.

2.4 ALUMINUM LADDER AND OSHA COMPLIANT FALL PREVENTION SYSTEM

A. The ladders shall be constructed entirely of aluminum. The rails shall be 1/2" x 2 3/4" (13mm x 70mm) aluminum extrusion and shall be spaced 16" (406mm) apart. The wall mounted standoffs shall be 3/8" x 2 1/2" (10mm x 64mm) flat bar and welded to the rails at a maximum of 60" (1.5m) on center. The standoffs shall be a minimum of 7" (178mm) and manufactured to fit flush with the wall. 1 3/8" (35mm) diameter type "D" rungs with flat slip resistant surface shall be spaced at 12" (305mm) on center and welded to the outside of each rail.

B. The safety extension shall be constructed entirely of aluminum and stainless steel. The aluminum housing shall mount to the ladder by means of stainless steel channel clamps secured to the ladder rungs with stainless steel "U" bolts. The aluminum telescoping post shall extend 37" (940mm) for Model A and 34" (864mm) for Model B above the top of the housing and lock into position with a stainless steel pin.

C. Basis-of-Design Product: Subject to compliance with requirements provide Halliday; ladder series L1D and ladder extension series L1E or comparable product by one of the following:

1. Thompson Fabricating LLC
2. Sur-Loc
3. Bilco
4. Or Approved Equal.

2.5 GEOTEXTILE LINER

A. The Geotextile shall have the following mechanical properties.

Mechanical Properties	Test Method	Unit	Typical Value	
			MD	CD
Tensile Strength (at ultimate)	ASTM D 4595	kN/m (lbs/in)	4.7 (27)	4.7 (27)
Grab Tensile Strength	ASTM D 4632	N (lbs)	409 (2)	409 (92)
Grab Tensile Elongation	ASTM D 4632	%	70	70
Trapezoid Tear Strength	ASTM D 4533	N (lbs)	200 (45)	200 (45)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	1309 (190)	
Puncture Strength[1]	ASTM D 4833	N (lbs)	240 (54)	
CBR Puncture Strength	ASTM D 6241	N (lbs)	1113 (250)	
Apparent Opening Size (AOS)[2]	ASTM D 4751	mm (U.S. Sieve)	0.25 (60)	
Permittivity	ASTM D 4491	sec^{-1}	2.9	
Flow Rate	ASTM D 4491	$l/min/m^2$ ($gal/min/ft^2$)	8352 (205)	
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	83	

[1] ASTM D 4833 has been replaced with ASTM D 6241
[2] ASTM D 4751: AOS is a Maximum Opening Diameter Value

B. The Geotextile shall have the following physical properties.

Physical Properties	Test Method	Unit	Typical Value	
Weight	ASTM D 5261	g/m^2 (oz/yd^2)	115 (3.4)	
Thickness	ASTM D 5199	mm (mils)	0.8 (32)	
Roll Dimensions (width x length)	--	m (ft)	3.8 x 110 (12.5 x 360)	4.5 x 110 (15 x 360)
Roll Area	--	m^2 (yd^2)	418 (500)	502 (600)
Estimated Roll Weight	--	kg (lb)	52 (113)	62 (136)

2.6 PIPING AND VALVES

A. Furnish and Install valves, piping and fittings suitable for application in wastewater applications and shall be as shown in contract drawings.

B. Pump Station and buried piping:

1. Pump Station piping material shall be as shown on the plans
2. Ductile Iron pipe (where shown on the Contract Documents):
   a. Flanged pipe thread-fabrication shall be Special Thickness Class 56 in accordance with ANSI/AWWA C115/A21.15 and ANSI/AWWA C110/A21.10. Threaded companion flanges for ductile iron pipe shall be ductile iron in accordance with AWWA C115.
   b. Mechanical Joint Pipe shall be shall be Special Thickness Class 56 in accordance with ANSI/AWWA C110/A21.10 and ANSI/AWWA C111/A21.11
   c. Ductile iron pipe barrels conform to the requirements of AWWA C151.
   d. Flanged and Mechanical Joint Pipe shall be coated with two coats (primer and final coating) of bituminous outside coating in accordance with ANSI/AWWA C151/A21.51.
   e. Flanged and Mechanical Joint Pipe interior and exterior shall be lined with two coats 40 mils (primer and paint) of Protecto 401 ceramic epoxy suitable for sewage applications. The Contractor shall field cut the force main in accordance with the manufacturer's recommendations. All piping inside the wet well and valve vault shall be field painted with two coats of primer and paint after installation in accordance with manufacturer's recommendations.
   f. Flanged Ductile Iron Pipe fittings shall be in conformance with AWWA C110 or AWWA C115.
   g. Manufacturers –
      i. American Cast Iron Pipe Company;
      ii. US Pipe;
      iii. McWane Ductile;
      iv. Or Approved Equal.
3. Drain Piping shall be PVC SDR-35 pipe.

C. Fitting:

1. Ductile Iron Fittings:
   a. Ductile iron restrained joint compact fittings shall be designed with the restraint system as an integral part of the fitting.
   b. Fittings shall be manufactured of ductile iron conforming to the requirements of mechanical joint, AWWA C110 or AWWA C111.

c. The inside and outside coatings of the fittings shall match the coatings of the ductile iron pipe noted above.

d. Gaskets shall in all respects conform to the requirements of ASTM F 477 and Table 8 of ANSI/AWWA C111/A21.11.

e. Fittings, including the joints and restraint systems, shall have a minimum pressure rating of 250 psi.

f. The joint shall be tested with pipe using the procedures found in ASTM F1674, including a short term high pressure test, a sustained pressure test, a cyclic surge test and shall be capable of being assembled without beveling a cut pipe.

g. Joint Restraints:

i. Restraint devices for nominal pipe sizes 3 inch through 54 inch shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10.

ii. The devices shall have a working pressure rating of 350 psi for 3-16 inch, 250 psi for 18-48 inch and 200 psi for the 54 inch size. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes.

iii. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.

iv. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN.

v. Three (3) test bars shall be incrementally poured per production shift as per Underwriter's laboratory (U.L.) specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.

vi. Chemical and nodularity tests shall be performed as recommended by the Ductile Iron Society, on a per ladle basis

D. Gate Valves:

1. Gate valves shall be of resilient wedge gate valves which meet or exceed the latest revision of AWWA C509 or AWWA C515 standard.
2. All gate valves shall be Outside-Screw and Yoke type (OS&Y).
3. The valves shall have the below features:

a. 250 psi maximum working water pressure.

b. 140 degrees F maximum working water

c. 500 psi hydrostatic test pressure

d. ANSI / ASME B16.1 end connection

4. Materials shall be as follows:
    a. The valve body and covers
        i. 4" – 12" Cast Iron ASTM A-126, Class B
        ii. 14"-24" - Ductile iron ASTM A536 Gr 65-45-12
        iii. Coating - The body, bonnet, and o-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C-550 and be NSF 61 approved.
    b. Wedge - Gray Iron ASTM A126 Class B
    c. Elastomers – EPDM FDA approved
    d. OS & Y stems shall be bronze
    e. Fasteners – Zinc Plated steel ASTM A307 Grade B & 316L Stainless Steel
5. Manufacturers –
    a. Mueller and Co. (R-2360),
    b. Clow Valve Company (F-6136),
    c. American Flow Control (Series 2500)
    d. M&H valve company (Model 4067)
    e. Or approved equal.

E. Cushioned Swing Check Valve:

1. Check valves for the pump station shall be of swing type and shall meet the material requirements of AWWA specification C508.
2. Valve Design:
    a. Counter-weighted.
    b. Rubber seated and drip-tight.
    c. Pneumatic dampening chambers with adjustment for closing speed.
    d. Design for Class 250 psi
3. Materials:
    a. Valve Body, Cover, and Disc: Cast iron, ASTM A 126, Class B.
    b. Disc seat: Buna N.
    c. Shaft: Stainless steel.
    d. Cushion Cylinder: Corrosion-resistant metal/air cushion side mounted.

e. Disc Ring Seat: Stainless Steel.

f. Seat Pins and Lock Screws: Stainless steel.

4. Manufacturers:

a. Clow Valve Company (Style 106LW),

b. Mueller (#2600-6-01),

c. Golden Anderson, Series 250

d. or Approved Equal.

F. Air Release Valve:

1. The "Short Body" Sewage Air Release Valve shall be float operated and shall employ a compound lever mechanism to enable the valve to automatically release accumulated air and gases from a sewage pipeline while the system is pressurized and operating.

2. The Air Release Valve shall close drop tight, incorporating an adjustable Buna-N orifice button. All internal metal parts shall be of stainless steel. The linkage/lever mechanism shall be able to be removed from the valve without disassembly of the mechanism.

3. The float shall be stainless steel and be capable of withstanding a 1,000 PSIG test pressure.

4. The body and cover shall be of cast iron conforming to ASTM A126 Class B. Inlet connection shall be 2" or 3" NPT, or 4" FLG, as required. Outlet connection shall be 1/2" NPT. Maximum height (without attachments) shall be 12" (2" and 3" size), 14" (4" size).

5. Shut off valves for the Air Release Valve shall be 316L Stainless steel ball valves.

6. The outlet shall be furnished with a quick-connect couplings and rubber hose to direct the discharge to the valve vault floor.

7. The valve shall be supplied with a "Flushing Attachment" consisting of: bronze shut-off valves, quick-connect couplings and rubber hose, for back washing with clear water.

8. Manufacturers:

a. Figure 929 by GA Industries

b. Flomatic

c. Dezurik/APCO

d. Or Approved Equal

G. Reduced Pressure Zone Assembly (see Building MEP plans and specifications)

H. Flap Valve

1. The flap valve for all pump stations shall be manufactured by the

a. Clow Valve Company

b. Troy

c. MH Valve

d. Or Approved Equal

2. The valve disc and body shall be Cast Iron per ASTM A126, Class B, latest revision.
3. The disc ring and seat ring shall be Bronze per ASTM B62, latest revision thereof.
4. The Cotter pin and hinge pin shall be Brass CDA360

I. Xtra-Flex Coupling

1. Furnish and install Xtra-Flex Coupling as manufactured by US Pipe or approved equal at locations noted on the plans.

2. Cast Components shall be made of ductile iron conforming to all applicable requirements of ANSI/AWWA C110/A21.10.

3. Coating for coupling shall match the coatings specified on the pipe and fittings above.
4. Pressure Gauge
5. Furnish and install a pressure gauge with stainless steel ball valve and snubber.
6. The design of the pressure gauge shall be compliant with ASME B40.100 and shall be suitable for wastewater applications.
7. The pressure gauge shall have an accuracy of 0.5% of span of 0-14bar.
8. The pressure gauge shall be glycerine (99.7%) filled with an operating temperature of -40°C
9. to +65°C.
10. The pressure gauge shall be in black aluminum weather resistant (NEMA 3X) case.
11. The pressure gauge shall have a display range of 0-50 psi.
12. Manufacturers:

    a. WIKA XSEL Process Guage Model Type 233.34

    b. Ashcroft

    c. Ametek

d. Or approved equal

2.7 ELECTROMAGNETIC FLOW MEASURING SYSTEM

A. All instruments and sensors shall be supplied by one manufacturer to ensure consistent fit and system-wide functioning.

1. Provide:

a. Flow Sensor compatible with flow rate and media.

b. Flow Converter capable of converting conductive liquid velocity signal into flow rate and transmitting proportional signal, totalizing signal and relay signals. The flow converter shall transmit signals to the pump station control panel display.

c. Display Unit capable of displaying all measurements and set-up functions, and capable of providing data logging functions and program uploads.

d. Basis-of-Design Product: Subject to compliance with requirements MJK MagFlux or comparable product by one of the following:

i. ABB

ii. Endress + Hauser

iii. Or approved equal.

B. System Description

1. The electromagnetic flow measurement system shall consist of a Flow Sensor which uses Faradays law of electromagnetic induction along with a microprocessor based Flow Converter and Display.

a. The flow meter shall have built in self-diagnostics, technician service functions and be suitable for use with the manufacturer's system certifying kit to confirm meter's sensor functions, accuracy of electronics including a calibration check of electronics at a zero flow and a mid-range flow rates, and for confirming all components meet factory specifications for accuracy and feature operation.

2. Operating Principle: Utilizing Faraday's Law the sensor converts the liquid flow through the sensor into electrical voltage proportional to the velocity of the flow.

3. Construction: The senor shall be produced from 316L stainless steel pipe, coils, 316L stainless steel electrodes and a hard rubber liner, soft rubber liner, or PTFE liner as required for compatibility with the media. The sensor shall have a stainless steel outer jacket or carbon

steel outer jacket, carbon steel or stainless steel ANSI 150 psi or optionally ANSI 300 psi, ANSI Class D or ANSI Class E flanges. Carbon steel exterior components as well as the exterior of the flow tube shall be protected with two part epoxy coating for corrosion resistance.

4. Installation: A minimum of 3 pipe diameters up stream and 2 pipe diameters downstream of straight smooth pipe are recommended. (Consult Factory for any variations.)
5. Flow Sensor Operating Temperature shall be: Media Temperature -25°C to 110°C (-13°F to +230°F), Ambient Temperature -30°C to 80°C (-22°F to + 176°F).
6. Flow Sensor Sizing shall conform to the manufacturer's sizing recommendations for the expected flow rates per the table below:

Flow Sensor Sizing

Min and max flow

Size	Qmin 0.6 ft./s [GPM]	Qmax 30 ft./s [GPM]	Size	Qmin 0.6 ft./s [GPM]	Qmax 30 ft./s [GPM]	Size	Qmin 0.6 ft./s [GPM]	Qmax 30 ft./s [GPM]
			¾"	0.995	49.76	2½"	10.52	523.9
			1"	1.550	77.82	3"	15.93	796.9
¼"	0.091	4.45	1¼"	2.549	127.4	4"	24.87	1246
3/8"	0.249	12.4	1½"	3.984	199.7	5"	38.92	1946
½"	0.559	28.0	2"	6.226	310.7	6"	55.91	2800

Min and max flow

Size	Qmin 0.6 ft./s [GPM]	Qmax 30 ft./s [GPM]	Size	Qmin 0.6 ft./s [GPM]	Qmax 30 ft./s [GPM]	Size	Qmin 0.6 ft./s [GPM]	Qmax 30 ft./s [GPM]
8"	99.50	4,979	18"	506.3	25,210	36"	2017	100,800
10"	155.4	7,780	20"	620.8	31,120	40"	2497	124,500
12"	224.1	11,205	24"	999.1	44,910	48"	3584	179,300
14"	305.1	15,258	28"	1220	74,920	20mA output is factory preset to Qmax		
16"	398.5	19,919	32"	1594	79,620			

7. Flow Sensor shall be capable of being installed for permanent burial or submergence up to 30 ft. (IP 68/NEMA 6P) using manufacturer's submergence and waterproofing kits. Flow sensor shall be capable of temporary (30 minutes) submergence up to 3 ft. (IP 67) without a submergence kit.
8. Flow Sensor shall be full bore internal diameter throughout to reduce liner erosion and reduce turbulence at high flow ranges.
9. Flow Sensor shall be factory calibrated and wet tested to deliver ±0.25% reading accuracy for sizes from ¼ inch up to 12 inch diameters, and ±0.5% reading accuracy up from 14 inch to 20 inch diameters, ±1% reading accuracy from 24 inch to 40 inch diameters, and ±2% reading accuracy in sizes above 40 inches diameter. Accuracies will be NIST Traceable.
10. Flow Sensor shall be delivered with a calibration certificate for verification of performance.
11. The Flow Sensor shall have calibration and flow set up data marked on the sensor.
12. No tools or instruments shall be required to enter or confirm calibration data during set-up.
13. The Flow Sensor shall have no electronic components except the electrodes and coils.
14. Flow Sensor shall be capable of operating in 100% humidity on a permanent basis with manufacturer's recommended gel potting.
15. Flow sensor shall be capable of being mounted in at angles up to 45° from vertical around the center axis of a horizontal pipe.
16. Flow Sensor shall be capable of being installed in any direction without regard to flow direction.
17. The Flow Sensors 316L electrodes shall be lobed so as to create a scouring effect with flow through the tube
18. The Flow Sensor shall also include a grounding electrode to eliminate the need for grounding rings in wastewater applications (except when using non-conducting pipe).

C. Flow Convertor

1. Flow Converter shall have an enclosure rating of IP 67 (NEMA 6)
2. Flow Converter shall have a measurement accuracy of ±0.1%
3. Flow Converter shall energize and detect signals generated at the Flow Sensor electrodes and self-adjust frequency and amplitude to maximize accuracy across a wide range of flow velocities.
4. Flow Converter shall include program for periodic self-cleaning of Flow Sensor electrodes using cyclic reverse polarization systems to prevent material attachment and to detach plated materials.
5. Flow Converter shall be capable of measuring fluid velocities in low ranges from 0 to 0.2m/S (0.6ft/sec.) and up to a maximum velocity up to 10m/s (30ft/sec).

6. Maximum accuracies shall be achieved from 2% of the flow sensors maximum flow rate up through the sensors maximum flow rate

7. Flow Converter shall be a flow rate transmitter with a fully scalable 4-20mA output proportional to all or part of the full-scale flow rate and capable of transmitting with a maximum line load of 800 Ω.

8. The Flow Converter shall be capable of transmitting a 4-20mA output proportional to the flow in either direction, or 4-20 mA proportional to flow in both directions, selectable after installation.

9. Flow Converter shall have one voltage free electromechanical relay rated for a maximum of 50VDC at 1 Amp one voltage free relay rated for 50VAC/VDC 120mA max. Both relays are programmable for totalizer counter output, batch counters, high/low flow alarm, system error, empty pipe alarm, and flow direction indication.

10. The Flow Converter shall accept one external digital input rated at a maximum of 30VDC with a signal less than 5VDC registered as = 0 and a signal greater than 10 VDC as registered as = 1. Minimum pulse length 100ms. Digital input can be used for reset of batch counters, start and stop batches or alarm acknowledgement.

11. The Flow Converter shall be capable of reading flow in both directions and have three re- settable totalizers and three non-resettable totalizers capable of totalizing the total flow or net flow in both directions.

12. The Flow Converter shall have two batch counters utilizing dynamic adaptive batch counting to minimize under shooting and over shooting of batch volume by self-adjusting the batch cycle based on actual batch size measurement results.

13. Flow Converter shall have a MODBUS RTU-mode for control and communication using either the MJK MagFlux Display unit or for communication with a PLC. The manufacturer shall supply a document with the list of program registers upon request.

14. Flow converter shall transmit the flows (instantaneous and daily flows) to the PLC display.

15. Flow Converter shall use an RS 485 communication interface capable of transmitting up to 3000 ft. the controls and data in the MODBUS RTU mode to a PLC or MJK Display Unit.

16. Flow Converter shall be capable of operating without a display, with a remote display, with an integral display or as a member of a group of two to four converters working from a single display.

17. Flow converter shall be capable of being operated remote to the Flow Sensor.

18. Converter shall have CE conformance for radio signal input and output immunity.

19. Flow converter shall have user adjustable low flow cut off for automatic zeroing of flow rate, totalizing and mA output. No external switching shall be required to achieve zero flow.

20. Flow Converter dimensions with cover or display unit attached shall not exceed 6.4" W x 5.9"H x 3.5"D

21. Flow Converter and must be capable of interchanging with any other flow sensor from the same manufacturer, without the use of electronic memory media exchange.

22. Flow Converter must be capable of being remote mounted up to 150 ft. from the flow sensor and require only one set of communication cabling to the sensor for operation.

D. Display unit

1. Display Unit shall be a white dot matrix 64 x128 pixel graphic backlit display.
2. Display Unit shall allow up to four lines of customizable text with automatic font scaling allowing maximum size up to ½ an inch for the primary measurement parameter.
3. Display Unit shall indicate flow, flow direction, volume, totalizers, configuration, and set-up operations in plain English text.
4. The Display Unit shall display a graphical trend line of the flow history which can be expanded to show greater detail down to 5 minutes increments of flow rates.
5. The Display Unit shall collect 160,000 flow data points with date and time at user specified time intervals, and data log daily flow totals.
6. The Display Unit shall communicate with the Flow Converter using a MODBUS RTU mode using RS485 communications on standard twisted wires for distances up to 3,000 ft.
7. The Display Unit shall be capable of controlling, configuring, and data logging for up to four Flow Converters and flow sensors at the same time with simultaneous displays of measurements.
8. The Display unit shall also have options for Modbus or Profibus data transmission in addition to the Converter communications modes.
9. The Display Unit shall hold all settings in a flash memory in the event of a power outage. Battery back-up is not acceptable.
10. The Display Unit shall have a USB port for connection or options for BlueTooth communication to a personal computer for downloading data in CSV file types suitable for use with commonly available spreadsheet and data management software. The USB port shall also be capable of letting the operator store all flow meter settings as a file on a PC, configure the flowmeter converter from a PC, upload software updates, and upload standar configurations.
11. The Display Unit shall be able to be remote mounted up to 3,000 feet from Flow Converters.
12. The Display Unit shall have four keypad buttons for configuration and operation by the user and for use as a digital input for control.
13. The Display unit shall be capable of showing 'pop-up' alarm messages which shall persist as long as the alarm condition exists and will disappear 5 minutes after.

E. Operator Functions

1. Calibration shall be by registering the Flow Sensor's serial number to the Flow Converter by keying it into the Display Unit. Use of memory chips or other electronic media for this purpose is not allowed.

2. System shall start-up and accurately measure immediately after Flow Sensor registration.

3. Operator shall use the integral keypad on the Display unit to program relays for error alarms, limit alarms, totalizer output, batch control output, digital inputs and all operating parameters and variables.

4. Operator shall use an alarm re-set to manually cancel alarm messages.

5. The flow meter shall have built in self-diagnostics, technician service functions and be suitable for use with a system certifying kit to confirm meter's sensor functions and accuracy of electronics including a calibration check of electronics at a zero flow and a mid-range flow rate for confirming all components meet factory specifications for accuracy and feature operation.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 COMPACTION

A. Compaction testing for pipe and structures shall be performed by a Contractor. The Contractor shall notify the Commissioner at least 72 hours prior to schedule the compaction testing.

3.3 INSTALLATION

A. Pipe

1. The type and class of pipe used shall be as shown on the construction plans. Pipes shall be laid and maintained to the required line and grade with necessary fittings, bends, and other appurtenances placed at the required locations. The pipe shall be installed with uniform bearing under the full length of the barrel of the pipe. The pipe shall be inspected fro defects and cracks before carefully being lowered into the trench. Any defective, damaged or unsound pipe, or any pipe that has had its grade disturbed after laying shall be taken up and replaced. Commence installation at lowest point with the bell end upgrades.

2. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by a licensed land surveyor and replaced, as necessary, by same at no additional cost to the City of New York.

3. All materials to be carefully examined for defects, no pieces known to be defective to be installed. Defective pieces discovered after installation to be removed and replaced in a satisfactory manner, regardless of prior approvals.

4. Ream pipe and tube ends and remove burrs.

5. Prepare pipe for connections to equipment with flanges or unions Excavate pipe trench and place bedding material in accordance with NYCDEP and NYCDOT standard specifications. No pipe shall be laid in water or when trench conditions are unsuitable for work.

6. Pipe connecting to manholes or other structures shall terminate flush inside of the structure wall.

7. All pipe and castings to be cleaned before being placed in trench or jointing. Exposed ends of all incomplete lines to be closed with tight plugs and adequately secured when pipe installation is not in progress.

8. All field cut or damaged ductile iron pipe shall be coated with Protecto 401 in accordance with the manufacturer's recommendations.

9. Pipe castings to accurately conform to lines and grades on plans or as ordered by Commissioner. All wall pipes and other castings to be imbedded in concrete to be accurately set and rigidly secured. Pipe to be laid in manner to assure that valve stems and boxes will be plumb.

10. Exercise care at outside face of structure and manholes. Support pipes bridging excavation to structures or manhole.

11. Cracked or broken pipe or valves to be promptly removed and replaced with sound units regardless of prior approvals at the Contractor's expense.

12. HDPE Force main and fittings shall be butt fused and installed as per the manufacturers recommendations. Install pipe to allow for expansion and contraction without stressing pipe or joints or as specified by pipe manufacturer.
13. Clean and flush all lines of debris including dust, grease, oil and other foreign materials.
14. Form and place concrete for thrust blocks at each elbow of pipe force main. See construction drawing for details of construction.
15. Make all connections to pipelines and appurtenances; furnish and install all valves and accessories; install concrete thrust blocks; construct manholes.
16. Certain construction operations described are a necessary part of pipe, valve, specialty and accessory installation. Materials and installation specifications not included in this Section are in appropriate subdivisions of specifications covering work other than piping, valves and specialties.
17. Making connections to existing pipelines or relocating existing pipelines or appurtenances requires careful consideration as to construction techniques. Contractor is solely responsible for maintaining existing pipelines in manner to prevent disruption of services or bypassing untreated wastewaters directly or indirectly to any water course or underground aquifer.
18. Backfill trench in accordance with NYCDEP and NYCDOT standard specifications.

B. Pump

1. Contractor shall perform pump installation in accordance with the manufacturer's requirements. Final installation shall be inspected by the manufacturer's representative prior to startup.

C. Wet well and Valve vault

1. The wet well and valve vault shall be installed per the elevations shown in the Contract Documents.
2. Refer to NYCDEP and NYCDOT standard specifications for backfill information.
3. Refer to Geotechnical Report for subsurface investigation study results and recommendations.
4. All equipment in the wet well and valve vault including the interconnecting piping and conduits as noted in this section and required for the complete and satisfactory operation of the pump station in accordance with the Contract Documents shall be completed in accordance with the Contract Documents, Manufacturer's recommendations, NYCDEP and with adherence to all safety requirements.

PART IV - QUALITY ASSURANCE AND TESTING

4.1 QUALITY ASSURANCE

A. Pumps

1. All components of the pump station shall be given an operational test at the pump station manufacturer's facility to check for excessive vibration, for leaks in the piping or seals and for correct operation of the automatic control system and all auxiliary equipment. The pump suction and discharge lines shall be coupled to a reservoir and the pumps shall re-circulate water under simulated service conditions. The automatic controls shall be adjusted to start and stop the pumps at approximately the levels required by the job conditions. The control panel shall undergo both a dry logic test and full operational test with all systems operating.

2. Factory test instrumentation must include flow measuring with indicator; compound suction gauge; bourdon tube type discharge pressure gauge; electrical meters to measure amperes, volts, kilowatts and power factor; speed indicator and a vibrometer capable of measuring both amplitude and frequency.

B. Force Main

1. Perform installation in accordance with utility company or local governing authority requirements.

4.2 TESTING

A. Pumps

1. All components of the pump station shall be given an operational test at the pump station manufacturer's facility to check for excessive vibration, for leaks in the piping or seals and for correct operation of the automatic control system and all auxiliary equipment. The pump suction and discharge lines shall be coupled to a reservoir and the pumps shall re-circulate water under simulated service conditions. The automatic controls shall be adjusted to start and stop the pumps at approximately the levels required by the job conditions. The control panel shall undergo both a dry logic test and full operational test

2. Factory test instrumentation must include flow measuring with indicator; compound suction gauge; bourdon tube type discharge pressure gauge; electrical meters to measure amperes, volts, kilowatts and power factor; speed indicator and a vibrometer capable of measuring both amplitude and frequency.

3. Upon Commissioner's Request, a written quality assurance record confirming the above testing/inspections shall be supplied with each pump at the time of shipment.
4. Each pump shall be tested in accordance with the latest test code of the Hydraulic Institute (H.I.) at the manufacturer to determine head vs. capacity and kilowatt draw required.
5. The pump(s) shall be rejected if the above requirements are not satisfied.

B. Force Main

1. Compaction testing will be performed in accordance with ANSI/ASTM D1557.
2. Force main shall be field-tested in accordance with the manufacturer's requirements. Contractor shall supply all labor, equipment, material, gages, pumps, meters and incidentals required for testing. Force main shall be pressure tested upon completion of the pipe laying and backfilling operations, including placement of any required temporary roadway surfacing.
3. The force main shall be tested at a pressure of 100 psi or 1.5 times the pump shut off head whichever is greater) for a period of 3 hours. The pressure test shall be performed on the entire force main length between the pumps and the force main discharge manhole. Testing the pressure against the check valves inside the valve vault shall not be accepted.
4. Pressure testing procedure shall be per Manufacturer's recommendations or as follows:
    a. Fill line slowly with water. Maintain flow velocity less than 2 feet per second.
    b. Expel air completely from the line during filling and again before applying test pressure. Air shall be expelled by means of taps at points of highest elevation.
    c. Apply initial test pressure and allow to stand without makeup pressure for four hours, to allow for diametric expansion or pipe stretching to stabilize.
    d. After this equilibrium period, apply the specified test pressure and turn the pump off. The final test pressure shall be held for three hours with no pressure drop. If a pressure drop is encountered after the two hours then proceed to step F below to determine the allowable leakage and measure the amount of water needed to bring the pressure back up to the final test pressure.
    e. Upon completion of the test, the pressure shall be bled off from a location other than the point where the pressure is monitored. The pressure drop shall be recorded on a pressure read-out submitted to the Commissioner.
    f. WARNING: Under no circumstances shall the total time under test exceed eight (8) hours at 1½ times the pressure rating. If the test is not completed due to leakage, equipment failure, etc., the test section shall be permitted to "relax" for eight (8) hours prior to the next testing sequence.

C. Leakage test shall be conducted concurrently with pressure test. Leakage is defined as quantity of water that must be supplied into newly laid pipeline or valved section thereof to maintain pressure within 5 psi of specified test pressure after air in pipeline has been expelled and pipeline has been filled with water. Leakage shall not be measured by drop in pressure in test section over period of time. Contact Commissioner, Water Company and fire official to observe testing.

D. No pipeline installation will be accepted if leakage is greater than that determined by the following formula or 12 gallons per inch diameter per day per mile of pipe (whichever is greater):

$$L = \frac{SD\,P}{133{,}200}$$

L = allowable leakage, (gallons per hour)
S = length of pipe tested, (feet)

D = nominal diameter of pipe, (inches)

P = average test pressure during test, (psig)

If the utility authority has additional or alternate testing, the utility authority requirements will govern.

1. Visible Leakage:
   a. Visible leaks shall be repaired regardless of amount of leakage measured.

2. Acceptance of Installation:

   a. If test of pipe laid in place discloses leakage greater than that specified, Contractor shall, at his own expense, locate leak and make repairs as necessary until leakage is within specified allowance.

3. Supply water for testing at no expense to Commissioner.

E. Wet well

1. The Contractor shall test the installed wet well for water tightness. The Contractor shall isolate the wet well from the influent, effluent pipe and drainage pipes and pre-soak the wet well for a minimum period of 24-hours up to the top of the wet well. Following the minimum pre-soak time, the Contractor shall measure the elevation of the water in the wet well and begin the water tightness test. The test shall be conducted for a minimum period of 24-hours. After the completion of the water tightness test, the Contractor shall measure the elevation of the water in wet well. There shall be no drop in elevation of water in the wet well. The Contractor shall fix the leaks in the wet well and re-test the wet well for water tightness at no cost to the Commissioner. Contractor shall supply the water for testing at no expense to the Commissioner.

F. Valve vault

1. The Contractor shall examine the valve vault inside for any visible leaks. Visible leaks shall be repaired at no cost to the Commissioner.

4.3 SPECIALTY PUMP TECHNICIAN SERVICES

Contractor shall furnish services of the following specialty technicians following the installation of the pump station:

A. Pumps and Controls

1. The pump supplier shall provide the services of a factory trained technician to provide the following minimum services for the pump station:
   a. Instruct the Contractor on proper installation of the equipment;
   b. One eight-hour day for pre-startup assistance;
   c. One eight-hour day for start-up of pumps, controls and all other equipment supplied;
   d. One eight-hour day to instruct The City of New York's personnel on the operation and maintenance all equipment supplied. This additional day of service is not to be used for calibration, testing and startup, but is to be provided after acceptance of the equipment.
   e. The Contractor shall also provide a Professional quality videotape training session to the Commissioner.

2. The technicians shall be fully trained in the installation, operation and maintenance of the pumps, flow meter, controls and all other equipment supplied. A resume and factory training certification for all equipment being provided shall be included in the submittal package. The pump technician must have at least five years of experience servicing pumps and be a full time service employee. Start-up services by salespersons are not acceptable. The technician shall perform the following tests after the pumps have been completely installed and wired, and shall furnish a written report to the Commissioner within two working days of the startup and testing.

B. Pump Station Startup:

1. Prior to the startup the Contractor and/or Manufacturer(s) shall complete the following tasks:

   a. Drain all water from the wet well prior to the pump station startup for the Commissioner to observe the inside of the wet well for compliance with the Contract Documents.

   b. Contractor shall supply water for pump station startup at no expense to Commissioner.

   c. Contractor shall coordinate with Commissioner to obtain information regarding Alarm transmission and alarm setup including programming of telephone/auto dialer equipment.

   d. Contractor shall update the Commissioner on the number of service days used and the balance remaining.

   e. Contractor shall present written approvals/certifications obtained from the local UL inspector, construction official and any other regulatory agency.

   f. Contractor shall perform the following testing at a minimum and submit all testing results to the Commissioner:

      i. Megger stator and power cables.

      ii. Check seal lubrication.

      iii. Check for proper rotation.

      iv. Check power supply voltage.

      v. Measure motor operating load and no load current.

      vi. Check level control operation and sequence

      vii. Check functioning of seal fail devices

      viii. Check impeller adjustment against specifications

      ix. Check for debris in station that may damage pumping equipment

      x. Check for proper functioning of guide rail system by raising and lowering the pump while submerged

g. Contractor shall provide locks and a master key for all locks to the Commissioner.

h. Contractor shall submit complete O&M manuals to the Commissioner.

i. Contractor shall have completed the pre-startup testing/trouble shooting prior to scheduling the pump station startup. If the Commissioner determines that the pump station is not ready on the date of the scheduled startup, the Contractor shall be bear all costs resulting from the failed startup including but no limited to time spent (including travel time) by the Commissioner, spatiality contractors, pump and other equipment manufacturers, regulatory and municipal inspectors as well as any expenses incurred by the above mentioned personnel. Additionally, the day will not be counted towards the startup day allocated in these specifications.

C. As-built Drawings

1. A Registered Professional Surveyor in the State of New York retained by the Contractor shall prepare an As-built Survey of the pump station site following the completion of construction.
2. The As-built drawings shall include the following information at a minimum:
   a. Location of the bench mark.
   b. Wet well and valve vault including Structure Invert and Rim elevations and pipe inverts.
   c. Wet well and valve vault detail drawings showing location of all piping, mechanical equipment and appurtenances.
   d. Location of Control Panel including pad. Contractor shall coordinate with electrical contractor to include all electrical equipment.
   e. Backflow preventer location and details.
   f. Force main routing from the wet well to the discharge location.
   g. All existing features and structures proposed to stay.
   h. All surface and underground utility lines such as water, sewer, electric, and storm sewer including pipe sizes, lengths, slopes and inverts at structures and connection locations.
   i. Access drive including dimensions
3. Contractor shall coordinate with the electrical contractor to include all existing and proposed electrical improvements at the pump station site.

D. Operation and maintenance manual

1. The contractor shall prepare and submit to the Commissioner an Operation and Maintenance manual for the pump station equipment that will include but not limited to the following:
   a. As-built pump station mechanical and electrical drawings;
   b. As-built pump station site and utility plan;
   c. Pump station startup report;

d. All necessary permit documents;

e. A list of installed mechanical and electrical equipment (As-built) with make and model in a tabular format;

f. Manufacturer's cut sheets on pumps with information such as shutoff head, discharge head, pump curves, electrical information, and typical flow rate based on startup report;

g. Manufacturer's cut sheets on Valves, control Panel, and electrical equipment;

h. Typical operating procedures for the installed electrical and mechanical including reference to hazards and safe practices;

i. Contingency plan in case of equipment failure. The plan should at a minimum address the response after the failure of the pumps, controls and the generator or any other equipment necessary for the smooth operation of the pump station;

j. Maintenance frequency of each installed equipment;

k. Schedule for testing emergency and standby equipment;

l. A list of phone emergency numbers like operator and other government agencies that may need to be notified during emergencies;

m. List of manufacturer recommended spare parts for the electrical and mechanical equipment.

4.4 AUXILIARY PARTS, WARRANTY AND ADDITIONAL SERVICES

A. The following auxiliary parts shall be available at a stocking and service facility within 50 miles of the installed equipment. Auxiliary parts shall be available for each size and type of pump and control installed.

1. Mechanical Seals complete

2. Rings

3. Wear Ring (where appropriate)

4. A notarized statement shall be part of the submittal, confirming that these parts are available for inspection by the Commissioner. Should the Pump supplier be unable to meet this requirement, the auxiliary parts listed shall be supplied as part of the installation

END OF SUB-SECTION

SUB-SECTION – IN-CHANNEL WASTEWATER GRINDER

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used

1.2 SUMMARY

A. The specifications shall govern all work necessary to furnish, install and place into satisfactory operation an electrical grinder with a submersible motor inside the wet well of the proposed pump station as indicated on the drawings and specified herein. The Contractor shall also furnish an identical auxiliary grinder and grinder teeth/cutters from the grinder manufacturer. This work shall include, but not limited to the following:

1. Grinder, fittings and appurtenance installation;
2. Utility connections;
3. Startup, Testing and Service Days;
4. Operation and Maintenance Manuals; and,
5. All other work required for the complete and satisfactorily operating installation.

1.3 SUBMITTALS

A. Submittal data shall be provided to show compliance with these specifications, plans or other specifications that will influence the proper operation of the grinder.

B. Contractor shall furnish a minimum of two sets of shop drawings detailing the equipment to be furnished including dimensional data and materials of construction.

C. Submittals shall include the following items at a minimum:

1. Equipment descriptions;

2. Dimensional and assembly drawings;

3. Product installation drawings;

4. Functional descriptions;

5. Catalog data;

6. Signed and sealed drawings and structural calculations by licensed Professional Engineer in New York for installation of the grinder on guide rails;

7. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified;

8. Recommended auxiliary parts;

9. Recommended Parts List;

10. Printed Warranty to the City of New York;

11. Manufacturer's Equipment Storage Recommendations; and

12. Manufacturer's Certificate: Certify that products meet or exceed ASTM designations.

13. Lack of the above requested submittal data is cause for rejection.

D. Record Drawings: At project closeout, Contractor shall submit record (as-built) drawings of installed grinder.

1.4 REFERENCE STANDARDS

A. Equipment shall, as applicable, meet the requirements of the following industry standards:

1. American Society for Testing and Materials (ASTM) A36 Carbon Steel Plate

2. American Society for Testing and Materials (ASTM) A536-84 Ductile Iron Castings

3. American Iron and Steel Institute (AISI) 4130 Heat Treated Alloy Steel

4. American Iron and Steel Institute (AISI) 4140 Heat Treated Alloy Steel

5. American Iron and Steel Institute (AISI) 8620 Heat Treated Alloy Steel

6. American Iron and Steel Institute (AISI) 303 Stainless Steel

7. American Iron and Steel Institute (AISI) 304 Stainless Steel

8. American Iron and Steel Institute (AISI) 316 Stainless Steel

9. American Iron and Steel Institute (AISI) 17-4 PH Stainless Steel

10. Society of Automotive Engineers (SAE) 660 Bearing Bronze

B. Controllers shall, as applicable, meet the requirements of the following Regulatory Agencies:

1. National Electrical Manufacturer's Association (NEMA) Standards

2. National Electrical Code (NEC)

3. Underwriters Laboratory (UL and CUL)

4. International Electrotechnical Commission (IEC)

1.5 QUALITY ASSURANCE

A. Materials shall be new and products of recognized, reputable manufacturers.

B. All work shall be performed in accordance with the requirements of applicable local and State codes and regulations and within the requirements of these specifications.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packaging and Shipment

1. Equipment shall be packaged in containers or on skids suitable for normal shipping, handling, and storage.

2. Equipment shall be protected from rain, snow, impact and abrasion while in the possession of the carrier

B. Delivery and Acceptance Requirements

1. Contractor shall review the contents of the shipment at time of delivery and promptly notify the carrier and supplier of any discrepancies.

C. Storage and Handling Requirements

1. Equipment shall remain in the packaging provided by the supplier until it is installed.
2. Equipment shall be stored in a dry environment between 40o F (4.5o C) and 100o F (37.8o C).

D. Packaging Waste Management

1. Contractor shall be responsible for discarding all packaging materials in an environmentally- friendly manner and in accordance with local regulations.

PART II - PRODUCTS

2.1 MANUFACTURERS

A. Electric explosion-proof submersible grinder installed on a guide rail inside the wet well and one auxiliary grinder by the same manufacturer shall be in accordance with these plans and specifications and shall be supplied by one of the following manufacturers:

1. Basis of Design Product:Muffin Monster Grinder Model 30005-012, Wipes Ready, with motor controller Model PC 2200 manufactured by JWC Environmental, LLC, 290 Paularino Ave., Costa Mesa, CA 92626 or a comparable product by one of the following manufacturers:

   a. Taskmaster® TM8512, grinder manufactured by Franklin Miller, Inc. of Livingston, New Jersey.

   b. Groundfos Sewer Chewer

   Or Approved Equal

.2 REQUIREMENTS

A. General

1. Grinder shall reduce or shred influent solids for protection of downstream equipment.

2. A minimum 30-ft long motor cable shall be provided that will facilitate removal of the grinder from the wet well.

3. All electrical equipment shall be in accordance with the electrical drawings and NEC.

B. Design Summary

1	Number of grinders:	2 (one installed and one spare)
2	Number of motor controllers:	1
3	Environment rating for grinders:	Hazardous, subject to flooding
4	Environment rating for motor controllers:	Non-hazardous
5	Supply power characteristics:	460 volt/3-ph/ 60Hz
6	Nominal stack height:	8"
7	Minimum liquid handling capacity per grinder:	500 GPM
8	Cutter type:	Serrated 17-tooth
9	Spacer type:	Knurled
10	Side rail type:	Delta-P high flow, high capture
11	Shaft seal type:	Mechanical, Tungsten Carbide
12	Seal maximum pressure:	90 psi (620 kPa)
13	Speed reducer type and ratio:	Cycloidal, 29:1
14	Installed horsepower:	5 hp (Minimum)
15	Motor type:	Submersible

16	Motor service factor:	1.15
17	Minimum motor efficiency (at full load):	88.8%
18	Minimum motor power factor (at full load):	65.0%
19	Minimum peak shaft torque:	3,995 lb-in/hp
20	Minimum peak force at cutter tip:	1,530 lbf /hp

2.3 FRAME, GUIDERAILS AND SUPPORTS

A. General

1. Frame, guiderail, and/or supports shall provide a method for properly securing the grinder in the wet well. The frame and guiderails shall allow installation or removal without any disassembly of the frame or grinder.

2. Furnish structural calculations signed and sealed by a Professional Engineer in the State of New York must be submitted to the Commissioner for the installation of the grinder frame assembly on the wet well well

3. The proposed frame of the grinder shall be completely removable and shall not impede in the removal of the submersible pumps.

4. Furnish an aluminum trash basket to fit on the grinder rails for periods when the grinder is removed for maintenance or inspection. The trash basket shall be of the bar screen style basket, having 2" (51mm) clear opening between 1/4" (7mm) thick bars and solid sides. For ease of operation, the basket will have (4) 2 1/2" (64mm) solid aluminum wheels with 1/2" (13mm) stainless steel axles.

B. Components

1. Frame and guide rail shall be fabricated of 316L stainless steel.

2. Frame shall provide proper support and interface to prevent unwanted bypass.

2.4 GRINDER

A. General

1. Grinder shall be of two-shafted design consisting of individual cutters and spacers driven by hexagonal shafts. The cutters shall actively grab and pull material into the stack for shredding. Grinder shall have upper and lower end housings to retain shaft support bearings and seals. Side rails shall provide structural rigidity while optimizing throughput and capture. Grinder shall have a motor and speed reducer to drive the cutter shafts. The equipment shall operate at low speed with a maximum cutter shaft speed of 60 rpm and shall be specifically- designed for capturing and shredding wipes.

B. Components

1. Cutters and Spacers

a. Cutting stack shall be of nominal height listed in Performance Requirements.

b. Cutters shall be serrated with 17 teeth and 0.438" (11.13 mm) nominal thickness.

c. Spacers shall be 0.446" (11.33 mm) nominal thickness.

d. Cutters and spacers shall be individual disks constructed of heat treated 4140 alloy steel.

e. Cutter tooth height shall be not greater than ½-inch (13 mm) above the root diameter of the cutter.

f. Cutter outside diameter shall not exceed a maximum 4.73" (120.14 mm).

g. Cutter thickness tolerance shall be +.000/-.001" (+.000/-.025 mm). Spacer thickness tolerance shall be +.001/-.000" (+.025/-.000 mm).

h. Cutters shall be heat treated to 45-53 HRc.

i. Spacers shall be heat treated to 34-53 HRc

j. Spacers shall have a knurled outside diameter

k. Cutter to cutter clearance shall be a maximum of 0.005" (0.25 mm).

l. Clearance between any cutter tip and adjacent spacer shall be nominal 0.015" (0.38 mm).

2. Shafts

a. Shafts shall be hexagonal, 2" (50.8 mm) across flats.

b. Shafts shall be of heat treated 4140 alloy steel with a minimum tensile strength of 149,000 psi (1,027 kPa).

c. Shaft hardness shall be 38-42 Rockwell C.

3. Intermediate Shaft Yoke (as applicable)

a. Intermediate shaft yokes shall provide radial support to the shafts during severe grinding demands.

b. Intermediate shaft yokes shall be constructed of 316L stainless steel, 660 bronze, and 17-4PH Stainless Steel

c. Intermediate shaft yokes shall be factory lubricated with high temperature marine grade grease.

d. Grease fittings shall be provided on intermediate shaft yokes for periodic maintenance.

e. Intermediate shaft yokes shall only be supplied on cutter stacks of 32-inches (813mm) and taller.

4. Side Rails

a. Side rails shall be constructed of ASTM A536 ductile iron.

b. Cutter side rail shall have evenly-spaced Delta-P horizontal fingers to maximize flow and maximize capture of solids by cutter stack.

c. Clearance between cutter side rail and adjacent cutters shall not exceed 0.100" (2.54 mm).

5. Channel Frame:

a. Contractor shall provide a channel frame for the removal of the grinder from the wet well.

b. At the contractor's option Contractor shall provide a special frame with casters to fit into existing guide rails 316L Stainless Steel and lifting chain. Refer to submittal requirements.

6. Shaft Bearings and Seals

a. Radial and axial loads shall be borne by sealed, oversized, deep-groove ball bearings.

b. Shaft seal type shall be mechanical.

c. Each bearing and seal arrangement shall be incorporated into a cartridge-style housing.

d. Cutter shafts shall be supported on both ends. Cantilever-style arrangements shall not be permitted.

e. Dynamic and rotating seal faces shall be Tungsten Carbide with 6% Nickel binder.

f. Seal cartridges shall be rated to a maximum pressure of 90 psi (620 kPa).

g. O-rings shall be of BUNA-N.

h. Seal cartridges shall not require flushing.

i. Seals shall be rated to operate wet or dry.

7. Housings and Covers

a. Housings and top cover shall be of ASTM A536 ductile iron. Bottom cover shall be of A36 carbon steel.

b. End housings shall have integral bushing deflectors to guide solids away from seal cartridges.

8. Transfer Gears

a. Transfer gears shall be of involute profile and fabricated from heat treated alloy steel.

b. Transfer gear tooth design, thickness and hardness shall be suitable to transfer torque between shafts up to the rated breakdown torque of the motor.

c. The interface between transfer gears shall be factory lubricated with grease to minimize wear.

9. Low Speed Coupling

a. Low speed coupling shall be a 3-jaw type and of heat treated alloy steel.

b. The interface between low speed coupling halves shall be factory lubricated with grease to minimize wear.

10. Speed Reducer

a. The speed reducer shall be a grease-filled cycloidal type reducer with "Heavy-Shock" load classification.

b. Helical gear drives shall not be acceptable.

c. The reduction ratio shall be 29:1.

d. The high-speed shaft of the grinder shall be coupled with the reducer via a coupling.

e. The two-piece, three-lobed coupling shall have jaws that intermesh by at least ¾ inch (19 mm) for dependable torque transmission.

f. The gear reducer shall be fully sealed and capable of operating submerged continuously.

g. A coupling adapter shall be used for accurate alignment and smooth operation. The coupling adapter shall be sealed to prevent water contamination. The adapter shall be firmly connected to the input of the reducer and shall rigidly support the motor weight.

h. The reducer shall have a rigid input shaft supported by heavy bearings capable of handling thrust and radial loads and shock conditions.

11. High Speed Coupling

a. High speed coupling shall be a 3-jaw type with elastomer spider.

b. The 3-jaw halves shall be of sintered iron.

c. The spider shall be of BUNA-N.

12. Motor

a. The motor shall be: Submersible-Explosion Proof design, 5 HP (2.2 kW), 460 Volt, 3-phase, 60 Hz.

b. The unit shall incorporate a submersible explosion-proof motor rated for Division 1, Class 1, Group D and Class 1, Group C&D.

c. The motor shall be IP68 submersible, continuous in air and while submerged. IP67 motors shall not be accepted.

d. The motor shall be supplied with 60 ft. (18.29 m) of cable.

e. The motor shall contain moisture-resistant class F 155EC/311EF insulation.

f. The motor shall be Squirrel cage induction, NEMA design B for continuous operation.

g. The motor shall be capable of continuous operation while submerged to 200 feet.

h. The motor shaft shall be constructed of AISI 416 Stainless Steel.

13. Lifting Brackets

a. Grinder shall be fitted with two (2) lifting rings and stainless steel chain to remove the grinder using the existing hoist at the site.

2.5 MOTOR CONTROLLER

A. Description

1. Controller shall provide programmable operation of the grinder system.

2. Controller shall have switches, indicator lights, and other control devices.

3. Controller shall be designed to suit the supply power and motor characteristics listed in Performance Requirements.

B. Components

1. Enclosure

a. Enclosure shall be stainless steel, NEMA 12
b. Enclosure shall house motor starter, PLC, and control devices.

2. Selector switches
   a. Selector switches shall be 22 mm, rated equal to or better than the enclosure.
   b. Grinder selector switch shall be three-position and indicate On-Off/Reset-Remote.
3. Pilot Lights
   a. Lights shall be 22 mm, LED (pilot lamp), rated equal or better than the enclosure.
   b. Lights shall indicate POWER ON, grinder RUN, grinder JAMMED and MOTOR FAULT.
4. Motor Starter
   a. Starter shall be IEC, full voltage, reversing.
   b. Contactors shall have 120-volt operating coils.
   c. Overload relays shall be adjustable and sized to full load amperes (FLA) of the motor.
5. Control Power Transformer
   a. Control power transformer shall produce 120-volt AC power from the supply power. Transformer shall be sized and fused in accordance with code to accommodate the control power requirements.
6. Programmable Logic Controller
   a. Current Transducer
   b. Current transducer shall be a discrete output type.
   c. Current transducer shall have adjustable set point from 1-135A with 200 ms or faster response time.

C Operation

1. Grinder control shall be in accordance with the setting of the On-Off/Reset-Remote selector switch.
   a. In the OFF/RESET position the grinder shall not run. Motor controller faults shall be cleared.
   b. In the ON position, the grinder shall run forward.
   c. c. In the REMOTE position, the grinder shall operate as controlled by a remote start/stop dry contact.
2. When an obstruction jams the grinder, the controller shall stop the grinder and reverse the rotation to clear the obstruction. If the obstruction is cleared, the controller shall return the grinder to normal operation. If three (3) reverses occur within a 30 second interval, the controller shall stop the grinder motor and activate the grinder FAIL indicator and relay.

3. When a motor overload or motor over-temperature condition occurs, the motor shall be de- energized, the MOTOR FAULT indicator lamp shall be illuminated and the FAIL contact shall be closed.

4. When a power failure occurs while the system is operating, the system shall return to normal operation when power is restored.

5. When a power failure occurs while the grinder is in a fail condition, the system shall return to a fail state when power is restored. The fail state shall not be cleared until reset.

6. Reset of the grinder shall be accomplished from the controller only.

2.6 FINISHES

A. Paint Coatings (Ferrous Materials)

1. Ferrous metal surfaces shall be prepared to SSPC-SP6 (Commercial Blast Cleaning) and coated with minimum 6-8 mils TDFT (total dry film thickness) paint of type and color listed in Performance Requirements.

B. Paint Coatings (Previously-Coated Components)

1. Previously-coated components (motors, speed reducers, etc.) shall be prepared to SSPC-SP1 (Solvent Cleaning) and SSPC-SP2 (Hand Tool Cleaning) and coated with minimum 6-8 mils TDFT (total dry film thickness) paint of type and color listed in Performance Requirements.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. Grinder

1. The Contractor shall coordinate installation of the equipment in accordance with the manufacturer's installation instructions, drawings and related specification sections, and in accordance with all OSHA, local, state, and federal codes and regulations.

3.3 TESTING

A. The grinder shall be tested to ensure satisfactory operation.

B. Contractor shall submit all test results reports to the Commissioner for review prior to the grinder startup. The startup shall not be deemed complete and installation shall not be accepted for use unless all tests noted above are complete and reports have been submitted to the Commissioner.

3.4 SPECIALTY TECHNICIAN SERVICES

A. Contractor shall furnish services of the following specialty technicians following the installation of the grinder:

1. Grinder and Controls

a. The grinder supplier shall provide the services of a factory trained technician to provide the following minimum services for grinder:
   i. Instruct the Contractor on proper installation of the equipment;
   ii. One eight-hour day for pre-startup assistance, start-up of grinder, controls and to instruct The City of New York's personnel on the operation and maintenance all equipment supplied.

b. The technicians shall be fully trained in the installation, operation and maintenance of the equipment supplied. A resume and factory training certification for all equipment being provided shall be included in the submittal package. The technician must have at least five years of experience servicing grinder and be a full time service employee. Start-up services by salespersons are not acceptable. The technician shall perform the following tests after the grinder have been completely installed and

wired, and shall furnish a written report to the Commissioner within two working days of the startup and testing.

2. Startup:
   a. The equipment supplier shall provide the services of a factory or manufacturer's representative for a minimum of one (1) day to inspect the equipment for proper installation, apply power for the first time and check for proper motor rotation, oversee the initial introduction of material into the system and confirm the equipment operates as intended. Representative shall also provide services as detailed instructions on the grinder operation to the City of New York operations staff.

3.5 SPARE PARTS, WARRANTY AND ADDITIONAL SERVICES

A. The following shall be supplied to the Owner

1. Electric explosion-proof submersible grinder (refer to Section 2.1 of this sub-section for requirements)

2. Grinder teeth in accordance with requirements

B. The following auxiliary parts shall be available at a stocking and service facility within 50 miles of the installed equipment. Auxiliary parts shall be available for each size and type of grinder and control installed.

1. Mechanical Seals complete

2. Rings

3. Wear Ring (where appropriate)

3.6 FACTORY SERVICE

A. A notarized statement shall be part of the submittal, confirming that these parts are available for inspection by the Commissioner. Should the grinder supplier be unable to meet this requirement, the auxiliary parts listed shall be supplied as part of the installation.

END OF SUB-SECTION

SUB-SECTION - ELECTRICAL GENERAL CONDITIONS

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 WORK INCLUDED

A. Requirements describing in general the complete electrical equipment, permanent wiring, testing, and placing in service that is required for the construction of the reconstructed DSNY Wastewater Pumping Station, as indicated on the Plans and as required by the Specifications. The work shall include all labor, and materials where required, for all coordination with the Electric Utility where required, and the City of New York to enable introduction of service to the pump station.

1.3 SYSTEM DESCRIPTION

A. It is the intent of these Specifications and Drawings to include all labor, materials, tools, services, transportation, equipment, insurance, temporary protection, superintendent, permits, taxes, and all necessary and related items required to provide the Commissioner with a complete and properly operating electrical installation and system for all items of work at the location.

B. Contractor and his Sub-Contractors are required to refer to and abide by the Contract-related work sections listed in 1.2 above as an integral part of the Contract, unless expressly modified to the contrary.

C. Contractor is referred to Sub-Section – Instrumentation and Control Work, for a list and description of items which are included under this Contract and which are to be installed, wired, and put in service under this Section.

D. In general, the work shall include, but is not limited to the following major portions of work:

1. Submission of all electrical, control, and instrumentation material for approval.

2. Furnishing and placing all required sleeves for electrical and control conduits during construction.

3. Providing all electrical service equipment and wiring in the pump stations including the outer weather-proof equipment enclosures at the site.

4. Providing all Instrumentation and Control wiring at the pump station.

5. Providing all required coordination with other Contractors providing the electric service, and Instrumentation and Alarm services for the Pump Station site.

6. Obtaining and providing all electrical permits and inspections as required.

7. Providing primary instruments for the new pump instrumentation and control systems.

8. Providing a new Instrumentation and Pump Controller, and Alarm systems for the pump station.

9. Providing all motor controls.

10. Providing all switches, circuit breakers, panels, and other electrical service and distribution equipment.

11. Providing electric heaters, ventilation fans, and thermostats for equipment enclosures at the pump station.

12. Providing wall switches, receptacles, and other wiring devices at the pump station equipment enclosures.

13. Providing all remote Control Devices and Stations.

14. Providing all conduit, wire, fittings and other devices for a complete wiring system at the pump station.

15. Providing all electrical labor for a complete operational electrical system at the pump station.

16. Extending conduit and cables to the adjacent existing building, installing a circuit breaker in an existing panel, to provide power to the new DSNY pump station, and extending conduit and signal cables from the new pump station to the Maintenance Building to provide signal data and alarms to the City's Building Management System

17. Providing wiring devices and plates.

18. Providing electrical power and instrumentation interconnection diagrams.

19. Providing and installing a complete grounding system per the Specifications and Drawings at the pump station.

20. Provide all coordination with the Operator of the pump station during construction and start- up of the pump station.

21. Provide all coordination with other Contractors involved with other portions of the work so as to provide the most efficient construction methods.

22. Providing all labor as required for a complete demonstration, test, calibration, and start-up of the entire electrical, control, instrumentation, and alarm system.

23. Providing all new and revised As-Built electrical, power and instrumentation interconnection wiring diagrams.

24. Providing two complete sets of As-Built Manuals for the pump station.

25. Providing service days as required under Sub-Section Instrumentation and Control.

26. Providing auxiliary parts as required by Sub-Section – Instrumentation and Control.

1.4 REFERENCES AND CODES

A. Work, equipment, and materials furnished by Contractor shall comply with codes stated in the various Sections.

1.5 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.6 SUBMITTALS

A. Prior to the fabrication, purchase, or delivery to the job site, submit for approval in accordance with the General Provisions of these Specifications, Shop Drawings and equipment data sheets, for the following equipment:

1. A coordinated Electrical Construction Plan for the site.
2. Temporary wiring and electric service drawings for construction at both sites.
3. Drawings for the electrical system for temporary construction facilities.
4. Permanent Electric Service installation drawings.
5. Main and feeder circuit breakers.
6. Transient Voltage Surge Suppression Devices.
7. Motor Controls for all motors.
8. Instrumentation and control drawings for the Pump Level Control and Instrumentation equipment at the pump station.
9. Local circuit breakers, and disconnect switches at the pump station.

10. Instrumentation and Pump Control Panels at the pump station.

11. Transducer and by-pass float devices at the pump station.

12. Transducer and float mounting details at the pump station.

13. Wiring devices and plates.

14. Auxiliary Control Devices and Stations.

15. Conduit, wire and cable specification sheets.

16. Automatic Transfer Switches for at the pump station where required.

17. Weather-Proof outer equipment cabinets with heating and cooling facilities at the pump station.

18. Interconnection Diagrams for all controls at the pump station.

19. Kellems stainless steel cable grips.

20. All sealing sleeves for conduit penetrations through concrete or block walls and floors.

21. Details and locations for the grounding systems at the pump station.

22. Interconnection Diagrams between new control systems, new motor controls, and to alarm and reporting systems to the DSNY Building Management System (BMS).

1.7 QUALITY ASSURANCE

A. After award of the Contract, approval of equipment and systems shall be made by Commissioner based on the review of the Shop Drawings or other descriptive data appropriate to a particular item of equipment or system. The Contractor shall supply data and design computations to determine equal equipment or systems. There shall be no adjustment in Contract amounts related to approval or rejection of named or equal equipment or systems by Commissioner. In general, on this Contract, all electrical switches, circuit breakers, and the motor controls, shall be made by:

1. Square D Company
2. Cutler Hammer
3. General Electric Co.
4. Or approved equal

B. Materials and equipment shall be new and without defects, and shall conform to Codes and Standards described in the section.

1.8 DRAWINGS

A. The Drawings are for engineering and general requirements purposes only, are diagrammatic, and are not intended to depict all necessary fittings, boxes, supports, conduit penetrations or locations, wires, etc., required for a complete and accessible installation.

B. Contractor shall provide his own Shop and Working Drawings certified by the manufacturer for the final installation of the equipment supplied in this Contract.

C. The locations of equipment, fixtures, outlets and other devices shown on the Drawings are approximate only. These shall be modified by the Contractor and approved by the Commissioner to comply with the actual equipment furnished. Package systems furnished under other Contracts shall require interconnecting wires and cables and the Contractor shall be responsible for determining and furnishing these required interconnections.

D. Contractor shall submit to the Commissioner a layout drawing for the electrical equipment installation that will include field data relative to the placing of electrical items and shall determine exact locations

and conduit routing before fabrication and installation to ensure no interference or conflicts with other services, and to insure equipment is serviceable and accessible.

E. The ratings of motors and other electrically operated devices together with the size shown for their circuit conductors and conduit are approximate only and are indicative of the probable power requirements insofar as they can be determined in advance of the purchase of equipment under other contracts.

F. The Contractor shall verify the exact rating of each item of equipment before reviewing the work required under this contract. Motor ratings are given for determination of circuit breaker and equipment, hence wire sizes, only.

G. Contractor shall determine the ratings of overload and other protective devices in accordance with motor or equipment nameplates or other data furnished with the actual motors and equipment.

1.9 PERFORMANCE TESTS

A. Tests: The Contractor shall perfom all testing as required by these Contract Documents and as required by the manufacturer to demonstrate the satisfactory functioning of all electrically operated equipment and wiring and the adequacy of the entire electrical system.

B. Equipment or materials furnished and installed under this Contract which fail under tests shall be repaired or replaced and then retested until satisfactory results are obtained, entirely at the expense of Contractor.

C. Contractor shall assume full responsibility for the proper functioning and quality of all electrical installations to the extent that any breakdowns, deficiencies or deteriorations caused by poor workmanship, inferior equipment furnished by the Contractor, materials, or method of installation shall be promptly corrected, replaced or repaired by the Contractor.

1.10 WORKING DRAWINGS

A. Purpose, contents, and format: The Contract Drawings are not intended to serve as working or installation Drawings. These Drawings are only for engineering and general arrangement purposes to indicate the scope of the work. Contractor shall prepare working Drawings based on the Contract Drawings, but showing all details of construction, such as dimensioned equipment and conduit layouts,

lighting layouts, elementary and interconnection wiring diagrams, and similar Drawings depicting the construction and installation work to be performed. Drawings shall show all conduit and electrical equipment supports, hangers, foundations, conduit numbers (based on the Drawing conduit and cable numbers), conduit and cable schedules, lighting fixture layouts and circuiting, lighting, power, control instrumentation, communications and signal wiring complete.

1.11 SPECIAL INSTALLATION CONDITIONS

A. Floor-mounted electrical equipment, if shown on the Contract Drawings, shall be installed on a concrete pad which raises the equipment off the surrounding floor area by a minimum of 2 in. For these pads, refer to the Construction Drawings for concrete pad requirements. Existing pads may be used where now present, but are to be extended or modified by the Contractor to match the requirements of the new equipment.

B. Contractor shall note the National Electric Code maximum height for the operating handles of circuit breakers and disconnect switches, and shall be responsible for coordinating the installation of all panels and motor controls, whether supplied by him or by others. This coordination shall insure that no handle in the "On" position is higher than 79-in. above the floor surface.

1.12 TEMPORARY LIGHT AND POWER

A. Contractor shall provide and maintain temporary light and power at the work location from the start of the project and removed at the completion of the work when directed by Commissioner.

B. The temporary electric services will be adequate to handle the total loads for temporary pump station operation and essential services, and for the Contractor's construction equipment such as vibrators and welders. The power consumed by temporary pumping operations, and by construction operations will be provided by the Commissioner from the existing source at no cost to the Contractor. All temporary wiring costs, installation fees, and inspection fees, will be paid for by contractor.

END OF SUB-SECTION

SUB-SECTION - FIELD TESTS

PART I - GENERAL

1.1 RELATED DOCUMENT:

A. Not used.

1.2 WORK INCLUDED

A. Describes requirements for field tests of electrical equipment and systems for the DSNY Wastewater Pump Station.

1.3 SYSTEM DESCRIPTION

A. Contractor shall furnish instruments and a qualified manufacturer's startup engineer to properly perform all tests required. Written notice of all tests shall be given to Commissioner at least 2 weeks in advance.

B. Unless waived in writing by Commissioner, all tests shall be made in the presence of a duly-authorized representative of Commissioner. When the presence of such a representative is so waived, sworn statements, in duplicate, of the tests made and the results thereof, shall be furnished to Commissioner by the Contractor.

C. Electrical circuits shall be tested to insure circuit continuity, insulation resistance, proper splicing, and freedom from improper grounds. All motor overload heaters shall be checked against nameplate full-load ampere ratings to insure proper motor protection.

D. Necessary adjustments shall be made in accordance with the respective manufacturers and other Contractors when necessary, all tests shall be made in accordance with the latest Standards of ANSI, IPCEA, IEEE, and NEMA.

E. The work of this Sub-Section is in addition to and does not supersede testing and adjusting specified in other sections of the Specifications.

1.4 RELATED SECTIONS

A. Sub-Section Electrical General Conditions

B. Sub-Section – Demonstration of Complete Electrical Systems

C. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.5 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.6 SUBMITTALS

A. Contractor shall supply to Commissioner, test records and reports for all testing. Meggering (insulation resistance tests) of all incoming and outgoing cables of switchgear, receptacle and power panels, etc. shall be done after the cables are in place and just prior to final terminations. All Megger tests on 600-volt wire and cable shall be performed with a 1,000-volt Megger.

1.7 FIELD QUALITY

CONTROL

A. 600-volt and below equipment.

1. Each power, receptacle, or control panel shall be tested with mains disconnected from the feeder, branches connected, branch circuit breakers closed, all fixtures in place and permanently connected, lamps removed or omitted from the sockets, and all wall switches closed. Feeders shall be tested with the feeders disconnected from the panels. Each individual power circuit shall be tested at the panel with the power equipment connected for proper operation.

2. Megger tests of the insulation resistance of all motor feeders, control wires, and power feeders shall be conducted. The results will be accepted when the Megger shows the insulation resistance to be not less than 1 megohm per 100 volts at 20 degree C, using a Megger at 1,000 volts DC.

3. Transformers shall be Meggered in accordance with the manufacturer's recommendations.

4. The grounding system shall have a resistance to ground of 0.5 ohms or less when measured by a "low-range ohm meter" or equivalent device. A ground resistance test shall be performed per IEEE recommendations and approved by the local electrical sub-code official prior to the introduction of power.

5. All 480 volt and 240 volt service equipment shall not be energized until all tests and adjustments have been made to the satisfaction of Commissioner and serving utility.

6. Tests shall be witnessed by Commissioner, and a written record of results furnished to him. The cause of any failure shall be examined by the Commissioner and the results shall be binding on Contractor if, in Commissioner's judgment, such failure was caused by poor workmanship or material used during installation of Contractor.

7. Prior to pouring of concrete for the structure or to backfilling of trenches, Electrical Installer shall record the exact locations of all concealed conduits on an as-built survey, noting depth and plan. Underground conduits exterior to the structure shall have their locations noted exact dimensions from structure walls to each bend or termination point. All conduits shall be assigned a number. This information, as well as any other deviations or changes in the electrical construction, shall be incorporated on "As Built" Drawings and submitted to the Commissioner. All feeder and branch circuit conductors shall be identified by "Brady"-type markers or other permanent marker in all junction boxes and at all points of origin and termination. Contractor shall submit to Commissioner prior to final acceptance of the work, a conduit and wire schedule listing all conduits by number, and the wires they contain (each with a unique number as noted above), their purpose, their origin, and their termination. See Identification for Electircal Systems in DSNY-ELECT.

8. All ground fault interrupter-type circuit breakers used for Main Service Entrance purposes or for branch circuit protection where the trip amperes are greater than 150 amperes, shall be "Performance Tested" by introducing test instrument current through the neutral current transformer, slowly raising the current until the ground fault trip amperes is reached, at which time the time delay to trip shall be measured. Field measurements of of +/- 10% than breaker set points shall be cause to fail the breaker. Contractor shall provide the test equipment and personnel required for the test or shall employ a registered test lab facility to perform the test. Tests which do not utilize the external ct and only test the breaker electronics shall not be accepted. All costs for the tests shall be included in the amount bid.

9. The Contractor shall note that all sections of this Specification pertain to all of the existing buildings and facilities to be revised or modified, as well all as the inter-building power, control, and instrumentation inter-wiring thereof.

10. The Contractor shall take careful note of the delineation of the work.

END OF SUB-SECTION

SUB-SECTION - DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEMS

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 RELATED SECTIONS

A. Sub-Section Electrical General Conditions

B. Sub-Section – Field Tests

C. Sub-Section - Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

D. Section DSNY-ELECT SPS Connection Electrical

1.3 SYSTEM DESCRIPTION

A. This section provides the electrical requirements for the DSNY Wastewater Pump Station

B. Motors shall be properly connected to protective devices and controls to give proper motor acceleration and correct motor rotation. The control wiring shall be properly connected to the control devices associated with a machine, a grouping of machines, or other device to produce the correct operation, timing, and sequencing of the equipment.

C. Overload elements in motor starters shall be adjusted and checked for coordination with the actual motor characteristics. The Contractor shall replace any overload element that is inadequate.

D. Check motor nameplates for voltage, horsepower, etc. Check any variable-frequency motor controllers and\or Solid-State reduced voltage starters to make sure that the ampere rating of the VFD or starter is equal to at least the full load current of the driven motor at the maximum service factor and at the expected power factor. Any VFD or SSRV or fixed speed starter controller found to have a rating less than the combined ratings above, or less than the amperage rating contained in the Specifications or shown on the Plans, shall be replaced with new controls properly rated at the Contractor's expense.

E. Check motors for proper alignment with driven equipment per A.S.M.E. standards.

F. Cleaning and Lubrication: Prior to operational performance, test run of each electrical system, clean system both externally and internally. Comply with manufacturer's instructions for lubrication of both power and hand-operated equipment, and remove excess lubrication. Touch up minor damage to factory-painted finishes and other painting specified as electrical work; refinish work where damage is extensive.

G. Ampacity and trip ratings of circuit breakers and motor circuit protectors shall be verified against feeder and motor sizes. All ground fault breakers and systems shall be performance tested and calibrated in the presence of Commissioner using actual deliberate ground faults to confirm calibrations; all insulations resistance tests shall be performed and results recorded and submitted to Commissioner. All Variable Frequency drives, and all solid-state reduced speed motor starters shall be checked for proper starting under various head conditions, and the solid state settings, after demonstration of proper starting, shall be listed in detail in the permanent records.

H. The entire Instrumentation and Control System shall be demonstrated to confirm that it conforms to the Functional Descriptions within the Specifications.

1.4 CONSTRUCTION OPERATIONS:

A. The Contractor will furnish to the appropriate trades involved all detailed information and advanced notice regarding his requirements which relate to the other trades. The Contractor will furnish accurate information including detailed drawings if required showing space requirements for equipment, and the size and locations of sleeves, wall openings, inserts, chases, special openings, and any and all other details required for the construction of his work.

B. The Contractor will specifically note the requirement for gland-type sleeves for electrical conduits below grade or in exterior and wet areas, and have all sleeves available on the site for insertion into the work so as to not interfere with proper construction progress.

C. Before starting the work, the Contractor shall lay out all details of his work to ensure the coordinated installation with that of the other Contractors and structural conditions. The size and location of equipment and piping as shown on the Drawings are approximate. It is specifically noted that the extent of the electrical work under this Item includes providing material and labor for the electrical installation of equipment provided under other Items of the Contract, and shown on various drawings. This work includes, but is not limited to, Instrumentation, Mechanical work, HVAC, and Site work. The Contractor will examine each sheet of the Drawings, and all Sections of the Specifications, to determine the extent of the work to be provided under this Contract.

D. Temporary light and power will be provided and maintained by the Contractor from the start of the project and removed at the completion of the work when directed by the Commissioner. The Contractor will provide all masts, service equipment, panels, and wiring required.

E. The Contractor furnish and install all required temporary electric services sized for the maintenance of essential services to the pump station. The entire temporary pumping facility proposed by the Contractor shall be approved by the Commissioner prior to the start of construction. All temporary facilities shall be installed in accordance with Article 305 of the NEC, and shall be constructed at locations as determined in the field with the concurrence of the Commissioner. All temporary and permanent re-locations of electrical equipment required to facilitate the new construction shall be included in the amount bid.

F. The temporary electric services will be adequate to handle the total loads for temporary pumping, comminutor, lighting, and for the Contractor's construction equipment such as vibrators and welders. The cost of power consumed will be assumed by the Contractor. The Contractor shall provide lighting outlets in work areas as required and as directed by the Commissioner, but not less than OSHA requirements, one (1) per 400 square feet evenly spaced, and one (1) per room. Provide power outlets as required and directed by the Commissioner.

G. The Contractor will provide all required ground- fault circuit breaker protection on all temporary electrical circuits as required by the National Electric Code and OSHA. Temporary light and power will be provided by the Contractor to accommodate all trades during their normal working hours. Temporary maintenance (standby electrician for welding, or for out-of-normal working hours) will be paid for by the Contractor requiring such standby electrician at no additional expense to the Commissioner. All temporary wiring will be in accordance with the requirements of the National Electric Code and OSHA. All temporary service wiring and facilities shall be removed at the completion of the Contract, and all electrical facilities and building surfaces disturbed by the temporary service restored to its original condition.

H. The Contractor will note that this Contract includes not only new construction, but also new wiring and revisions to existing wiring in existing facilities.

1.5 AS-BUILT DRAWINGS:

A. Prior to pouring of concrete for the structure, or to back-filling of trenches, the Contractor will record the exact locations of all concealed conduits in the "As-Built" drawings. All conduits will be assigned a number. This information, as well as any other deviations or changes in the electrical construction, will be incorporated on "As Built" drawings and submitted to the Commissioner. All feeder, control, instrumentation, and branch circuit conductors will be identified by "Brady" type markers, or other permanent marker in all junction boxes and at all points of origin and termination. The Contractor will submit to the Commissioner prior to final acceptance of the work a conduit and wire schedule listing all conduits, and the wires they contain, wire number, purpose, origin, and termination. Each and every control and instrumentation wire installed under this Contract shall be separately listed. This schedule will be keyed to the "As-Built" conduit drawing. For purposes of clarity, each control and instrumentation wire shall be listed on a separate line.

B. The Contractor will note that the "As-Built" and "Record Drawings" work under this Sub-Section will be a separate Item of the work, and will appear as a separate line item of the Contract Item Breakdown to be submitted for payment purposes.

1.6 OPERATIONAL TESTS

A. The equipment shall then be given an operational test to determine that all components, including motors, controls, protective and switching devices, and auxiliary associated equipment, are in operable condition and can function as described and shown on relevant conditions, operating instructions, and Drawings. A full test of all transducer and float system-based controllers shall be conducted in the presence of Commissioner to demonstrate that all control systems are fully responsive to the functional description as contained in the Contract.

B. Motor current reading shall be taken at full load or as close to full load as the driven machine will develop. If the ammeter reading is over the rated full load current, determine the reason for the discrepancy and take the necessary corrective action. If discrepancy cannot be corrected, advise Commissioner.

C. The cause of any motor operating above full load rating shall be removed instead of increasing the overload relay trip rating.

D. Check the load current in each phase of each power and receptacle panel feeder and make modifications to the circuit loading to correct load unbalance to within 10% phase to phase for power and receptacle panels.

E. After completion of the Work, the Contractor shall thoroughly test the entire electrical system, including electrical work required for the instrumentation, control, and power, and shall adjust as required.

F. Contractor shall submit relay curves, and calculations and settings for all protective relays in the distribution equipment and shall provide a fully coordinated short-circuit system. The data shall be also submitted to the power company for its required approval.

G. Contractor shall demonstrate that all single speed starters properly respond to the specified parameters for starting torque, break-away current, ramp-up speed and time, and ramp-down speed and time.

H. Commissioner shall be notified 2 weeks in advance of the test so that they can be present and witness the tests if they so desire.

1.7 CLOSEOUT PROCEDURES

A. General Coordination: Sequence closeout procedures properly so that work will not be endangered or damaged, and so that every required performance will be fully tested and demonstrated.

B. System Performance Test Runs: Coordinate test runs of electrical systems with test run of equipment served furnished under other sections of this Contract (process system, PLC control, plumbing, etc.), as well as all other Contract requirements.

C. Check each item in each system to determine that it is set for proper operation. With the Contractor supplying respective system, and Commissioner present, operate each system in a test run of appropriate duration to demonstrate compliance with performance requirements. During or following test runs, make final corrections or adjustments of systems to refine and improve performances where possible, including noise and vibration reductions, elimination of hazards, better response of controls, signals and alarms, and similar system performance improvements. Provide testing or inspection devices requested

for Commissioner's observation of actual system performances. Demonstrate that controls and items requiring service or maintenance are accessible.

D. General Operating Instructions: Instruct the City of New York's Operating Personnel,; and in addition to preparation of written Operating Instructions and Maintenance Manuals specified elsewhere in the specifications, provide general operating instructions for each operational system and equipment item of electrical work. Coordinate instructions with instructions for mechanical work, and other equipment where associated with electrical systems or equipment.

E. Explain identification system, displayed diagrams, signals, alarms, and audio visual provisions.

F. Describe interfaces with mechanical equipment, including interlocks, sequencing, startup, shutdown, emergency, safety, system failure, security and similar provisions.

G. Outline basic maintenance procedures and major equipment turnaround requirements, including adjustments, to optimize output and efficiency of electrical systems.

H. Display and conduct a "thumb-through" explanation of Maintenance Manuals, Record Drawings, auxiliary parts inventory, storage of extra materials, meter readings, and similar service items.

1.8 CONTINUED SYSTEMS OPERATIONS

A. Acceptance and Continued Services: Contractor shall coordinate with the Commissioner to obtain acceptance of electrical and mechanical system until the City of New York's personnel take over operation of the DSNY Wastewater Pump Station. Contractor shall respond within three (3) business days with continued consultation and services (beyond acceptance date) on electrical, matching required continued services on associated mechanical systems and equipment until the end of the correction period.

B. The Contractor shall furnish, install, wire, connect, test, calibrate, and put into successful and satisfactory service all equipment, wiring, calibration, communications packages, and start-up services to ensure that any and all Instrumentation and Control equipment provided under this Contract is fully compatible and fully operational, and no final payment shall be made until this has been achieved.

C. The Contractor shall note that all requirements are applicable to operation under both commercial power and standby power.

END OF SUB-SECTION

SUB-SECTION - OUTLET BOXES

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 WORK INCLUDED

A. Furnishing and installing outlet boxes and supports for the DSNY Wastewater Pump Station.

1.3 RELATED SECTIONS

A. Sub-Section – Electrical General Conditions

B. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish and install outlet boxes as shown on the drawings and as required to properly install the electrical system.

1.5 REFERENCES

A. National Electrical Code (NEC)

PART II - PRODUCTS

2.1 OUTLET BOXES FOR HAZARDOUS AREAS

A. Shall be cast metal type approved for Class 1, Division 1 area with PVC coating and gasket for water-tightness and of ample size to house required devices.

B. Manufacturers:

1. Crouse-Hinds;

2. Appleton;

3. Hubbell Killark;

4. Or Approval Equal.

2.2 OUTLET BOXES FOR EXPOSED OUTDOOR USE

A. Shall be the cast metal type with corrosion-resistant PVC finish, gasket, integral external cast mounting lugs, and shall be of ample size to house the required devices.

B. All cast boxes shall have external mounting ears.

C. Manufacturers:

1. Crouse-Hinds;

2. Appleton;

3. Hubbell;

4. Or Approval Equal.

2.3 OUTLET BOXES FOR INDOOR GENERAL USE

A. Shall be the cast metal type, with integral external cast mounting lugs, and shall be of ample size to house the required devices.

B. No splices shall be made in cast "condulet" type of fitting.

C. All cast boxes shall have external mounting ears.

D. Manufacturers:

1. Crouse-Hinds;
2. Appleton;
3. Hubbell;
4. Or Approval Equal.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Outlet boxes shall be rigidly supported, and boxes required for supporting of lighting fixtures shall be provided with studs of sizes suitable for supporting the weight of the fixtures.

B. Outlet boxes shall be sized to comply with NEC, and be UL approved.

END OF SUB-SECTION

SUB-SECTION - PULL AND JUNCTION BOXES

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 WORK RELATED

A. Furnishing and installing pull and junction boxes for DSNY Wastewater Pump Station.

1.3 RELATED SECTIONS

A. Cutting and patching.

B. Sub-Section – Electrical General Conditions

C. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

D. Section DSNY-ELECT SPS Connection Electrical

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish and install pull and junction boxes as shown on the drawings and as required to properly install electrical systems. Junction boxes shall be provided wherever existing wiring is to be extended due to new or changed wiring or construction. Junction boxes shall also be provided wherever required to conform to NEC Article 312.8.

1.5 REFERENCES

A. NEMA Article 250 enclosures for electrical equipment.

B. National Electrical Code (NEC).

C. Pull and junction boxes shall bear the UL label.

PART II - PRODUCTS

2.1 MANUFACTURES

A. Cast boxes –
   1. O.Z./Gedney;
   2. Crouse-Hinds;
   3. Thomas and Betts;
   4. Or Approved equal.

B. Sheet metal galvanized or aluminum boxes –

1. Hoffman Engineering Co.;

2. Hennessy Co.,

3. McKinstry Metal Works, Inc.;

4. Or Approved equal.

C. Pull and junction boxes for indoor exposed use shall be NEMA 12 aluminum or galvanized sheet steel with neoprene gaskets and screwed-on covers and of all-welded construction in non hazardous areas. Hand hole- type pull boxes for underground duct banks shall be concrete pre-cast or cast in place with cast iron frames and covers. Sizes shall be as shown on the Plans. All hand holes shall have pulling irons and cable racks, and a 3/4-in. by 10-ft ground rod. The letter "E" shall be cast in electric hand hole covers, and the letter "T" in telephone/instrumentation/ computer hand holes. Non-metallic cable racks shall be installed in all hand holes unless an adequate grounding conductor is available. In general, a 3/4" by 10' Copperweld ground rod shall be installed in every duct-bank hand hole, and as shown on the Plans.

D. Boxes for use in Class 1, Division 1 hazardous areas shall be cast-type, epoxy, or PVC-coated, NEMA 7. Materials shall be aluminum or galvanized steel. Covers shall be same material as box with screwed covers; screws shall be stainless steel.

E. Boxes for use outdoors and in corrosive areas shall be NEMA 4X stainless steel construction. Covers shall be same material as box with screwed-on covers; screws shall be stainless steel.

F. Galvanized steel boxes and covers shall be hot dipped or electro-galvanized after fabrication, inside and outside surfaces.

G. Meter service pedestal boxes shall be designed for the purpose, shall be deep enough to accommodate a standard electric meter, and shall be sized large enough to hold all the equipment as indicated on the Plans and as Specified. Meter pedestal boxes shall be fabricated from aluminum, stainless steel, shall have a standard Traffic Control Box lock, and shall be weatherproof and vandal resistant.

H. The size of boxes shall be generous, considering the number and size of conductor, and providing generous access for removal of conductors.

I. Galvanized steel or aluminum barriers shall be provided in junction or pull boxes to isolate conductors of different voltages such as 480V, 120V, AC, DC and instrumentation signal leads. Co-mingling of power and communications or instrumentation conductors shall not be permitted; separate hand holes shall be provided for each class of wiring.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Junction boxes and pull boxes shall be solidly attached to structural members prior to installation of conduit and set true and plumb. All fastening devices in concrete shall be the expanding machine screw-type made of non-corrosive materials. Note that wooden plugs for securing boxes to concrete will not be permitted.

B. Where control wires must be interconnected in a junction box, terminal boards, consisting of an adequate number of screw-type terminals, shall be installed. Terminal board current carrying parts must be of ample capacity to carry the full load current of the circuits connected. Approximately 20% of the total amount of terminals provided shall consist of spare terminals. Terminals shall be lettered and/or numbered to conform to the wiring diagrams.

C. Junction boxes and pull boxes shall have identifying nameplates attached, and shall be constructed to NEC and NEMA specifications.

END OF SUB-SECTION

SUB-SECTION - WIRE AND CABLE TERMINATIONS

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not Used.

1.2 WORK INCLUDED

A. Furnishing and installing various types of wire terminals including terminal blocks for the Wastewater Pump Station.

1.3 RELATED SECTIONS

A. Sub-Section – Electrical General Conditions.

B. Sub-Section - Cable and Wire

C. Sub-Section – Field Tests.

D. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish and install cable terminators, compression type lugs, splice connectors and terminal blocks are required to complete the installation of wire and cable. Wire terminations shall be suitable for use for the particular conductor and service voltage on which the connector is used.

1.5 REFERENCES

A. National Electric Code (NEC).

B. NEMA WD-1 General Purpose Wiring Devices.

C. UL 486 A and B wire connectors and soldering lugs for copper and aluminum cables.

PART II - PRODUCTS

2.1 MATERIALS

A. Wires of 600-volt and below on manufactured assemblies such as control panels, main distribution switchboard, and individual motor control equipment shall be terminated terminal blocks with compression- type or pressure-type terminals furnished with isolation barrier

B. Set screw-type pressure terminals on terminal strips shall be provided with saddles for each wire, a terminal designation for each wire, and a terminals strip master nameplate.

C. Wires and cables of 600-volt and below shall be terminated with pressure tool applied solder-less connections. For wires 250 MCM and larger, the lugs shall have long barrels to allow double indentations.

D. The 600-volt cables shall have minimum possible number of splices, and splices shall be made only in junction boxes. No splices of any kind shall be made in cables of 4/0 or larger size, or in any underground cable, without specific and written permission from Commissioner. Splices (where approved) shall be made with the following:

1. Burndy Corp. "Hylink"-type connector;
2. Blackburn connectors;
3. 3M connectors;
4. Or Approved equal.

E. Connectors shall be used for straight splices;

1. Burndy Corp, KVS-type bolted connector;

2. Blackburn Division of ITT Corp. Type H or M bolted connector;

3. 3M;

4. Or Approved Equal

F. Connector shall be used where there are taps in wires No. 6 AWG or larger.

G. All joints and terminations shall be carefully taped with the following to a thickness equal to 1.5 times the original insulation

1. Okonite Company Tape;

2. Nitto Electrical Industrial Co. of America, Inc.

3. 3M;

4. Or Approved equal

H. A covering of the electrical tape shall be applied over the rubber tape in two half-lapped layers. No "wire-nut" type of connector is to be used on any control or instrumentation conductor. Manufacturers:

1. 3M Company Scotch Brand No. 33 Tape;

2. Nitto Electrical Industrial Co. of America, Inc. No. 222 Tape;

3. Power first Electrical tape;

4. Or Approved equal

I. Terminal blocks for control and instrumentation wiring shall be rated at least 600 volts and 25 amperes, shall be suitable for use with No. 8 AWG wire, and shall be molded-block type to accommodate ring connectors 3/8- inch wide at the terminal screws.

J. Terminal blocks for control and instrumentation wiring shall be furnished with slotted-head screws pushing against pressure leaves with serrated or grooved contact surfaces, and shall be furnished with molded insulating barriers between terminals. Each terminal block shall have a removable marking strip and cover. Contractor shall show circuit designations on the elementary schematic and wiring diagrams. These designations shall be machine-lettered, stamped, engraved, or neatly marked with permanent ink on one side of the terminal block marking strips. The terminal arrangement shall group the conductors in each cable. Terminal strips dependent on spring tension shall not be responsive to this Specification. No connection of control or instrumentation conductors shall be made using "Wire Nut" type of connector.

1. Terminal blocks shall be

    a. Buchanan Catalog No. B104T through B112T;
    b. Marathon Catalog No. 1604116;
    c. Schneider Electric; or
    d. Approved equal.

K. Connectors, terminations, terminal blocks shall be pressure-type and shall conform to NEMA and UL Standards.

L. Approximately 10% unoccupied terminals shall be provided on each terminal block for terminating futuree conductors in each control cable for future use.

END OF SUB-SECTION

SUB-SECTION - CABLE AND WIRES

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 WORK INCLUDED

A. Furnishing, installing and connecting all wire and cable for the Wastewater Pump Station.

1.3 RELATED SECTIONS

A. Sub-Section – Electrical General Conditions

B. Sub-Section – Wire and Cable Terminations

C. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

D. Section DSNY-ELECT SPS Connection Electrical

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish, install and connect the various types and sizes of insulated wire and cable as shown on the cable schedules and noted on Drawings. The installation shall include cable runs in conduit, duct banks, or as otherwise specified. All wire and cable shall have copper conductors.

1.5 REFERENCES

A. National Electrical Code (NEC) - 2014 Edition.

B. IPCEA S-68-516, NEMA WC-8 EPR insulated cable.

C. IPCEA S-66-524, NEMA WC-7 Cross-linked thermosetting polyethylene insulated wire and cable.

D. UL 1072 cable and wire.

PART II - PRODUCTS

2.1 MANUFACTURERS

A. Manhattan Cable;

B. General Electric;

C. Triangle Cable;

D. Okonite Co;

E. Anixter Inc;

F. US Wire & Cable Co.;

G. Or Approved equal

2.2 PRIMARY CABLE

A. All primary cables, if installed on this project, shall be in accordance with the NEC, NEMA WC IPCEA Publications, and shall bear the UL label on the outer covering in addition to being copper and stranded Class B.

B. The Contractor shall provide all conductors of soft, annealed, un-coated copper. Medium Voltage primary conductors for this project shall be manufactured with cross-link polyethylene type XLP insulation, rated for 15kV minimum, and shall conform to ASTM Standards.

2.3 SECONDARY AND BRANCH CIRCUIT WIRE AND CABLE

A. All cables shall be in accordance with the NEC, NEMA WC IPCEA Publications, and shall bear the UL label on the outer covering in addition to being copper and stranded Class B.

B. Contractor shall provide all conductors of soft, annealed, un-coated copper. Conductors No. 10 AWG and smaller to be solid, except for control wiring; control wires and conductors No. 8 AWG and larger shall be stranded. All conductors to have 600-volt insulation rating and conform to ASTM Standards. Wire shall be provided for various uses as follows:

1. Lighting, receptacle, and appliance branch circuits - Type THWN-THHN, No. 12 minimum.

2. Service entrance conductors - Type USE-RHH-RHW cross-link polyethylene, size as indicated on the Plans

3. Motor feeders and power feeders - Types THWN-THHN, sizes as indicated on the Plans.

4. Underground lighting conductors - Type USE-RHH-RHW cross-link polyethylene, size as indicated on the Plans.

5. Underground Feeders - Type USE-RHH-RHW cross-link polyethylene.

6. Branch Circuit Feeders - Type THHN-THWN.

7. Control Wiring - Type THHN-THWN, size No. 14, stranded.

8. Recessed fixture wire - Type THHN No. 12 minimum.

9. Signal Cable (4-20ma) - 18/2 twisted shielded with belfoil shield and No. 22 drain wire, and rated for 600 volts. (This rating is required by the NEC for entry into control enclosures).

C. The individual wires in the control system shall be color-coded in accordance with 3.5. F below. Surface printing of number identifiers on individual conductors shall not be acceptable.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. Power, lighting, and control. Contractor shall furnish and install all cable and wire in accordance with the cable schedule, Drawings, and requirements of this Specification. Contractor shall complete the installation and leave sufficient length at the ends of the cable to make connections conveniently to equipment, fixtures, and devices. Splices shall not be permitted in any feeder cable; runs shall be continuous from end to end. Splices may be allowed with the Commissioner's written approval, at each location for the following conditions:

1. Taps with the use of pressure connectors

3.3 INSTRUMENTATION WIRING

A. All instrument loop wiring shall be installed using individually shielded twisted pair either No. 18 or 16-gage wire as recommended by the instrument manufacturer, with □XLPE□ insulation, rated 90°C. In the case of multi-conductor cables, an overall shield shall also be included, as well as the shield on the individual pairs. All shields will be treated as individual conductors and will maintain continuity throughout the wire run. The shield shall be grounded at one end only. All instrumentation cable shall be 600-volt rated.

B. Multi-conductor instrumentation cables may be used with the Commissioner's written approval for the following condition:

1. 4-20ma dc signals, for which co-channel interference is not anticipated.

3.4 TAGGING AND MARKING

A. All control and power wires shall be tagged at each end, and at pull-boxes, etc. in accordance with wire numbers as assigned by the Contractor's drawings, using adhesive-type markers.

3.5 PULLING AND SUPPORTING CABLES

A. Cable shall not be pulled into conduits until the conduit runs have been cleaned and are free from obstructions and sharp corners. A clean, dry, tight fitting rag or conduit swab shall be drawn through the conduit immediately before installation of cables.

B. Contractor shall install all cable without exceeding the maximum allowable pulling tensions and sidewall pressures recommended by the manufacturer. Where a lubricant is needed to aid in the pulling of cable, only approved material, not injurious to the cable sheath, shall be used. Any mechanical pulling apparatus shall be equipped with a torque indicating device. No pulling by truck or earth-moving machinery shall be permitted. All cables damaged during installation shall be removed and replaced with new cable at the Contractor's expense.

C. All cable installed in a vertical plane or in an inclined plane shall be supported by means of approved cable grips (including hooks), and shall be securely clamped by means of approved commercial cable clamps. When cables are installed in sleeves under equipment, the openings shall be blocked with foam rubber material.

D. Where cables pass through sleeves or block outs, urethane foam may be used in lieu of clamps or woven grips for supporting cables, or in lieu of foam rubber for blocking openings.

E. All runs, connections, pressure connectors, taping and tagging of insulated conductors shall be made subject to approval of Commissioner. After all insulated conductors are installed and all equipment, devices and fixtures have been connected, field tests shall be conducted.

F. Conductor insulation shall be color-coded as follows:

1. AC Power

480V and Above	208Y/120V System	120/240V Tapped Delta
Phase A - Brown	Phase A - Black	Per 208Y/120V System
Phase B - Orange	Phase B - Red	except phase with highest
Phase C - Yellow	Phase C - Blue	voltage to ground shall be
Neutral – Natural Gray	Neutral - White	marked Red or Orange.

2. DC Power

DC Control - Blue
Positive Lead - Red
Negative Lead - Black

3. Single conductor AC control wire shall be random colors, except for yellow, green, grey or white. White shall be used for control neutral leg, and yellow shall be used for interlock wires of foreign voltage that enter a motor control center compartment or control panel.

4. Equipment Ground - Shall be green only.

G. Wires on manufactured assemblies such as distribution board and individual motor control equipment shall be terminated in accordance with Sub-Section - Wire and Cable Terminations.

H. The 600-volt cables shall have the minimum possible number of splices. Splices shall only be made in junction boxes. Terminals shall be in accordance with Sub-Section - Wire and Cable Terminations.

I. Where cables enter pull boxes, switchgear enclosures, or incoming line sections from the underground system, conduit ends shall be sealed. Auxiliary conduits shall be capped.

J. The sizes of wire and cable for individual circuits shall be as shown or as acceptable to Commissioner as being proper for the service requirements. When electrical requirements of accepted equipment vary from those specified and shown on the Drawings, it is the responsibility of the Contractor to coordinate and provide the proper wire size, and other electrical components at no additional cost to the Commissioner. Wires for branch and control circuits shall be no smaller than No. 12 AWG.

K. Wires for motor shall be No. 12 minimum. Wires of greater size, as indicated or required, shall be used to minimize voltage drops where circuit runs are exceptionally long. Wires shall be set so that de-rated current capacity of wire shall be equal or greater than trip setting of protective device.

L. Instrumentation cables shall be moisture sealed, using shrink-on socks at all connections.

M. Raceways containing instrumentation cable shall be installed to provide clearance from power runs.

N. Where practicable, raceway containing instrumentation cable shall cross raceway containing conductors of other systems at right angles.

O. Where instrumentation cables are installed in panels, etc., the Contractor shall arrange wiring to provide maximum clearance between cables and other conductors. Instrumentation cables shall not be installed in same bundle with conductors of other circuits. The 600v insulation rating shall apply.

P. Special instrument cable shall be as specified or recommended by the vendor of the equipment or instruments requiring such wiring.

Q. Extra pull boxes shall be installed for ease of cable pulling, and the cable manufacturer's recommended conduit fill factor shall be followed. Cables shall be moisture-sealed at all connections. Cable shall

not be pulled or flexed when the temperature is such that insulation damage will occur due to low temperature embrittlement.

3.6 FIELD QUALITY CONTROL

A. Contractor shall perform the following field tests upon completion of the cable installation:

1. 600-volt cable - Megger test at 1000vdc, (insulation resistance).

2. Instrumentation cable - continuity test.

3. Telephone cable - continuity tests.

4. Medium voltage feeders - High Potential Tests per Manufacturer's recommendation. Engineer witnessed, and IEEE paper records required. See requirements in Sub-Section 2.2 B above.

5. These tests shall be performed in accordance with IPCEA and manufacturer's standards, and the results shall be submitted to Commissioner in writing.

END OF SUB-SECTION

SUB-SECTION - INSTRUMENTATION AND CONTROL WORK

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 SUMMARY

A. The Contractor under this Sub-Section will submit for approval, furnish, install, test, and place in satisfactory operation a complete instrumentation and control system for the DSNY Wastewater Pump Station for the proposed project. Under this Contract, the Contractor shall furnish and install all control and instrumentation equipment, panels, and primary instruments, for the instrumentation and pump station control and alarm equipment, and shall provide, install, and test all wiring required for the complete system.

B. The extent of the work will include, but not be limited to, the following principal sections of work:

1. Preparation and submission of coordinated Shop and Working Drawings for approval.
2. Preparation of required working control diagrams.
3. Providing and installation of all primary instruments.
4. Providing and installation of new permanent transducer-based pump control and alarm system.
5. Providing and installation of back-up float based pump control and alarm system, with an overall high level alarm system.
6. Providing all Instrumentation surge and lightning protection.
7. Providing and installation of pump control programmable logic controller (PLC).
8. Providing all wiring for the temporary and permanent control and instrumentation systems.
9. Providing and installing of all required conduit and wire for power supplies and controls.
10. Providing and installing all pump control relay logic including an alarm Annunciator.
11. Providing and installing a level transducer.
12. Providing adjustment and calibration of pump control systems.

13. Providing and wiring control, and instrumentation power supply, UPS system, and battery backup.
14. Providing and installing and wiring the Floats for the required back-up level control system.
15. Interconnection diagrams.
16. Startup and calibration services.
17. Instructional services on system operation.
18. Instrumentation and control Record Drawings.
19. Connections to equipment furnished under other sections.
20. Furnishing and installing a PLC based Alarm Screens.
21. Furnishing and installing a PLC Ethernet output port for remote surveillance of the PLC program parameters and operation.
22. Furnishing and installing relay logic to provide Form C dry contacts for each alarm listed, as required to be used by the remote alarm system.
23. Furnishing and installing an automatic voice programmed auto dialing Wireless Remote Alarm Annunciator System that shall communicate with a Commissioner list of alarm recipients for all alarm conditions as listed on the Plans. The system shall be capable of sending wireless pre-programmed list of alarm conditions to the main alarm reception system that complies with the Building Management Control System. The alarms shall be reported in a clear voice message with graphics where required.

1.3 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.4 SUBMITTALS

A. Submittal data shall be provided to show compliance with these specifications, plans or other specifications that will influence the proper operation of the pump station.

B. Prior to the fabrication, purchase, or delivery to the job site, submit for approval, in accordance with the Contract Documents, Shop and Working Drawings for the following equipment as applicable for each of the locations of work:

1. Overall system block diagram.

2. Overall system functional descriptions keyed to system schematic diagrams.

3. Full and complete System Functional Description of Operation in at least as much detail as contained in these Specifications, and covering the equipment proposed to be used, and keyed line by line to the ANSI coil and contact ladder diagrams.

4. Overall wiring diagram and individual panel wiring diagrams.

5. System schematic drawings illustrating all components being supplied, with complete pneumatic and electrical connections. Actual system schematic drawings shall be provided. Manufacturers catalog cuts or standard drawings merely showing "typical" circuitry are not acceptable. Copies of portions of the Engineer's Contract drawings are not acceptable.

6. Solid-state programmable transducer-based Wastewater pump controllers.

7. Solid-state programmable float base backup Wastewater pump controller.

8. The alarm annunciator

9. Surge suppression devices

10. Transducers and float controls.

11. Detailed descriptions and diagrams of the capabilities of the Level Controller.

12. Interconnection diagrams of pump and motor control logic for each pump.

13. Uninterruptible AC power Supply system to serve the Level Control System.

14. Outer cabinet detailed front view and engraved nameplate list

15. Scale drawings of front view and inner panel front view

16. Producing a Functional Description for every PLC based program.

17. A complete and programmed remote alarm reporting system, compatible with the Building Management communication system, and including all programming with the Building's system.

18. Enclosure dimensions

19. Subpanel assembly with all components and dimensions

20. Inner door component layout with dimensions

21. Manufacturer data sheet (cut sheets) for all components

22. Complete bill of material and a complete narrative Functional Description of the Pump Station operating system and all fault alarm actions and procedures

23. User operating manual

24. Installation instructions

25. 2 year warranty certificate

26. UL 508 / UL 698A control panel manufacturer certification

27. Test Reports: Submit certified factory test report indicating control panel successfully performs functions specified.

28. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

29. Manufacturer's Field Reports: Submit certification after installation that control panel has been installed in accordance with manufacturer's instructions and has been successfully field tested.

C. Lack of the above submittal data is cause for rejection.

1.5 STANDARDS AND CODES

A. The instrumentation and control system shall conform to these Plans and Specifications, , and to the latest editions of the following Codes and Standards:

1. National Electric Code (NEC) – latest edition
2. American National Standards Institute (ANSI).
3. Occupational Safety and Health Act (OSHA).
4. Institute of Electrical and Electronics Engineers (IEEE).
5. National Electrical Manufacturers Association (NEMA).
6. Electronics Industries Association (EIA).
7. Instrument Society of America (ISA).
8. Product Testing of either (UL) or (ETL) label.

1.6 REFERENCE STANDARDS

A. ANSI®/NFPA® 70 – National Electrical Code® (NEC®)

B. IEC 61000 – Electromagnetic Compatibility

C. NEMA 250 – Enclosures for Electrical Equipment

D. NEMA ICS7 – Industrial Control and Systems Adjustable Speed Drives

E. UL® 50 – Enclosures for Electrical Equipment

F. UL 98 – Disconnect Switches

G. UL 507 – Electric Fans

H. UL 508 – Industrial Control Equipment

I. UL 508C – Power Conversion Equipment

J. UL 698A – Circuit extension into hazardous locations

K. UL 991 – Safety Tests

L. IEEE-519 – Harmonic levels (if required)

1.7 RELATED SECTIONS

A. Work performed under this section shall be subject to all the Contract Documents including the Drawings and Specifications.

B. Sub-Section Electrical General Conditions

C. Sub-Section - Field Tests

D. Sub-Section - Demonstration of Complete Electrical Systems

E. Sub-Section – Wire and Cable Terminations

F. Sub-Section - Cable and Wires

G. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances
H. Section DSNY-ELECT SPS Connection Electrical
I. Contract Documents

1.8 QUALITY ASSURANCE

A. Perform Work in accordance with UL 508. Provide UL 508 label on complete assembly.

B. Provide components compatible with functions required to form complete working system.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Inspect for damage.

B. Store in areas protected from weather, moisture, or possible damage; do not store directly on ground; handle to prevent damage to wiring and components.

1.10 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of control panel and final wiring diagrams and connections.

B. Operation and Maintenance Data: Submit operation and maintenance instructions for components and devices.

PART II - PRODUCTS

2.1 ENCLOSURES

A. The enclosure shall be wall mounted with the NEMA rating as shown on the drawings as manufactured by:

1. Hoffman Engineering;
2. Hubbell;
3. Adalet;
4. Or Approved equal.

2.2 LEVEL CONTROL SYSTEM

A. General

1. The Contractor shall provide a pre-fabricated control panel that will provide a complete control system, including training of the City of New York's personnel in its operation.
2. The Contractor shall furnish, install, and place into successful operation at the three Wastewater pump stations, a level control systems designed to automatically control the operation of the submersible Wastewater pumps at the Pump Station.

B. The Level Control Shall be a PLC based system manufactured by the following manufacturers:

1. Multismart by Flygt Corporation XYLEM Water Solutions,
2. Healy-Ruff Company LLC;
3. Revere Controls;
4. Primex; or
5. Approved equal.

2.3 DESCRIPTION OF OPERATION AT THE WASTEWATER PUMP STATIONS.

A. For purposes of uniformity and replacement, the pump controllers are to be standard products in design and construction.

B. The Programmable Logical Controller shall be a submersible transducer based controller with a four line by 20 character color alpha-numeric operator screen.

C. Wastewater Pump Automatic Level Control Sequence of Operation

1. A solid state controller with an 10" color touch screen and a submersible transducer shall monitor and control the wet well level by starting and stopping the submersible Wastewater pumps. A separate backup float based controller with a separate power supply shall be provided in the control panel to provide approximately the same control system in the event of a PLC or transducer failure. The backup level control system set points can only be changed by manually changing float pivot elevations.

2. The Pump Station control for the Wastewater Pumps at the Pump Station shall be as follows. When the wet well rises to the lead Wastewater pump start set-point, elevation, the lead pump shall be started. If the wet well level continues to rise to the lag wastewater pump start set point, the lag pump will also start, and the two pumps will run together until the low level "pumps off" point is reached. The control will be such that at each "pumps off" operation, the lead and lag pumps will be exchanged. The on-off points will be determined from the 4- 20ma signal from the transducer. When both the lead and lag pumps operating and the wet well level rises to the high level elevation, a High Level Alarm will be initiated.

3. If the water elevation in the wet well drops to pump off set point, both pumps shall be called to stop at the preset elevation.

4. If the wet well level continues to decrease below elevation as would occur with a controller failure or a Hand/Off/Automatic (HOA) selector switch left in the "Hand" position, a Low Wet Well alarm will be initiated, all signals for these conditions will be determined by the back-up float system.

5. If a transducer or PLC failure occurs, the float based backup controller will replicate the above operations at similar elevations within the capabilities of a float system, but without the "Discharge Valve Change"alarm capability.

6. At each period of time that no Wastewater pumps are required, the automatic pump alternator will cycle so that the lead and lag pumps are reversed.

D. Pump Control System

1. The control system shall be a pre-programmed system for a typical lift station, with visual user-interface. The control system shall be furnished with pre-built parameters which are selectable via the user interface, as noted below:

    a. Functionality for advanced pump control schemes for up to 2 pumps including: Fixed lead/duty, alternation, alternation N:1, run most efficient pump, Alternation by hours run or starts.

    b. Auto/Manual/Off pump mode selection for each pump.

    c. Setpoint adjustment for pump activation/deactivation and level alarms.

    d. Level device from 4-20mA signal, conductive level probe or remote level as well as redundant level device handling.

    e. Functionality for advanced pump control of up to 4 pumps including grouping and alternation.

    f. Optimization including: Max off time for any pump, maximum pumps to run simultaneously, maximum pump starts per hour, inter-pump start and stop delays, maximum run time for any pump, blocked pump detection, well clean out functions, pump groups with different configurations for each group.

    g. "Locked level" alarm to indicate level device problem.

    h. Datalogger for user-defined faults and events with either: 50,000 events to internal flash memory, 10,000,000 events by writing direct to SD (Secure Digital) card, download events and fault log as CSV(Comma-Separated Values) file format to SD card or USB flash drive for Excel analysis or file transfer protocols (ftp) transferring of event and fault as CSV file format for Excel analysis.

    i. 3-phase supply monitoring and supply protection for under voltage, over volt-age, phase fail and phase rotation conditions. Equipment shall comply with UL 1449 and ASI C62.41 standards.

    j. Provision for remote control via SCADA for: changing mode of pumps (au-to/off/manual), reset of pump and station faults, changing pump and alarm setpoints and profiles.

    k. Fault module with flexibility for any fault to: hold out pump(s), auto-restart af-ter user defined time subsequent to fault conditions clearing a user defined number of times before locking out or manual/SCADA(Supervisory Control and Data Acquisition) reset required.

    l. Security: Admin user sets PINs (Personal Identification Numbers) for access to configuration of the unit, Automatic datalogging of who has entered the configuration menu, Automatic logging of all unsuccessful login attempts with date/time or Digital input option (key switch, for access to configuration menu).

m. SD (Secure Digital) card port that allows: Firmware upgrades, Save/load configuration (allows backup to be restored, or configuration copied from another control system), download datalogger in CSV format or export/import Modbus and DNP3 (Distributed Network Protocol) points list in CSV format.

2. The control system shall include IEC61131 (International Electro technical Commission) and IEC61499 compliant PLC (Programmable Logic Controller) programming language to enhance/interact with all the modules in the control system.

   a. The operator shall be able to change any level set points in the control sys-tem without having to reconfigure the sensor.

   b. The probe must be able to provide a very low pump set off set point without risk of pump over run so as to reduce silt/debris build up in the pit.

3. The control system shall include a user interface for operations and configuration. The display shall provide status of most aspects of the lift station, control of pumps, resetting of faults, and configuration of parameters.

   a. The following parameters shall be displayed on the main screen: level in user definable units, setpoints for alarms and pump start/stop, pump running/stopped, pump available/unavailable, 3-phase supply, date/time as well as a user configurable total starts, total hours run and other parameters.

   b. The main screen shall also have buttons to allow the user to access Faults, History, Information and Settings

      i. The following parameters shall be available from a user key press from the main screen: Hours Run accumulators each pump and shall be capable to add additional pumps (up to one more pumps) with these comparisons: last minutes run, this hour, last hour, today, yesterday, this week, last week, and total hours run.

      ii. Start accumulators for each pump with the following comparisons: this hour, last hour, today, yesterday, this week, last week, and total starts.

      iii. Capable of providing flow values, via a flowmeter or derived from calculations: Inflow, pump flow rate, total volume, and overflow data that includes start time, duration, and estimated volume.

      iv. Status of all Input/Output

      v. Database viewer to display all datapoints and tags in real time.

      vi. Communication stats.

   c. Control

i. The following aspects of the system shall be controlled intuitively through the user- interface as a minimum: Pump mode for each pump be-tween Auto/Manual (Hand)/Off, pump fault reset, level alarm reset.

d. Fault Screen

i. The main screen shall include a Fault button which takes the user to a Fault screen and allows the user to check all current and unacknowl-edged alarms.

ii. The fault screen shall detail the fault (e.g. contactor fail, seal fault, motor overheat, over-current, etc) along with date/time that each fault occurred and was cleared.

iii. A reset option for a fault shall be presented to the user when faults can be acknowledged/reset.

e. History Screen

i. The main screen shall include a History button that takes the user to the history screen to view all date/time stamped faults and events, filter by pump or other station parameters and by time period, and export history via CSV format for Excel analysis.

f. Configuration - The user interface shall allow intuitive configuration of the sys-tem, including as a minimum:

i. Setup Wizard to allow complete configuration of the system by the user answering simple questions.

ii. Set-points, including alarm and pump start stop set points.

iii. Enable/disable level alarm so that alarms can easily be activated/deactivated.

iv. Start, stop, and alarm delays.

v. Alternation/fixed sequence and grouping of pumps where necessary. Vi

vi. Configure I/O.

vii. Fault configuration capabilities for each fault to either display only, manual/SCADA reset before pump becomes available, auto-restart (after fault condition clears) with configurable restart time, auto-restart under-selectable number of times within time window before locking out, or customized text for fault and event name.

viii. Pumping system optimization parameters such as max off time, maximum pumps to run (overload protection), maximum starts per hour (pump protection), inter-pump start and stop delays, maximum run time, well washer controls, well clean out, random duty start, and optimization parameters applied differently to different groups of pumps if required.

ix. Supply protection including under- and over-voltage alarm points, volts phase imbalance and volts phase rotation, and DC-supply alarm.

x. Motor protections including under-current, over-current, ground/earth fault, phase fail, and I2T (singled cycle surge current) protection.

xi. Communication ports, speeds, and addresses.

xii. The configuration of the unit shall allow users to save known good configurations on the unit itself that they can revert back to at any time.

g. Configuration backup, restore and firmware upgrades

i. The configuration interface shall allow the user to save and restore configurations and/or Modbus mapping onto a SD card or via a USB Flash Drive to allow simple configuration from saved versions or to copy set-tings from one site to another.

ii. Firmware upgrades shall be possible by copying the upgrade image onto a SD card, inserting into a field unit and cycling power

h. Maintainability

i. Arrange for the manufacturer to demonstrate that its system is maintainable in the future (especially that future applications do not impose any user-interface development cost to the City of New York) and to make updates to firmware available to the City of New York free of charge for the lifetime of the unit.

4. Communications

a. The product shall include Ethernet (10Mbit/s) and Three (3) RS232 ports to 115kBit/s.

b. The system shall support a variety of media and communications networks including: TCP/IP, UDP, RS232, private radio over RS232, PSTN, wireless LAN, cellular data (via integral pppm module), cellular voice.

c. DNP3 master and slave, level 2 compliant, including: Change of state report-ing, native date/time and quality stamps for each data point, event buffering for different classes of data, support for multiple masters and slaves to be configured on the unit, DNP security (for communications between master station and RTU), and Modbus master and slave including: Modbus TCP, Modbus RTU, Modbus ASCII, or approved equals. Support for multiple mas-ters and slaves to be configured on the same unit with communications re- dundancy supported must also be included.

d. Pump control and configuration tags shall have provisions to allow integrated remote control via SCADA including: Start/stop pumps (change mode to au-to/off/manual), reset pump and pumping system trouble alarms, change pump and alarm set points, and change set point profile.

e. Dry contacts shall be provided for communication to the starters if fiber is not available at site (minimum of 10).

f. Contractor shall provide a converter for transmitting the signals from the pump controller to the building management system (BMS) using BACnet protocol. Contractor shall coordinate with the Building Management vendor and drawings to install the equipment at the pump station control panel and route the conduits and wires to the BMS.

5. Lift Station Control System

a. The control system shall calculate and display time to spill at a faulted pump.

b. The probe shall be able to be removed and put back into the pit without any configuration set up.

c. The control system shall simplify installation and configuration with simple menus and by selecting a specific probe so that all physical relationships be-tween the two level signals are set automatically.

d. Should any discrepancy occur, the control system must alarm instantly and shall provide SCADA tags for all outputs and conditions of the level sensing devices.

6. Motor Starters and Current Sensors

a. Two (2) current sensors shall be furnished and installed. One current sensor and monitoring relay shall be furnished and installed for each one of the NEMA 6 soft motor starters within the control panel enclosure. The current sensors will transmit signals to the control panel to record the pumps on and off status and pumps run time.

b. The motor starters shall be a NEMA 5 rated, solid state reduced voltage mo-tors. The motor overload relay shall be an ambient compensated type with inverse-time-current characteristic and shall be provided with heaters or sen-sors in each phase matched to nameplate full load current of the specific mo-tor to which it connects.

E. Seal Monitor & Motor High Temperature Protection

1. Each pump shall be provided with a 24 VAC relay to monitor the Control and Status of the pump motor for moisture and high temperature conditions. The relay shall include an Auto-Manual reset switch to allow the operator to select whether the relay will require manual reset after a high temperature condition or if the motor will be all allowed to restart automatically after it cools.

2. The relay shall be capable of monitoring an internal float switch or seal probes to determine if moisture has entered the motor housing or seal chamber.

3. Each relay shall include two independent relays. One for seal failure and the other for motor high temperature. LEDs shall be provided on the front of the relay to indicate alarm conditions. Inputs shall be provided to allow external reset of the relay.

F. A set of "Intrinsically Safe" UL relays shall be provided for all control signals from the transducer and thebackup floats.

G. Pilot Devices (one set per pump)

1. Each pump motor shall be provided with 6 digit elapsed time meter on the enclosure door. It shall be 6 digit (99999.9 hours) non-reset type. Each pump run signal shall be derived from a motor running output from the SSRV.
2. A Hand/Off/Auto (HOA) switch, running light and Mini-CAS reset pushbutton shall be provided for each pump.
3. Selector switches shall include removable 10 amp, 600-volt double make double break contacts. All pilot lights, selector switches and pushbuttons shall be rated for NEMA/UL 4 applications. They shall be not less than 7/8" diameter.

H. Submersible Transducer

1. Provide a submersible level transmitter to measure level. Transmitter shall be furnished with all 316 stainless steel wetted parts, 4-20 MADC output, piezo-resistive pressure-sensing element, all-welded design, traceable calibration card, and temperature compensation. Sensor shall have a 2.75 inch diameter active diaphragm with a PTFE outer diaphragm. Provide polyurethane jacketed shielded cable with polyethylene vent tube of sufficient length to wire to the panel or junction box. Cable shall be Kevlar reinforced to support a maximum load of 200 lb. Vent tube and Aneroid bellows: Provide a vent tube to provide atmospheric reference for the sensor and a sensitive bellows attached to the end of the vent tube. The bellows responds to and transmits changes in atmospheric pressure to the sensor while remaining a maintenance free, closed system. Accuracy shall be .25 % of span. The transmitters shall be mounted using a cable hanger and a non-corrosive cable to support the transmitter. Provide a cable of sufficient length to enable the termination to be made at a convenient location where the aneroid bellows will be mounted.

2. The transmitter shall be provided with built in factory surge protection and a life-time warranty from the transducer manufacturer. Evidence of this warranty and a procedure of how to file a warranty claim shall be provided with submittal and Operation and Maintenacnce (O&M) manuals.

I. Back up Float

1. The Backup Float system shall be provided with high quality floats mounted on stainless steel supports as shown on the Plans. All cables shall be provided with strain relief connectors, and all slack in the cables shall be supported from the pump station top slab using split Kellems grips. The Backup Float Control Level Sensors. The float level sensors to be provided shall be constructed of 316 stain-less steel, shall be mercury free, shall have a minimum diameter of 5", and shall be supplied with a 3 conductor #14 gauge fine-strand Nitrile covered type SO cable. The floats may be suspended with the manufacturer's recommended clamps to the 1" S.S. pipe that holds the transducer. The attachments shall be entirely separate from the transducer so that either can be replaced without taking the other unit out of service. If this is not feasible, two separate 1" S.S. pipes shall be provided. The preliminary setting of the float levels shall be as indicated above, and shall be set by the Contractor to final levels during the startup and calibration period.

J. Intrinsically Safe Barriers

1. All float switches and transducers located in the wet well shall be provided with intrinsically safe barriers that meet UL 913 specification, 6th edition and are labeled as such. Each device shall be mounted in an intrinsically safe area that is mechanically protected from non-intrinsically safe wiring.

K. Control Transformer

1. A machine tool transformer shall be provided to power the control system. It shall be provided with primary and secondary fuses. The transformer shall be located in the power section of the control enclosure.

L. Control Panel Main Circuit Breaker

1. The main circuit breaker shall be sized to accommodate the entire Wastewater control loads. A UL Listed Service Entrance rated circuit breaker shall be provided. It shall be sized based on UL & NEC Codes Circuit breakers shall be thermal magnet-ic, "E" frame or better and rated for a minimum of 10,000 AIC at 240 VAC or 18,000 AIC at 480. A door interlocked, pad-lockable operating handle shall prevent the enclosure door from opening, when any pump circuit breaker is in the ON position. A defeat mechanism shall be included on the operating handle for use by authorized service personnel.

M. Alarm Annunciator All listed alarms shall be displayed on the HMI Screen, shall activate the revolving red light on the top of the Control Cabinet, and shall be transmitted to the Building Management System using BACnet protocol.

1. Local Alarm Annunciator.

a. In addition to the pump and alarm control capability, the controller shall in-clude and provide alarm annunciation. The alarms shall be provided as shown on the Annunciator

Schedule on the Instrumentation Drawings. The Alarm Annunciator system shall have additional output contacts

b. The Annunciator shall be provided to display all alarms at the Pump Station on the HMI screen. The Annunciator at the Pump Station shall have auxiliary isolated contacts connected to the Alarm transmitter system.

2. Remote Alarm Transmission

a. The alarms shall be transmitted from the Alarm Annunciator to a Modbus to BACnet converter compatible with the Building Management System (BMS) that shall report all alarms to the BMS system. The alarms shall be transmitted / sent in a pre-programmed order until acknowledged by the BMS system. All alarm conditions, which have been acknowledged, shall flash until the alarm condition has been removed. The alarm inputs shall be switchable from n.o. to n.c. contact sources, and shall also be switchable from momentary to sustained mode.

N. Instruction & Documentation

1. One eight hour session shall be provided for start-up and instructions to the City New York staff. Sessions may be scheduled on the same day or separate days as required to accommodate the Commissioner's needs.

2. Instruction session shall include basic control panel operation, set-point adjustment, location of the various instrumentation and controls and their functions. An instruction schedule and agenda shall be provided with the control submittal. The instructor shall be a full time employee of the control manufacturer or their authorized representative. The instructor shall be a technician or engineer familiar with the installed control system.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 EXAMINATION

A. Verify correct power supply is available.

B. Verify pumps are installed.

3.3 FABRICATION

A. All control panels shall be shop assembled and factory tested prior to delivery to the site. Final as-built drawing shall be made to reflect all adjustments and modifications made to the system after start-up has been completed satisfactorily. All equipment and devices shall be mounted, adjusted, calibrated, and operated exactly as recommended by the manufacturer of each component.

B. Control switches, indicator lights, and other devices shall be grouped as stated in this section and in submittal package.

3.4 INSTALLATION

A. Install control panel at location indicated on Drawings.

B. Install control panel in accordance with manufacturer's instructions.

3.5 FIELD QUALITY CONTROL

A. Start-up pump control system by energizing system equipment and testing operation of hardware and process control logic under supervision of manufacturer's representative and in presence of the Engineer.

B. Equipment Acceptance:

1. Adjust, repair, modify or replace system components that fail to perform as specified and rerun tests. Make final adjustments to equipment under direction of manufacturer's representative.

2. Document adjustments, repairs and replacements in manufacturer's field services certification.

3.6 MANUFACTURER'S FIELD SERVICES

A. Furnish services of manufacturer's representative experienced in installation of products furnished under this specification for not less than three (3) days on-site for installation inspection and field testing, and instructing the City of New York's personnel in maintenance of equipment. Refer to Sub-Section – Wastewater Pump Station, Force Main and Appurtenances for additional information on required service days for the pump station.

B. Certify that equipment has been properly installed and is ready for start-up and testing.

3.7 DEMONSTRATION

A. Demonstrate equipment startup, shutdown, routine maintenance, alarm condition responses, and emergency repair procedures to The City of New York's personnel. Provide a minimum of one complete

8 hour day of a factory trained technician for the demonstration and instruction period. The Contractor shall also provide a Professional quality videotape training session to the Commissioner.

3.8 AS-BUILT RECORD DRAWINGS

A. Refer to Sub-Sections and for as-built requirements.

B. The Contractor shall submit an electronic file and three (3) copies of the As-Built record of the work completed under this section to the Commissioner.

END OF SUB-SECTION

SUB-SECTION - PANELBOARDS

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 SUMMARY

A. Furnishing and installing all power, lighting, and branch circuit panel boards as shown on the Drawings for the DSNY Wastewater Pump Station.

B. The work shall include furnishing all materials specified, and as required to install and wire the panelboards, and to provide identification as required in DSNY-ELECT SPS Connection Electrical.

C. On this project, the panel boards shall be furnished and installed in the locations as shown on the Plans and as described herein. The panelboards shall have the bus ampacity, main breaker, and branch breakers as indicated in the equipment schedules. Also included is the furnishing and installing of typewritten panel directories in each panel completely corrected for "As-Built" conditions.

1.3 RELATED SECTIONS

A. Sub-Section Electrical General Conditions

B. Sub-Section Cable and Wires.

C. Sub-Section DSNY-ELECT SPS Connection Electrical.

1.4 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.5 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

B. All panelboards and circuit protective devices shall conform to NEMA Standards and to all requirements of the NEC

1.6 SYSTEM DESCRIPTION

A. Contractor shall furnish and install the new branch circuit distribution panelboard with main circuit breaker, and branch circuit breakers as shown on the Drawing schedule and as specified.

1.7 REFERENCES

A. Underwriters Laboratories UL-67.

B. NEMA Panelboards #PB-1.

C. National Electrical Code (NEC).

D. Federal Specification #WC375B for molded case circuit breakers.

E. Federal Specification #WP115A for panelboards.

PART II - PRODUCTS

2.1 MANUFACTURERS

A. Square-D Company.

B. General Electric Co.

C. Eaton Co.

D. Or Approved Equal

2.2 MATERIALS

A. All panelboards shall be of the dead-front type, equipped with automatic over-current thermal-magnetic circuit breakers. All panelboards shall be rated for the intended voltage and current ratings as shown on the Plans, and shall be fabricated in accordance with UL Standards and NEMA Specifications. Panelboards used for service entrance equipment shall be so labeled.

B. A nameplate shall be affixed to each panelboard listing the panel type and ratings. Branch circuits shall be arranged in double-row construction, except for panels with column construction.

C. Bus bars shall be of copper or tin-plated aluminum construction sized in accordance with UL Standards for the rating of the panel. Full-size neutral bars shall be included in all panels. Bus bar taps for panels with single-pole branches shall be arranged for sequence phasing of the branch circuit devices.

D. Boxes shall be made from unpainted galvanized Code-gauge steel having multiple knockouts except where noted, or where NEMA 3 or 4 construction is specified. Boxes shall be sized to provide a minimum of 4-in. gutters on all sides, in addition to additional wireway required for sub-feed taps or special devices. A minimum of 4 interior mounting studs shall be provided. The panel identification number shall be on the back-box.

E. All trims shall have hinged locking doors to cover all switching device handles. The opening of trim doors shall not make any live panel portion exposed. All doors shall have flush-type cylinder locks and catch, except doors over 48 in. shall have additional fasteners at top and bottom. Door hinges shall be concealed, and all door locks on the project shall be keyed alike.

F. All trims shall be properly cleaned and finished with gray ANSI-61 paint over a rust-inhibiting phosphatized coating. Contractor shall clean all trim surfaces at the completion of the project. Panelboards shall be mounted plumb with the highest operating handle not more than 5 ft 6 in. from the floor. On outside walls or in damp locations, panels not located within motor control center shall be mounted off the wall surfaces on galvanized Unistrut channels.

G. Contractor shall note the requirement for numerous circuits to be fed from "Ground Fault Interrupter" circuit breakers, and shall provide GFI breakers in the quantities required for the project.

H. All circuit breakers shall be the bolted connection

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. Contractor shall furnish, install, connect, test, and identify all panelboards in accordance with the Drawings and schedules.

B. All panelboards shall be provided with accurate typed directories.

END OF SUB-SECTION

SUB-SECTION - MOTOR ONTROLS AND CONTROL CENTERS

PART I - GENRAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 SUMMARY

A. Furnishing, installing, and testing of motor controls, motor control centers, and pilot devices for theDSNY Wastewater Pump Station.

1.3 RELATED SECTIONS

A. Sub-Section - Electrical General Conditions.

B. Sub-Section - Wire and Cable Terminations.

C. Sub-Section - Cable and wire.

D. Sub-Section - DSNY-ELECT SPS Connection Electrical

E. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish, install, connect, and test all motor controls, controllers, and control devices as shown on the Drawings and as specified. Although all motor control equipment shall be rated for 600-volt service, the design voltage for the Pump Station shall be 277/480V 3-phase, 4-wire WYE as shown on the Plans and as provided by the electric utility for this location. Contractor shall confirm all voltage characteristics prior to ordering any equipment or submitting any Shop Drawings.

1.5 REFERENCES

A. National Electric Code, NEC.

B. Underwriters Laboratories, UL.

C. National Electrical Manufacturer's Association, NEMA.

1.6 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.7 SUBMITTALS

A. Data shall be provided so that Commissioner can determine the applicability of the submittal and compliance to the motor control requirements. All motor control on the project shall be furnished by one manufacturer.

B. Shop Drawings shall include both dimensional Drawings and complete Technical Specifications.

C. Where Motor Control Centers are specified or required, the Contractor shall carefully examine the section of this Specification regarding motor control centers to determine the full scope of the Shop Drawing submittal requirements.

1.8 QUALITY ASSURANCE

A. Refer to individual sub-section for "Quality Requirements".

PART II - PRODUCTS

2.1 MATERIALS

A. Motor controls and motor control circuits.

1. All motor control and general distribution provisions for this project shall be provided in a standard NEMA rated Motor Control enclosures except for starters for miscellaneous

equipment as shown on the Plans. All motor control centers shall conform to NEMA Standards, and shall be as shown on the Plans. Separately enclosed manual motor starters shall be furnished in NEMA 1 enclosures in the electric rooms, and in NEMA 4X enclosures in all other areas, including exterior or damp locations. All submissions for motor control items for approval shall include all auxiliary control requirements. All motor control equipment of the same type shall be by one manufacturer.

2. All motor controllers shall be provided with motor line current overload protection. Overload relay operation shall stop the controlled motor, and light a red pilot light with "Motor Overload" nameplate. Additional motor overload inputs to this circuit shall be provided as shown on the Plans. All motor controllers shall be provided with running time meters as shown on the Plans.

3. For all motor controllers, the Contractor shall provide all conduit, wire, and labor to connect the controllers to line, load, and control terminals. Controls shall include start/stop circuitry from remote equipment as shown on the Drawings and indicated on the Process and Instrumentation Drawing, and as specified in the Instrumentation and Control Specifications. Elementary control diagrams for each of the principal items of equipment are included in the Contract Drawings. These diagrams are intended to complement the functional descriptions of equipment as included in the Mechanical Specifications, and to assist contractor in determining the extent of the Instrumentation and control portion of the work included in the Contract. The diagrams are not working Drawings, and are not to be used for construction. Contractor and his Vendor shall develop, prepare, and submit for approval actual and complete wiring diagrams for each item of equipment as approved by Commissioner. It should be noted that certain items of motorized equipment may be required to be electrically interlocked with external equipment. Where the motor controller and external items are interlocked, and wiring must be interconnected with each, the interwiring diagrams are an important and integral portion of the work required, and are to be developed and furnished under this item of the Contract. The internal wiring diagrams for each motor control center section shall be the "Unit" diagrams, and the interwiring Drawings shall be as separate submission.

4. All full-voltage magnetic motor starters shall be combination full-voltage, non-reversing type with type MCP circuit breakers. The combination starters shall have control switches, control power transformers, auxiliary contacts, relays, and pilot lights as specified and as shown on the Drawings. Where the number of auxiliary control items require additional enclosure mounting space, additional sections of motor control shall be furnished as required. The front elevations of the motor control centers shown on the Drawings are suggested arrangements only. Contractor and his Vendor shall prepare and submit for approval front elevations of each motor control center based on the space requirements of the equipment selected. Each elevation shall indicate the use of each section on that Drawing.

5. Interconnecting control logic to be provided under this Item shall consist of the control logic and interconnection diagrams required to produce a complete and working control system as

specified in this Item and as required to be coordinated with the PLC Logic Control System specified. The manufacturer of the motor control equipment shall furnish the interconnecting Drawings as required, and shall assist the Contractor in meeting the requirements of the control operation scheme.

6. All motor controllers shall be provided with individual control power transformers. Additional volt-ampere capacity shall be provided where required by peripheral control devices as shown on the Plans.

7. Each control transformer shall be primary fused in both legs, and secondary fused on 1 leg with the other leg grounded. All motor circuit breakers shall be type MCP, and all starters shall have phase-loss relay protection. A suggested phase-loss scheme is shown in the Elementary Control Diagrams, however, motor controllers with integral phase-loss protection that is equivalent to that shown will be accepted. Schemes using a single phase-loss relay for an entire motor control center or section shall not be responsive to this Specification. Pilot lights and control devices shall be provided as shown on the Plans and schedules.

8. All motor controllers shall be provided with motor line current overload protection. Overload relay operation shall stop the controlled motor, and light a red pilot light with "Motor Overload" nameplate. Additional motor overload inputs to this circuit shall be provided as shown on the Plans.

9. All motor controllers shall be provided with running time meters as shown on the Plans.

B. Control Diagrams

1. For all motor controllers, the Contractor shall provide all conduit, wire, and labor to connect the controllers to line, load, and control terminals. Controls shall include both start/stop circuitry and analog speed control from remote equipment a shown on the Drawings and indicated on the Process and Instrumentation Drawing, and as specified in the Instrumentation and Control Specifications. Elementary control diagrams for each of the principal items of equipment are included in the Contract Drawings. These diagrams are intended to complement the functional descriptions of the equipment as included in the Mechanical Specifications, and to assist contractor in determining the extent to the Instrumentation and Control portion of the work included in the Contract. The diagrams are not working Drawings, and are not to be used for construction. Contractor and his Vendor shall develop, prepare, and submit for approval actual and complete wiring diagrams for each item of equipment as approved by Commissioner. The internal wiring diagrams for each motor controller or motor control center section shall be the "Unit" diagrams, and the interwiring Drawings shall be a separate submission.

2. Solid-State Soft Start Reduced Voltage Motor Controllers

a. Where motor starters are indicated as combination reduced-voltage non-reversing starters, they shall be combination reduced voltage, solid state starters with an integral running bypass contactor. They shall be constant speed Solid State reduced voltage motor starters and shall be high efficiency type using six SCR's in full wave configuration. Each starter shall contain microprocessor logic to control the starter, and to act by sensing motor load current and proportionally reducing applied voltage to meet the required torque. Each starter shall include:

   i. Thermal magnetic or type MCP circuit breaker.
   ii. Energy saving logic circuits.
   iii. Adjustable current limit. (0-500%)
   iv. Adjustable acceleration time. (0-45 seconds)
   v. Adjustable deceleration time. (0-45 seconds)
   vi. Initial torque adjustment - 100-200%
   vii. Overload Capacity - 115% continuous.
   viii. Overload protection - DIP adjustable.
   ix. Phase loss and over-current protection.
   x. Over-current, Phase-loss, and malfunction lights.
   xi. Isolated common alarm contact.
   xii. Bypass full voltage emergency starting selector switch.

b. The solid state starters shall be suitable for use with the motors provided under this specification, and shall accept start and stop signals from the Pump Controller System provided under other sections. All solid-state reduced voltage motor starters shall be filtered to the extent that RFI and EMI emissions will not interfere with the operation of other solid- state motor controls, or the Controller and Instrumentation Equipment. The SSRV control shall be provided with the Pump Control and the Extended Ramp options so as to provide the ramp up and ramp down times will meet this specification.

c. The starters shall be designed so that the SCR and other solid-state devices are carrying current only when starting and stopping the motor; at all other running time, the contactor shall carry all motor current. The starting and stopping ramp times shall be adjusted during the start-up and calibration period by the contractor as dictated by the hydraulic surge constants of the distribution system.

d. Each SSRV starter shall include:
   i. MCP circuit breaker.
   ii. Energy saving logic circuits.
   iii. Adjustable current limit. (0-500%)

iv. Adjustable acceleration time. (0-360 seconds)
v. Adjustable deceleration time. (0-360 seconds)
vi. Initial torque adjustment - 100-200%
vii. . Overload Capacity - 115% continuous.
viii. Overload protection - DIP adjustable.
ix. . Phase loss and over-current protection.
x. . Over-current, Phase-loss, and malfunction lights.
xi. Isolated common alarm contact.
xii. bypass full voltage emergency starting selector switch.
xiii. The full Pump Control Option.
xiv. The full Extended Ramp Control Option.
xv. The extended acceleration ramp time as noted above.
xvi. The extended deceleration ramp time as noted above.

3. The solid state starters shall be suitable for use with the motors provided under this specification, and shall accept start and stop signals from the Pump Controller System provided under other sections. All solid-state reduced voltage motor starters shall be filtered to the extent that RFI and EMI emissions will not interfere with the operation of other solid- state motor controls, or the Controller and Instrumentation Equipment
4. The contractor shall provide, install, wire, test, and put in successful operation all options such as analog meters, deceleration ramps, pilot lights, interconnection to motor winding thermostats and thermal overload relays as listed in the Specifications and as shown on the Plans. The deceleration ramp option is to be provided under this Contract, and the acceleration and deceleration ramp times are to be set and calibrated in the presence of the Commissioner.

C. Manufacturers:

1. Square-D Company.
2. Cutler Hammer
3. General Electric Co.;
4. Or Approved equal

D. Control circuits.

1. All motor controllers within motor control centers shall be provided with individual control power transformers. Additional volt-ampere capacity shall be provided where required by peripheral control devices as shown on the Plans.

2. Each control transformer shall be primary fused in both legs, and secondary fused on one leg with the other leg grounded. All motor circuit breakers shall be type MCP, and all starters shall have phase-loss relay protection. A suggested phase-loss scheme is shown in the Elementary Control Diagrams, however, motor controllers with integral phase-loss protection that is equivalent to that shown will be accepted. Schemes using a single phase-loss relay for an entire MCC or section shall not be responsive to this Specification. Pilot lights and control devices shall be provided as shown on the Plans and schedules.

3. All motor controllers shall be provided with motor line current overload protection. Overload relay operation shall stop the controlled motor, and light a red pilot light with "Motor Overload" nameplate. Additional motor overload inputs to this circuit shall be provided as shown on the Plans.

4. All motor controllers shall be provided with running time meters as shown on the Plans.

5. For all motor controllers, the Contractor shall provide all conduit, wire, and labor to connect the controllers to line, load, and control terminals. Controls shall include both start/stop circuitry and analog speed control from remote equipment a shown on the Drawings and indicated on the Process and Instrumentation Drawing, and as specified in the Instrumentation and Control Specifications. Elementary Control Diagrams for each of the principal items of equipment are included in the Contract Drawings. These Diagrams are intended to complement the functional descriptions of the equipment as included in the mechanical Specifications, and to assist the Contractor in determining the extent to the Instrumentation and Control portion of the work included in the Contract. The Diagrams are not working Drawings, and are not to be used for construction. The Contractor and his Vendor shall develop, prepare, and submit for approval actual and complete wiring diagrams for each item of equipment as approved by the Commissioner. The internal wiring diagrams for each motor controller or MCC section shall be the "Unit" diagrams, and the interwiring Drawings shall be a separate submission.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. The Contractor shall provide, install, wire, test, and put in successful operation all options such as analog meters, deceleration ramps, pilot lights, interconnection to motor winding thermostats and thermal overload relays as listed in the Specifications and as shown on the Plans.

END OF SUB-SECTION

SUB-SECTION - CABINETS AND ENCLOSURES

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 SUMMARY

A. Furnishing and installing electrical cabinets, panels, or enclosures for distribution, control, and motor control, instrumentation, or relay control panels.

B. Furnishing and installing telephone cabinet, where required.

C. Furnishing and installing electric meter service pedestal enclosures where required.

D. Work related to the DSNY Wastewater Pump Station

1.3 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.4 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

1.5 RELATED SECTIONS

A. Work performed under this section shall be subject to all the Contract Documents including the Drawings and Specifications.

B. Sub-Section - Cable and Wires

C. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

D. DSNY-ELECT SPS Connection Electrical

1.6 SYSTEM DESCRIPTION

A. Contractor shall furnish and install cabinets and enclosures for the DSNY Wastewater Pump Station as required by the Drawings.

PART II - PRODUCTS

2.1 CABINETS AND ENCLOSURES FOR OUTDOOR OR CORROSIVE AREAS

A. Cabinets and enclosures for containing motor control or other control devices for shall be stainless steel NEMA Type 4X Stainless Steel enclosures of size as required by the Drawings, and as required by the manufacturer of the equipment. These outer enclosures shall be provided with Factory applied and constructed climate control systems. The climate control system shall include front drip edge over-hang provisions, semi ridged inside insulation, rain protected air intake louvers and screens, long life ball bearing flat fans and screened louvers, and sealed resistive heater strips. Both the ventilation fans and the heater shall be adjustable thermostatically controlled. The ventilation system shall be sized to keep the temperature lower in the enclosure lowed than the maximum operation limits of the installed equipment, and the heating system shall be sized to prevent condensation from forming on any surface. The Climate Control system for the enclosures shall be a factory option and constructed and installed by the manufacturer of the enclosure.

B. For this Contract, NEMA 4X enclosures shall be constructed of stainless steel with stainless steel hardware. Steel enclosures coated with a powdered polyester paint material will not be acceptable for NEMA 4X ratings on this project.

C. Manufacturers:

1. Hoffman Engineering Company,

2. Lehman,

3. Hennessy Products,

4. McKinstry,

5. ASCO,

6. Or Approved equal.

2.2 CABINETS AND ENCLOSURES FOR GENERAL USE INDOORS

A. The enclosures for general use in electric rooms and other areas where dampness and/or moisture is not present shall be NEMA12 casketed, as made by the manufacturer of the equipment. Telephone and control panels for general use shall have cabinets for indoor, non-corrosive areas, and shall be galvanized sheet steel enclosures with a back panel, NEMA 12-type enclosure with locking provision.

B. Manufacturers:

1. Hoffman Engineering Company,

2. Hennessy Products Inc.,

3. McKinstry Metal work,

4. Or Approved equal.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 GENERAL

A. Cabinets or enclosures shall be suitably supported for a rigid installation.

B. Terminate conduits in cabinets with locknut and grounding bushings; terminate wiring on terminal blocks.

C. Cabinets shall comply with National Electrical Code, and be UL-approved.

D. Reinforced fiberglass enclosures will be acceptable only where specifically indicated on the Plans, or where specifically specified. Where specifically specified, all reinforced fiberglass enclosures shall have approved grounding plates and terminals.

3.3 AUXILIARY PARTS

A. Furnish 1 quart of touch-up finish paint as required.

END OF SUB-SECTION

SUB-SECTION - VENDOR SUPPLIED PANELS

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 WORK INCLUDED

A. Vendor-supplied control panels, including Instrumentation Panels. Vendor supplied panels includes all electrical and instrumentation panels that are not catalog items, and are custom assembled and wired from submitted drawings, diagrams, and functional descriptions reflective of specific Contract requirements.

1.3 RELATED WORK

A. Work performed under this section shall be subject to all the Contract Documents including the Drawings and Specifications.

B. Sub-Section Electrical General Conditions

C. Sub-Section - Field Tests

D. Sub-Section - Demonstration of Complete Electrical Systems

E. Sub-Section – Wire and Cable Terminations

F. Sub-Section - Cable and Wires

G. Sub-Section - Instrumentation and Control Work

H. Sub-Section - Cabinets and Enclosures

I. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

J. Section DSNY-ELECT SPS Connection Electrical

K. Contract Documents

1.4 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.5 QUALITY ASSURANCE

A. Panels shall be shop-tested for grounds, shorts, and continuity, and shall be checked for proper wiring and functioning based on the system drawings, and proven field operation.

1.6 SYSTEM DESCRIPTION

A. The panels specified in this Section shall be provided by the Vendor as part of his system and shall be installed by the Contractor for all equipment described in this Contract, unless otherwise stated in the equipment specifications.

B. The Vendor shall furnish panel enclosures, switches, relays, instruments, starters, pilot lights, terminal blocks, timers, relays, transformers and other accessories required to control equipment provided as a

packaged unit. They shall include all electrical features necessary for the proper functioning of the package system as required by the system Functional Description.

C. Control panels that are provided for certain areas of the installation require special attention due to corrosive and/or outdoor locations shall be equipped with appropriate enclosures. These areas are noted on the various Drawings, and/or equipment specifications.

1.7 REFERENCES

A. National Electrical Code (NEC).

B. National Electrical Manufacturers Association Applicable Standards.

C. American National Standard Institute Applicable Standards (ANSI).

D. Underwriters Laboratories, Inc. (UL) applicable standards.

1.8 SUBMITTALS

A. Shop and Working Drawings shall contain a complete text "Functional Description of Operation" and the following data:

1. Dimensioned outline drawings, front views, and interior views of panels with all components labeled.

2. Wiring diagrams with ladder diagrams in ANSI format.

3. Clearly labeled and marked catalog cuts for relays, transformers, breakers, pushbuttons, pilot lights, contactors, timers, instruments, and any other devices contained in the packaged control panel. Each cut shall be numbered to correspond to the Bill of Material. Where more than one item is on a catalog cut page, the item or items submitted shall be clearly indicated.

4. A Bill of Material clearly keyed to the catalog cut numbering system.

5. A complete functional description, reviewing in words the operational circuit description of all panel functions, and keyed to the relays and contacts involved in each function. This functional description shall replicate the control functions as required by the Contract Documents, and shall include all motor start and stop functions, and all alarm functions. Where PLC systems furnish all or a part of the control system, the functional description shall include in words the full description of the software system to be provided. This submission shall be separate from the software submission itself, or if combined, a line of plain text shall follow and explain each line of code.

6. Auxiliary parts recommendation

B. Operations and maintenance data shall be submitted in accordance with the "Operations and Maintenance Data".

PART II - PRODUCTS

2.1 MANUFACTURERS

A. For control devices such as control relays, pneumatic, motor-driven or solid-state time delay relays, starters, contactors, pushbuttons, pilot lights, selector switches and panel disconnects:

1. Square D, Allen-Bradley;
2. Cutler Hammer;
3. General Electric;
4. or Approved equal.

B. Timers for programming events shall be rotary type with easily set parameters except where otherwise specified. Timers shall be rotary electro-mechanical with 24 hour period and up to 48 on\off settings per day:

1. Diehl Corporation (Model TA-4150);
2. Dayton electric (Model 2A517);
3. Intermatic;
4. or Approved equal.

NOTE: Electronic Programmable timers programmed via keypads shall not be accepted.

C. For recorders, programmable logic controllers, indicating controllers, transmitters, and other electronic-type instrumentation items:

1. Bristol Babcock;
2. Foxboro;

3. Honeywell;
4. Healy Ruff;
5. XYLEM by Flygt;
6. U.S. Filter Instrumentation;
7. ABB;
8. or Approved equal.

D. For terminal blocks:

1. Buchanan Electric;
2. Square D,
3. Allen-Bradley;
4. or Approved equal.

E. For transformers required to supply any single-phase loads such as controls, 120-volt A.C. motors, receptacles, panel heaters, etc.:

1. Square D;
2. General Electric;
3. Cutler Hammer;
4. or Approved equal.

F. For annunciators:

1. Ronan,
2. Panalarm;
3. Scam Instrument Corp.;
4. or Approved equal.

G. For enclosures:

1. Hoffman Engineering Co.,
2. Lehman;
3. ASCO;
4. or Approved equal.

2.2 EQUIPMENT

A. Control panel enclosures shall be fabricated in accordance with the following area requirements:

1. General Areas, NEMA 12

2. Outdoor, wet, process areas and/or corrosive areas, NEMA 4X stainless steel.

B. Relays shall be 300-volt 10-amp, AC-operated coils. Contacts shall be double-break, silver alloy. At least 2 unoccupied contacts field-adjustable to N/O or N/C shall be provided. All plug-in relays shall be furnished with coil "voltage present" indicators.

C. Pushbutton and selector switches shall be of the NEMA type and size as required for the specific location of the control panel, and be of the heavy-duty, oil-tight type minimum. Pushbuttons and selector switches shall have silver contacts rated at 10 amps continuous 600 volts maximum. Pushbutton colors shall be red for stop, green for start, and as selected by Commissioner.

D. Pilot lights shall be of the 120-volt transformer type, and shall have easily removable lamps and color caps. Lights shall be of the heavy-duty, oil-tight type minimum. "Motor running" indication shall be red color lens, "Motor Off" indication to be green lens, and lens color for other functions shall be as selected by Commissioner. All pilot lamps shall be rated at 10,000-hr minimum life, and a catalog cut on the pilot lamp to be used shall be included in the submission. Light Emitting Diode types of pilot lamps shall be acceptable provided that the lumen output is equal to the filament type.

E. Time delay pneumatic, magnetic and solid-state control relays and standard control relays for use in relay panel enclosures shall have contacts related to 10 amps at 300 volt AC, number of contacts and coil voltage as required, and contacts to be convertible.

F. Timers of the large-dial type shall be plug-in reset type with clutch and synchronous motor for 120-volt, 60-hertz operation, adjustable timing range, and "on-delay" or "off-delay" type are required.

G. Terminal blocks for all power and control wiring shall be rated 600 volts and 25 amps minimum, and have insulated barriers between terminals, and be trap-screw type, Spring-loaded type of terminal strips are not responsive to this specification.

2.3 FABRICATION

A. Plastic wireway shall be used to train wires in the interior of all panels. Wireway fill shall not exceed 40% and shall be run in continuous lengths with snap-on plastic covers. Panel wiring shall be minimum size No. 12 AWG MTW 90°C, except as noted on Drawings. Wiring shall not be spliced. Wire shall be run in continuous lengths from screw terminal to screw terminal. Wire service loops shall be provided to permit device removal. All wiring shall be tagged as specified on circuit and wiring diagrams. Each wire for external connections shall be terminated on a terminal block.

B. The control panels shall be constructed of the required gauge steel, formed and welded for maximum rigidity and strength conforming to the standards for the NEMA-type panel being supplied. Panels shall consist of front, rear, bottom, and top sections with full-length hinged doors extending the full width and height of the panel to provide full access to the panel-mounted components and shall be matched so as to form a unified control panel when assembled. Enclosure shall be of adequate size to accommodate all components.

C. Terminal blocks for control and instrumentation wiring shall be rated at least 600 volts and 25 amps, shall be suitable for use with No. 8 AWG through No. 18AWG wire, shall be molded-block type to accommodate ring connectors 1/2-in. wide at the terminal screws, shall be furnished with slot-head screws bearing on pressure leaves having serrated or grooved contact surfaces against the terminal wire, and shall be furnished with mold insulating barriers between terminals.

D. Each terminal block shall have a removable marking strip and cover. Contractor shall show circuit designations on the elementary schematic and wiring diagrams. These designations shall be machined- lettered, stamped, engraved, or neatly marked with permanent ink on one side of the terminal block marking strips. 10% unoccupied terminals shall be provided.

E. Terminations of wire shall be made with pre-insulated pressure-crimp-type terminal connectors with ring tongues, and shall be run straight, horizontally, or vertically with short-radius right-angle bends. Each wire shall be protected from abrasion where it leaves a channel or duct. There shall be no splices in the wiring, and all connections shall be made at the device studs or terminal blocks.

F. The panel function nameplates shall be of black lamacoid with white on black engraved legends. The panel shall be equipped with internal power supply fuse and disconnect switch with a duplex service outlet and fluorescent fixture of suitable type.

G. Each panel shall be constructed suitable for mounting on a raised concrete pad in a control room, or for wall mounting, as shown on the Drawings or as required.

H. Each control panel shall include the control system, and all required relays, timers, switches, lights and other components for control of the equipment as specified. Vendor shall supply an electrical wiring schematic for the panel, indicating the correlated terminal and field wiring which will be required between the control panel, the equipment, and the appurtenances.

I. Instruments and accessories shall be mounted, wired to terminal strips, and/or piped to bulk fittings, which shall be properly identified to provide ease of field connection.

J. Front-mounted equipment requiring connection and/or service from the rear or inside of the instrument control panel shall be furnished with identification plate or tag mounted on the rear in duplicate to the front panel identification. Identification tags shall be as approved by Commissioner. All equipment devices as mounted within the control panel shall be identified as to the function and schematic identification abbreviation. Tags shall be as approved by Commissioner. Front panel name tags shall be black lamacoid with white engraved letters, attached with No. 2-56 stainless steel matching screws Phillips-type, countersunk heads; nameplates attached by adhesives are not responsive to this Specification. Pilot lights, pushbutton, and other panel devices shall be furnished with anti-rotation keyways or other to prevent slewing after mounting. All engraved legends shall be a minimum 3/16-in.-high block-type characters. Legends shall be completely worded without abbreviations except as approved by Commissioner. A list of proposed legends shall be included in the shop drawing submissions.

K. Outdoor cabinets, cubicles, and enclosures shall be furnished with a 120-volt heater thermostat controlled by an on-off switch.

L. All control panels shall be provided with a main disconnect device, operable from the front of the panel and interlocked with panel door or doors to prevent access into the panel unless the disconnect is in the "off" position. Where control voltages from external sources are present within the panel, the main disconnect switch shall contain an additional pole for each external voltage-carrying wire. A defeater mechanism for qualified service personnel use shall be proved for this feature. Where the number of conductors with external voltage sources are too high to make multi-pole main disconnects feasible, either interposing relays or terminal strips with internal interposing relays as made by Crouzet or equal shall be provided. Note that the NEMA labeling of foreign voltages and color coding is not responsive to this Specification.

M. Panels shall be provided with step-down auxiliary power transformer if required to serve 120-volt, 60-hertz, control power, or 120-volt, 60-hertz power for small, single-phase motors supplied as part of the package system. The transformer must be protected on the primary side as well as for each of its secondary less. Panels shall be set up so that it requires only 1 incoming voltage power source; all other voltages required shall be obtained within the panel by use of transformers except when separate 120-volt control power circuit is supplied.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-section for execution requirements.

3.2 INSTALLATION

A. In order to expedite the shop drawing approval process, no panel Shop Drawing submission shall be considered for approval unless the submission includes a complete ladder diagram conforming to ANSI Standards with all ladder rungs numbered, and all controlling elements numbered with the rung controlled, and a complete functional description which shall describe in words the operation of the ladder diagram, keyed to the relay logic by relay coil designation. If a PLC is submitted instead of relay logic, the description shall be submitted in words describing the PLC logic. No submission shall be considered for approval if it is submitted on continuation sheets unless an engineering "D size" Drawing in reasonable scale will not accommodate the entire Drawing.

B. Install panels at the location specified in the Construction Drawings.

C. Following installation, the panel shall be field-tested and connected to its external system devices to ensure a complete and functioning system.

3.3 MANUFACTURER'S SERVICES

A. The Contractor shall make provisions for the manufacturer to furnish the services of competent factory representative to:

1. Advise Contractor on the proper installation procedures, inspect the system during installation, supervise the startup and testing of the system, and certify the system has been properly installed and is ready for operation.

2. After all installation, inspection, start-up and testing is completed and approved, instruct The City of New York's operating personnel in the proper operation and maintenance of the system for a period of no less than one (1) day at each location.

3.4 AUXILIARY PARTS

A. The Contractor shall supply auxiliary parts for the PLC-based control panel, one each of the main CPU, and one each of each type of I/O module as noted below:

1. Relays
2. Pilot lamps
3. Transducer
4. Two float switches of each type used on the assembly.

END OF SUB-SECTION

SUB-SECTION - SWITCHES AND RECEPTACLES

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 WORK INCLUDED

A. Furnishing and installing of new switches, receptacles, and plates for Wastewater Pump Station.

1.3 RELATED SECTIONS

A. Work performed under this section shall be subject to all the Contract Documents including the Drawings and and Specifications.

B. Sub-Section - Electrical General Conditions

C. Sub-Section - Outlet boxes.

D. Sub-Section - Cable and Wires.

E. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish, install and wire all new devices, including plates and covers for the DSNY Wastewater Pump Station

1.5 REFERENCES

A. National Electrical Code, NEC.

B. Underwriters Laboratories, UL.

C. National Electrical Manufacturers Association, NEMA.

1.6 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.7 SUBMITTALS

A. Contractor shall furnish required number of manufacturer's data sheets for each device and cover, bound in one (1) complete brochure.

1.8 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

PART II - PRODUCTS

2.1 MATERIALS

A. Duplex receptacles, grounding type, 2-pole, 3-wire, rated at 20 amps, 125 volts shall be Specification grade and mounted in surface cast single gang box:

1. Hubbell No. 5362, complete with plate,
2. Hubbell No. 5221 weatherproof plate,
3. General Electric,
4. Bryant
5. or Approved Equal.

B. Explosion-proof single receptacles, grounding type, 3-pole, 2-wire, rated at 20 amps, 125 volts and and mounted in surface cast single gang box:

1. Crouse-Hinds No. ENRCB-21201, complete with Crouse-Hinds plug;

2. Appleton;

3. Killark;

4. or Approved equal.

C. Single-pole toggle switches, rated at 20 amps, 120/277 volts, shall be Specification grade and mounted in surface cast single gang box:

1. Hubbell No. 12221 complete with plate, Hubbell No. 7425;

2. General Electric;

3. Bryant;

4. or Approved Equal

D. Three-way toggle switches, rated at 20 amps, 120/277 volts, shall be Specification grade and mounted in surface cast single gang box:

1. Hubbell No. 1223, complete with plate, Hubbell No. 7425;

2. General Electric;

3. Bryant;

4. or Approved Equal.

E. Surface cast single gang box:

1. Crouse-Hinds No. FS2;

2. Appleton;

3. Killark;

4. or Approved Equal.

F. Power receptacles, dead front, interlocked, rated 30 amps, 480 volts, explosion-proof, 3-wire, 4-pole

1. Crouse-Hind with Crouse-Hind plug;

2. Appleton;

3. Killark;

4. or Approved Equal.

G. Explosion-proof, single-pole tumbler, switch, rated 20 amps, 120-277 volts,

1. Crouse-Hinds No. EFSC2129;

2. Appleton;

3. Killark;

4. or Approved Equal.

H. All plates shall be stainless-steel or cast aluminum.

I. Plates shall be the water-proof type where mounted in damp or exterior locations

J. All receptacle plates installed on outdoor, wet, or damp locations that are not hazardous, shall be the NEC approved "In Service" type and shall conform to NEC (latest version) requirements.

K. The receptacles for sump pumps, where specified, shall be configured for the voltage of the supplied pumps, shall include a grounding conductor, and shall be the NEMA 4 twist-lock type to insure that the pumps remain connected. The Contractor shall provide matching attachment caps for each receptacle, and shall install one on each pump supplied.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. Note that model numbers for certain cast device boxes may be for dead-end use. If feed-through or other configuration is required, including different size conduit hubs, these shall be determined and furnished by the Contractor.

B. All devices shall be installed in correct outlet boxes, wired, with plates installed, and left operational.

C. In general, all device plates in dry areas, such as electric rooms, shall be provided with stainless steel plates. All devices in pump stations below grade, in all rooms adjacent to these areas except for electric rooms, and all other wet or damp locations shall have cast covers with operators for switches and hinged covers for receptacles, as specified above. All areas where PVC coated conduit is specified to be installed shall have all devices installed in PVC coated boxes, with PVC coated device plates.

D. All receptacles shall be grounded.

END OF SUB-SECTION

SUB-SECTION - MOTORS

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 SUMMARY

A. Describes general requirements for motors for the Wastewater Pump Station pumps. Motors shall be furnished by the supplier of equipment being driven.

1.3 RELATED SECTIONS

A. Sub-Section - Demonstration of Complete Electrical System.

B. Sub-Section – Wire and Cable Terminations

C. Sub-Section - Cable and Wires

D. Section DSNY-ELECT SPS Connection Electrical

E. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.4 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.5 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

PART II - MATERIALS

2.1 EQUIPMENT

A. Motors shall be furnished in accordance with the latest applicable Standards of NEMA, ANSI, and the IEEE, except as otherwise specified herein.

B. Motor type and characteristics such as horsepower, speed, and torque shall be required to properly accelerate and operate the driven machine. Motor requirements and selection shall be determined by the supplier furnishing the driven machine in accordance with the Specifications.

C. The motor horsepower selection shall be such that the input shaft maximum horsepower requirements of the driven machine shall not exceed the rated horsepower with the motor operating at unity service factor. Motors shall not operate with their service factor at any point within the driven equipment operating range.

D. Each motor shall provide a minimum of 20% greater torque than the maximum full load torque requirements of the driven equipment throughout the full operating range of the driven equipment from start to full load.

E. Two-pole, 4-pole, and 6-pole motors in the range of 1 hp to 150 hp, inclusive, shall be designed specifically for premium energy efficiency and high power factor with minimum values as given below in Sub-Section 3.1. Where submersible pump motors are not available in Premium Efficiency standards, the motors shall have the highest efficiency available.

F. The motor efficiency and power factor values must be based on the motors being tested in accordance with IEEE Test Procedure 112A Method B. All motors shall be rated as "Premium Efficiency" type.

G. Protection: All motors which are to be controlled by solid-state, variable-frequency controllers, solid-state reduced voltage controllers, or which are the dry pit type, or are submersible, or are specifically so specified, shall have integral normally closed-contact winding thermostats. Three phase motors shall have a minimum of one thermostat attached to the coils of each phase.

H. The Contractor shall furnish a coordinated system of pump motors and their controllers. In particular, high starting torque applications including positive displacement pumps combined with variable frequency motor controls will require special attention to insure that adequate starting torque is available under all operating conditions. Initial calculations have been prepared and are represented in the Motor Control Center schedules. In these schedules, VFD controllers have been selected as constant torque or variable torque, and minimum current ratings have been specified. However, as the Contractor shall furnish a complete system as well as the selection of the motors and pumps. The Contractor shall carefully examine the hydraulics of the system that he plans to install, and coordinate the motor and motor controller combination to match these requirements. Where motors are supplied that include Service Factors greater than 1.00, the Contractor shall provide and install motor controllers that equal the current ratings specified plus a percentage equal to the service factor of the motor actually supplied.

2.2 NAMEPLATES

A. Each motor shall have nameplate including the minimum amount of information as specified in the NEMA Standards diagrams, voltage and current data, efficiency and power factor data.

2.3 MANUFACTURERS

A. General Electric Company

B. United States Motors;

C. Pump Manufacturer;

D. Or Approved equal.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Motors and driven equipment shall be installed in the locations shown on the Drawings and in accordance with specifications. All motors provided shall be the Premium Efficiency type.

B. Minimum efficiencies and power factor of TEFC motors shall be:

SPEED:	1800RPM		3600RPM	
Horsepower	P.F.%	EFF%	P.F.%	EFF%
1	82.5	83.9	80	81
2	84.1	86.6	81	82
3	85.4	86.6	83	82
5	87	87.5	85	84
7.5	88.5	87.0	86	85
10	89.3	86.6	88	86
15	89.8	87.5	88	86
20	90.9	88.4	89	87
25	90.9	89	89	87
30	91.9	86.7	90	88
40	92.2	87.8	91	89
50	92.4	88.8	91	89
60	93.0	85.0	92	89
75	94.0	85.0	93	88
100	94.0	85.0	93	88
125	93.0	89.0	93	88
150	95.0	88.0	94	88
200	95.0	90.0	94	88
250	95.0	83.0	94	87

C. All motors shall be "Premium Efficiency Rated" unless otherwise specified. It is noted that some submersible motors and other "specific" purpose motors may not meet the above efficiencies. All submissions that do not comply shall be accompanied with detailed explanations of why the standard could not be provided. No motor shall be permitted to be installed that does not meet the above-listed efficiencies without the express written permission of the Commissioner.

END OF SUB-SECTION

SUB-SECTION - SUPPORTING DEVICES

PART I - GENERAL

1.1 RELATED DOCUMENT

A. Not used.

1.2 SUMMARY

A. Furnishing and installing structural steel supports, conduit hangers, and accessories required for mounting and supporting all electrical equipment furnished and/or installed for the DSNY Wastewater Pump Station under this Project.

1.3 RELATED SECTIONS

A. Sub-Section – Electrical General Conditions.

B. Sub-Section - Demonstration of Complete Electrical Systems

C. Sub-Section - Cable and Wires.

D. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

1.4 SYSTEM DESCRIPTION

A. Contractor shall furnish and install structural steel framing, conduit hangers, conduit straps, conduit spacers, anchors, and all other equipment as required to rigidly and securely support electrical equipment in place.

B. All supporting members for equipment in areas where PVC-coated rigid conduit is specified shall be either stainless steel or PVC-coated, and all associated hardware and fasteners shall be stainless steel. Where PVC coated material is used, all surfaces damaged in any way shall be patched by the dip method; spray on coatings shall not be acceptable.

1.5 REFERENCES

A. National Electric Code, NEC, Latest Edition

B. Underwriters Laboratories (UL)

C. ASTM A525-A526 steel sheet with hot-dip zinc coating process.

1.6 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.7 SUBMITTALS

A. Where multiple items of electrical equipment is to be supported from one rack, the Contractor shall submit a scale drawing of the proposed assembly for the Commissioner's review prior to fabrication.

1.8 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

PART II - PRODUCTS

2.1 MANUFACTURERS

A. Unistrut Corp.;

B. Kindorf Inc.;

C. Steel City;

D. Or Approved equal.

2.2 MATERIALS

A. All structural steel supports shall meet ASTM Standards. In Class I Division 1 classified areas, exterior locations, in all damp process and pumping areas, and in all areas where the Plans indicate the use of NEMA 4X devices and/or PVC-coated conduit and fitting, all fastening hardware shall be stainless steel. In general areas, all hardware shall be galvanized.

B. All equipment shall be fastened to steel members with beam clamps or threaded machine screws and nuts. All equipment fastened to concrete shall be fastened with machine bolts and expansion anchors or, with special permission, by powder-actuated fired studs.

C. All hangers, channels, straps, and spacers used in classified, wet, process, or corrosive areas shall be stainless steel or factory PVC-coated.

D. A bracket or channel support shall be provided for all items of equipment not able to be fastened to ceiling or wall surfaces. No equipment may be supported solely by conduit or nipple connections. All surface run conduit shall be supported off the surface by malleable cast spacers and straps. All NEMA 4 and NEMA 4X cast boxes shall be supported by mounting ears external to the box. In general, all conduits shall be extended to within 24" of the device to be connected by flexible conduit. Where this is not possible, and with the approval of the Commissioner, runs of flexible conduit greater than 3 ft in length shall be supported to comply with Article 350 of the NEC.

E. Receptacle and pilot device boxes may not be supported by their connecting conduit unless at least two conduits enter the box, and an additional support is provided.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Contractor shall furnish and install structural steel supports and accessories as required for the complete installation of equipment and conduits.

B. All structural supports shall be grounded by a stranded copper wire sized as required by the NEC, and connected to the station grounding and bonding system.

END OF SUB-SECTION

SUB-SECTION - HEATING AND VENTILATION EQUIPMENT

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 SUMMARY

A. Furnishing and installing ventilation fans, intake and exhaust louvers, and the furnishing and installation of the climate controlled outer electrical equipment cabinets for the DSNY Wastewater Pump Station.

B. The Work shall include furnishing all materials specified and performing all framing, hangers, louvers, dampers, screens, wiring, and controls required for the installation in the electrical equipment enclosures.

C. The Heating and Ventilation work in this specification is limited to the Climate Control equipment for all of the Outer Electrical Equipment Enclosures; see Section – Cabinets and Enclosures and Vendor Supplied Panels.

1.3 RELATED SECTIONS

A. Sub-Section – Electrical General Conditions

B. Sub-Section – Cable and Wires

C. Sub-Section – Cabinets and Enclosures

D. Sub – Section – Vendor Supplied Panels

E. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

F. Section DSNY-ELECT SPS Connection Electrical

1.4 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.5 QUALITY ASSURANCE

A. Refer to individual sub-sections for "Quality Requirements".

B. All heating, ventilation, thermostatic control equipment and accessories shall conform to the requirements of the NEC, Federal Specifications WW-C-581-D, W-F-406B, W-F-406B, ANSI, and NEMA Specifications.

1.6 SYSTEM DESCRIPTION

A. The Contractor shall furnish and install all new materials for the complete heating and ventilation system of the Electrical Equipment Enclosures.

1.7 REFERENCES

A. National Electrical Code (NEC).

B. Underwriter Laboratories (UL) metallic electrical conduit.

C. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

PART II - PRODUCTS

2.1 MATERIALS

A. Ventilation Fans –

1. The Contractor will provide a ventilation system for each electrical equipment enclosure as shown on the Plans and as specified. The ventilation fans shall pull air into the enclosure through a screened intake, and exhaust it through louvers in the enclosure door. Ventilation fans shall be manufacturered by:
   a. Mc-Master Carr;

   b. JennFan;

   c. ILG;

   d. American Coolaire;

   e. or Approved Equal.

B. Thermostats –

1. Thermostats will be provided under this Section for the temperature and ventilation control of the enclosures as shown on the Plans. In general, all thermostats will be heavy-duty line-voltage type unless otherwise noted.
2. Each thermostat will have a range of 45 to 85 degrees F (unless otherwise specifically indicated), an indicating thermometer, and a removable knob. Thermostats installed on outside walls will be insulated from the wall.
3. All thermostats will be of the type approved for the classification of the room where installed.
4. All thermostats will be supplied with DT contacts for heating/cooling operation, and will be checked by the Contractor for proper operation and calibration prior to acceptance of the work. Thermostats shall be manufactured by:

   a. Honeywell;

   b. White Rogers;

   c. Dayton;

   d. or Approved equal.

2.2 MATERIALS - ELECTRIC UNIT HEATERS

A. The Contractor will provide the heating and ventilation system for the equipment enclosures as designed and installed by the cabinet manufactures. The Heaters shall be the strip type designed for condensation

control, and shall be enclosed in a protecting outer perforated screening to prevent accidental contact by operator's hands. Each cabinet shall be controlled by its own thermostat.

2.3 MATERIALS INSULATION

A. No heating or cooling system can be effective unless adequate insulation ambient temperatures is provided. Each enclosure shall be equipped with a semi-rigid insulation securely fastened to all surfaces of the outer members of the enclosure. All equipment inside the cabinet will be mounted with "stand-off" studs so that the insulation is not compromised. All insulation shall have a minimum thickness of 0.5 inches

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. The heating and ventilating equipment for each electrical enclosure shall be designed and installed by the manufacturer of the equipment enclosure. The Contractor shall wire and test all heaters and fans, and make all conduit connections to equipment, including wiring. All conduit shall be installed complete with necessary fittings and supports. All bends shall be gradual and smooth to permit the pulling of insulated electrical wires and cables without undue stress to the insulation or cable sheath. All conduit runs and bends shall be free from kinks, indentations, or flattened surfaces.

B. The installed electrical equipment outer enclosures shall be factory insulated with semi-rigid insulation. The installed electrical equipment inside shall be supported on stand-offs so that the insulation will not be effected.

C. All wiring inside the enclosures shall be enclosed in conduit.

D. Deviations from the schedule of equipment shall be permitted only with the express written permission of the Commissioner.

E. All heating and ventilation systems shall be tested for control, operation, and performance prior to acceptance of the work.

END OF SUB-SECTION

SUB-SECTION - ELECTRICAL AND COMMUNICATION/TELEPHONE SERVICE

PART I - GENERAL

1.1 RELATED DOCUMENTS

A. Not used.

1.2 SUMMARY

A. All work, materials, labor, and installation coordination required for all electrical, instrumentation, alarm service construction and extensions as shown on the DSNY Wastewater Pump Station Plans.

1. The electric service for this project is provided from a 45 KVA transformer through PANEL MDP-G in the Existing Building. This building is adjacent to the pump station as shown on the Plans. Under this Contract, the new circuit breaker, suitable for the panel installed, will be furnished, installed, and connected to the new feeder to the pump station. All conduit, fittings, wire, cable, and connections, including labor required is included in this Contract

2. In addition, all connections from the Pump Station Level Control system to the Building Management System shall be extended from the Level Controller via a 1" RGC conduit. All pump station operation data, and all alarms and reports will be extended under this Contract from the Level Controller to the BMS. The Contractor shall coordinate with Commissioner's representative, the Pump Station Level Control manufacturer, and the Building Management System Contractor to insure that the output signals from the Level Control System are compatible with the Building Management System.

3. New electric feeders shall be provided to all new equipment from the new circuit in the building panel.

4. For the new alarm and status reporting systems, all conduit, cable, conductors, and related work shall be new, and extended from the various alarm derivation points to the new Annunciator in the Level Control Panel and to the new Building Management System or other reporting system, all as shown on the Plans. All labor

and material required for the furnishing, installing, connecting, testing, and placing in successful service of the reporting system shall be provided and paid for under this Contract. The Contractor shall furnish all materials and labor required to integrate the new alarms and new system status signals into the BMS system.

1.3 SUBMITTAL PROCEDURES

A. Refer to individual sub-sections for "Submittal Procedures".

1.5 RELATED SECTIONS

A. Sub-Section – Electrical General Conditions.

B. Sub-Section - Cable and Wire

C. Sub-Section – Wastewater Pumps, Concrete Structures, Force Main and Appurtenances

D. Section DSNY-ELECT SPS Connection Electrical

1.6 SYSTEM DESCRIPTION

A. The electrical service shall be as shown on the size and location shown on the Drawings and the regulations of the governing utility. This responsibility shall be in force until The City of New York has accepted the Contractor's completed work.

B. Contractor shall coordinate all electric and alarm services with the manufacturers of the equipment, and with the Level Control Manufacturer service provider, and shall determine and delineate the actual portion of the work that will be performed by the manufacturer and by the Level Control service provider, and that which is to be performed by the Contractor. The Contractor shall be responsible for complete utility services as shown on the Drawings.

C. Contractor shall apply for temporary service at all locations, which will be required as hereinbefore described. The temporary services shall be designed and installed by the contractor, and shall be adequate for the total temporary loads.

1.7 REFERENCES

A. National Electric Code, NEC.

PART II - PRODUCTS

2.1 MATERIALS

A. The electrical service shall consist of all conduit, pull boxes, wire, cable, grounding, and wiring connections, and entrance equipment as required to comply with all existing regulations as shown on the Plans.

PART III - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to individual sub-sections for execution requirements.

3.2 INSTALLATION

A. Contractor shall coordinate, delineate, and provide the electric, instrumentation, and alarm services required by the Contract Documents from the existing utilities serving the site, and shall furnish and install all materials as required for any revisions or modifications required.

DSNY-SPS.02 MEASUREMENT.

The Contractor will be paid the lump sum price bid for completing all of the work required to be done hereunder.

DSNY-SPS.03 PRICE TO COVER.

The lump sum price bid shall cover the cost of furnishing all labor, surveyors, excavation, Filling Professional Engineer or Land Surveyors, materials, plant, equipment of all kinds, insurance, and necessary incidentals required and completing the work in accordance with the Contract, testing, manuals, As-Bult, permits, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
DSNY-SPS	DSNY SANITARY PUMP STATION	LS

END OF SUB-SECTION

SECTION DSNY-PLUMB

DSNY Plumbing

DSNY- PLUMB.01 INTENT.

A. This specification section includes the following sub-sections that include all new plumbing piping and accessories within the Existing Garage Building necessary for installation and connection of the new hose bibb to serve the new Sanitary Pump Station:

1. Common Work Results for Plumbing
2. Meters And Gages For Plumbing Piping
3. General Duty Valves For Plumbing Piping
4. Hangers And Supports For Plumbing Piping And Equipment
5. Plumbing Insulation
6. Domestic Water Piping
7. Domestic Water Piping Specialties

SUB-SECTION – COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Transition fittings.
3. Dielectric fittings.
4. Mechanical sleeve seals.
5. Sleeves.
6. Escutcheons.
7. Grout.
8. Plumbing demolition.
9. Equipment installation requirements common to equipment sections.
10. Painting and finishing.
11. Concrete bases.
12. Supports and anchorages.

1.2. DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.3. SUBMITTALS

A. Product Data: For the following:

1. Transition fittings.
2. Dielectric fittings.
3. Mechanical sleeve seals.
4. Escutcheons.

B. Welding certificates.

1.4. QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Plumbing Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.5. DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.6. COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2. PIPE, TUBE, AND FITTINGS

A. Refer to individual Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3. JOINING MATERIALS

A. Refer to individual Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
    a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
    b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
2. AWWA C110, rubber, flat face, 1/8 inch (3.2 mm) thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

D. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

E. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

F. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.

E. G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

F. H. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D 2235.
2. CPVC Piping: ASTM F 493.
3. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
4. PVC to ABS Piping Transition: ASTM D 3138.

I. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

2.4. TRANSITION FITTINGS

A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

1. Manufacturers:

a. Cascade Waterworks Mfg. Co.

b. Dresser Industries, Inc.; DMD Div.

c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.

d. JCM Industries.

e. Smith-Blair, Inc.

f. Viking Johnson.

g. Or Approved Equal

2. Underground Piping NPS 1-1/2 (DN 40) and Smaller: Manufactured fitting or coupling.
3. Underground Piping NPS 2 (DN 50) and Larger: AWWA C219, metal sleeve-type coupling.

B. Plastic-to-Metal Transition Fittings: CPVC and PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

C. Plastic-to-Metal Transition Adaptors: One-piece fitting with manufacturer's SDR 11 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.

D. Plastic-to-Metal Transition Unions: MSS SP-107, CPVC and PVC four-part union. Include brass end, solvent-cement-joint end, rubber O-ring, and union nut.

E. Flexible Transition Couplings for Underground Nonpressure Drainage Piping: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion-resistant metal band on each end.

1. Manufacturers:

a. Cascade Waterworks Mfg. Co.

b. Fernco, Inc.

c. Mission Rubber Company.

d. Plastic Oddities, Inc.

e. Or Approved Equal

a.

2.5. DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C).

1. Manufacturers:

a. Capitol Manufacturing Co.

b. Central Plastics Company.

c. Eclipse, Inc.

d. Epco Sales, Inc.

e. Hart Industries, International, Inc.

f. Watts Industries, Inc.; Water Products Div.

g. Zurn Industries, Inc.; Wilkins Div.

h. Or Approved Equal

D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig (1035- or 2070-kPa) minimum working pressure as required to suit system pressures.

1. Manufacturers:

a. Capitol Manufacturing Co.

b. Central Plastics Company.

c. Epco Sales, Inc.

d. Watts Industries, Inc.; Water Products Div.

e. Or Approved Equal

E. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

1. Manufacturers:

a. Advance Products & Systems, Inc.

b. Calpico, Inc.

c. Central Plastics Company.

d. Pipeline Seal and Insulator, Inc.

e. Or Approved Equal

2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig (1035- or 2070-kPa) minimum working pressure where required to suit system pressures.

F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

G. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

1. Manufacturers:

a. Perfection Corp.

b. Precision Plumbing Products, Inc.

c. Sioux Chief Manufacturing Co., Inc.

d. Victaulic Co. of America.

e. Or Approved Equal

2.6. MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Manufacturers:
   a. Advance Products & Systems, Inc.
   b. Calpico, Inc.
   c. Metraflex Co.
   d. Pipeline Seal and Insulator, Inc.
   e. Or Approved Equal
2. Sealing Elements: Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Include two for each sealing element.
4. Connecting Bolts and Nuts: Length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.7. SLEEVES

A. Galvanized-Steel Sheet: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

   1. Underdeck Clamp: Clamping ring with set screws.

E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.

F. PVC Pipe: ASTM D 1785, Schedule 40.

G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.8. ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.

C. One-Piece, Cast-Brass Type: With set screw.

   1. Finish: Polished chrome-plated and rough brass.

D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

   1. Finish: Polished chrome-plated and rough brass.
   2. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated

2. finish.

E. Split-Plate, Stamped-Steel Type: With set screw or spring clips, and chrome-plated finish.

F. One-Piece, Floor-Plate Type: Cast-iron floor plate.

G. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

4.5 2.8. GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, non-staining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1. PLUMBING DEMOLITION

A. Refer to Sub-Section-"Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove plumbing systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
3. Equipment to Be Removed: Disconnect and cap services and remove equipment.
4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to the City of New York.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2. PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New Piping:

a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.

b. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.

c. Insulated Piping: One-piece, stamped-steel type with spring clips.

d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.

e. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.

f. Bare Piping at Ceiling Penetrations in Finished Spaces: cast-brass type with polished chrome-plated finish.

g. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, stamped-steel type and set screw.

h. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with polished chrome-plated and rough-brass finish.

i. Bare Piping in Unfinished Service Spaces: One-piece, stamped-steel type with hinge and set screw or spring clips.

j. Bare Piping in Equipment Rooms: One-piece, cast-brass type.

k. Bare Piping in Equipment Rooms: One-piece, stamped-steel type with set screw or spring clips.

l. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece, floor-plate type

3.3. PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 Appendixes.
3. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
4. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
5. PVC Nonpressure Piping: Join according to ASTM D 2855.
6. PVC to ABS Nonpressure Transition Fittings: Join according to ASTM D 3138
1. Appendix.
7. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
8. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

J. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.

1. Plain-End Pipe and Fittings: Use butt fusion.
2. Plain-End Pipe and Socket Fittings: Use socket fusion.

K. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.4. PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.5. EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install plumbing equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

3.6. PAINTING

A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

PART 4 - CONCRETE BASES

4.1. INSTALLATION

A. Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.

1. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of the base.

3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment.
6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
7. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement as specified in concrete specification sections.

4.2. ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor plumbing materials and equipment.

B. Field Welding: Comply with AWS D1.1.

4.3. ERECTION OF WOOD SUPPORTS AND ANCHORAGES

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor plumbing materials and equipment.

B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

4.4. GROUTING

A. Mix and install grout for plumbing equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SUB-SECTION

SUB-SECTION – METERS AND GAGES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Bimetallic-actuated thermometers.
2. Liquid-in-glass thermometers.
3. Thermowells.
4. Dial-type pressure gages.
5. Gage attachments.
6. Test plugs.

1.2. SUBMITTALS

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

B. Product Certificates: For each type of meter and gage, from manufacturer.

C. Operation and Maintenance Data: For meters and gages to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1. LIQUID-IN-GLASS THERMOMETERS

A. Metal-Case, Industrial-Style, Liquid-in-Glass Thermometers:

1Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Ernst Flow Industries.

b. Trerice, H. O. Co.

c. Weiss Instruments, Inc.

d. Or Approved Equal

2Standard: ASME B40.200.

3. Case: Cast aluminum; 9-inch nominal size unless otherwise indicated.

4.Case Form: Adjustable angle unless otherwise indicated.

5. Tube: Glass with magnifying lens and blue or red organic liquid.

6. Tube Background: Non-reflective aluminum with permanently etched scale markings graduated in deg F.

7. Window: Glass or acrylic.

8. Stem: Aluminum, brass or stainless steel and of length to suit installation.

a. Design for Thermowell Installation: Bare stem.

9. Connector: 1-1/4 inches, with ASME B1.1 screw threads.
10. Accuracy: Plus or minus 1 percent of scale range or one scale division, to a maximum of 1.5 percent of scale range.

2.2. THERMOWELLS

A. Thermowells:

1. Standard: ASME B40.200.
2. Description: Pressure-tight, socket-type fitting made for insertion into piping tee fitting.
3. Material: Brass or stainless steel>.
4. Type: Stepped shank unless straight or tapered shank is indicated.
5. External Threads: ½ inch, ¾ inch, or 1 inch, ASME B1.20.1 pipe threads.
6. Internal Threads: 1/2, 3/4, and 1 inch, with ASME B1.1 screw threads.
7. Bore: Diameter required to match thermometer bulb or stem.
8. Insertion Length: Length required to match thermometer bulb or stem.
9. Lagging Extension: Include on thermowells for insulated piping and tubing.
10. Bushings: For converting size of thermowell's internal screw thread to size of thermometer connection.

2.3. PRESSURE GAGES

A. Direct-Mounted, Metal-Case, Dial-Type Pressure Gages:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. AMETEK, Inc.; U.S. Gauge.

   b. Marsh Bellofram.

   c. Trerice, H. O. Co.

   d. Watts Regulator Co.; a div. of Watts Water Technologies, Inc.

   e. Weiss Instruments, Inc.

   f. WIKA Instrument Corporation - USA.

   g. Or Approved Equal

2. Standard: ASME B40.100.
3. Case: Liquid-filled type(s); stainless steel; 4-1/2-inch nominal diameter.
4. Pressure-Element Assembly: Bourdon tube unless otherwise indicated.

5. Pressure Connection: 316L stainless steel, with 1/4 inch, ASME B1.20.1 pipe threads and bottom-outlet type unless back-outlet type is indicated.
6. Movement: Mechanical, with link to pressure element and connection to pointer.
7. Dial: Nonreflective aluminum with permanently etched scale markings graduated in psi.
8. Pointer: Dark-colored metal.
9. Window: Glass.
10. Ring: Stainless steel.
11. Accuracy: Grade A, plus or minus 1 percent of middle half of scale range.

2.4. GAGE ATTACHMENTS

A. Snubbers: ASME B40.100, brass; with 1/4 inch ASME B1.20.1 pipe threads and surge-dampening device. Include extension for use on insulated piping.

B. Siphons: Loop-shaped section of brass pipe with 1/4 inch pipe threads.

C. Valves: Brass or stainless-steel needle, with 1/4 inch, ASME B1.20.1 pipe threads.

2.5. TEST PLUGS

A. Product: Subject to compliance with requirements, provide Petersin Equipment Co. Inc., or comparable product by one of the following:

1. Trerice, H. O. Co.
2. Watts Regulator Co.; a div. of Watts Water Technologies, Inc.
3. Weiss Instruments, Inc.
4. Or Approved Equal

B. Description: Test-station fitting made for insertion into piping tee fitting.

C. Body: Brass or stainless steel with core inserts and gasketed and threaded cap. Include extended stem on units to be installed in insulated piping.

D. Thread Size: 1/2 inch, ASME B1.20.1 pipe thread.

E. Minimum Pressure and Temperature Rating: 500 psig at 240 deg F.

F. Core Inserts: Neoprene self-sealing rubber.

PART 3 - EXECUTION

3.1. INSTALLATION

A. Install thermowells with socket extending one-third of pipe diameter and in vertical position in piping tees.

B. Install thermowells of sizes required to match thermometer connectors. Include bushings if required to match sizes.

C. Install thermowells with extension on insulated piping.

D. Install direct-mounted thermometers in thermowells and adjust vertical and tilted positions.

E. Install direct-mounted pressure gages in piping tees with pressure gage located on pipe at the most readable position.

F. Install valve and snubber in piping for each pressure gage for fluids.

G. Install test plugs in piping tees.

H. Install thermometers in the following locations:

1. Inlet and outlet of each water heater.
2. Inlets and outlets of each domestic water heat exchanger.
3. Inlet and outlet of each domestic hot-water storage tank.

I. Install pressure gages in the following locations:

1. Building water service entrance into building.
2. Inlet and outlet of each pressure-reducing valve.
3. Suction and discharge of each domestic water pump.

3.2. CONNECTIONS

A. Install meters and gages adjacent to machines and equipment to allow service and maintenance of meters, gages, machines, and equipment.

3.3. ADJUSTING

A. Adjust faces of meters and gages to proper angle for best visibility.

3.4. THERMOMETER SCHEDULE

A. Thermometers at inlets and outlets of each domestic water heat exchanger shall be one of the following:

1. Sealed, bimetallic-actuated type.
2. Industrial-style, liquid-in-glass type.

B. Thermometers at inlet and outlet of each domestic hot-water storage tank shall be one of the following:

1. Sealed, bimetallic-actuated type.
2. Industrial-style, liquid-in-glass type.

C. Thermometer stems shall be of length to match thermowell insertion length.

3.5. THERMOMETER SCALE-RANGE SCHEDULE

A. Scale Range for Domestic Cold-Water Piping: 0 to 100 deg F.
B. Scale Range for Domestic Hot-Water Piping: 20 to 240 deg F.

3.6. PRESSURE-GAGE SCHEDULE

A. Pressure gages at discharge of each water service into building shall be the following:

1. Liquid-filled direct-mounted, metal case.

B. Pressure gages at inlet and outlet of each water pressure-reducing valve shall be of the following:

1. Liquid-filled direct-mounted, metal case.

C. Pressure gages at suction and discharge of each domestic water pump shall be the following:

1. Liquid-filled direct-mounted, metal case

3.7. PRESSURE-GAGE SCALE-RANGE SCHEDULE

A. Scale Range for Water Service Piping: 0 to 160 psi.
B. Scale Range for Domestic Water Piping: 0 to 160 psi.

END OF SUB-SECTION

SUB-SECTION – GENERAL DUTY VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1. SUMMARY

A. General: Provide all plant, labor, tools, appliances, equipment, materials and services required for the work indicated on the drawings and specified in this section.

B. Work Included: Work under this Section of the Specifications shall consist of providing all labor, material equipment and appurtenances, unless hereinafter specifically exempted, necessary for an incidental to the execution and completion of the Plumbing Piping Systems and accessories as indicated on the drawings and specified herein.

Description of the Work:

1. Gate valves
2. Globe and angle valves
3. Swing check valves
4. Lift check valves
5. Silent check valves (pump discharge)
6. Ball valves
7. Butterfly valves
8. Plug lubricated valves
9. Pressure reducing valves
10. Solenoid valves
11. Water service valves

1.2. QUALITY ASSURANCE

A. Provide valves of same manufacturer throughout where possible.

B. Provide valves with manufacturer's name and pressure rating clearly marked on the outside of the body.

C. Approved Manufacturers

1. Gate, globe, angle valves, swing, lift and ball check valves

A. Jenkins

B. Stockham

C. Hammond

D. Kennedy

E. Crane

F. Flygt

G. Or Approved Equal

2. Silent check valves

A. Smolensky

B. Williams - Hager

C. Mueller

D. Or Approved Equal

3. Ball valves

A. Apollo

B. Watts

C. Worcester

D. Jamesbury

E. Fairbanks

F. Rockwell McCanna

G. Or Approved Equal

4. Butterfly Valves

A. Rockwell - McCanna Co.

B. Jamesbury Co.

C. Duriron

D. Or Approved Equal

5. Plug lubricated valves
   - A. Rockwell Norstrom
   - B. DeZurik
   - C. Dresser
   - D. Or Approved Equal

6. Pressure reducing valves (PRV)
   a. Central station
      - A. Cla-Val
      - B. Roll Seal
      - C. Gungenhauser
      - D. Or Approved Equal

   b. Local PRV
      - A. Ford
      - B. A.W. Cash
      - C. Watts
      - D. Or Approved Equal

PART 2 - PRODUCTS

2.1. GATE VALVES

A. Valve bodies three inches (3") and smaller shall be all bronze with bronze trim.

B. Valve bodies four inches (4") and larger shall be iron body with bronze trim.

C. Bronze valve shall have aluminum alloy hand wheels. Iron body valves shall have malleable, cast iron or high tensile strength alloy steel hand wheels.

D. Use rising stem gate valves where space permits.

E. Valves six inches (6") and larger shall be equipped with valve bypass.

F. Model numbers listed below are valves manufactured by Fairbanks. Valves unless otherwise indicated. Equal valves of approved manufacturers will also be approved.

G. Ball valves may be substituted for gate valves in sizes three inches (3") and smaller.

H. Valve Application:

1. Domestic Water System

Sizes	Pressure Class	Model No.	Valve End
SWP/CWP			
2 1/2" & smaller	125 /300	0282	Socket
3" & larger	125/200	0405	Flange
2" & larger	250/500	0312	Flange

2. Sewage Ejection Discharge

Sizes	Pressure Class	Model No.	Valve End
SWP/CWP			
All	125/200	0405	Flange

3. Storm Water Sump Pump Discharge

Sizes	Pressure Class	Model No.	Valve End
SWP/CWP			
2" & 2 1/2"	150/300	0252	Screw
3" & larger	125/200	0405	Flange

2.2. GLOBE & ANGLE VALVES

A. Valve bodies three inches (3") and smaller shall be all bronze with bronze trim.

B. Valve bodies four inches (4") and larger shall be iron body with bronze mounted trim.

C. Provide re-grindable seats and composite discs for all globe valves and throttling nuts for globe valves used for pipe line balancing.

D. Model numbers listed below are valves manufactured by Fairbanks Valves unless otherwise indicated. Equal valves of approved manufacturers will also be approved.

E. Ball valves may be substituted for globe valves in sized three inches (3") and smaller.

F. Valve Application

1. Domestic Water System

Sizes	Pressure Class	Model No.	Valve End
SWP/CWP	Rating		
2" & smaller	125 /300	4502-2	Socket
2 1/2" & 3"	150/300	U-01	Screw
4" & larger	125/20	0102	Flange

2.3. SWING CHECK VALVES

A. Valve bodies three inches (3") and smaller shall be all bronze.

B. Valve bodies four inches (4") and larger shall be iron body bronze mounted.

C. Swing check valves shall be provided with composite discs for sewage ejector and sump pump discharge.

D. Model numbers listed below are valves manufactured by Fairbanks Valves unless otherwise indicated. Equal valves of approved manufacturers will also be approved.

E. Double door check valves for compressed air shall be threaded full flange type, carbon steel body, stainless steel door and pins (type C), monel spring, and Buna-N seats.

2.4. SILENT CHECK VALVE

A. Silent check valves for domestic water, non-potable water system pump discharges shall be flanged globe type with stainless steel (S/S) spring and Buna-N insert.

B. Silent check valves for fire standpipe pump discharges shall be flanged water type with stainless steel spring and Buna-N insert.

C. Valve seat and disc shall be renewable and reseated without special tools.

D. Model numbers listed below are valves manufactured by Williams - Hager unless otherwise indicated. Equal valves of approved manufacturers will also be approved.

E. All parts of valves in contact with deionized, demineralized, and/or process water shall be stainless steel.

F. Valve Application

1. Domestic Water Pump Discharge

Sizes & WOG Rating No.	Pressure Class	Model	Body	Disc	Seat Ring
2 1/2" & smaller	125/175	329	Semi-Steel	Bronze	Bronze
2 1/2" & smaller	150/285	329	Cast steel	S/S	S/S
2 1/2" & Smaller	250/400	329	Cast steel	S/S	S/S

Sizes & WOG Rating No.	Pressure Class	Model	Body	Disc	Seat Ring
3" & larger	125/175	636	Semi-Steel	Bronze	Bronze
3" & larger	150/285	636	Cast-Steel	S/S	S/S
3" & larger	250/400	636	Semi-Steel	Bronze	Bronze
3" & larger	300/740	636	Cast-Steel	S/S	S/S

2. Non-Potable Water Pump Discharge

Size & WOG Rating No.	Pressure Class	Model	Body	Disc	Seat Ring
2 1/2" & Smaller	125/175	329	Semi-Steel	Bronze	Bronze
3" & larger	125/175	636	Semi-Steel	Bronze	Bronze

2.5. BALL VALVES

A. Ball valves may be substituted for gate and globe valves in sizes three inches (3") and smaller.

B. Ball valves installed in piping for balancing shall be provided with memory balancing stops.

C. Ball valves shall have full port ball and body construction.

D. Bronze ball valves shall be constructed of a one piece bronze casting and machined end piece retainer, rated at 600 P.S.I. CWP, with blow-out proof stem design complete with teflon seat and seals and chrome plated full port bronze ball.

E. All ball valves shall be (100%) factory tested.

F. Provide union end valves at equipment in lieu of one union.

G. Provide ball valves with mounting pad where valve actuators are required.

H. Provide "T" handle to actuate valves two inches (2") and smaller in lieu of lever handle when space limitations exist.

I. Model numbers listed below are valves manufactured by Apollo unless otherwise indicated. Equal valves of approved manufacturers will also be approved.

J. Valve Application

1. Domestic Water Systems

Size	Model No.	Valve End
1/2"	70-203	Socket
3/4"	77-204	Socket
1"	77-205	Socket
1 1/4"	77-206	Socket
1 1/2"	77-207	Socket
2"	77-208	Socket
2 1/2"	77-209	Screw w/adapter
3"	70-200	Screw w/adapter

2.6. PLUG VALVES

A. Manufactures:

1. Rockwell Model 143.
2. Other acceptable manufacturers offering equivalent products.
   A. Nibco
   B. Crane Co.
   C. Stockham
   D. Or Approved Equal

B. Up to and including 2 inches: Bronze body, bronze tapered plug, non-lubricated, Teflon packing, threaded ends.

C. Over 2 inches: Bronze body, bronze tapered plug, non-lubricated, Teflon packing, threaded ends.

2.7. RELIEF VALVES

A. Manufacturers:

A. Watts Regulator Co.

B. Kunkle Valve Co.

C. Taco, Inc.

D. Bell & Gossett Co.

E. Or Approved Equal

B. Bronze body, Teflon seat, steel stem and springs automatic direct pressure actuated, capacities ASME certified and labeled.

2.8. STRAINERS

A. Manufacturers:

1. Sarco
2. Mueller Brass Co.
3. Hoffman Specialty ITT.
4. Or Approved Equal

B. Size 2 inch and under: Screwed brass or iron body for 175 psig working pressure, Y pattern with a/32 inch stainless steel perforated screen.

C. Size 2 inch to 4 inch: Flanged iron body for 175 psig working pressure, Y pattern with 3/64 inch stainless steel perforated screen.

D. Size 5 inch and larger: Flanged iron body for 175 psig working pressure, basket pattern with 1/8 inch stainless steel perforated screen.

2.9. CHAINWHEELS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include but are not limited to the following:

A.7.1.1.1.1 Babbitt Steam Specialty co.
A.7.1.1.1.2 Roto Hammer Industries.
A.7.1.1.1.3 Trumbull Industries.

B. Description: Valve actuation assembly with sprocket rim, brackets, and chain.

A.7.1.1.1.3.1 Brackets: Type, number, size, and fasteners required to mount actuator on valve.
A.7.1.1.1.3.2 Attachment: for connection to ball butterfly and plug valve stema.

A.7.1.1.1.3.2.1.1 Sprocket Rim with Chain Guides: Ductile or cast iron of type and size required for valve.
A.7.1.1.1.4 Chain: Hot-dip, galvanized steel of size required to fit sprocket rim.

PART 3 - EXECUTION

3.1. EXAMINATION

A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.

B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.

C. Examine threads on valve and mating pipe for form and cleanliness.

D. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.

E. Do not attempt to repair defective valves; replace with new valves.

F. Ream pipe and tube ends. Remove burrs.

G. Remove scale and dirt on inside and outside before assembly.

H. Prepare piping connections to equipment with flanges or unions.

3.2. VALVE INSTALLATION

A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

B. Locate valves for easy access and provide separate support where necessary.

C. Install valves in horizontal piping with stem at or above center of pipe.

D. Install valves in position to allow full stem movement.

E. Install chain wheels on operators for valves 4 inch and larger and more than 96 inches above floor. Extend chains to 60 inches above finished floor.

F. Install check valves for proper direction of flow and as follows:

1. Swing Check Valves: In horizontal position with hinge pin level.
2. Center-Guided Check Valves: In horizontal or vertical position, between flanges.
3. Lift Check Valves: With stem upright and plumb.

G. Install in accordance with manufacturer's instructions.

H. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

I. Provide clearance for installation of insulation and access to valves and fittings.

J. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Section 08305.

K. Install valves with stems upright or horizontal, not inverted.

L. Provide one plug valve wrench for every ten plug valves sized 2 inches and smaller, minimum of one. Provide each plug valve sized 2 inches and larger with a wrench with set screw.

M. Pipe vents from gas pressure reducing valves to outdoors and terminate in weatherproof hood.

3.3. APPLICATION

A. Install unions downstream of valves and at equipment or apparatus connections.

B. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe.

C. Install gate ball or ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

D. Install globe ball valves for throttling, bypass, or manual flow control services.

E. Provide swing check valves on discharge of circulation pumps.

F. Provide plug valves in natural gas systems for shut-off service.

3.4. ADJUSTING

Adjust or replace valve packing after piping systems have been tested and put into services but before final adjusting and balancing. Replace valves if persistent leaking occurs.

END OF SUB-SECTION

SUB-SECTION – HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes the following hangers and supports for plumbing system piping and equipment:

1. Steel pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Thermal-hanger shield inserts.
5. Fastener systems.
6. Pipe stands.
7. Pipe positioning systems.
8. Equipment supports.

1.2. DEFINITIONS

A. MSS: Manufacturers Standardization Society for The Valve and Fittings Industry Inc.

B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.3. PERFORMANCE REQUIREMENTS

A. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

1.4. SUBMITTALS

A. Product Data: For the following:

1. Steel pipe hangers and supports.
2. Thermal-hanger shield inserts.
3. Pipe positioning systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze pipe hangers. Include Product Data for components.
2. Metal framing systems. Include Product Data for components.

3. Pipe stands. Include Product Data for components.
4. Equipment supports.

C. Welding certificates.

1.5. QUALITY ASSURANCE

A. Materials and work shall conform to the latest edition of reference specifications specified herein and to applicable codes and requirements of local authorities having jurisdiction.

B. Welding: Qualify procedures and personnel according to the following:

1. ASME Boiler and Pressure Vessel Code: Section IX.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2. STEEL PIPE HANGERS AND SUPPORTS

A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

B. Manufacturers:

1. AAA Technology & Specialties Co., Inc.
2. Bergen-Power Pipe Supports.
3. B-Line Systems, Inc.; a division of Cooper Industries.
4. Carpenter & Paterson, Inc.
5. Empire Industries, Inc.
6. ERICO/Michigan Hanger Co.
7. Globe Pipe Hanger Products, Inc.
8. Grinnell Corp.
9. GS Metals Corp.
10. National Pipe Hanger Corporation.
11. PHD Manufacturing, Inc.
12. PHS Industries, Inc.
13. Piping Technology & Products, Inc.
14. Tolco Inc.
15. Or Approved Equal
14.

C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3. TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4. METAL FRAMING SYSTEMS

A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Manufacturers:

1. B-Line Systems, Inc.; a division of Cooper Industries.
2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
3. GS Metals Corp.
4. Power-Strut Div.; Tyco International, Ltd.
5. Thomas & Betts Corporation.
6. Tolco Inc.
7. Unistrut Corp.; Tyco International, Ltd.
8. Or Approved Equal

C. Coatings: Manufacturer's standard finish unless bare metal surfaces are indicated.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5. FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:

a. Hilti, Inc.

b. ITW Ramset/Red Head.

c. Masterset Fastening Systems, Inc.

d. MKT Fastening, LLC.

e. Powers Fasteners.

f. Or Approved Equal

B. Mechanical-Expansion Anchors: Insert-wedge-type zinc-coated steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:
    a. B-Line Systems, Inc.; a division of Cooper Industries.
    b. Empire Industries, Inc.
    c. Hilti, Inc.
    d. ITW Ramset/Red Head.
    e. MKT Fastening, LLC.
    f. Powers Fasteners.
    g. Or Approved Equal

2.6. PIPE STAND FABRICATION

A. Pipe Stands, General: Shop or field-fabricated assemblies made of manufactured corrosion-resistant components to support roof-mounted piping.

B. Compact Pipe Stand: One-piece plastic unit with integral-rod-roller, pipe clamps, or V-shaped cradle to support pipe, for roof installation without membrane penetration.

1. Manufacturers:
    a. ERICO/Michigan Hanger Co.
    b. MIRO Industries.
    c. PHP system
    d. Or Approved Equal

C. Low-Type, Single-Pipe Stand: One-piece stainless-steel base unit with plastic roller, for roof installation without membrane penetration.

1. Manufacturers:
    a. MIRO Industries.
    b. ENRICO
    c. PHP system
    d. Or Approved Equal

D. High-Type, Single-Pipe Stand: Assembly of base, vertical and horizontal members, and pipe support, for roof installation without membrane penetration.

1. Manufacturers:
    a. ERICO/Michigan Hanger Co.

b. MIRO Industries.

c. Portable Pipe Hangers.

d. Or Approved Equal

2. Base: Stainless steel.
3. Vertical Members: Two or more cadmium-plated-steel or stainless-steel, continuous-thread rods.
4. Horizontal Member: Cadmium-plated-steel or stainless-steel rod with plastic or stainless-steel, roller-type pipe support.

E. High-Type, Multiple-Pipe Stand: Assembly of bases, vertical and horizontal members, and pipe supports, for roof installation without membrane penetration.

1. Manufacturers:

a. PHP system

b. ERICO

c. MIRO

d. Or Approved Equal

2. Bases: One or more plastic.
3. Vertical Members: Two or more protective-coated-steel channels.
4. Horizontal Member: Protective-coated-steel channel.
5. Pipe Supports: Galvanized-steel, clevis-type pipe hangers.

F. Curb-Mounting-Type Pipe Stands: Shop- or field-fabricated pipe support made from structural-steel shape, continuous-thread rods, and rollers for mounting on permanent stationary roof curb.

2.7. PIPE POSITIONING SYSTEMS

A. Description: IAPMO PS 42, system of metal brackets, clips, and straps for positioning piping in pipe spaces for plumbing fixtures for commercial applications.

B. Manufacturers:

1. C & S Mfg. Corp.
2. HOLDRITE Corp.; Hubbard Enterprises.
3. Samco Stamping, Inc.
4. Or Approved Equal

2.8. EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.9. MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

PART 3 - EXECUTION

3.1. HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use padded hangers for piping that is subject to scratching.

F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30 .
2. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes, NPS 1/2 to NPS 24, if little or no insulation is required.
3. Pipe Hangers (MSS Type 5): For suspension of pipes, NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
4. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated stationary pipes, NPS 3/4 to NPS 8.
5. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
6. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
7. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 2.
8. Split Pipe-Ring with or without Turnbuckle-Adjustment Hangers (MSS Type 11): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 8.
9. Extension Hinged or 2-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 3.
10. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30.

11. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
12. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange.
13. Pipe Stanchion Saddles (MSS Type 37): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange and with U-bolt to retain pipe.
14. Adjustable, Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes, NPS 2-1/2 to NPS 36, if vertical adjustment is required, with steel pipe base stanchion support and cast-iron floor flange.

G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.

H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.

I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.
7. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
8. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
9. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
10. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.

11. Malleable Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
12. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:

    a. Light (MSS Type 31): 750 lb.

    b. Medium (MSS Type 32): 1500 lb .

    c. Heavy (MSS Type 33): 3000 lb.

13. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
14. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
15. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from hanger.
6. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.
7. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from trapeze support.
8. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:

    a. Horizontal (MSS Type 54): Mounted horizontally.

b. Vertical (MSS Type 55): Mounted vertically.

c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.

L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.

N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

O. Use pipe positioning systems in pipe spaces behind plumbing fixtures to support supply and waste piping for plumbing fixtures.

3.2. HANGER AND SUPPORT INSTALLATION

A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.

C. Fiberglass Pipe Hanger Installation: Comply with applicable portions of MSS SP-69 and MSS SP-89. Install hangers and attachments as required to properly support piping from building structure.

D. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.

E. Fiberglass Strut System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled fiberglass struts.

F. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

G. Fastener System Installation:

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

H. Pipe Stand Installation:

1. Pipe Stand Types except Curb-Mounting Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.

2. Curb-Mounting-Type Pipe Stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb.

I. Pipe Positioning System Installation: Install support devices to make rigid supply and waste piping connections to each plumbing fixture

J. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

K. Each equipment support in first paragraph below requires calculation and detail.

L. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

M. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

N. Install lateral bracing with pipe hangers and supports to prevent swaying.

O. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

P. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

Q. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.9 (for building services piping) are not exceeded.

R. Insulated Piping: Comply with the following:

1. Attach clamps and spacers to piping.

   a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.

   b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.

   c. Do not exceed pipe stress limits according to ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

   a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.

    a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

4. Shield Dimensions for Pipe: Not less than the following:

    a. NPS 1/4 to NPS 3-1/2 : 12 inches long and 0.048 inch thick.

    b. NPS 4: 12 inches long and 0.06 inch thick.

    c. NPS 5 and NPS 6 : 18 inches long and 0.06 inch thick.

    d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.

    e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.

5. Pipes NPS 8 and Larger: Include wood inserts.
6. Insert Material: Length at least as long as protective shield.
7. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.
9.

3.3. EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make smooth bearing surface.

C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4. METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.5. ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.6. PAINTING

A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SUB-SECTION

SUB-SECTION – PLUMBING INSULATION

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Insulation Materials:
   a. Mineral fiber.
2. Adhesives.
3. Mastics.
4. Sealants.
5. Factory-applied jackets.
6. Field-applied fabric-reinforcing mesh.
7. Field-applied jackets.
8. Tapes.
9. Corner angles.

B. Related Sections include the following:

1. Section "Piping Insulation."
2. Section "Ductwork Insulation."

1.2. SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).

B. Material Test Reports: From a qualified testing agency acceptable to the NYC Department of Buildings indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

C. Field quality-control reports.

1.3. QUALITY ASSURANCE

A. Materials and work shall conform to the latest edition of reference specifications specified herein and to applicable codes and requirements of NYC Department of Buildings.

B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to NYC Department of Buildings. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.
16.

3.2. DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.5. COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Section "Hangers and Supports for Plumbing Piping and Equipment."

B. Coordinate clearance requirements with piping Installer for piping insulation application and equipment Installer for equipment insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

C. Coordinate installation and testing of heat tracing.

1.6. SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1. INSULATION MATERIALS

A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

F. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type I. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

G. Mineral-Fiber Board Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For equipment applications, provide insulation with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

H. Mineral-Fiber, Preformed Pipe Insulation:

1. Type I, 850 deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ-SSL. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
17.

2.2. ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Childers Products, Division of ITW; CP-82.

b. Foster Products Corporation, H. B. Fuller Company; 85-20.

c. ITW TACC, Division of Illinois Tool Works; S-90/80.

d. Marathon Industries, Inc.; 225.

e. Mon-Eco Industries, Inc.; 22-25.

f. Or Approved Equal

2. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. ASJ Adhesive, and FSK and PVDC Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Childers Products, Division of ITW; CP-82.

b. Foster Products Corporation, H. B. Fuller Company; 85-20.

c. ITW TACC, Division of Illinois Tool Works; S-90/80.

d. Marathon Industries, Inc.; 225.

e. Mon-Eco Industries, Inc.; 22-25.

f. Or Approved Equal

2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3. MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

B. FSK and Metal Jacket Flashing Sealants:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Childers Products, Division of ITW; CP-76-8.

b. Foster Products Corporation, H. B. Fuller Company; 95-44.

c. Marathon Industries, Inc.; 405.

d. Mon-Eco Industries, Inc.; 44-05.

e. Vimasco Corporation; 750.

f. Or Approved Equal

a.

2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: Aluminum.

6. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. ASJ Flashing Sealants, and Vinyl, PVDC, and PVC Jacket Flashing Sealants:

1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Fire- and water-resistant, flexible, elastomeric sealant.
3. Service Temperature Range: Minus 40 to plus 250 deg F.
4. Color: White.

5. For indoor applications, use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4. FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.

2.5. FIELD-APPLIED FABRIC-REINFORCING MESH

A. Woven Glass-Fiber Fabric for Pipe Insulation: Approximately 2 oz./sq. yd. (68 g/sq. m) with a thread count of 10 strands by 10 strands/sq. inch for covering pipe and pipe fittings.

B. Woven Glass-Fiber Fabric for Equipment Insulation: Approximately 6 oz./sq. yd. with a thread count of 5 strands by 5 strands/sq. inch for covering equipment.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Childers Products, Division of ITW; Chil-Glas No. 5.

   b. Foster Products Corporation, H. B. Fuller Company; Mast-A-Fab.

   c. Vimasco Corporation; Elastafab 894.

   d. Or Approved Equal

2.6. FIELD-APPLIED CLOTHS

A. Woven Glass-Fiber Fabric: Comply with MIL-C-20079H, Type I, plain weave, and presized a minimum of 8 oz./sq. yd..

2.7. FIELD-APPLIED JACKETS

A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.

B. Metal Jacket:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Childers Products, Division of ITW; Metal Jacketing Systems.

   b. PABCO Metals Corporation; Surefit.

   c. RPR Products, Inc.; Insul-Mate.

   d. Or Approved Equal

2. Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105 or 5005, Temper H-14.

   a. Finish and thickness are indicated in field-applied jacket schedules.

b. Moisture Barrier for Indoor Applications: 1-mil- (0.025-mm-) thick, heat-bonded polyethylene and kraft paper.

c. Moisture Barrier for Outdoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper thick Polysurlyn.

d. Factory-Fabricated Fitting Covers:

1) Same material, finish, and thickness as jacket.

2) Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.

3) Tee covers.

4) Flange and union covers.

5) End caps.

6) Beveled collars.

7) Valve covers.

8) Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

3. Stainless-Steel Jacket: ASTM A 167 or ASTM A 240/A 240M.

a. Factory cut and rolled to size.

b. Material, finish, and thickness are indicated in field-applied jacket schedules.

c. Moisture Barrier for Indoor Applications: 1-mil- (0.025-mm-) thick, heat-bonded polyethylene and kraft paper.

d. Moisture Barrier for Outdoor Applications: 3-mil- (0.075-mm-) thick, heat-bonded polyethylene and kraft paper.

e. Factory-Fabricated Fitting Covers:

1) Same material, finish, and thickness as jacket.

2) Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.

3) Tee covers.

4) Flange and union covers.

5) End caps.

6) Beveled collars.

7) Valve covers.

8) Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

C. Underground Direct-Buried Jacket: 125-mil- thick vapor barrier and waterproofing membrane consisting of a rubberized bituminous resin reinforced with a woven-glass fiber or polyester scrim and laminated aluminum foil.

2.8. TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0835.

   b. Compac Corp.; 104 and 105.

   c. Ideal Tape Co., Inc., an American Biltrite Company; 428 AWF ASJ.

   d. Venture Tape; 1540 CW Plus, 1542 CW Plus, and 1542 CW Plus/SQ.

   e. Or Approved Equal

2. Width: 3 inches.
3. Thickness: 11.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.

   b. Compac Corp.; 110 and 111.

   c. Ideal Tape Co., Inc., an American Biltrite Company; 491 AWF FSK.

   d. Venture Tape; 1525 CW, 1528 CW, and 1528 CW/SQ.

   e. Or Approved Equal

   b.

2. Width: 3 inches.
3. Thickness: 6.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.

7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

C. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0800.

b. Compac Corp.; 120.

c. Ideal Tape Co., Inc., an American Biltrite Company; 488 AWF.

d. Venture Tape; 3520 CW.

e. Or Approved Equal

2. Width: 2 inches.
3. Thickness: 3.7 mils.
4. Adhesion: 100 ounces force/inch in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch in width.

2.9. CORNER ANGLES

A. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch, aluminum according to ASTM B 209, Alloy 3003, 3005, 3105 or 5005; Temper H-14.

B. Stainless-Steel Corner Angles: 0.024 inch thick, minimum 1 by 1 inch, stainless steel according to ASTM A 167 or ASTM A 240/A 240M, Type 304 or 316.

PART 3 - EXECUTION

3.1. EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

1. Verify that systems and equipment to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

B. Surface Preparation: Clean and prepare surfaces to be insulated. Before insulating, apply a corrosion coating to insulated surfaces as follows:

C. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.

D. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.3. GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth.
2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.

3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.

   a. For below ambient services, apply vapor-barrier mastic over staples.

4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.

M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. For above ambient services, do not install insulation to the following:

1. Vibration-control devices.
2. Testing agency labels and stamps.
3. Nameplates and data plates.
4. Manholes.
5. Handholes.
6. Cleanouts.

3.4. PENETRATIONS

A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches (50 mm) below top of roof flashing.
4. Seal jacket to roof flashing with flashing sealant.

B. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.

C. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.

2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
4. Seal jacket to wall flashing with flashing sealant.

D. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

E. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.

1. Comply with requirements in "DSNY FS-SS Sub-Section Firestops and Smokeseals" firestopping and fire-resistive joint sealers.

F. Insulation Installation at Floor Penetrations:

1. Pipe: Install insulation continuously through floor penetrations.
2. Seal penetrations through fire-rated assemblies. Comply with requirements in "DSNY-FS-SS".

3.5. EQUIPMENT, TANK, AND VESSEL INSULATION INSTALLATION

A. Mineral Fiber, Pipe and Tank Insulation Installation for Tanks and Vessels: Secure insulation with adhesive and anchor pins and speed washers.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for percent coverage of tank and vessel surfaces as recommended by manufacturer.
2. Groove and score insulation materials to fit as closely as possible to equipment, including contours. Bevel insulation edges for cylindrical surfaces for tight joints. Stagger end joints.
3. Protect exposed corners with secured corner angles.
4. Install adhesively attached or self-sticking insulation hangers and speed washers on sides of tanks and vessels as follows:

a. Do not weld anchor pins to ASME-labeled pressure vessels.

b. Select insulation hangers and adhesive that are compatible with service temperature and with substrate.

c. On tanks and vessels, maximum anchor-pin spacing is 3 inches from insulation end joints, and 16 inches o.c. in both directions.

d. Do not over compress insulation during installation.

e. Cut and miter insulation segments to fit curved sides and domed heads of tanks and vessels.

f. Impale insulation over anchor pins and attach speed washers.

g. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

5. Secure each layer of insulation with stainless-steel or aluminum bands. Select band material compatible with insulation materials.
6. Where insulation hangers on equipment and vessels are not permitted or practical and where insulation support rings are not provided, install a girdle network for securing insulation. Stretch prestressed aircraft cable around the diameter of vessel and make taut with clamps, turnbuckles, or breather springs. Place one circumferential girdle around equipment approximately 6 inches from each end. Install wire or cable between two circumferential girdles 12 inches o.c. Install a wire ring around each end and around outer periphery of center openings, and stretch prestressed aircraft cable radially from the wire ring to nearest circumferential girdle. Install additional circumferential girdles along the body of equipment or tank at a minimum spacing of 48 inches o.c. Use this network for securing insulation with tie wire or bands.
7. Stagger joints between insulation layers at least 3 inches.
8. Install insulation in removable segments on equipment access doors, manholes, handholes, and other elements that require frequent removal for service and inspection.
9. Bevel and seal insulation ends around manholes, handholes, ASME stamps, and nameplates.
10. For equipment with surface temperatures below ambient, apply mastic to open ends, joints, seams, breaks, and punctures in insulation.

3.6. GENERAL PIPE INSULATION INSTALLATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:

1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe

insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below ambient services, provide a design that maintains vapor barrier.

6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
8. Stencil or label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.

C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

D. Install removable insulation covers at locations indicated. Installation shall conform to the following:

1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
3. Construct removable valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.
4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.

3.7. MINERAL-FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.

3. For insulation with factory-applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch (25 mm), and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
4. Install insulation to flanges as specified for flange insulation application.

3.8. FIELD-APPLIED JACKET INSTALLATION

A. Where FSK jackets are indicated, install as follows:

1. Draw jacket material smooth and tight.
2. Install lap or joint strips with same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Install jacket with 1-1/2-inch (38-mm) laps at longitudinal seams and 3-inch- (75-mm-) wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

B. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof

sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches (300 mm) o.c. and at end joints.

3.9. FINISHES

A. Equipment and Pipe Insulation with ASJ, Glass-Cloth, or Other Paintable Jacket Material: Paint jacket with paint system identified below and as specified in Section 099000 "Painting and Finishing".

1. Flat Acrylic Finish: Two coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.

a. Finish Coat Material: Interior, flat, latex-emulsion size.

B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.

C. Color: Final color as selected by Commissioner. Vary first and second coats to allow visual inspection of the completed Work.

D. Do not field paint aluminum or stainless-steel jackets.

3.10. FIELD QUALITY CONTROL

A. Testing Agency: Engage a testing agency to perform tests and inspections.

B. Perform tests and inspections.

C. Tests and Inspections:

1. Inspect field-insulated equipment, randomly selected by Commissioner, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.
2. Inspect pipe, fittings, strainers, and valves, randomly selected by Commissioner, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.

D. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.11. EQUIPMENT INSULATION SCHEDULE

A. Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

B. Insulate indoor and outdoor equipment in paragraphs below that is not factory insulated.

C. Heat-exchanger (water-to-water for domestic water heating service) insulation shall be the following:

1. Mineral-Fiber Pipe and Tank: 2 inches thick.

D. Domestic water, hydropneumatic tank insulation shall be the following:

1. Mineral-Fiber Pipe and Tank: 1 inch thick.

E. Domestic hot-water storage tank insulation shall be the following,:

1. Mineral-fiber pipe and tank: 2 inch thick.

3.12. PIPING INSULATION SCHEDULE, GENERAL

A. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:

1. Drainage piping located in crawl spaces.
2. Underground piping.
3. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.13. INDOOR PIPING INSULATION SCHEDULE

A. Domestic Cold Water:

1. All sizes: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1/2 inch thick.

2. Service main: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch (25 mm) thick.

B. Domestic Hot and Recirculated Hot Water:

1. 1-½ inch and Smaller: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.

2. Larger than 1-1/2": Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1-½ inch thick.

C. Stormwater and Overflow:

1. All Pipe Sizes: Insulation shall be the following at horizontal portion of roof connection:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: ½ inch thick.

D. Sanitary Waste Piping Where Heat Tracing Is Installed:

1. All Pipe Sizes: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1-½ inch thick.

E. Condensate and Equipment Drain Water below 60 Deg F:

1. All Pipe Sizes: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.

3.14. OUTDOOR, ABOVEGROUND PIPING INSULATION SCHEDULE

A. Domestic Water Piping:

1. All Pipe Sizes: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 3 inches thick.

B. Domestic Hot and Recirculated Hot Water:

1. All Pipe Sizes: Insulation shall be the following:

a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 4 inches thick.

3.15. OUTDOOR, UNDERGROUND PIPING INSULATION SCHEDULE

A. Loose-fill insulation, for belowground piping, is specified in utilities sections.

B. Sanitary Waste Piping, All Sizes, Where Heat Tracing Is Installed: Cellular glass, 2 inches thick.

3.16. INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Equipment, Concealed:

1. Aluminum, Smooth Corrugated Stucco Embossed: 0.016 inch thick.

D. Equipment, Exposed, up to 48 Inches in Diameter or with Flat Surfaces up to 72 Inches:

1. Aluminum, Smooth: 0.016 inch (0.41 mm) thick.

E. Equipment, Exposed, Larger Than 48 Inches in Diameter or with Flat Surfaces Larger Than 72 Inches :

1. Painted Aluminum, Smooth with 1-1/4-Inch- Deep Corrugations 0.032 inch (0.81 mm) thick.

F. Piping, Concealed:

1. Aluminum, Smooth: 0.016 inch thick.

G. Piping, Exposed:

1. Aluminum, Smooth: 0.016 inch thick.

3.17. OUTDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Equipment, Concealed:

1. Aluminum, Smooth 0.032 inch (0.81 mm) thick.

D. Equipment, Exposed, up to 48 Inches in Diameter or with Flat Surfaces up to 72 Inches:

1. Painted Aluminum, Smooth 0.032 inch (0.81 mm) thick.

E. Equipment, Exposed, Larger Than 48 Inches in Diameter or with Flat Surfaces Larger Than 72 Inches:

1. Painted Aluminum, Smooth Stucco Embossed with 1-1/4-Inch- (32-mm-) Deep Corrugations 0.040 inch (1.0 mm) thick.

F. Piping, Concealed:

1. None.

G. Piping, Exposed:

1. Painted Aluminum, Smooth 0.016 inch thick.

3.18. UNDERGROUND, FIELD-INSTALLED INSULATION JACKET

A. For underground direct-buried piping applications, install underground direct-buried jacket over insulation material

END OF SUB-SECTION

SUB-SECTION – DOMESTIC WATER PIPING

PART 2 - GENERAL

2.1. SUMMARY

A. Section Includes:

1. Under-building slab and aboveground domestic water pipes, tubes, fittings, and specialties inside the building.
2. Specialty valves.
3. Flexible connectors.
4. Escutcheons.
5. Sleeves and sleeve seals.
6. Wall penetration systems.

2.2. PERFORMANCE REQUIREMENTS

A. Seismic Performance: Domestic water piping and support and installation shall withstand effects of earthquake motions determined according to ASCE/SEI 7.

2.3. SUBMITTALS

A. Product Data: For the following products:

1. Specialty valves.
2. Transition fittings.
3. Dielectric fittings.
4. Flexible connectors.
5. Water meters.
6. Escutcheons.
7. Sleeves and sleeve seals.
8. Water penetration systems.

B. Water Samples: Specified in "Cleaning" Article.

C. Coordination Drawings: For piping in equipment rooms and other congested areas, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:

1. Fire-suppression-water piping.
2. Domestic water piping.
3. HVAC hydronic piping.

D. Field quality-control reports.

2.4. QUALITY ASSURANCE

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

B. Comply with NSF 61 for potable domestic water piping and components.

C. Materials and work shall conform to the latest edition of reference specifications specified herein and to applicable codes and requirements of NYC Department of Buildings.

2.5. COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 3 - PRODUCTS

3.1. PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

3.2. COPPER TUBE AND FITTINGS

A. Hard Copper Tube: ASTM B 88, Type L (ASTM B 88M, Type B) water tube, drawn temper.

1. Cast-Copper Solder-Joint Fittings: ASME B16.18, pressure fittings.

2. Wrought-Copper Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.

3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

4. Grooved-Joint Copper-Tube Appurtenances:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1) Anvil International.

2) Shurjoint Piping Products.

3) Victaulic Company.

4) Or Approved Equal.

b. Copper Grooved-End Fittings: ASTM B 75 copper tube or ASTM B 584 bronze castings.

c. Grooved-End-Tube Couplings: Copper-tube dimensions and design similar to AWWA C606. Include ferrous housing sections, EPDM-rubber gaskets suitable for hot and cold water, and bolts and nuts.

B. Soft Copper Tube: ASTM B 88, Type K and ASTM B 88, Type L water tube, annealed temper.

1. Copper Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.

3.3. DUCTILE-IRON PIPE AND FITTINGS

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

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

3.4. PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free, unless otherwise indicated; full-face or ring type unless otherwise indicated.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

3.5. TRANSITION FITTINGS

A. General Requirements:

1. Same size as pipes to be joined.
2. Pressure rating at least equal to pipes to be joined.
3. End connections compatible with pipes to be joined.

B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

C. Sleeve-Type Transition Coupling: AWWA C219.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Cascade Waterworks Manufacturing.

b. Dresser, Inc.; Dresser Piping Specialties.

c. Ford Meter Box Company, Inc. (The).

d. JCM Industries.

e. Romac Industries, Inc.

f. Smith-Blair, Inc; a Sensus company.

g. Viking Johnson; c/o Mueller Co.

h. Or Approved Equal.

3.6. DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Unions:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Capitol Manufacturing Company.

b. EPCO Sales, Inc.

c. Hart Industries International, Inc.

d. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

e. Zurn Plumbing Products Group; Wilkins Water Control Products.

f. Or Approved Equal

2. Description:

a. Pressure Rating: 250 psig at 180 deg F (82 deg C).

b. End Connections: Solder-joint copper alloy and threaded ferrous.

C. Dielectric Flanges:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Capitol Manufacturing Company.

b. EPCO Sales, Inc.

c. Watts Regulator Co.; a division of Watts Water Technologies, Inc.

d. Or Approved Equal

2. Description:

a. Factory-fabricated, bolted, companion-flange assembly.

b. Pressure Rating: 175 psig minimum.

c. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

D. Dielectric-Flange Kits:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Advance Products & Systems, Inc.

b. Calpico, Inc.

c. Pipeline Seal and Insulator, Inc.

d. Or Approved Equal

2. Description:

a. Nonconducting materials for field assembly of companion flanges.

b. Pressure Rating: 175 psig

c. Gasket: Neoprene or phenolic.

d. Bolt Sleeves: Phenolic or polyethylene.

e. Washers: Phenolic with steel backing washers.

E. Dielectric Couplings:

1. Description:

a. Galvanized-steel coupling.

b. Pressure Rating: 300 psig at 225 deg F.

c. End Connections: Female threaded.

d. Lining: Inert and noncorrosive, thermoplastic.

F. Dielectric Nipples:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Perfection Corporation; a subsidiary of American Meter Company.

b. Precision Plumbing Products, Inc.

c. Victaulic Company.

d. Or Approved Equal

2. Description:

a. Electroplated steel nipple complying with ASTM F 1545.

b. Pressure Rating: 300 psig at 225 deg F.

c. End Connections: Male threaded or grooved.

d. Lining: Inert and noncorrosive, propylene.

3.7. FLEXIBLE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Flex-Hose Co., Inc.
2. Flexicraft Industries.
3. Flex Pression, Ltd.
4. Flex-Weld, Inc.
5. Hyspan Precision Products, Inc.
6. Mercer Rubber Co.
7. Metraflex, Inc.
8. Proco Products, Inc.
9. Tozen Corporation.
10. Unaflex, Inc.
11. Universal Metal Hose; a Hyspan company
12. Or Approved Equal

B. Bronze-Hose Flexible Connectors: Corrugated-bronze tubing with bronze wire-braid covering and ends brazed to inner tubing.

1. Working-Pressure Rating: Minimum 200 psig.
2. End Connections NPS 2 and Smaller: Threaded copper pipe or plain-end copper tube.
3. End Connections NPS 2-1/2 and Larger: Flanged copper alloy.

C. Stainless-Steel-Hose Flexible Connectors: Corrugated-stainless-steel tubing with stainless-steel wire-braid covering and ends welded to inner tubing.

1. Working-Pressure Rating: Minimum 200 psig.
2. End Connections NPS 2 and Smaller: Threaded steel-pipe nipple.
3. End Connections NPS 2-1/2 and Larger: Flanged steel nipple.

3.8. ESCUTCHEONS

A. General: Manufactured ceiling, floor, and wall escutcheons and floor plates.

B. One Piece, Cast Brass: Polished, chrome-plated finish with setscrews.

C. One Piece, Deep Pattern: Deep-drawn, box-shaped brass with chrome-plated finish.

D. One Piece, Stamped Steel: Chrome-plated finish with setscrew or spring clips.

E. Split Casting, Cast Brass: Polished, chrome-plated finish with concealed hinge and setscrew.

F. Split Plate, Stamped Steel: Chrome-plated finish with concealed hinge, setscrew or spring clips.

G. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.

H. Split-Casting Floor Plates: Cast brass with concealed hinge.

3.9. SLEEVES

A. Cast-Iron Wall Pipes: Fabricated of cast iron, and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Galvanized-Steel-Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc-coated, with plain ends.

D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with setscrews.

3.10. SLEEVE SEALS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex, Inc.
4. Pipeline Seal and Insulator, Inc.
5. Or Approved Equal

B. Description: Modular sealing element unit, designed for field assembly, used to fill annular space between pipe and sleeve.

1. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Stainless steel.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

3.11. WALL PENETRATION SYSTEMS

A. Description: Wall-sleeve assembly, consisting of housing and gland, gaskets, and pipe sleeve.

1. Carrier-Pipe Deflection: Up to 5 percent without leakage.

2. Housing: Ductile-iron casting with hub, waterstop, anchor ring, and locking devices. Include gland, bolts, and nuts.

3. Housing-to-Sleeve Gasket: EPDM rubber.
4. Housing-to-Carrier-Pipe Gasket: AWWA C111, EPDM rubber.
5. Pipe Sleeve: AWWA C151, ductile-iron pipe.

3.12. GROUT

A. Standard: ASTM C 1107, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Nonshrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 4 - EXECUTION

4.1. EARTHWORK

A. Comply with requirements in NYCDOT specifications for Earthwork and backfill requirements for excavating, trenching, and backfilling.

4.2. PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

C. Install ductile-iron piping under building slab with restrained joints according to AWWA C600 and AWWA M41.

D. Install underground copper tube in PE encasement according to ASTM A 674 or AWWA C105.

E. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve, inside the building at each domestic water service entrance. Comply with requirements in Sub-Section "Meters and Gages for Plumbing Piping" for pressure gages and sub-section"Domestic Water Piping Specialties" for drain valves and strainers.

F. Install shutoff valve immediately upstream of each dielectric fitting.

G. Install water-pressure-reducing valves downstream from shutoff valves. Comply with requirements in sub-section "Domestic Water Piping Specialties" for pressure-reducing valves.

H. Install domestic water piping level without pitch and plumb.

I. Install seismic restraints on piping.

J. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

K. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

L. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

M. Install piping adjacent to equipment and specialties to allow service and maintenance.

N. Install piping to permit valve servicing.

O. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than system pressure rating used in applications below unless otherwise indicated.

P. Install piping free of sags and bends.

Q. Install fittings for changes in direction and branch connections.

R. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

S. Install pressure gages on suction and discharge piping from each plumbing pump and packaged booster pump. Comply with requirements in "Sub-Section Meters and Gages for Plumbing Piping" for pressure gages.

T. Install thermostats in hot-water circulation piping.

U. Install thermometers on inlet and outlet piping from each water heater. Comply with requirements in "Sub-Section Meters and Gages for Plumbing Piping" for thermometers.

4.3. JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

D. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook," "Brazed Joints" Chapter.

E. Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

F. Extruded-Tee Connections: Form tee in copper tube according to ASTM F 2014. Use tool designed for copper tube; drill pilot hole, form collar for outlet, dimple tube to form seating stop, and braze branch tube into collar.

G. Copper-Tubing Grooved Joints: Roll groove end of tube. Assemble coupling with housing, gasket, lubricant, and bolts. Join copper tube and grooved-end fittings according to AWWA C606 for roll-grooved joints.

H. Ductile-Iron-Piping Grooved Joints: Cut groove end of pipe. Assemble coupling with housing, gasket, lubricant, and bolts. Join ductile-iron pipe and grooved-end fittings according to AWWA C606 for ductile-iron-pipe, cut-grooved joints.

I. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

J. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

4.4. VALVE INSTALLATION

A. General-Duty Valves: Comply with requirements in sub-section "General-Duty Valves for Plumbing Piping" for valve installations.

B. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball or gate valves for piping NPS 2 and smaller. Use butterfly or gate valves for piping NPS 2-1/2 and larger.

C. Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping. Drain valves are specified in sub-section"Domestic Water Piping Specialties."

1. Hose-End Drain Valves: At low points in water mains, risers, and branches.
2. Stop-and-Waste Drain Valves: Instead of hose-end drain valves where indicated.

4.5. TRANSITION FITTING INSTALLATION

A. Install transition couplings at joints of dissimilar piping.

B. Transition Fittings in Underground Domestic Water Piping:

1. NPS 1-1/2 and Smaller: Fitting-type coupling.
2. NPS 2 and Larger: Sleeve-type coupling.

C. Transition Fittings in Aboveground Domestic Water Piping NPS 2 (DN 50) and Smaller: Plastic-to-metal transition fittings or unions.

4.6. DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Dielectric Fittings for NPS 2 and Smaller: Use dielectric unions.

C. Dielectric Fittings for NPS 2-1/2 to NPS 4: Use dielectric flanges.

D. Dielectric Fittings for NPS 5 and Larger: Use dielectric flange kits.

4.7. FLEXIBLE CONNECTOR INSTALLATION

A. Install flexible connectors in suction and discharge piping connections to each domestic water pump and in suction and discharge manifold connections to each domestic water booster pump.

B. Install bronze-hose flexible connectors in copper domestic water tubing.

C. Install stainless-steel-hose flexible connectors in steel domestic water piping.

4.8. WATER METER INSTALLATION

A. Rough-in domestic water piping for water meter installation, and install water meters according to utility company's requirements.

4.9. HANGER AND SUPPORT INSTALLATION

A. Comply with requirements in"Hangers and Supports for Plumbing Piping and Equipment" sub-section of this package for pipe hanger and support products and installation.

1. Vertical Piping: MSS Type 8 or 42, clamps.
2. Individual, Straight, Horizontal Piping Runs:
    a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
    b. Longer Than 100 Feet : MSS Type 43, adjustable roller hangers.
    c. Longer Than 100 Feet If Indicated: MSS Type 49, spring cushion rolls.
3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support vertical piping and tubing at base and at each floor.

C. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch.

D. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
3. NPS 1-1/2 and NPS 2 : 96 inches with 3/8-inch rod.
4. NPS 2-1/2: 108 inches with 1/2-inch rod.
5. NPS 3 to NPS 5: 10 feet with 1/2-inch rod.
6. NPS 6: 10 feet with 5/8-inch rod.
7. NPS 8: 10 feet with 3/4-inch rod.

E. Install supports for vertical copper tubing every 10 feet.

F. Support piping and tubing not listed in this article according to MSS SP-69 and manufacturer's written instructions.

4.10. CONNECTIONS

A. Coordinate piping installations and specialty arrangements with schematics on Drawings and with requirements specified. If Drawings are explicit enough, these requirements may be reduced or omitted.

B. Drawings indicate general arrangement of piping, fittings, and specialties.

C. Install piping adjacent to equipment and machines to allow service and maintenance.

D. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.

E. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:

1. Domestic Water Booster Pumps: Cold-water suction and discharge piping.
2. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
3. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Comply with requirements in plumbing fixture sections for connection sizes.
4. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

4.11. ESCUTCHEON INSTALLATION

A. Install escutcheons for penetrations of walls, ceilings, and floors.

B. Escutcheons for New Piping:

1. Piping with Fitting or Sleeve Protruding from Wall: One piece, deep pattern.
2. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish.
3. Bare Piping at Ceiling Penetrations in Finished Spaces: One piece or split casting, cast brass with polished chrome-plated finish.
4. Bare Piping in Unfinished Service Spaces: One piece, cast brass with rough-brass finish.
5. Bare Piping in Equipment Rooms: One piece, cast brass.
6. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece floor plate.
7. Bare Piping at Floor Penetrations in Equipment Rooms: Split-casting floor plate.

4.12. SLEEVE INSTALLATION

A. General Requirements: Install sleeves for pipes and tubes passing through penetrations in floors, partitions, roofs, and walls.

B. Sleeves are not required for core-drilled holes.

C. Permanent sleeves are not required for holes formed by removable PE sleeves.

D. Cut sleeves to length for mounting flush with both surfaces unless otherwise indicated.

E. Install sleeves in new partitions, slabs, and walls as they are built.

F. For interior wall penetrations, seal annular space between sleeve and pipe or pipe insulation using joint sealants appropriate for size, depth, and location of joint. Comply with requirements in "DSNY-IJS".

G. For exterior wall penetrations above grade, seal annular space between sleeve and pipe using joint sealants appropriate for size, depth, and location of joint. Comply with requirements in "DSNY-EJS".

H. For exterior wall penetrations below grade, seal annular space between sleeve and pipe using wall penetration systems specified in this Section.

I. Seal space outside of sleeves in concrete slabs and walls with grout.

J. Revise first paragraph below as required for seismic design conditions. Coordinate sleeve requirements with pipe insulation specified in "Plumbing Insulation" sub-section of this package.

K. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation unless otherwise indicated.

L. Install sleeve materials according to the following applications:

1. Sleeves for Piping Passing through Concrete Floor Slabs: Steel pipe.
2. Sleeves for Piping Passing through Concrete Floor Slabs of Mechanical Equipment Areas or Other Wet Areas: Steel pipe.

    a. Extend sleeves 2 inches above finished floor level.

3. **Sleeves for Piping Passing through Gypsum-Board Partitions:**

    a. Steel pipe sleeves for pipes smaller than NPS 6.

    b. Galvanized-steel sheet sleeves for pipes NPS 6 and larger.

    c. Exception: Sleeves are not required for water supply tubes and waste pipes for individual plumbing fixtures if escutcheons will cover openings.

4. Sleeves for Piping Passing through Concrete Roof Slabs: Steel pipe.
5. Sleeves for Piping Passing through Exterior Concrete Walls:

    a. Steel pipe sleeves for pipes smaller than NPS 6.

    b. Cast-iron wall pipe sleeves for pipes NPS 6 and larger.

    c. Install sleeves that are large enough to provide 1-inch (25-mm) annular clear space between sleeve and pipe or pipe insulation when sleeve seals are used.

    d. Do not use sleeves when wall penetration systems are used.

6. Sleeves for Piping Passing through Interior Concrete Walls:

   a. Steel pipe sleeves for pipes smaller than NPS 6.

   b. Galvanized-steel sheet sleeves for pipes NPS 6 and larger.

M. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements in "DSNY-FS-SS".

4.13. SLEEVE SEAL INSTALLATION

A. Install sleeve seals in sleeves in exterior concrete walls at water-service piping entries into building.

B. Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble sleeve seal components and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

4.14. WALL PENETRATION SYSTEM INSTALLATION

A. Install wall penetration systems in new, exterior concrete walls.

B. Assemble wall penetration system components with sleeve pipe. Install so that end of sleeve pipe and face of housing are flush with wall. Adjust locking devices to secure sleeve pipe in housing.

4.15. IDENTIFICATION

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full circumference of pipe and to attach to pipe without fasteners or adhesive.

C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.

   1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.

4.16. FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Piping Inspections:

   1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by NYC Department of Buildings.
   2. During installation, notify NYC Department of Buildings at least one day before inspection must be made. Perform tests specified below in presence of NYC Department of Buildings:

a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

b. Final Inspection: Arrange final inspection for NYC Department of Buildings to observe tests specified below and to ensure compliance with requirements.

3. Reinspection: If NYC Department of Buildings find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by NYC Department of Buildings.

C. Piping Tests:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials but not less than 150 psig . Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
6. Prepare reports for tests and for corrective action required.

D. Domestic water piping will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

4.17. ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.
3. Open throttling valves to proper setting.
4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.

a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide flow of hot water in each branch.

b. Adjust calibrated balancing valves to flows indicated.

5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
6. Remove and clean strainer screens. Close drain valves and replace drain plugs.

7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
8. Check plumbing specialties and verify proper settings, adjustments, and operation.

4.18. CLEANING

A. Clean and disinfect potable and non-potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging and disinfecting procedures prescribed by NYC Department of Buildings; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652:

B. Clean non-potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging procedures prescribed by NYC Department of Buildings or; if methods are not prescribed, follow procedures described below:

a. Flush piping system with clean, potable water until dirty water does not appear at outlets.

b. Submit water samples in sterile bottles to NYC Department of Buildings. Repeat procedures if biological examination shows contamination.

C. Prepare and submit reports of purging and disinfecting activities.

D. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

4.19. PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

C. Under-building-slab, domestic water, building service piping, NPS 3 (DN 80) and smaller shall be the following:

1. Soft copper tube, ASTM B 88, Type K wrought-copper solder-joint fittings; and brazed joints.

D. Under-building-slab, domestic water, building-service piping, NPS 4 to NPS 8 and larger] shall be the following:

1. Soft copper tube, ASTM B 88, Type K; wrought-copper solder-joint fittings; and brazed joints.

E. Under-building-slab, domestic water piping, NPS 2 and smaller, shall be the following:

1. Hard copper tube, ASTM B 88, Type L wrought-copper solder-joint fittings; and brazed joints.

F. Aboveground domestic water piping, NPS 2 and smaller, shall be the following:

1. Hard copper tube, ASTM B 88, Type L cast-or wrought- copper solder-joint fittings; and soldered joints.

G. Aboveground domestic water piping, NPS 2-1/2 to NPS 4, shall be one of the following:

1. Hard copper tube, ASTM B 88, Type L cast- or wrought- copper solder-joint fittings; and soldered joints.
2. Hard copper tube, ASTM B 88, Type L grooved-joint copper-tube appurtenances; and grooved joints.

H. Aboveground domestic water piping, NPS 5 to NPS 8, shall be one of the following:

1. Hard copper tube, ASTM B 88, Type L cast- or wrought- copper solder-joint fittings; and brazed joints.
2. Hard copper tube, ASTM B 88, Type L; grooved-joint copper-tube appurtenances; and grooved joints.

4.20. VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use ball or gate valves for piping NPS 2 and smaller. Use butterfly, ball, or gate valves with flanged ends for piping NPS 2-1/2 and larger.
2. Throttling Duty: Use ball or globe valves for piping NPS 2 and smaller. Use butterfly or ball valves with flanged ends for piping NPS 2-1/2 and larger.
3. Hot-Water Circulation Piping, Balancing Duty: Calibrated balancing valves.
4. Drain Duty: Hose-end drain valves.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

C. Iron grooved-end valves may be used with grooved-end piping.

END OF SUB-SECTION

SUB-SECTION – DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes the following domestic water piping specialties:

18. Vacuum breakers.
2. Backflow preventers.
3. Balancing valves.
4. Temperature-actuated water mixing valves.
5. Strainers.
6. Outlet boxes.
7. Hose stations.
8. Hose bibs.
9. Wall hydrants.
10. Drain valves.
11. Water hammer arresters.
12. Air vents.

B. Related Sections include the following:

1. Sub-Section "Meters and Gages for Plumbing Piping" for thermometers, pressure gages, and flow meters in domestic water piping.
2. Sub-Section "Domestic Water Piping" for water meters.

1.2. PERFORMANCE REQUIREMENTS

A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.3. SUBMITTALS

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

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.

1.4. QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC Department of Buildings, and marked for intended use.

B. NSF Compliance:

1. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic domestic water piping components.
2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

C. Materials and work shall conform to the latest edition of reference specifications specified herein and to applicable codes and requirements of NYC Department of Buildings.

PART 2 - PRODUCTS

2.1. VACUUM BREAKERS

A. Pipe-Applied, Atmospheric-Type Vacuum Breakers :

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Ames Co.

   b. Cash Acme.

   c. Conbraco Industries, Inc.

   d. FEBCO; SPX Valves & Controls.

   e. Rain Bird Corporation.

   f. Toro Company (The); Irrigation Div.

   g. Watts Industries, Inc.; Water Products Div.

   h. Zurn Plumbing Products Group; Wilkins Div.

   i. Or Approved Equal

2. Standard: ASSE 1001.
3. Size: NPS 1/4 to NPS 3, as required to match connected piping.
4. Body: Bronze.
5. Inlet and Outlet Connections: Threaded.
6. Finish: Chrome plated.

B. Hose-Connection Vacuum Breakers :

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Arrowhead Brass Products, Inc.

    b. Cash Acme.

    c. Conbraco Industries, Inc.

    d. Legend Valve.

    e. MIFAB, Inc.

    f. Prier Products, Inc.

    g. Watts Industries, Inc.; Water Products Div.

    h. Woodford Manufacturing Company.

    i. Zurn Plumbing Products Group; Light Commercial Operation.

    j. Zurn Plumbing Products Group; Wilkins Div.

    k. Or Approved Equal

2. Standard: ASSE 1011.
3. Body: Bronze, nonremovable, with manual drain.
4. Outlet Connection: Garden-hose threaded complying with ASME B1.20.7.
5. Finish: Chrome or nickel plated.

C. Pressure Vacuum Breakers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Ames Co.

    b. Conbraco Industries, Inc.

    c. FEBCO; SPX Valves & Controls.

    d. Flomatic Corporation.

    e. Toro Company (The); Irrigation Div.

    f. Watts Industries, Inc.; Water Products Div.

    g. Zurn Plumbing Products Group; Wilkins Div.

    h. Or Approved Equal

2. Standard: ASSE 1020.

3. Operation: Continuous-pressure applications.
4. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.
5. Accessories:

    a. Valves: Ball type, on inlet and outlet.

2.2. BACKFLOW PREVENTERS

A. Double-Check Backflow-Prevention Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Watts, Series 957.

2. Standard: ASSE 1015 and NYC MEA.
3. Operation: Continuous-pressure applications, unless otherwise indicated.
4. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.
5. Body: Stainless Steel.
6. End Connections: flanged.
7. Configuration: Designed for horizontal, straight through flow.
8. Accessories:

    a. Valves: outside screw and yoke gate-type with flanged ends on inlet and outlet.

B. Double-Check, Detector-Assembly Backflow Preventers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Watts, Series 757.

2. Standard: ASSE 1048 and FMG approved UL listed and NYC MEA.
3. Operation: Continuous-pressure applications.
4. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.
5. Body: 304 (Schedule 40) Stainless Steel.
6. End Connections: Flanged.
7. Configuration: Designed for horizontal, straight through flow.
8. Accessories:

    a. Valves: Outside screw and yoke gate-type with flanged ends on inlet and outlet.

    b. Bypass: With displacement-type water meter, shutoff valves, and reduced-pressure backflow preventer.

2.3. BALANCING VALVES

A. Copper-Alloy Calibrated Balancing Valves :

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Armstrong International, Inc.

    b. Flo Fab Inc.

    c. ITT Industries; Bell & Gossett Div.

    d. NIBCO INC.

    e. TAC Americas.

    f. Taco, Inc.

    g. Watts Industries, Inc.; Water Products Div.

    h. Or Approved Equal

2. Type: Y-pattern globe valve with two readout ports and memory setting indicator.
3. Body: Brass or bronze
4. Size: Same as connected piping, but not larger than NPS 2.
5. Accessories: Meter hoses, fittings, valves, differential pressure meter, and carrying case.

B. Cast-Iron Calibrated Balancing Valves :

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Armstrong International, Inc.

    b. Flo Fab Inc.

    c. ITT Industries; Bell & Gossett Div.

    d. NIBCO INC.

    e. TAC Americas.

    f. Watts Industries, Inc.; Water Products Div.

    g. Or Approved Equal

2. Type: Adjustable with Y-pattern globe valve, two readout ports, and memory-setting indicator.
3. Size: Same as connected piping, but not smaller than NPS 2-1/2.

C. Accessories: Meter hoses, fittings, valves, differential pressure meter, and carrying case.

D. Memory-Stop Balancing Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. Conbraco Industries, Inc.

    b. Crane Co.; Crane Valve Group; Crane Valves.

    c. Crane Co.; Crane Valve Group; Jenkins Valves.

    d. Crane Co.; Crane Valve Group; Stockham Div.

    e. Hammond Valve.

    f. Milwaukee Valve Company.

    g. NIBCO INC.

    h. Red-White Valve Corp.

    i. Or Approved Equal

2. Standard: MSS SP-110 for two-piece, copper-alloy ball valves.
3. Pressure Rating: 400-psig minimum CWP.
4. Size: NPS 2 or smaller.
5. Body: Copper alloy.
6. Port: Standard or full port.
7. Ball: Chrome-plated brass.
8. Seats and Seals: Replaceable.
9. End Connections: Solder joint or threaded.
10. Handle: Vinyl-covered steel with memory-setting device.

2.4. TEMPERATURE-ACTUATED WATER MIXING VALVES

A. Primary, Thermostatic, Water Mixing Valves :

19.

1. Basis-of-Design Product: Subject to compliance with requirements, provide T.A.C TAHP #7 or a comparable product by one of the following:

    a. Armstrong International, Inc.

    b. Lawler Manufacturing Company, Inc.

    c. Leonard Valve Company.

    d. Powers; a Watts Industries Co.

    e. Symmons Industries, Inc.

    f. Or Approved Equal

2. Standard: ASSE 1017.

3. Pressure Rating: 125 psig .
4. Type: Exposed-mounting electronically controlled water mixing valve.
5. Material: Bronze body with corrosion-resistant interior components.
6. Connections: Threaded inlets and outlet.
7. Accessories: Manual temperature control, check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.
8. Valve Pressure Rating: 125 psig minimum, unless otherwise indicated.
9. Tempered-Water Setting: 120 deg. F
10. Tempered-Water Design Flow Rate: 45 gpm.
11. Selected Valve Flow Rate at 45-psig (310-kPa)
12. Pressure Drop at Design Flow Rate: 1 psig.
13. Valve Finish: Rough bronze.
14. Piping Finish: Copper.
20.
21.
22.

2.5. STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers :

1. Pressure Rating: 125 psig minimum, unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or FDA-approved, epoxy coating and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations, unless otherwise indicated.
5. Perforation Size:
    a. Strainers NPS 2 and Smaller: 0.020 inch (0.51 mm) 0.033 inch (0.84 mm) 0.062 inch (1.57 mm).
    b. Strainers NPS 2-1/2 to NPS 4: 0.045 inch (1.14 mm) 0.062 inch (1.57 mm) 0.125 inch (3.18 mm).
    c. Strainers NPS 5 (DN 125) and Larger: 0.10 inch (2.54 mm) 0.125 inch (3.18 mm) 0.25 inch (6.35 mm).
6. Drain: Pipe plug Factory-installed, hose-end drain valve.

2.6. HOSE BIBBS

A. Hose Bibbs :

1. Standard: ASME A112.18.1 for sediment faucets.
2. Body Material: Bronze.
3. Seat: Bronze, replaceable.
4. Supply Connections: NPS 3/4 threaded or solder-joint inlet.

5. Outlet Connection: Garden-hose thread complying with ASME B1.20.7.
6. Pressure Rating: 125 psig.
7. Vacuum Breaker: Integral nonremovable, drainable, hose-connection vacuum breaker complying with ASSE 1011.
8. Finish for Equipment Rooms: Rough bronze, or chrome or nickel plated.
9. Finish for Service Areas: Chrome or nickel plated.
10. Finish for Finished Rooms: Chrome or nickel plated.
11. Operation for Equipment Rooms: Wheel handle or operating key.
12. Operation for Service Areas: Wheel handle.
13. Operation for Finished Rooms: Operating key.
14. Include operating key with each operating-key hose bibb.
15. Include integral wall flange with each chrome- or nickel-plated hose bibb.

2.7. WALL HYDRANTS

A. Nonfreeze Wall Hydrants :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Josam Company.

    b. MIFAB, Inc.

    c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

    d. Zurn Plumbing Products Group.

    e. Or Approved Equal

2. Standard: ASME A112.21.3M for concealed-outlet, self-draining wall hydrants.
3. Pressure Rating: 125 psig (860 kPa).
4. Operation: Loose key.
5. Casing and Operating Rod: Of length required to match wall thickness. Include wall clamp.
6. Inlet: NPS 3/4 .
7. Outlet: Concealed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.
8. Box: Deep, flush mounting with cover.
9. Box and Cover Finish: Polished nickel bronze.

10. Outlet: Exposed, with integral vacuum breaker and garden-hose thread complying with ASME B1.20.7.
11. Nozzle and Wall-Plate Finish: Polished nickel bronze.
12. Operating Keys(s): One with each wall hydrant.

B. Nonfreeze, Hot- and Cold-Water Wall Hydrants:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Josam Company.

    b. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

    c. Zurn Plumbing Products Group.

    d. Or Approved Equal

3. Standard: ASME A112.21.3M for concealed-outlet, self-draining wall hydrants.
4. Pressure Rating: 125 psig.
5. Operation: Loose key.
6. Casings and Operating Rods: Of length required to match wall thickness. Include wall clamps.
7. Inlets: NPS 3/4.
8. Outlet: Concealed.
9. Box: Deep, flush mounting with cover.
10. Box and Cover Finish: Polished nickel bronze.
11. Vacuum Breaker: Nonremovable, manual-drain-type, hose-connection vacuum breaker complying with ASSE 1011 and with garden-hose thread complying with ASME B1.20.7 on outlet.
12. Operating Keys(s): One with each wall hydrant.

C. Vacuum Breaker Wall Hydrants :

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Smith, Jay. R. Mfg. Co.; Division of Smith Industries, Inc.

    b. Zurn Plumbing Products Group.

2. Standard: ASSE 1019, Type A or Type B.
3. Type: Freeze-resistant, automatic draining with integral air-inlet valve.
4. Classification: Type B, for automatic draining with hose removed or with hose attached and nozzle closed.
5. Pressure Rating: 125 psig.
6. Operation: Loose key or wheel handle.
7. Casing and Operating Rod: Of length required to match wall thickness. Include wall clamp.
8. Inlet: NPS 3/4.
9. Outlet: Exposed with garden-hose thread complying with ASME B1.20.7.

2.8. DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves :

1. Standard: MSS SP-110 for standard-port, two-piece ball valves.
2. Pressure Rating: 400-psig minimum CWP.
3. Size: NPS 3/4.
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
6. Seats and Seals: Replaceable.
7. Handle: Vinyl-covered steel.
8. Inlet: Threaded or solder joint.
9. Outlet: Threaded, short nipple with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

B. Gate-Valve-Type, Hose-End Drain Valves :

1. Standard: MSS SP-80 for gate valves.
2. Pressure Rating: Class 125.
3. Size: NPS 3/4.
4. Body: ASTM B 62 bronze.
5. Inlet: NPS 3/4 threaded or solder joint.
6. Outlet: Garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

C. Stop-and-Waste Drain Valves :

1. Standard: MSS SP-110 for ball valves or MSS SP-80 for gate valves.
2. Pressure Rating: 200-psig minimum CWP or Class 125.
3. Size: NPS 3/4.
4. Body: Copper alloy or ASTM B 62 bronze.
5. Drain: NPS 1/8 side outlet with cap.

2.9. WATER HAMMER ARRESTERS

A. Water Hammer Arresters :

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. AMTROL, Inc.

   b. Josam Company.

   c. MIFAB, Inc.

   d. Sioux Chief Manufacturing Company, Inc.

   e. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.

f. Tyler Pipe; Wade Div.

g. Watts Drainage Products Inc.

h. Zurn Plumbing Products Group; Specification Drainage Operation.

i. Or Approved Equal

2. Standard: ASSE 1010 or PDI-WH 201.
3. Type: Copper tube with piston.
4. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

2.10. AIR VENTS

A. Copy and edit paragraph and subparagraphs below for each type of bolted-construction automatic air vent required. If only one type is required, drawing designation may be omitted.

B. Bolted-Construction Automatic Air Vents :

1. Body: Bronze.
2. Pressure Rating: 125-psig minimum pressure rating at 140 deg F.
3. Float: Replaceable, corrosion-resistant metal.
4. Mechanism and Seat: Stainless steel.
5. Size: NPS 1/2 minimum inlet.
6. Inlet and Vent Outlet End Connections: Threaded.

C. Welded-Construction Automatic Air Vents :

1. Body: Stainless steel.
2. Pressure Rating: 150-psig minimum pressure rating.
3. Float: Replaceable, corrosion-resistant metal.
4. Mechanism and Seat: Stainless steel.
5. Size: NPS 3/8 minimum inlet.
6. Inlet and Vent Outlet End Connections: Threaded.

PART 3 - EXECUTION

3.1. INSTALLATION

A. Refer to "Common Work Results for Plumbing" sub-section of this package for piping joining materials, joint construction, and basic installation requirements.

B. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with NYC Department of Buildings.

1. Locate backflow preventers in same room as connected equipment or system.
2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.

3. Do not install bypass piping around backflow preventers.

C. Install water regulators with inlet and outlet shutoff valves. Install pressure gages on inlet and outlet.

D. Install water control valves with inlet and outlet shutoff valves . Install pressure gages on inlet and outlet.

E. Install balancing valves in locations where they can easily be adjusted.

F. Install temperature-actuated water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.

1. Install thermometers and water regulators if specified.
2. Install cabinet-type units recessed in or surface mounted on wall as specified.

G. Install Y-pattern strainers for water on supply side of each control valve, water pressure-reducing valve, solenoid valve, and pump.

H. Install water hammer arresters in water piping according to PDI-WH 201 and New York City Plumbing Code.

I. Install air vents at high points of water piping.

3.2. CONNECTIONS

A. Piping installation requirements are specified in other plumbing specification sections. Drawings indicate general arrangement of piping and specialties.

B. Ground equipment according to sub-section “Grounding and Bonding for Electrical Systems."

C. Connect wiring according to sub-section "Low-Voltage Electrical Power Conductors and Cables."

3.3. LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:

1. Double-check backflow-prevention assemblies.
2. Double-check, detector-assembly backflow preventers.
3. Calibrated balancing valves.
4. Primary, thermostatic, water mixing valves.
5. Primary water tempering valves.

B. Metal Labels for Equipment:

1. Material and Thickness: Brass, 0.032-inch, Stainless steel, 0.025-inch , Aluminum, 0.032-inch or anodized aluminum, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.

2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch

3. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

4. Fasteners: Stainless-steel rivets or self-tapping screws.

5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

C. Plastic Labels for Equipment:

1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving , and having predrilled holes for attachment hardware.

2. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

3. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

4. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

5. Fasteners: Stainless-steel rivets or self-tapping screws.

6. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

D. Label Content: Include equipment's Drawing designation or unique equipment number, and drawing numbers where equipment is indicated (plans, details, and schedules).

E. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules). Equipment schedule shall be included in operation and maintenance data.

3.4. FIELD QUALITY CONTROL

A. Perform the following tests and prepare test reports:

1. Test each pressure vacuum breaker double-check backflow-prevention assembly and double-check, detector-assembly backflow preventer according to NYC Department of Buildings and the device's reference standard.

B. Remove and replace malfunctioning domestic water piping specialties and retest as specified above.

3.5. ADJUSTING

A. Set field-adjustable pressure set points of water pressure-reducing valves.

B. Set field-adjustable flow set points of balancing valves.

C. Set field-adjustable temperature set points of temperature-actuated water mixing valves.

END OF SUB-SECTION

SUB-SECTION MEASUREMENT.

The Contractor will be paid the lump sum price bid for completing all of the work required to be done hereunder.

SUB-SECTION PRICE TO COVER.

The lump sum price bid shall cover the cost of furnishing all labor, surveyors,excavation, Filling Professional Engineer or Land Surveyors, materials, plant, equipment of all kinds, insurance, testing, permits, approvals and necessary incidentals required and completing the work in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
DSNY- PLUMB	New Plumbing work in the Existing Garage Building	LS

SECTION DSNY-ELECT

DSNY ELECTRICAL

DSNY- ELECT.01 INTENT.

A. This specification section includes the following sub-sections that include all new electrical wiring and accessories within the Existing Building necessary for installation and connection of the new Sanitary Pump Station electrical panels located within the Existing Garage Building:

1. Common Work Results For Electrical
2. Low-Voltage Electrical Power Conductors And Cables
3. Grounding and Bonding For Electrical Systems
4. Hangers And Supports For Electrical Systems
5. Raceway and Boxes for Electrical Systems
6. Identification for Electrical Systems
7. Low Voltage Transformers
8. Wiring Devices
9. Fuses

SUB-SECTION – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Sleeve seals.
4. Grout.
5. Common electrical installation requirements.

1.2. DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.3. SUBMITTALS

A. Product Data: For sleeve seals.

1.4. COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate sleeve selection and application with selection and application of firestopping as specified in sub-section "DSNY-FS-SS".

PART 2 - PRODUCTS

2.1. SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel.

1. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side more than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).

b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches (1270 mm) and 1 or more sides equal to, or more than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

2.2. SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with all requirements:

a. Advance Products & Systems, Inc.

b. Calpico, Inc.

c. Metraflex Co.

d. Pipeline Seal and Insulator, Inc.

e. Or Approved Equal

2. Sealing Elements: EPDM NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
3. Pressure Plates: Plastic or Carbon steel. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3. GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1. COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION-

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

3.2. SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

G. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable, unless indicated otherwise.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in sub-section "DSNY-IJS".

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in "DSNY-FS-SS".

K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

L. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.3. SLEEVE-SEAL INSTALLATION

A. Install to seal exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4. FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

END OF SUB-SECTION

SUB-SECTION – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.
3. Sleeves and sleeve seals for cables.

1.2. DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.3. SUBMITTALS

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

B. Qualification Data: For testing agency.

C. Field quality-control test reports.

1.4. QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to NYC Department of Buildings.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC Department of Buildings, and marked for intended use.

C. Comply with NFPA 70.

1.5. COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1. CONDUCTORS AND CABLES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. American Insulated Wire Corp.; a Leviton Company.
2. Southwire Company.
3. Hubbell
4. Or Approved Equal

C. Copper Conductors: Comply with NEMA WC 70.

D. Conductor Insulation: Comply with NEMA WC 70 for Types THW, THHN-THWN, XHHW, UF, USE and mineral-insulated (type MI).

E. Multiconductor Cable: Comply with NEMA WC 70 for armored cable, metal-clad cable, (Type MC).

2.2. CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Or Approved Equal

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1. CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper for all feeders. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2. CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type USE-75, single conductors in raceway.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions: Type THHN-THWN, single conductors in raceway Metal-clad cable, Type MC.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway Underground feeder cable, Type UF. Mineral-insulated.

E. Feeders Installed below Raised Flooring: Type THHN-THWN, single conductors in raceway Metal-clad cable, Type MC Mineral-insulated, metal-sheathed cable, Type MI.

F. Exposed Branch Circuits: Type THHN-THWN, single conductors in raceway Armored cable, Metal-clad cable, Type MC.

G. Branch Circuits Concealed in Ceilings, Walls: Type THHN-THWN, single conductors in raceway, Armored cable, Metal-clad cable, Type MC.

H. Branch Circuits Installed below Raised Flooring: Type THHN-THWN, single conductors in raceway, Armored cable, Metal-clad cable, Type MC.

I. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

J. Class 1 Control Circuits: Type THHN-THWN, in raceway.

3.3. INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

D. Identify and color-code conductors and cables according to sub-section "Identification for Electrical Systems."

3.4. CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.

3.5. SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in sub-section "DSNY-FS-SS".

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve rectangle perimeter less than 50 inches (1270 mm) and no side greater than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
2. For sleeve rectangle perimeter equal to, or greater than, 50 inches (1270 mm) and 1 or more sides equal to, or greater than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both wall surfaces.

G. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

H. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to DSNY-IJS

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials according to DSNY-FF-SS

L. Roof-Penetration Sleeves: Seal penetration of individual cables with flexible boot-type flashing units applied in coordination with roofing work.

M. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.6. SLEEVE-SEAL INSTALLATION

A. Install to seal underground exterior-wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7. FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to sub-section "DSNY-FS-SS".

3.8. FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Perform tests and inspections and prepare test reports.

C. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors, and conductors feeding the following critical equipment and services for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

24.

3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.

   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

D. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

E. Remove and replace malfunctioning units and retest as specified above.

END OF SUB-SECTION

SUB-SECTION – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes methods and materials for grounding systems and equipment:

1. Overhead-lines grounding.
2. Underground distribution grounding.
3. Wastewater Pump Station including the following components:

   a. All metal gratings not otherwise effectively grounded

   b. All steel reinforcement members of any concrete structure

   c. All electrical enclosures, motors, conduits, including all metallic components.

   d. The outdoor electrical equipment cabinet enclosures.

1.2. SUBMITTALS

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

B. Other Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in Part 3 "Field Quality Control" Article, including the following:

1. Test wells.
2. Ground rods.
3. Ground rings.
4. Grounding arrangements and connections for separately derived systems.

C. Qualification Data: For testing agency and testing agency's field supervisor.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For grounding to include the following in emergency, operation, and maintenance manuals:

1. Instructions for periodic testing and inspection of grounding features at test wells ground rings grounding connections for separately derived systems based on NFPA 70B.

   a. Tests shall be to determine if ground resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if they do not.

   b. Include recommended testing intervals.

1.3. QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to NYC Department of Buildings.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC Department of Buildings, and marked for intended use.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1. CONDUCTORS

A. Retain first paragraph below to require one of the two preferred conductor materials permitted by NFPA 70; or delete to allow Contractor to select any material that complies with Code. See "Product Characteristics" Article in the Evaluations for discussion on alternative materials.

B. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or NYC Department of Buildings.

C. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.

4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

D. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches (6 by 50 mm) in cross section, unless otherwise indicated; with insulators.

2.2. CONNECTORS

A. Listed and labeled by a nationally recognized testing laboratory acceptable to NYC Department of Buildings for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3. GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel, 3/4 inch by10 feet (19 mm by 3 m) in diameter.

B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches (1200 mm) long.
2. Backfill Material: Electrode manufacturer's recommended material.

PART 3 - EXECUTION

3.1. APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches (600 mm) below grade.

2. Duct-Bank Grounding Conductor: Bury 12 inches (300 mm) above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.

3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.
5. Wastewater Pump Station:

   a. All joints and connections in the ground grid shall be made using the exothermic "Cad-Weld" method. The ground grid shall terminate at the equipment ground bonding terminal. Contractor shall note that the electric service to each remote building constitutes service entrance equipment and grounding and bonding requirements.

   a.

3.2. GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding: Install a driven ground rod close to wall, and set rod depth so 4 inches (100 mm) will extend above finished floor. If necessary, install ground rod before exterior well is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into the earth.

3.3. EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Armored and metal-clad cable runs.
8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

E. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6-by-50-by-300-mm) grounding bus.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

F. Wastewater Pump Station:

1. The equipment ground shall consist of a metallic connection to permanently ground all non-current carrying metallic parts of the complete electrical system, and to all equipment connected to the system. This includes all metal raceways, switchboards, busways, outlet boxes, motor control centers, cabinets, switch boxes, transformers, motor frames, and all metallic enclosures.
2. A ground grid consisting of ground rods and bare copper wire shall be provided at each building and electric service location as shown on the Plans or, if not shown, in the minimum, 4-3/4-in. by 10-ft copperweld ground rods at diagonal exterior corners of each building and under transformer pads, connected by bare copper cable of the sizes shown on the plans. All ground grids shall be inspected and approved by the local electrical sub-code inspector.
25.

3.4. INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Common Ground Bonding with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

C. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.

2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

F. Grounding and Bonding for Wastewater Pump Station:

1. All joints and connections in the ground grid shall be made using the exothermic "Cad-Weld" method. The ground grid shall terminate at the equipment ground bonding terminal. Contractor shall note that the electric service to each remote building constitutes service entrance equipment and grounding and bonding requirements.
2. All metallic enclosed electrical equipment shall be bonded and grounded. The equipment ground, lightning arrestor, surge arrestor, ground grid, and service neutral shall be bonded at the service entrance point. All conduits from the service entrance point, through the main breaker, metering equipment, and to the equipment wireway shall be terminated at both ends with double locknuts and insulated grounding bushings with jumpers. Equipment grounding conductors shall be as shown on the plans, or as required by the NEC.
3. Where metallic raceways are interrupted with nonmetallic pull or junction boxes, insulated metallic grounding bushings shall be provided with jumpers between to insure the integrity of the equipment ground.
4. Conduits terminating under motor control centers and switchboards shall be provided with insulated metallic grounding bushings with bonding jumpers to the equipment ground.
5. The grounding and bonding conductors shall be enclosed in the same raceways as the phase conductors and shall have the same insulation as the phase conductors. Where the size of motor terminal boxes makes the termination of motor grounding conductors within the box impractical, short lengths of grounding conductor may be installed external to flexible liquid tight conduit by using bonding liquid tight connectors UL approved for the purpose of and strapping the bonding jumper as per the requirements of the LATEST edition of the NEC.
6. The shielding of control cables (4-20 ma signals) is to be grounded at the transmitter only unless otherwise directed.

7. The grounding systems for the electrical service shall be separate from the grounding systems for any lightning protection system, but the grounding systems shall be bonded together as required by the NEC.

3.5. FIELD QUALITY CONTROL

A. Testing Agency: The City of New York will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports for all tests.

B. City Special Inspector shall perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

    b. Perform tests by fall-of-potential method according to IEEE 81.

3. Prepare dimensioned drawings locating each test well, ground rod and ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

C. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
2. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).

D. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Commissioner promptly and include recommendations to reduce ground resistance.

END OF SUB-SECTION

SUB-SECTION – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2. DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IMC: Intermediate metal conduit.

C. RMC: Rigid metal conduit.

1.3. PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.4. SUBMITTALS

A. Product Data: For the following:

1. Steel slotted support systems.
2. Nonmetallic slotted support systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze hangers. Include Product Data for components.
2. Steel slotted channel systems. Include Product Data for components.
3. Nonmetallic slotted channel systems. Include Product Data for components.
4. Equipment supports.

1.5. QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with NFPA 70.

1.6. COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in concrete specification sections.

PART 2 - PRODUCTS

2.1. SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

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

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Allied Tube & Conduit.

   b. Cooper B-Line, Inc.; a division of Cooper Industries.

   c. GS Metals Corp.

   d. Thomas & Betts Corporation.

   e. Unistrut; Tyco International, Ltd.

   f. Or Approved Equal

2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
5. Channel Dimensions: Selected for applicable load criteria.

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

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

   a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

      1) Hilti Inc.

      2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.

      3) MKT Fastening, LLC.

      4) Or Approved Equal

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

   a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

      1) Cooper B-Line, Inc.; a division of Cooper Industries.

      2) Empire Tool and Manufacturing Co., Inc.

      3) Hilti Inc.

      4) Or Approved Equal

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1. APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2. SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
6. To Light Steel: Sheet metal screws.
7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3. INSTALLATION OF FABRICATED METAL SUPPORTS

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

B. Field Welding: Comply with AWS D1.1/D1.1M.

3.4. CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5. PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SUB-SECTION

SUB-SECTION – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

B. This Section describes steel, aluminum, and non-metallic raceways. Unless an exception is approved by the Department of Design and Construction, all raceways shall be steel (GRS, IMC, or EMT). Armored cables of MC cables are not permitted. Aluminum conduits are not permitted.

1.2. DEFINITIONS

A. EMT: Electrical metallic tubing.

B. EPDM: Ethylene-propylene-diene terpolymer rubber.

C. FMC: Flexible metal conduit.

D. IMC: Intermediate metal conduit.

E. LFMC: Liquid tight flexible metal conduit.

F. NBR: Acrylonitrile-butadiene rubber.

G. RNC: Rigid nonmetallic conduit.

1.3. SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.

1. Custom enclosures and cabinets.
2. For handholes and boxes for underground wiring, including the following:

a. Duct entry provisions, including locations and duct sizes.

b. Frame and cover design.

c. Grounding details.

d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

e. Joint details.

C. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

1. Structural members in the paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in the paths of conduit groups with common supports.

D. Qualification Data: For professional engineer and testing agency.

E. Source quality-control test reports.

1.4. QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC Department of Building and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1. METAL CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Allied Tube & Conduit; a Tyco International Ltd. Co.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Maverick Tube Corporation.
4. Wheatland Tube Company.
5. Or Approved Equal.

B. Rigid Steel Conduit: ANSI C80.1.

C. Retain first paragraph below for corrosion-resistant power distribution at frequencies above 60 Hz or for other special conditions.

D. IMC: ANSI C80.6.

E. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit, IMC.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch (1 mm), minimum.

F. EMT: ANSI C80.3.

G. FMC: Zinc-coated steel or aluminum.

H. LFMC: Flexible steel conduit with PVC jacket.

I. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
2. Fittings for EMT: Steel or die-cast, compression type.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.

J. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2. NONMETALLIC CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Arnco Corporation.
2. CANTEX Inc.
3. CertainTeed Corp.; Pipe & Plastics Group.
4. Condux International, Inc.
5. Electri-Flex Co.
6. RACO; a Hubbell Company.
7. Or Approved Equal.

B. ENT: NEMA TC 13.

C. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.

D. LFNC: UL 1660.

E. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

F. Fittings for LFNC: UL 514B.

2.3. OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY AND FITTINGS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Arnco Corporation.
2. Endot Industries Inc.
3. IPEX Inc.
4. Lamson & Sessions; Carlon Electrical Products.
5. Or Approved Equal.

B. Description: Comply with UL 2024; flexible type, approved for general-use installation.

2.4. METAL WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper B-Line, Inc.
2. Hoffman.

3. Square D; Schneider Electric.
4. Or Approved Equal.

B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type , unless otherwise indicated.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Screw-cover type or Flanged-and-gasketed type.

E. Finish: Manufacturer's standard enamel finish.

2.5. SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel with snap-on covers. Manufacturer's standard enamel finish in color selected by Commissioner.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Thomas & Betts Corporation.

b. Walker Systems, Inc.; Wiremold Company (The).

c. Wiremold Company (The); Electrical Sales Division.

d. Or Approved Equal

B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color selected by Commissioner from colors.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Butler Manufacturing Company; Walker Division.

b. Enduro Systems, Inc.; Composite Products Division.

c. Hubbell Incorporated; Wiring Device-Kellems Division.

d. Lamson & Sessions; Carlon Electrical Products.

e. Panduit Corp.

f. Wiremold Company (The); Electrical Sales Division.

g. Or Approved Equal

2.6. BOXES, ENCLOSURES, AND CABINETS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.
3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Spring City Electrical Manufacturing Company.
9. Thomas & Betts Corporation.
10. Or Approved Equal

B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

C. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Metal Floor Boxes: Cast or sheet metal, fully adjustable, rectangular.

E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

F. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized, cast iron with gasketed cover.

G. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Plastic.

H. Cabinets:

1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.7. HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. Description: Comply with SCTE 77.

1. Color of Frame and Cover: Gray.

2. Configuration: Units shall be designed for flush burial and have closed bottom, unless otherwise indicated.

3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC." "TELEPHONE." as indicated for each service.
6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
7. Handholes 12 inches wide by 24 inches long (300 mm wide by 600 mm long) and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

B. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with covers of hot-dip galvanized-steel diamond plate or fiberglass

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carson Industries LLC.

b. Christy Concrete Products.

c. Nordic Fiberglass, Inc.

d. Or Approved Equal.

2.8. SLEEVES FOR RACEWAYS

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch (1.3- or 3.5-mm) thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in DSNY-FS-SS.

2.9. SLEEVE SEALS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.
5. Or Approved Equal

B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Plastic. Include two for each sealing element.
3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.10. SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by a independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1. RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit IMC RNC, Type EPC-80-PVC.
2. Concealed Conduit, Aboveground: Rigid steel conduit IMC RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40 -PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
6. Application of Handholes and Boxes for Underground Wiring:

a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete SCTE 77, Tier 15 structural load rating.

b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer-concrete units, SCTE 77, Tier 8 structural load rating.

c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf (13 345-N) vertical loading.

B. Wastewater Pump Station

1. Electric Service feeder conduits Rigid Galvanized Steel with 40 mil PVC coating
2. Telephone communication conduits Rigid Galvanized Steel, PVC coated
3. Instrumentation conduit underground Rigid Galvanized Steel, PVC coated.
4. Exterior wall-mounted Rigid Galvanized Steel, PVC coated
5. Individual underground conduit runs Rigid Galvanized Steel, PVC-coated.
6. At damp locations Rigid Galvanized Steel, PVC-coated
7. In concrete above grade Rigid Galvanized Steel
8. Interior exposed

   a. Pump Station upper level Rigid Galvanized Steel, PVC-coated

   b. Pump Station lower levels Rigid Galvanized Steel, PVC coated .

   c. Pump Station wet well Rigid Galvanized Steel, PVC coated

9. Within Enclosure Cabinets Rigid Galvanized Steel
10. Flexible connections

    a. Classified Hazardous areas Explosion-proof

    b. Classified Non-hazardous Liquid tight metallic

11. The use of intermediate conduit, non-metallic PVC conduit, and EMT shall not be allowed for use in the wastewater pump station application except where specifically indicated and with permission in writing from COMMISSIONER.

C. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: Rigid steel.
2. Exposed, Not Subject to Severe Physical Damage: Rigid steel.
3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit, IMC. Includes raceways in the following locations:

   a. Loading dock.

   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.

   c. Mechanical rooms.

4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: Rigid steel conduit IMC.

7. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: Riser-type, optical fiber/communications cable raceway EMT.
8. Raceways for Concealed General Purpose Distribution of Optical Fiber or Communications Cable: General-use, optical fiber/communications cable raceway or EMT.
9. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, nonmetallic in damp or wet locations.

D. Minimum Raceway Size: 3/4-inch (21-mm) trade size.

E. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.

F. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

G. Do not install aluminum conduits in contact with concrete.

3.2. INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Support raceways as specified in Sub-Section "Hangers and Supports for Electrical Systems."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

H. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch (27-mm) trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.

3. Change from ENT to RNC, Type EPC-40-PVC, rigid steel conduit, or IMC before rising above the floor.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire.

L. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:

1. 3/4-Inch (19-mm) Trade Size and Smaller: Install raceways in maximum lengths of 50 feet (15 m).
2. 1-Inch (25-mm) Trade Size and Larger: Install raceways in maximum lengths of 75 feet (23 m).
3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

M. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

N. Flexible Conduit Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations.

O. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

P. Set metal floor boxes level and flush with finished floor surface.

3.3. SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in sub-section "DSNY-FS-SS".

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side greater than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches (1270 mm) and 1 or more sides equal to, or greater than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both surfaces of walls.

G. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

H. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway unless sleeve seal is to be installed.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway, using joint sealant appropriate for size, depth, and location of joint. Refer to sub-section "DSNY-IJS" for materials and installation.

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials. Comply with sub-section "DSNY-FS-SS".

L. Roof-Penetration Sleeves: Seal penetration of individual raceways with flexible, boot-type flashing units applied in coordination with roofing work.

M. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.4. SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. - Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.5. FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in sub-section "DSNY-FS-SS".

3.6. PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SUB-SECTION

SUB-SECTION – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Underground-line warning tape.
3. Warning labels and signs.
4. Instruction signs.
5. Equipment identification labels.
6. Wastewater pump station identification labels
7. Miscellaneous identification products.

1.2. SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

C. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

1.3. QUALITY ASSURANCE

A. Comply with ANSI A13.1 and IEEE C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.4. COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1. CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

D. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches (50 mm) long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

F. Write-On Tags: Polyester tag, 0.010 inch (0.25 mm) 0.015 inch (0.38 mm) thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2. FLOOR MARKING TAPE

A. 2-inch- (50-mm-) wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.

2.3. UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.

3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

C. Tag: Type II:

1. Multilayer laminate consisting of high-density polyethylene scrim coated with pigmented polyolefin, bright-colored, compounded for direct-burial service.
2. Thickness: 12 mils (0.3 mm).
3. Weight: 36.1 lb/1000 sq. ft. (17.6 kg/100 sq. m).
4. 3-Inch (75-mm) Tensile According to ASTM D 882: 400 lbf (1780 N), and 11,500 psi (79.2 MPa).

2.4. WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch (6.4-mm) grommets in corners for mounting.
3. Nominal size, 7 by 10 inches (180 by 250 mm).

D. Metal-Backed, Butyrate Warning Signs:

1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch (1-mm) galvanized-steel backing; and with colors, legend, and size required for application.
2. 1/4-inch (6.4-mm) grommets in corners for mounting.
3. Nominal size, 10 by 14 inches (250 by 360 mm).
26.

E. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)."

2.5. INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch (1.6 mm) thick for signs up to 20 sq. inches (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.

1. Engraved legend with black letters on white face.

2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch (10 mm).

C. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch (10 mm). Overlay shall provide a weatherproof and UV-resistant seal for label.

2.6. EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch (10 mm).

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch (10 mm). Overlay shall provide a weatherproof and UV-resistant seal for label.

C. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

D. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

E. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch (25 mm).

2.7. Wasetwater Pump Station

A. Nameplates shall be installed on power, receptacle and control panels, and switchgear as shown on the schedules. Stainless steel or brass screws shall be used to affix the nameplates to the equipment; adhesives or glue will not be acceptable.

B. Nameplates for motor control centers, switchboards, lighting and distribution panels, and branch circuit breakers shall be white lettering on a black background, with a minimum lettering size of 3/8". Nameplates shall be supplied for all operational switches, handles, indicator lights, meters, breakers, knobs, and all other control items. Contractor shall provide a nameplate schedule for approval prior to engraving the nameplates.

2.8. CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black except where used for color-coding.

PART 3 - EXECUTION

3.1. INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.

G. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

H. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches (400 mm) overall.

3.2. IDENTIFICATION SCHEDULE

A. Concealed Raceways, Duct Banks, More Than 600 V, within Buildings: Tape and stencil 4-inch- (100-mm-) wide black stripes on 10-inch (250-mm) centers over orange background that extends full length of raceway or duct and is 12 inches (300 mm) wide. Stencil legend "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch- (75-mm-) high black letters on 20-inch (500-mm) centers. Stop stripes at legends. Apply to the following finished surfaces:

1. Floor surface directly above conduits running beneath and within 12 inches (300 mm) of a floor that is in contact with earth or is framed above unexcavated space.
2. Wall surfaces directly external to raceways concealed within wall.
3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.

B. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Identify with self-adhesive vinyl label. Install labels at 30-foot (10-m) maximum intervals.

C. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Emergency Power.
2. Power.
3. UPS.

D. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.

   a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG.

   b. Colors for 208/120-V Circuits:

      1) Phase A: Black.

      2) Phase B: Red.

      3) Phase C: Blue.

   c. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

E. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

F. Conductors to Be Extended in the Future: Attach write-on tags/ marker tape to conductors and list source.

G. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

H. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

I. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

J. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

   a. Power transfer switches.

   b. Controls with external control power connections.

K. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

L. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.

M. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

   a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.

   b. Outdoor Equipment: Engraved, laminated acrylic or melamine label - Stenciled legend 4 inches (100 mm) high.

   c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.

d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be self-adhesive, engraved, laminated acrylic or melamine label.

b. Enclosures and electrical cabinets.

c. Access doors and panels for concealed electrical items.

d. Switchgear.

e. Switchboards.

f. Emergency system boxes and enclosures.

g. Enclosed switches.

h. Enclosed circuit breakers.

i. Enclosed controllers.

j. Push-button stations.

k. Power transfer equipment.

l. Contactors.

m. Remote-controlled switches, dimmer modules, and control devices.

n. Power-generating units.

o. Monitoring and control equipment.

p. Wastewater pump station electrical controls

END OF SUB-SECTION

SUB-SECTION – LOW VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following types of dry-type transformers rated 600 V and less, with capacities up to 1000 kVA:

1. Distribution transformers.

1.2 SUBMITTALS

A. Product Data: Include rated nameplate data, capacities, weights, dimensions, minimum clearances, installed devices and features, and performance for each type and size of transformer indicated.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Power, signal, and control wiring.

C. Qualification Data: For testing agency.

D. Source quality-control test reports.

E. Field quality-control test reports.

F. Operation and Maintenance Data: For transformers to include in emergency, operation, and maintenance manuals.

1.3 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Source Limitations: Obtain each transformer type through one source from a single manufacturer.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Comply with IEEE C57.12.91, "Test Code for Dry-Type Distribution and Power Transformers."

1.4 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit, throughout periods during which equipment is not energized and when transformer is not in a space that is continuously under normal control of temperature and humidity.

1.5 COORDINATION

A. Coordinate installation of wall-mounting and structure-hanging supports with actual transformer provided.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Products.
2. General Electric Company.
3. Siemens Energy & Automation, Inc.
4. Square D; Schneider Electric.
5. Or Commissioner Approved Equal

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Cores: Grain-oriented, non-aging silicon steel.

C. Coils: Continuous windings without splices except for taps.

1. Internal Coil Connections: Brazed or pressure type.
2. Coil Material: Copper.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NEMA ST 20, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Totally enclosed, nonventilated, NEMA 250, Type 2.

1. Core and coil shall be encapsulated within resin compound, sealing out moisture and air.

D. Taps for Transformers Smaller Than 3 kVA: One 5 percent tap above normal full capacity.

E. Taps for Transformers 7.5 to 24 kVA: Two 5 percent taps below rated voltage.

F. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and two 2.5 percent taps below normal full capacity.

G. Energy Efficiency for Transformers Rated 15 kVA and Larger:

1. Complying with NEMA TP 1, Class 1 efficiency levels.
2. Tested according to NEMA TP 2.
3. ASHRAE 90.1-2013 NYC Modified

H. Wall Brackets: Manufacturer's standard brackets.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Sub-Section "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.91.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions for compliance with enclosure- and ambient-temperature requirements for each transformer.

B. Verify that field measurements are as needed to maintain working clearances required by NFPA 70 and manufacturer's written instructions.

C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed.

D. Verify that ground connections are in place and requirements have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install wall-mounting transformers level and plumb with wall brackets fabricated by transformer manufacturer.

3.3 CONNECTIONS

A. Ground equipment according to Sub-Section "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Sub-Section "Low-Voltage Electrical Power Conductors and Cables."

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

C. Remove and replace units that do not pass tests or inspections and retest as specified above.

D. of each unit, attach a dated and signed "Satisfactory Test" label to tested component.

END OF SUB-SECTION

SUB-SECTION – WIRING DEVICES

PART 1 - GENERAL

1.1. SUMMARY

A. This Section includes the following:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Twist-locking receptacles.
3. Receptacles with integral surge suppression units.
4. Wall-box motion sensors.
5. Wall-switch and exterior occupancy sensors.
6. Communications outlets.
7. Cord and plug sets.

1.2. DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. UTP: Unshielded twisted pair.

1.3. SUBMITTALS

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

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

C. Samples: One for each type of device and wall plate specified, in each color specified.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.4. QUALITY ASSURANCE

A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC Department of Buildings, and marked for intended use.

C. Comply with NFPA 70.

1.5. COORDINATION

A. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1. Cord and Plug Sets: Match equipment requirements.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
3. Leviton Mfg. Company Inc. (Leviton).
4. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).
5. Or Approved Equal.

2.2. STRAIGHT BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 5351 (single), 5352 (duplex).

b. Hubbell; HBL5351 (single), CR5352 (duplex).

c. Leviton; 5891 (single), 5352 (duplex).

d. Pass & Seymour; 5381 (single), 5352 (duplex).

e. Or Approved Equal.

2.3. GFCI RECEPTACLES

A. General Description: Straight blade, feed-through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

   a. Cooper; GF20.

   b. Pass & Seymour; 2084.

   c. Hubbell

   d. Approved Equal

2.4. HAZARDOUS (CLASSIFIED) LOCATION RECEPTACLES

A. Available Wiring Devices for Hazardous (Classified) Locations: Comply with NEMA FB 11 and UL 1010.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Cooper Crouse-Hinds.

   b. EGS/Appleton Electric.

   c. Killark; a division of Hubbell Inc.

   d. Or Approved Equal

2.5. TWIST-LOCKING RECEPTACLES

A. Single Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration L5-20R, and UL 498.

1.1. Products: Subject to compliance with requirements, provide one of the following:

   a. Cooper; L520R.

   b. Hubbell; HBL2310.

   c. Leviton; 2310.

   d. Pass & Seymour; L520-R.

   e. Or Approved Equal

2.6. CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.
3.

2.7. SNAP SWITCHES

A. Comply with NEMA WD 1 and UL 20.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 2221 (single pole), 2222 (two pole), 2223 (three way), 2224 (four way).

b. Hubbell; CS1221 (single pole), CS1222 (two pole), CS1223 (three way), CS1224 (four way).

c. Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).

d. Pass & Seymour; 20AC1 (single pole), 20AC2 (two pole), 20AC3 (three way), 20AC4 (four way).

e. Or Approved Equal

C. Pilot Light Switches, 20 A:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Cooper; 2221PL for 120 V and 277 V.

b. Hubbell; HPL1221PL for 120 V and 277 V.

c. Leviton; 1221-PLR for 120 V, 1221-7PLR for 277 V.

d. Pass & Seymour; PS20AC1-PLR for 120 V.

e. Or Approved Equal

3. Description: Single pole, with neon-lighted handle, illuminated when switch is "ON."

D. Key-Operated Switches, 120/277 V, 20 A:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Cooper; 2221L.

b. Hubbell; HBL1221L.

c. Leviton; 1221-2L.

d. Pass & Seymour; PS20AC1-L.

e. Or Approved Equal

3. Description: Single pole, with factory-supplied key in lieu of switch handle.

E. Single-Pole, Double-Throw, Momentary Contact, Center-Off Switches, 120/277 V, 20 A; for use with mechanically held lighting contactors.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Cooper; 1995.

b. Hubbell; HBL1557.

c. Leviton; 1257.

d. Pass & Seymour; 1251.

e. Or Approved Equal

2.8. OCCUPANCY SENSORS

A. Wall-Switch Sensors:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Cooper; 6111 for 120 V, 6117 for 277 V.

b. Hubbell; WS1277.

c. Leviton; ODS 10-ID.

d. Pass & Seymour; WS3000.

e. Philips Lighting Controls.

f. Or Approved Equal

2. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 180-degree field of view, with a minimum coverage area of 900 sq. ft. (84 sq. m).

B. Wall-Switch Sensors:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

2.

a. Hubbell; AT120 for 120 V, AT277 for 277 V.

b. Leviton; ODS 15-ID.

c. Philips Lighting Control LRS 2215

d. Or Approved Equal

3. Description: Adaptive-technology type, 120/277 V, adjustable time delay up to 20 minutes, 180-degree field of view, with a minimum coverage area of 900 sq. ft. (84 sq. m).

C. Long-Range Wall-Switch Sensors:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Hubbell; ATP1600WRP.

b. Leviton; ODWWV-IRW.

c. Pass & Seymour; WA1001.

d. Watt Stopper (The); CX-100.

e. Philips Lighting Control LRM 500.

f. Or Approved Equal

3. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 110-degree field of view, with a minimum coverage area of 1200 sq. ft. (111 sq. m).

D. Long-Range Wall-Switch Sensors:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Hubbell; ATD1600WRP.

b. Leviton; ODW12-MRW.

c. Watt Stopper (The); DT-200.

d. Philips Lighting Controls.

e. Or Approved Equal

3. Description: Dual technology, with both passive-infrared- and ultrasonic-type sensing, 120/277 V, adjustable time delay up to 30 minutes, 110-degree field of view, and a minimum coverage area of 1200 sq. ft. (111 sq. m).

E. Wide-Range Wall-Switch Sensors:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Hubbell; ATP120HBRP.

b. Leviton; ODWHB-IRW.

c. Pass & Seymour; HS1001.

d. Watt Stopper (The); CX-100-3.

e. Philips Lighting Controls.

f. Or Approved Equal

3. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 150-degree field of view, with a minimum coverage area of 1200 sq. ft. (111 sq. m).

2.9. COMMUNICATIONS OUTLETS

A. Telephone Outlet:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Cooper; 3560-6.

b. Leviton; 40649.

c. Siemon.

d. Or Approved Equal

3. Description: Single RJ-45 jack for terminating 100-ohm, balanced, four-pair UTP; TIA/EIA-568-B.1; complying with Category 5e. Comply with UL 1863.

B. Combination TV and Telephone Outlet:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Cooper; 3562.

b. Leviton; 40595.

c. Siemon.

d. Or Approved Equal

3. Description: Single RJ-45 jack for 100-ohm, balanced, four-pair UTP; TIA/EIA-568-B.1; complying with Category 5e; and one Type F coaxial cable connector.

2.10. WALL PLATES

A. Single and combination types to match corresponding wiring devices.

4. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: 0.035-inch- (1-mm-) thick, satin-finished stainless steel finish.
3. Material for Unfinished Spaces: Galvanized steel.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant, die-cast aluminum with lockable cover.

2.11. FINISHES

A. Color: Wiring device catalog numbers in Section Text do not designate device color.

1. Wiring Devices Connected to Normal Power System: As selected by Commissioner, unless otherwise indicated or required by NFPA 70 or device listing.

2. Wiring Devices Connected to Emergency Power System: Red.

PART 3 - EXECUTION

3.1. INSTALLATION

A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.

B. Coordination with Other Trades:

1. Take steps to ensure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E.* Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.

2. Install hospital-grade receptacles in patient-care areas with the ground pin or neutral blade at the top.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2. IDENTIFICATION

A. Comply with sub-section "Identification for Electrical Systems."

1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with black]-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.3. FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Ground Impedance: Values of up to 2 ohms are acceptable.
3. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
4. Using the test plug, verify that the device and its outlet box are securely mounted.
5. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

END OF SUB-SECTION

SUB-SECTION – FUSES

PART 1 - GENERAL

1.1. SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600-V AC and less for use in control circuits enclosed switches panelboards switchboards enclosed controllers and motor-control centers.
2. Plug fuses rated 125-V ac and less for use in plug-fuse-type enclosed switches fuseholders and panelboards.
3. Plug-fuse adapters for use in Edison-base, plug-fuse sockets.
4. Spare-fuse cabinets.

1.2. SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material, dimensions, descriptions of individual components, and finishes for spare-fuse cabinets. Include the following for each fuse type indicated:

1. Ambient Temperature Adjustment Information: If ratings of fuses have been adjusted to accommodate ambient temperatures, provide list of fuses with adjusted ratings.
   a. For each fuse having adjusted ratings, include location of fuse, original fuse rating, local ambient temperature, and adjusted fuse rating.
   b. Provide manufacturer's technical data on which ambient temperature adjustment calculations are based.
2. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
3. Current-limitation curves for fuses with current-limiting characteristics.
4. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse.
5. Coordination charts and tables and related data.
6. Fuse sizes for elevator feeders and elevator disconnect switches.

B. Operation and Maintenance Data: For fuses to include in emergency, operation, and maintenance manuals. include the following:

1. Ambient temperature adjustment information.
2. Current-limitation curves for fuses with current-limiting characteristics.

3. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse.
4. Coordination charts and tables and related data.

1.3. QUALITY ASSURANCE

A. Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Comply with UL 248-11 for plug fuses.

1.4. PROJECT CONDITIONS

A. For fuses installed outdoors or in unusual environmental conditions, revise this article to indicate minimum and maximum ambient temperatures and expected humidity range. See Editing Instruction No. 4 in the Evaluations.

B. Where ambient temperature to which fuses are directly exposed is less than 40 deg F (5 deg C) or more than 100 deg F (38 deg C) , apply manufacturer's ambient temperature adjustment factors to fuse ratings.

1.5. COORDINATION

A. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

1.6. EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than two of each size and type.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper Bussmann, Inc.
2. Edison Fuse, Inc.
3. Ferraz Shawmut, Inc.
4. Littelfuse, Inc.

5. Or Approved Equal

2.2. CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

2.3. PLUG FUSES

A. Characteristics: UL 248-11, nonrenewable plug fuses; 125-V AC.

2.4. PLUG-FUSE ADAPTERS

A. Characteristics: Adapters for using Type S, rejection-base plug fuses in Edison-base fuseholders or sockets; ampere ratings matching fuse ratings; irremovable once installed.

PART 3 - EXECUTION

3.1. EXAMINATION

A. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.

B. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.

C. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.

D. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. FUSE APPLICATIONS

A. Cartridge Fuses:

1. Service Entrance: Class L, time delay Class RK1, time delay Class J, time delay.
2. Feeders: Class L, time delay, Class RK1, time delay Class RK5, time delay Class J, time delay.
3. Motor Branch Circuits: Class RK1 Class RK5, time delay.
4. Other Branch Circuits: Class RK1, time delay Class RK5, time delay Class J, time delay.
5. Control Circuits: Class CC, time delay.

B. Plug Fuses:

1. Motor Branch Circuits: Edison-base type, dual Type S, dual-element time delay.
7. Other Branch Circuits: Edison-base type, dual-element time delay Type S, dual-element time delay.

3.3. INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Install plug-fuse adapters in Edison-base fuseholders and sockets. Ensure that adapters are irremovable once installed.

C. Install spare-fuse cabinet(s).

3.4. IDENTIFICATION

A. Install labels complying with requirements for identification specified in Sub-section "Identification for Electrical Systems" and indicating fuse replacement information on inside door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SUB-SECTION

SUB-SECTION – LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

A. Not Used.

1.2. SUMMARY

A. This Section includes the following:

8. Building wires and cables rated 600 V and less.
9. Connectors, splices, and terminations rated 600 V and less.
10. Sleeves and sleeve seals for cables.

1.3. DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.4. SUBMITTALS

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

B. Qualification Data: For testing agency.

C. Field quality-control test reports.

1.5. QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to NYC Department of Buildings.

11. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to NYC Department of Buildings, and marked for intended use.

C. Comply with NFPA 70.

1.6. COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1. CONDUCTORS AND CABLES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. American Insulated Wire Corp.; a Leviton Company.
2. Southwire Company.
3. Alpha Wire
4. Approved Equal

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THW, THHN-THWN, XHHW, UF, USE and mineral-insulated (type MI).

D. Multiconductor Cable: Comply with NEMA WC 70 for armored cable, metal-clad cable, (Type MC).

2.2. CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Or Approved Equal

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1. CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper for all feeders. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2. CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type USE-75, single conductors in raceway.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions: Type THHN-THWN, single conductors in raceway Metal-clad cable, Type MC.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway Underground feeder cable, Type UF. Mineral-insulated.

E. Feeders Installed below Raised Flooring: Type THHN-THWN, single conductors in raceway Metal-clad cable, Type MC Mineral-insulated, metal-sheathed cable, Type MI.

F. Exposed Branch Circuits: Type THHN-THWN, single conductors in raceway Armored cable, Metal-clad cable, Type MC.

G. Branch Circuits Concealed in Ceilings, Walls: Type THHN-THWN, single conductors in raceway, Armored cable, Metal-clad cable, Type MC.

H. Branch Circuits Installed below Raised Flooring: Type THHN-THWN, single conductors in raceway, Armored cable, Metal-clad cable, Type MC.

I. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

J. Class 1 Control Circuits: Type THHN-THWN, in raceway.

3.3. INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

D. Identify and color-code conductors and cables according to Sub-section "Identification for Electrical Systems."

3.4. CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.

3.5. SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in DSNY-FF-SS.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve rectangle perimeter less than 50 inches (1270 mm) and no side greater than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
2. For sleeve rectangle perimeter equal to, or greater than, 50 inches (1270 mm) and 1 or more sides equal to, or greater than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both wall surfaces.

G. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

H. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to DSNY-IJS.

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations.

L. Roof-Penetration Sleeves: Seal penetration of individual cables with flexible boot-type flashing units applied in coordination with roofing work.

M. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.6. SLEEVE-SEAL INSTALLATION

A. Install to seal underground exterior-wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7. FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.8. FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Perform tests and inspections and prepare test reports.

C. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors, and conductors feeding the following critical equipment and services for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

12.

3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.

   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

D. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

E. Remove and replace malfunctioning units and retest as specified above.

END OF SUB-SECTION

DSNY-ELECT.02 MEASUREMENT.

The Contractor will be paid the lump sum price bid for completing all of the work required to be done hereunder.

DSNY- ELECT.03 PRICE TO COVER.

The lump sum price bid shall cover the cost of furnishing all labor, surveyors,excavation, Filling Professional Engineer or Land Surveyors, materials,testing, permits, approvals, plant, equipment of all kinds, insurance, and necessary incidentals required and completing the work in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payment will be made under:

Item No.	Description	Pay Unit
DSNY-ELECT	New Electrical Work in the Existing Garage Building	LS

SECTION DSNY-IJS
INTERIOR JOINT SEALANTS

PART I -GENERAL

1.1 RELATED DOCUMENTS

A. Not Used.

1.2 SUMMARY

A. Section includes:

1 Interior wall joints not specified to be sealed in other Sections of work, including caulking to fill between architectural woodwork and any wall, floor and/or ceiling imperfections.

2 Control and expansion joints in walls.

3 Joints at wall penetrations.

4 Joints between items of equipment and other construction.

5 All other joints required to be sealed to provide a positive barrier against penetration of air. All sealants must be chemically and adhesion compatible with adjacent materials, especially weather resistive barriers (of any type).

B. Related sections

1. Firestops and Smokeseals -Section DSNY SS/FS

1.3 QUALITY ASSURANCE

A. Refer to Contract Documents.

B. Qualification of Installers: Use only personnel who are experienced in the techniques of sealant work, and who are completely familiar with the published recommendations of the sealant manufacturer.

1.4 SUBMITTALS

A. Refer to Contract Documents.

B. Shop Drawings: Submit shop drawings showing all joint conditions, indicating relation of adjacent materials, all sealant materials (sealant, bond breakers, backing, primers, etc.), and method of installation.

1. Submit joint sizing calculations certifying that movement capability of sealant is not being exceeded.

C. Samples: Submit the following:

1 Color samples of sealants, submit physical samples (not color chart).

2 Sealant bond breaker and joint backing.

D. Product Data: Submit manufacturer's technical information and installation instructions for:

1 Sealant materials, indicating that material meets standards specified herein.

2 Backing rods.

1.5 ENVIRONMENTAL CONDITIONS

A. Temperature: Install all work of this Section when air temperature is above forty (40) degrees F. and below eighty (80) degrees F., unless manufacturer submits written instructions permitting sealant use outside of this temperature range.

B. Moisture: Do not apply work of this Section on surfaces which are wet, damp, or have frost.

1.6 DELIVERY, STORAGE AND HANDLING

A. Storage: Store sealant materials and equipment under conditions recommended by their manufacturer.

1 Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.

2 Material shall be stored in unopened containers with manufacturers' name, batch number and date when shelf life expires.

1.7 WARRANTY

A. Provide a written, notarized warranty from the manufacturer stating that the applied sealants shall show no material failure for a period of ten (10) years.

PART II -PRODUCTS

2.1 SEALANT MATERIALS

A. Interior Sealant: Provide a one (1) part acrylic based sealant conforming to ASTM C 834, equal to "AC20+ Silicone" made by Pecora or equal made by Tremco, Sherwin Williams or approved equal.

B. Colors: Colors as selected by Commissioner from manufacturer's standard selection. Contractor to provide Commissioner with physical samples for color selection.

2.2 MISCELLANEOUS MATERIALS

A. Back-Up Materials: Provide back-up materials and preformed joint fillers, non-staining, non-absorbent, compatible with sealant and primer, and of a resilient nature, twenty-five (25) percent wider than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Provide back-up materials only as recommended by sealant manufacturer in writing.

B. Provide bond breakers, where required, of polyethylene tape as recommended by manufacturer of sealant.

C. Provide primers recommended by the sealant manufacturer for each material to receive sealant. Note that each exterior joint must be primed prior to sealing.

D. Provide solvent, cleaning agents and other accessory materials as recommended by the sealant manufacturer.

E. Materials shall be used per manufacturer's printed instructions.

PART III -EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to Contract Documents for execution requirements.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with instructions and recommendations of the manufacturer and in accordance with ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions required by this Project where more stringent installation requirements are specified herein, such requirements shall apply.

B. Supervision: The Contractor shall submit to the Commissioner written certification from the sealant manufacturer that the applicators have been instructed in the proper application of their materials. The Contractor shall use only skilled and experienced workmen for installation of sealant.

C. Apply sealant under pressure with a hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as detailed. Neatly point or tool joint to provide the contour as indicated on the drawings.

D. Preparation and Application

1. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt and frost. Sealant must be applied to the base surface. Previously applied film must be entirely removed.
2. Stone, masonry and concrete surfaces to receive sealant shall be cleaned where necessary by grinding, water blast cleaning, mechanical abrading, or combination of these methods as required to provide a clean, sound base surface for sealant adhesion.
    a. Do not use any acid or other material which might stain surfaces.
    b. Remove laitance by grinding or mechanical abrading.
    c. Remove loose particles present or resulting from grinding, abrading, or blast cleaning by blowing out joints with compressed air, oil and water free, or vacuuming joints prior to application of primer or sealant.
3. Clean non-porous surfaces such as metal and glass chemically. Remove protective coatings on metallic surfaces by solvent that leaves no residue and is compatible with sealant. Use solvent and wipe dry with clean, dry lint free paper towels. Do not allow solvent to air dry without wiping. Clean joint areas protected with masking tape or strippable films as above after removal of tape film.
4. Do not seal joints until they are in compliance with drawings, or meet with the control section standard.
5. Joint Size and Sealant Size: Joints to receive sealant shall be at least 1/4" wide. In joint 1/4" to 3/8" wide, sealant shall be 1/4" deep. In joints wider than 3/8" and up to 1" wide, sealant depth shall be one half the joint width. For joints wider than 1", sealant

depth shall be as recommended by the sealant manufacturer. Depth of joint is defined as distance from outside face of joint to closest point of the filler.

6. Primer: Thoroughly clean joints and apply primer to all surfaces that will receive sealant. Apply primer on clean, dry surfaces, and prior to installation of joint backing. Completely wet both inner faces of the joint with primer. Mask adjacent surfaces of joint with non-staining masking tape prior to priming. Apply primer with clean brush and only when temperature is above 45 deg. F.

7. Joint Backing: In joints where depth of joint exceeds required depth of sealant, install joint backing (after primer is dry) in joints to provide backing and proper joint shape for sealant. Proper shape for sealant is a very slight "hourglass" shape, with back and front face having slight concave curvature. Use special blunt T-shaped tool or roller to install joint backing to the proper and uniform depth required for the sealant. Joint backing shall be installed with approximately twenty-five (25) percent compressions. Do not stretch, twist, braid, puncture, or tear joint backing. Butt joint backing at intersections.

8. Bond Breaker: Install bond breaker smoothly over joint backing so that sealant adheres only to the sides of the joint and not backing.

9. Sealant Application: Apply sealant in accordance with the manufacturer's application manual and manufacturer's instructions, using hand guns or pressure equipment, on clean, dry, properly prepared substrates, completely filling joints to eliminate air pockets and voids. Mask adjacent surfaces of joint with non-staining masking tape. Force sealant into joint in front of the tip of the "caulking gun" (not pulled after it) and force sealant against sides to make uniform contact with sides of joint and to prevent entrapped air or pulling of sealant off of sides. Fill sealant space solid with sealant.

10. Tooling: Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 4A in ASTM C 1193. Finished joints shall be straight, uniform, smooth and neatly finished. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Neatly remove any excess sealant from adjacent surfaces of joint, leaving the work in a neat, clean condition.

DSNY-IJS MEASUREMENT.

The Contractor will be paid the lump sum price bid for completing all of the work required to be done hereunder.

DSNY-IJS PRICE TO COVER.

The lump sum price bid shall cover the cost of furnishing all labor, materials, equipment of all kinds, insurance, and necessary incidentals required and completing the work in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payments will be made under:

Item No.	Description	Pay Unit
DSNY-IJS	New Interior Joint Sealants at the Existing Garage Building	LS

SECTION DSNY-FS-SS
FIRESTOPS AND SMOKESEALS

PART I -GENERAL

1.1 RELATED DOCUMENTS

A. Not Used.

1.2 SUMMARY

A. Section includes:

1 Penetrations through fire-resistance-rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

2 Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

3 Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

4 Sealant joints in fire-resistance-rated construction.

5 Penetrations at each floor level in shafts and/or stairwells.

6 Construction joints, including those between top of fire rated walls and underside of floors above; and those between exterior curtain walls and the outer perimeter edge of floor assemblies.

B. Related Sections

1 Interior Joint Sealants –Section DSNY-IJS.

1.3 REFERENCES

A. ASTM E 814 "Standard Method of Fire Tests of Through-Penetration Firestops."

B. UL 1479, UBC 7-5 (Both are same as A. above).

C. ASTM E 119 "Standard Method of Fire Tests of Building Construction and Materials."

D. UL 263, UBC 7-1 (Both are same as C. above).

E. UL 2079 "Tests For Fire Resistance of Building Joint Systems."

F. ASTM E 1399 "Test For Dynamic Movement Conditions."

G. ASTM E 1966 (Same as E. above).

H. ASTM G 21 "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi."

I. Test Requirements: ASTM E 2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus."

J. Inspection Requirements: ASTM E 2174, "Standard Practice for On-site Inspection of Installed Firestops."

K. Published Through-Penetration Systems by recognized independent testing agencies.

1 UL Fire Resistance Directory, Volume II of current year.

2 Warnock Hersey Certification Listings, current year.

3 Omega Point Laboratories, current year.

L. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.

1.4 SUBMITTALS

A. Refer to Contract Documents.

B. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance, limitation criteria, test data and indication that products comply with specified requirements.

C. Submit shop drawings detailing materials, installation methods, and relationships to adjoining construction for each firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspection agency evidencing compliance with requirements for each condition indicated.

1. Submit documentation, including illustrations, for proposed UL listed (or equal) firestop and smokeseal assembly required for the Project.

D. Material Safety Data Sheets: Submit MSDS for each firestop product.

E. Qualification Data: For Installer.

1.5 QUALITY ASSURANCE

A. Refer to Contract Documents.

B. General: Provide firestopping systems that are produced and installed to resist the spread of fire and the passage of smoke and other gases.

C. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single sole source firestop specialty contractor.

D. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by New York City Building Code and as tested by nationally accepted test agencies per ASTM E 814 or UL 1479. The F-rating must be a minimum of one (1) hour, but not less than the fire resistance rating of the assembly being penetrated. T-rating, when required by New York City Building Code, shall be based on measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.

1. Penetrations in Horizontal Assemblies: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

    a. F-Rating: Minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.

    b. T-Rating: When penetrant is located outside of a wall cavity, minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.

    c. W-Rating: Class 1 rating in accordance with water leakage test per UL 1479.

2. Penetrations in Smoke Barriers: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

    a. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at both ambient and elevated temperatures.

E. Firestopping products shall be asbestos free and free of any PCBs.

F. Do not use any product containing solvents.

G. Do not use firestop products which after curing, dissolve in water.

H. Do not use firestop products that contain ceramic fibers.

I. Installer Qualifications: A firm that has been approved by FM Approval according to FM Approval 4991, "Approval Standard for Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

J. Mock-Up: Prepare job site mock-ups of each typical Firestop System proposed for use in the project. Approved mock-ups will be left in place as part of the finished project and will constitute the quality standard for the remaining work.

K. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

1 For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

2 For floor penetrations with annular spaces exceeding 4 inches or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or alternative means.

3 For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

L. Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of less than or *equal to* 1 as determined by ASTM G 21.

M. Firestopping Materials are either "cast-in-place" (integral with concrete placement) or "post-installed." Provide cast-in-place firestop devices prior to concrete placement.

N. Firestop systems do not reestablish the structural integrity of load bearing partitions or assemblies, or support live loads and traffic. Installer shall consult the Commissioner prior to penetrating any load bearing assembly.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original unopened containers with manufacturer's name, product identification, lot numbers, UL or Warnock Hersey labels, and mixing and installation instructions, as applicable.

B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturer.

C. All firestop materials shall be installed prior to expiration of shelf life.

1.7 PROJECT CONDITIONS

A. Do not use materials that contain solvents, show sign of damage or are beyond their shelf life.

B. During installation, provide masking and drop cloths as needed to prevent firestopping products from contaminating any adjacent surfaces.

C. Conform to ventilation requirements if required by manufacturer's installation instructions or Material Safety Data Sheet.

D. Weather Conditions: Do not proceed with installation of firestop products when temperatures are in excess or below the manufacturer's recommendations.

E. Schedule installation of firestop products after completion of penetrating item installation but prior to covering or concealing of openings.

1.8 SEQUENCING AND SCHEDULING

A. Pre-Installation Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

B. Install all firestop systems after voids and joints are prepared sufficiently to accept the applicable firestop system.

C. Do not cover firestop systems until they have been properly inspected and accepted by the inspecting agency.

PART II -PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following manufacturers or an approved equal:

1. Tremco
2. Bio-Fireshield
3. 3M
4. Specified Technologies Inc.
5. U.S. Gypsum Co.
6. Nelson
7. Hilti, Inc.
8. Grace Flame Safe
9. Or approved equal.

2.2 FIRESTOPPING, GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:

a. Semirefractory fiber (mineral wool) insulation.
b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
c. Fire-rated form board.
d. Joint fillers for joint sealants.
e. Temporary forming materials
f. Substrate primers
g. Collars
h. Steel sleeves

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

D. Smokeseals at top of partitions shall be flexible to allow for partition deflection.

E. Polypropylene Sleeves (PP): For cast-in device options.

2.3 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Endothermic, Latex Compound Sealant: Single-component, endothermic, latex formulation.

B. Intumescent, Latex Sealant: Single-component, Intumescent, latex formulation.

C. Intumescent Putty: Non-hardening, dielectric, water-resistant putty containing no solvents, inorganic fibers, or silicone compounds.

D. Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum or polyethelene foil on one side.

E. Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per ASTM E 84.

F. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.

G. Pillows/Bags: Re-usable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.

H. Silicone Foam: Two-component, silicone-based liquid elastomer that, when mixed, expands and cures in place to produce a flexible, non-shrinking foam.

I. Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless firestop system limits use to non-sag grade for both opening conditions.

J. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic or polyprolyene sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

K. Fire Rated Cable Management Devices: Factory-assembled round metallic sleeve device for use with cable penetrations, containing an integrated smoke seal fabric membrane that can be opened and closed for re-penetration.

L. Drop-In Firestop Devices: Factory-assembled devices for use with combustible or noncombustible penetrants in cored holes within concrete floors. Device shall consist of galvanized steel sleeve lined with an intumescent strip, an extended rectangular flange attached to one end of the sleeve for fastening to concrete floor, and neoprene gasket.

M. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

N. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.

O. Blocks/Plugs: Intumescent flexible block/plug suitable for reuse in re-penetration of openings. Blocks shall allow up to 12" of unreinforced annular space.

P. Tub Box Kit: Cast-in place pre-formed plastic tub box kit with three support legs for use with drain piping assembly associated with bathtub installations.

2.4 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

1. Sealant Colors: Color of exposed joint sealants as selected by the Commissioner.

B. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand 33 percent movement in both extension and compression for a total of 66 percent movement.

C. Multi-Component, Non-Sag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

1. Additional Movement Capability: Provide sealant with the capability to withstand 40 percent movement in extension and 25 percent in compression for a total of 65 percent movement in joint width existing at time of installation, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, and remain in compliance with other requirements of ASTM C 920 for uses indicated.

D. Single-Component, Non-Sag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

2.5 MINERAL FIBER/CERAMIC WOOL NON-COMBUSTIBLE INSULATION (FIRE SAFING)

A. Provide min. 4 pcf safing insulation; Thermafiber Safing Mineral Wool Insulation by Thermafiber, Inc. (an Owens Corning company), Roxul Safe Fire Safing Insulation by Rockwool, Mineral Wool Safing by Johns Manville or approved equal to suit conditions and to comply with fire resistance and firestop manufacturer's requirements.

B. Material shall be classified non-combustible when tested per ASTM E 136.

2.6 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART III -EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to Contract Documents for execution requirements.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

1 Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2 Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

3 Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing seal of firestopping with substrates.

3.3 CONDITIONS REQUIRING FIRESTOPPING

A. Building Exterior Perimeters

1. Where exterior facing construction is continuous past a structural floor, and a space (i.e. construction joint) would otherwise remain open between the inner face of the wall construction and the outer perimeter edge of the structural floor, provide firestopping to equal the fire resistance of the floor assembly.

a. If mineral wool is part of firestop system, the mineral wool must be completely covered by appropriate thickness of UL or Warnock Hersey listed firestop sealant or spray.
b. Refer to Article 3.6 herein for description of fire safing insulation.

2 Firestopping shall be provided whether or not there are any clips, angles, plates, or other members bridging or interconnecting the facing and floor systems, and whether or not such items are continuous.

3 Where an exterior wall passes a perimeter structural member, such as a girder, beam, or spandrel, and the finish on the interior wall face does not continue up to close with the underside of the structural floor above, thus interrupting the fire-resistive integrity of the wall system, and a space would otherwise remain open between the interior face of the wall and the structural member, provide firestopping to continuously fill such open space.

B. Interior Walls and Partitions

1 Construction joints between top of fire rated walls and underside of floors above, shall be firestopped.

2 Firestop system installed shall have been tested by either UL or Omega Point, including

exposure to hose stream test and including for use with steel fluted deck floor assemblies.

3 Firestop system used shall allow for deflection of floor above.

C. Penetrations

1 Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.

2 Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E 814.

3 These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space, if any, between sleeve and wall of opening.

D. Provide firestopping to fill miscellaneous voids and openings in fire rated construction in a manner essentially the same as specified herein before.

3.4 INSTALLING THROUGH PENETRATION FIRESTOPS

A. General: Comply with the through penetrations firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through penetration firestop systems by proven techniques to produce the following results:

1 Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

2 Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

3 For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.5 INSTALLING FIRE RESISTIVE JOINT SEALANTS

A. General: Comply with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

D. Tool no sag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.6 INSTALLING FIRESAFING INSULATION

A. Install fire safing insulation utilizing welded or screw applied galvanized steel impaling pins and retaining clips; space clips or pins 24" o.c. maximum.

B. Completely fill voids in areas where safing insulation is required. At spandrel conditions/floor edges, depth of insulation top to bottom shall be at least four (4) inches.

C. Cover top of all safing insulation with firestop sealant or spray.

3.7 FIELD QUALITY CONTROL

A. Special inspecting agency employed by the City of New York will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Inspecting agency will report observations promptly and in writing to Contractor, City of New York and Commissioner.

C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

D. Where deficiencies are found, Contractor must repair or replace firestopping so that it complies with requirements.

DSNY-FS-SS MEASUREMENT.

The Contractor will be paid the lump sum price bid for completing all of the work required to be done hereunder.

DSNY-FS-SS PRICE TO COVER.

The lump sum price bid shall cover the cost of furnishing all labor, materials, equipment of all kinds, insurance, and necessary incidentals required and completing the work in accordance with the Contract Drawings, the specifications and the directions of the Engineer.

Payments will be made under:

Item No.	Description	Pay Unit
DSNY-FF-SS	New Firestops and Smokeseals at the Existing Garage Building	LS

(NO TEXT ON THIS PAGE)

SECTION 9.13 HD

HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE

9.13 HD.1. **INTENT.** This section describes the furnishing and installation of High-Density Polyethylene (HDPE) Pipe and all its components as part of this project, as shown on the Contract Drawings and as directed by the Engineer.

9.13 HD.2. **DESCRIPTION.** Under this Section, the Contractor shall furnish and install HDPE pipe in accordance with the Contract Drawings, specifications and directions of the Engineer. All work of connecting and joining to other pipes or drainage structures, including connecting pieces, house connections, and excavation, bedding and backfill, shall also be included under these items.

9.13 HD.3. **MATERIALS.**

(A) PIPE: HDPE pipe shall have a full circular cross-section, with a corrugated exterior wall and a smooth inner wall (waterway). Corrugations may be either annular or spiral. HDPE pipe shall be made from virgin polyethylene compounds that conform to the requirements of cell classification 424420C (ESCR Test Condition B) for 4 through 10 inch diameters and cell classification 435400C for 12 through 60 inch diameters as defined and described in ASTM Designation D 3350, except that carbon content should not exceed 4%. All pipe and pipe connections shall be water-tight and shall by the same manufacturer to ensure compatibility of materials.

Acceptable manufacturers for HDPE pipe:

1. Advanced Drainage Systems, Inc., Ludlow, MA
2. ISCO Industries, Lousville, KY
3. JM Eagle, Livingston, NJ
4. Hancor, New York, NY
5. or an approved equivalent.

(B) FITTINGS: Pipe fittings shall not reduce or impair the overall integrity or function of the pipe line. Fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers, and branch or complimentary assembly fittings such as tees, and end caps, etc. These fittings may be installed by various methods, such as snap-on, screw on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Only fittings supplied or recommended by the pipe manufacturer shall be used to ensure compatibility of materials. Where recommended by manufacturer, a neoprene or rubber gasket shall be supplied for joint fittings. All pipe fittings and pipe connections shall be water-tight.

Acceptable manufacturers for HDPE pipe fittings:

1. Advanced Drainage Systems, Inc., Ludlow, MA.
2. ISCO Industries, Lousville, KY
3. JM Eagle, Livingston, N.J
4. Hancor, New York, N.Y
5. or an approved equivalent.

All approved pipe and fittings shall be sourced and purchased from the same manufacturer only and installed as shown on the Contract Drawings.

(C) CRUSHED STONE: for crushed stone gradation requirements, see **NYCDEP Standard Sewer and Water Main Specifications - Section 26.02.2(F).**

(D) DEADMAN Anchor Straps: For the 36-in diameter HDPE pipe anchor straps shall consist of 3/8-in galvanized steel cables meeting 6x19 Improved Plow Steel IWRC or better wire rope inside 5/8" rubber hose. Turnbuckles connecting the anchor straps to the concrete deadman shall have a minimum working load limit of 2,300 LBS. For the 60-in diameter HDPE pipe anchor straps shall consist of 1/2-in galvanized steel cables meeting 6x19 Improved Plow Steel IWRC or better wire rope inside 3/4" rubber hose. Turnbuckles connecting the anchor straps to the concrete deadman shall have a minimum working load limit of 4,900 LBS.

9.13 HD.4. SUBMITTALS.

Manufacturer's product data sheets, installation details and instructions for HDPE pipe, pipe fittings, and connections.

9.13 HD.5. METHODS.

(A) Installation of the pipe shall be in accordance with ASTM Recommended Practice D 2321, unless specified otherwise in the Contract Documents.

(B) Installation:

1. Install and maintain proper Erosion and Sediment Control Measures during construction, as directed by the Engineer, to avoid clogging of the pipes. During the progress of the work, the exposed ends of the pipe shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

2. Trench excavation shall be to a minimum depth of 6" below the outside bottom of the pipe. Unless otherwise directed, the trench shall be fully excavated for its entire length before any pipes are laid therein. Refer to Contract Drawings for pipe inverts. Where trench bottom is unstable, the Contractor shall excavate to a depth as required by the Engineer and replace

with suitable material as specified by the Engineer. Width of trench shall be as per pipe manufacturer's recommendations.

3. Place a 6" minimum depth of bedding material. Bedding material shall be compacted crushed stone.

4. Damaged Pipe whether in or out of the trench, shall be replaced and removed from the site of the work by and at the sole expense of the Contractor.

5. Lay HDPE pipe as per manufacturer's recommendations over bedding material. All pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along the entire length of pipe. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than one-quarter (1/4") inch. Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the Engineer. No section of pipe used shall be less than three (3') feet in length. Keep trenches dry during pipe laying.

6. Provide for and install all joints, couplings, fittings, rings and connections as per manufacturers' instructions and applicable ASTM and ANSI standards. Clean joint contact surfaces immediately prior to joining. Use lubricants, primers, or adhesives as recommended by the pipe or joint manufacturer.

7. Initial backfill material shall be crushed stone and shall envelope the pipe, under the haunches and around the sides up to a minimum height of six (6") inch above the pipe, and compacted in six inch (6") layers. Trench and backfill width shall be as per manufacturer's recommendations.

8. Any sediment which enters pipes during construction shall be removed within 24 hours.

9. Prior to project completion, and as directed by Engineer, the Contractor shall clean pipes by removing all accumulated sediment and debris.

10. Do not remove Erosion and Sediment Control measures until site is fully stabilized.

9.13 HD.6. **MEASUREMENT.** The quantity of High-Density Polyethylene Pipe in the diameter noted to be measured for payment shall be the number of linear feet (laying length) of HDPE pipe, including fittings, measured in their final position, installed to the satisfaction of the Engineer.

9.13 HD.7. **PRICES TO COVER.** The contract price bid shall be a unit price per linear foot of each size High-Density Polyethylene Pipe in the diameter noted, furnished and installed as shown on the Contract Drawings and shall include the cost of all labor, materials, equipment, insurance, and incidentals necessary to complete the work, including, but not limited to, excavation of all materials of whatsoever nature encountered (except the excavation of boulders in open cut and ledge rock), furnishing and installing bedding, deadman assembly, sheeting and bracing, backfilling, cleaning up, furnishing and installing pipe and fittings, and connecting and joining pipe to other pipes or drainage structures; all in accordance with the Contract Drawings, the specifications and directions of the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
9.13 HD12	12" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	L.F.
9.13 HD15	15" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	L.F.
9.13 HD18	18" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	L.F.
9.13 HD24	24" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	L.F.
9.13 HD36	36" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	L.F.
9.13 HD60	60" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE	L.F.

END OF SECTION 9.13 HD

SECTION GI-2.09DR
GEOTEXTILE FABRIC FOR DRAINAGE

GI-2.09DR.1 INTENT

This section describes geotextile fabric. The Contractor must furnish and install geotextile - drainage fabric as specified herein in accordance with the NYC Department of Environmental Protection Standard Design and Guidelines for Green Infrastructure Practices drawings and as directed by the Engineer.

GI-2.09DR.2 SUBMITTALS

(A) All submittals must be submitted prior to purchase and must be made in accordance with the requirements of the NYC Department of Transportation Standard Highway Specifications, General Conditions, Subsection 1.06.31.

(B) Samples: The Contractor must furnish two (2) labeled samples of the geotextiles intended for use in the work for approval and the Engineer's use. The label must include the manufacturer's product name, the type of fabric, and the weight of grade of the material. Geotextiles used in the work must conform to the approved samples.

(C) Certified laboratory test results meeting or exceeding the below criteria must be supplied with the submittal information.

GI-2.09DR.3 MATERIALS

(A) Chemical and Physical Requirements

(1) Drainage application is defined as a soil to geotextile system that allows for long-term, adequate liquid flow normal to the geotextile with limited soil loss across the plane of the geotextile.

(2) Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields a 97.7 percent degree of confidence that any sample taken during quality assurance testing will exceed value reported. Typical Roll Value is represented by (TRV).

(3) Fibers used in the manufacture of drainage geotextiles, and super high-tenacity polypropylene yarns with a weave pattern to maximize strength, water flow, soil interaction and soil retention. The yarns used must consist of long-chain, synthetic polymers, composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. They must be formed into a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages. The geotextile must have no tears or defects which adversely alter its physical properties.

Geotextiles used in drainage applications must conform to the following properties for Woven Geotextile Drainage:

Property	ASTM Test	Requirements
Structure		Woven
Flow Rate (Min. @ MARV)	ASTM D4491	2852 L/min/sm (70 gal/min/sf)
Tensile Strength @ 2% (Min.)	ASTM D4595	8.8 kN/m (600 LBS/ft)
Tensile @ 5% Strength (Min.)	ASTM D4595	23.6 kN/m (1620 LBS/ft)
Interaction Coefficient (Min.)	ASTM D6706	0.89
Permittivity (Min.)	ASTM D4491	0.9 /sec
Apparent Opening Size (Max.)	ASTM D4751	0.425 mm (0.0167 inch) Std. No. 40

Geotextiles used in drainage applications must conform to the following properties for Non-Woven Geotextile Drainage:

Property	ASTM Test	Requirements
Structure		Non-Woven
Elongation	ASTM D4595	> 50%
Grab Strength (Min.)	ASTM D4632	700N (157 LBS)
Tear Strength (Min.)	ASTM D4533	250N (56 LBS)
Puncture Strength (Min.)	ASTM D4833	250N (56 LBS)
Permittivity (Min.)	ASTM D4491	0.21 / sec.
Apparent Opening Size (Max.)	ASTM D4751	0.25 mm (0.0098 inch) Std. No. 60 sieve

(B) Brand

Geotextiles must be as manufactured by Terrafix, Inc., Toronto, ON; by Carthage Mills, Cincinnati, OH; by Mirafi, Inc., Charlotte, NC; or approved equivalent.

GI-2.09DR.4 CONSTRUCTION METHODS

Each geotextile roll must be wrapped with an overlaying material that will protect the geotextile, including the ends of the roll, from damage due to shipment, water, sunlight, and contaminants. The protective wrapping must be maintained during periods of shipment and storage. During storage, geotextile rolls must be elevated off the ground and adequately covered to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, and any environmental condition that may damage the physical property values of the geotextile.

A. PERMEABLE PAVEMENTS: Excavation must be made to dimensions enough to accommodate placement of the woven geotextile, clean open graded stone reservoir course material, geo-grid and pavement (leveling course with porous panels or permeable pavers). The overcut underlying soil must be removed from the excavation and the bottom must be compacted as required. The extra depth will be filled with clean open graded stone materials as required after installation of woven geotextile. No additional payment will be made for extra clean open graded stone used to compensate for overcut subbase. If applicable, Temporary Support should be provided for trench walls to prevent it collapse. The contractor must protect the pavement section at the saw cut line along the road side.

Prior to installation of woven geotextile, the ground must be prepared by removing stumps and other organic material, along with any large boulders and sharp objects which may tear or damage the fabric. Install woven geotextile at elevations and alignments as indicated on the drawings or as directed by the Engineer. The drainage woven geotextile must be placed loosely with no wrinkles or folds. Overlap woven geotextile edges a minimum of 12 inches in the direction of drainage flow. Care will be taken to place the woven geotextile in intimate contact with the soil so that no void spaces occur between the woven geotextile and trench or ground. If the woven geotextile is damaged during installation, the rupture must be removed, and the damaged area must be covered with a patch of new fabric which will overlap the undamaged fabric with twelve (12") inches in all directions. The Contractor must make such repair work as directed by Engineer at no extra cost to the City.

B. GABION [WITH CLEAN OPEN GRADED STONE]: The non-woven geotextile fabric must be placed on the side where the gabion abuts both the existing soil under the roadway and the engineered soil and sand and open graded stone base; and on the top side of the gabion; the bottom of the gabion must have no non-woven geotextile drainage fabric. Prior to placement of the non-woven geotextile fabric, the area must be free of stumps and other organic material, along with any large boulders or sharp objects which may tear or damage the fabric. The drainage non-woven geotextile must be placed loosely with no wrinkles or folds. Overlap non-woven geotextile edges a minimum of 12 inches in the direction of drainage flow. If the non-woven geotextile is damaged during installation, the rupture must be removed and the damaged area must be covered with a patch of new fabric which will overlap the undamaged fabric with twelve (12") inches in all directions. The Contractor must make such repair work as directed by Engineer at no extra cost to the City.

C. OPEN GRADED STONE BASE: The non-woven geotextile fabric must be placed on the sides of the open graded stone base, where it abuts either existing soil under the roadway or sidewalk and at the top of the open graded stone base where it abuts the engineered soil and sand. Prior to placement of the non-woven geotextile fabric, the area must be free of stumps and other organic material, along with any large boulders or sharp objects which may tear or damage the fabric. The drainage non-woven geotextile must be placed loosely with no wrinkles or folds. Overlap non-woven geotextile edges a minimum of 12 inches in the direction of drainage flow. Care will be taken to place the non-woven geotextile in intimate contact with the soil so that no void spaces occur between the non-woven geotextile and trench or ground. If the non-woven geotextile is damaged during

installation, the rupture must be removed and the damaged area must be covered with a patch of new fabric which will overlap the undamaged fabric with twelve (12") inches in all directions. The Contractor must make such repair work as directed by Engineer at no extra cost to the City. Overlaying material must be placed within the same work shift whether the fabric is subject to damage from sunlight or not.

D. STONE COLUMNS: The non-woven geotextile fabric must be placed on sides of the perforated PVC pipe where it abuts the select granular fill that is placed in the annular space during stone column installation. Prior to placement of the non-woven geotextile fabric, the area must be free of stumps and other organic material, along with any large boulders or sharp objects which may tear or damage the fabric. The drainage non-woven geotextile must be wrapped around the perforated PVC pipe prior to placing the non-woven geotextile wrapped perforated PVC pipe into the augured fourteen (14) inch diameter casing installed in the ground. Overlap non-woven geotextile edges a minimum of 12 inches in the direction of drainage flow. If the non-woven geotextile is damaged during installation, the rupture must be removed and the damaged area must be covered with a patch of new fabric which will overlap the undamaged fabric with twelve (12") inches in all directions. The Contractor must make such repair work as directed by Engineer at no extra cost to the City

E. HDPE Piping: The non-woven geotextile fabric must be placed on sides of the perforated/slotted HDPE pipe where it abuts the engineered soil and sand. Prior to placement of the non-woven geotextile fabric, the area must be free of stumps and other organic material, along with any large boulders or sharp objects which may tear or damage the fabric. The drainage non-woven geotextile must be wrapped around the perforated/slotted HDPE pipe prior to placing the non-woven geotextile wrapped perforated/slotted HDPE pipe into the trench. Overlap non-woven geotextile edges a minimum of 12 inches in the direction of drainage flow. If the non-woven geotextile is damaged during installation, the rupture must be removed and the damaged area must be covered with a patch of new fabric which will overlap the undamaged fabric with twelve (12") inches in all directions. The Contractor must make such repair work as directed by Engineer at no extra cost to the City

GI-2.09DR.5 MANUFACTURER

(A) terrafix® Geosynthetics Inc. (Nonwoven only)
455 Homer Avenue
Toronto, ON
M8W 4W9
E-mail: info@terrafixgeo.com
Phone: (416) 674-0363
http://terrafixgeo.com/contact/

(B) Carthage Mills
4243 Hunt Road
Cincinnati, OH 45242
Phone: (513) 794-1600
https://carthagemills.com/

(C) TenCate Geosynthetics Americas (Mirafi)
365 South Holland Drive
Pendergrass, Georgia 30567
Tel: +1 706-693-2226
Email: spec@tencategeo.com
https://www.tencategeo.us/

(D) Or Approved Equivalent

GI-2.09DR.6 MEASUREMENT

The quantity of GEOTEXTILE FABRIC to be measured for payment must be the number of SQUARE YARDS actually installed at the site, in its final position, to the satisfaction of the Engineer. No quantity will be included for material used for repair of tears or for material used to provide the overlaps.

GI-2.09DR.7 PRICE TO COVER

The unit price bid per SQUARE YARD for GEOTEXTILE FABRIC must cover the cost of furnishing all labor, material, equipment, insurance, submittals, and incidental expenses required to complete the work; all in accordance with the Contract Drawings, the specifications and directions of the Engineer.

Payment for the following will be made under other contract items: Clean Open Graded Stone Base (GI-2.07A to GI-2.07E), Gabion with Clean Open Graded Stone (GI 2.17A) and Engineered Soil and Sand (GI-2.13A). Payment for furnishing and installing GEOTEXTILE FABRIC for STONE COLUMNS and HDPE PIPE will be made under item Stone Column (GI-5.10) and under items High Density Polyethylene (HDPE) Pipe (GI-2.16S, GI-2.16P, GI-2.16SA, GI-2.16FPA and GI-2.16HPA) respectively.

Payment will be made under:

Item No.	Item	Pay Unit
GI-2.09DR-NW	NON-WOVEN GEOTEXTILE FABRIC FOR DRAINAGE	S.Y.
GI-2.09DR-W	WOVEN GEOTEXTILE FABRIC FOR DRAINAGE	S.Y.

S - PAGES

SPECIAL PROVISIONS

NOTICE

THE PAGES CONTAINED HEREIN (S-PAGES) ARE SPECIAL PROVISIONS THAT SHALL APPLY TO AND BECOME A PART OF THE CONTRACT.

(NO TEXT ON THIS PAGE)

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SPECIAL PROVISIONS

A. General requirements for public building projects

(a) The Specifications and the Contract Drawings for the Project are revised in accordance with the provisions set forth below.

(b) Owner: Wherever the term "Owner" is used in the Specifications and/or the Contract Drawings, such term shall mean the City of New York.

(c) Other Entities: In the event any entity other than the City of New York is referred to or named as the "Owner" in the Specifications and/or the Contract Drawings, the name of such other entity is deemed deleted and replaced with the "City of New York".

(d) Architect / Engineer: Wherever the words "Architect", "Engineer", "Architect / Engineer" or "Architect and/or Engineer" are used in the Specifications and/or the Contract Drawings, such words are deemed deleted and replaced with the word "Commissioner".

(e) Products / Manufacturers: Wherever the Specifications and/or the Contract Drawings require the contractor to provide a particular product (i.e., material and/or equipment) from a designated manufacturer and/or vendor, the term "or approved equal" is deemed inserted, even if only one product and/or manufacturer is specified.

(f) Contractor Retained Engineer: If the Specifications and/or the Contract Drawings require the Contractor to retain an Engineer to provide engineering services for the Project, the following sentence is deemed inserted:

"Such Engineer must be a Professional Engineer, licensed in the State of New York."

(g) Guarantees: Requirements for Guarantees and Maintenance are set forth in Schedule B, which is included at the end of these S-PAGES. In the event of any conflict or inconsistency between (1) a guarantee and/or maintenance requirement set forth in the Specifications and/or the Contract Drawings and (2) a guarantee and/or maintenance requirement set forth in Schedule B, the guarantee and/or maintenance requirement set forth in Schedule B shall prevail.

(h) Warranties: Requirements for Warranties are set forth in Schedule B, which is included at the end of these S-PAGES.

(1) In the event of any conflict or inconsistency between (1) a warranty requirement set forth in the Specifications and/or the Contract Drawings and (2) a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B shall prevail.

(2) In the event a warranty requirement set forth in the Specifications and/or the Contract Drawings is omitted from Schedule B, such omission from Schedule B shall have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications and/or the Contract Drawings, shall remain in full force and effect.

(3) In the event a warranty requirement for a particular item of material or equipment is omitted from Schedule B, as well as from the Specifications or the Contract Drawings, and the manufacturer of such item actually provides a warranty, the Contractor shall be obligated to obtain and deliver to the Commissioner the highest level of warranty actually provided by that manufacturer.

(i) Exculpatory Provisions: In the event the Specifications and/or the Contract Drawings contain any provision whereby the consultant and/or any of its officers, employees or agents, including subconsultants, is absolved of responsibility for any act or omission, such provision is deemed deleted.

(j) Insurance: Provisions regarding insurance coverage the Contractor is required to provide are set forth in Article22 of the City of New York Standard Construction Contract and Schedule. In the event the Specifications and/or the Contract Drawings contain any provision regarding insurance requirements, such provision is deemed deleted.

(k) Indemnification: Provisions regarding indemnification are set forth in Articles 7, 12, 22 and 57 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding indemnification, such provision is deemed deleted.

(l) Dispute Resolution: Provisions regarding dispute resolution are set forth in Article 27 of the City of New York Standard Construction Contract. In the event the Specifications and/or the Contract Drawings contain any provision regarding dispute resolution, such provision is deemed deleted.

(m) Payment to Other Entities: In the event the Specifications and/or the Contract Drawings contain any provision which requires the Contractor to make payments to an entity other than a subcontractor and/or supplier providing services and/or material for the project, such provision is deemed deleted.

(n) Standard Construction Contract: In the event of any conflict or inconsistency between (1) the Specifications and/or the Contract Drawings and (2) the City of New York Standard Construction Contract, the City of New York Standard Construction Contract shall prevail.

B. Standard Infrastructure Provisions

a. LINES AND GRADES The Contractor shall furnish lines and grades in accordance with Section 1.06.27 of the NYCDOT Standard Highway Specifications, except that survey controls established for this project may no longer exist and the Contractor shall be required to re-establish the survey control information using official Borough Survey Control Monuments and Bench Marks, where they exist. The Contractor shall check with Topographic Section of the Borough President's Office as to the reliability and accuracy of the data to be used for lines and grades.

In addition to the work detailed above, the Contractor is also required to provide a staked survey for the relocation of the Con Edison utility poles prior to the start of construction. This additional work will be paid under item number 6.41 in order to widened the narrow R.O.W. for carrying out the work, incorporate a minimum 10' emergency lane, and maintain existing services. This work is also required to minimize the proposed utility relocations during the project construction phase.

b. SPECIFIC TRAFFIC STIPULATIONS. Under this contract, the Contractor shall perform the work in strict accordance with the requirements of Section 6.70 in the Standard Highway Specifications, specific traffic stipulations as called for on the plans, OCMC Traffic Stipulations attached to the end of these Special Provisions, and the directions of the Engineer. In case of a conflict, the Engineer's decision shall be final.

In addition, the cost of compliance with requirements of the OCMC Traffic Stipulations, unless otherwise provided for, shall be deemed included in the prices bid for all scheduled items.

c. HOLIDAY CONSTRUCTION EMBARGO. A special Holiday Construction Embargo shall be in effect on the Friday of the week preceding Thanksgiving Day week from 6:00 AM to 11:59 PM and again from the Monday of Thanksgiving Day week from 6:00 AM through January 2, at 11:59 PM. Roadway and sidewalk construction activities will be restricted during the embargo period on the streets listed below*.

Any permits issued prior to the date of this notice, for work during this embargo period on the streets listed below which do not already have the permit stipulation "410" are hereby suspended for the period noted above. All permittees must comply with this embargo unless a special waiver is granted by OCMC. Waiver requests must be
filed at least thirteen days before Thanksgiving Day, in the Permit Office by filing a "Request for Roadway/Sidewalk Permits During "Embargo Periods" and submitting supporting documentation. Waiver requests should only be submitted for critical reasons for a specific project. If a waiver is granted, the applicant will be notified so they can apply for the approved permits. Waivers **are not** required for ongoing Building Construction Activity Permits which already include the "410" permit stipulation. Waiver request forms may be obtained at any Permit Office or on the Department of Transportation's website at:
http://www.nyc.gov/html/dot/downloads/pdf/holidayembapp.pdf

Prior to this embargo period all necessary measures must be taken so that all roadways and sidewalks are in proper condition to allow for the expeditious and safe movement of vehicular, bicycle and pedestrian traffic. Tool carts, cable reels, containers, and material stored on roadways must be removed during the embargo period.

The opening of utility access covers is prohibited on any of the streets noted below between the hours of 6:00 AM and midnight unless the utility or Contractor files for an Emergency Authorization Number as required by section 2-07 of the Department of Transportation's Highway Rules.

*** Please note that this embargo only applies to NYCDOT construction permits.**

*** List of street and maps of the affected locations are available by borough on the Department of Transportation's website at: http://www.nyc.gov/html/dot/html/motorist/trafalrt.shtml**

The planned opening of utility access covers may occur during the hours of 12:01 AM and 5:59 AM where no authorization number is required. Temporary restoration of the streets and sidewalks and removal thereof, if required for the Holiday Embargo period, will be paid for under the appropriate scheduled items.

No extension of time due to the shutdown period will be granted to the Contractor for completion of the work.

d. CONTRACT ITEMS THAT INCLUDE BACKFILL AS A PART OF THEIR WORK. The following shall pertain to all contract items that have backfill as a part of their work: Backfilling shall comply with Subsection 4.11.3 of the Standard Specifications and no additional payment will be made for any Highway or Street Lighting work item requiring Contractor to furnish additional fill material to meet these requirements when backfilling.

e. SCHEDULING PRESENTATION. The Contractor shall submit construction schedule in the form of a bar chart using "Microsoft Project 2010", or in an approved equivalent program which shall be directly and fully translatable into Microsoft Project 2010 format, within seven days of the initial Pre-Construction Meeting. Each bar in the chart shall show dates the Contractor plans to start and complete each construction activity after the initial Pre-Construction Meeting. Bar chart shall show the order and interdependence of all activities necessary to complete the work and the sequence in which activity is to be accomplished as planned by the Contractor and in accordance with all subcontractors or suppliers whose work shall be shown on the bar chart. The Contractor shall submit the bar chart for the Engineer's review and revise it, if required, until approved by the Engineer.

The Contractor shall submit weekly progress status update reports or as otherwise directed by the Engineer. The Contractor shall submit
updated bar chart every month. The revised bar chart shall be made in the same form and detail as the original submittal and shall be accompanied by an explanation of the reasons for the revisions all of which shall be subject to approval by the Engineer.

f. DISPOSAL OF EXCESS EXCAVATED MATERIAL. All excess excavated material, with the exception of contaminated material, shall become the property of the Contractor and shall be properly disposed of away from the site, at the Contractor's expense. Contaminated material shall be disposed of separately in accordance with contract requirements.

g. ACCELERATED PROJECT SCHEDULE AND COMBINATION OF STAGES. Contractor shall plan and/or stage his/her work schedule using all hours/days available. Contractor is advised that all applicable unit prices shall include, for the purpose of this contract, all overtime costs, premium time costs, shift differentials required to complete construction within the specified "Time(s) of Completion" stipulated in this contract.

Contractor shall be permitted to accelerate this project, to combine stages and/or work sequences. Any such changes shall be shown in the construction schedule, to be furnished in accordance with the General Provisions of the Standard Specifications and the above "SCHEDULING PRESENTATION" Article, and shall be submitted for approval of the Engineer.

h. NO EXTENSION OF TIME FOR WINTER SHUT-DOWN. Where the Contractor's approved work schedule for installing sidewalk, curb, roadway base and/or pavement falls within the winter period of December 1st through April 1st, the Contractor will NOT be granted an extension of time
for completion of this contract due to the winter shut-down period, unless otherwise provided in Schedule A.

i. PRIVATE UTILITY HARDWARE ADJUSTMENTS will be performed by the owning utility company or its agent, at its expense. The Contractor shall notify the utility company 72 hours prior to start of work at each location where its hardware requires adjustment.

j. SURVEY MONUMENTS. When working in the vicinity of survey monument the Contractor shall hand excavate per Item 8.02 A and 8.02 B at City Survey Monuments, for a distance of five (5) feet around each monument, as directed by the Engineer.

k. RESTORATION OF ADJACENT AREAS. The Contractor shall be required to remove all form work. In planting strip areas, the Contractor shall be required to restore areas damaged as a result of his operations, to the satisfaction of the Engineer, with sod. The Contractor shall also, as directed by the Engineer, make safe adjacent areas to his work, such as: restoring missing or damaged pavement markings that were removed or damaged as a result of the Contractor's operations (as per requirements of Section 6.44 in the Standard Specifications); resetting granite blocks in tree pits; and, applying asphaltic concrete mixture (Item 4.02 CB) where badly broken sidewalk or curb may create a dangerous condition just outside his area of operation, where and when directed by the Engineer.

All restoration work shall be done to the satisfaction of the Engineer.

l. USE OF CITY WATER. The Contractor is notified that for use of City water under this project the Contractor shall be required to obtain a water use permit from the Department of Environmental Protection at the Contractor's own cost.

m. FUEL COST. The Contractor is notified that the fuel cost per gallon used in the formula under Sub-Article 26.2.8 of the Standard Construction Contract for **Extra Work** will be derived from the fuel price index for the United States East Coast published weekly by the United States Energy Information Administration ("USEIA"), and available on its website at http://www.eia.gov/petroleum/gasdiesel/. The USEIA-published cost per gallon for the applicable fuel on the East Coast for the week in which the first day of each calendar quarter during the contract term occurs (i.e., January 1st, April 1st, July 1st and September 1st) will be used in the reimbursement formula for all **Extra Work** invoiced that was performed during that calendar quarter. Should the USEIA stop publishing this fuel price index, the fuel cost per gallon will be determined by reference to a substitute index to be agreed upon by the Contractor and the City.

n. DPR CONSTRUCTION PERMITS . DPR Construction Permits are required for all work on parkland or on sidewalks adjacent to parks or other areas maintained by DPR.

o. START OF CONTRACT WORK. The Contractor is notified that a Notice To Proceed (NTP) date will be issued for work to commence within 21 to 30 Days of Contract Registration.

p. SPECIAL INSPECTION AND DEPARTMENT OF BUILDINGS. Portions of work under this contract are subject to the provisions of the New York City Construction Codes, as noted on the Contract Drawings.
Work subject to the provisions of the New York City Construction Codes shall meet the requirements of the New York City Construction Codes and the following:

1. Inspection of selected materials, equipment, installation, fabrication, erection or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the New York City Construction Codes, shall be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the project

specifications. The Special Inspector shall be an entity compliant with the requirements of the New York City Construction Codes.

2. The contractor shall be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for the following scopes of work:

Piles

- BC 1704.4 Concrete CIP
- BC 1704.7.4 Subsurface Investigations
- BC 1704.8 Deep Foundation Elements
- BC 1905.3 Concrete Design Mix
- BC 1913.5
- BC 1905.6 Concrete Sampling and Testing
- BC 1913.10
- BC 110.3.1 Footing and Foundation

Underground Plumbing

BC 1704.21.2 Private On-Site Storm Water Drainage Disposal Systems and Detention Facilities Installation

SOE

- BC 1704.3.1 Structural Steel - Welding
- BC 1704.7.2 Subsurface Conditions – Fill Placement & In-Place Density
- BC 1704.7.3

This work may include but is not limited to

- Engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.
- Engaging a professional engineer or registered architect to act as the applicant, and prepare or supervise the preparation of all construction documents and specifications submitted under the required applications.

Where a Form TR3 is required, concrete mix design approval by the QA & Construction Safety Bureau per **Section 3.05.4** of the NYCDOT Standard Highway Specifications is not required.

3. The Contractor shall notify the relevant Special Inspector in writing at least 72 hours before the commencement of any work requiring Special Inspection. The contractor shall be responsible for, and bear related costs to assure that all construction or work shall remain accessible and exposed for inspection purposes until the required inspection is completed.
4. Inspections and tests performed under "Special Inspection" shall not relieve the Contractor of the responsibility to comply with the Contract Documents, and that there is no warranty given to the Contractor by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections".
5. The contractor must coordinate with the Engineer to provide access and schedule the work for inspection by the Special Inspector.

q. CONTRACT RECORD DOCUMENTS. The Contractor is responsible for as-builts and contract record documents per Attachment 1 of these S-Pages. This requirement applies to all Contract Work.

r. ITEM CROSS REFERENCE. The table in Attachment 2 of these S-Pages serves to make a nexus between the Contract Work shown in the Contract Drawings and the items listed in the Bid Schedule. Any Contract Work shown on the Contract Drawings but not represented in Attachment 2 is deemed to be included in the cost of all scheduled items at no separate cost. The bidder's attention is drawn to Article 9 of the Information for Bidders in Volume 2 of this Contract.

s. PRICES TO INCLUDE. No direct payment will be made for costs incurred in complying with the foregoing Special Provisions, unless otherwise provided. Said costs will be deemed to have been included in the prices bid for all the scheduled contract items.

C. ADDITIONAL SAFETY REQUIREMENTS

Work subject to the provisions of the New York City Construction Codes shall meet the requirements of the New York City Construction Codes and the following:

A. Contractor to comply with Chapter 17, 18 and 33 of the NYC Construction Codes
B. Contractor to comply with Local Law 196 of 2017 training requirements

CONTRACTOR'S CONSTRUCTION SUPERINTENDENT:

A. Contractor's Construction Superintendent: The Contractor shall devote its time and personal attention to the work and shall employ and retain at the project site, from the commencement until the entire completion of the work, a Contractor's Construction Superintendent. The Contractor's Construction Superintendent shall be registered with the New York City Department of Buildings in compliance with the Construction Superintendent Rule of the City of New York and shall be competent and capable of maintaining proper supervision and care of the work and shall be acceptable to the Commissioner. The Construction Superintendent shall, in the absence of the Contractor, and irrespective of any superintendent or foreman employed by any subcontractor, shall see that the instructions of the Commissioner are carried out.
B. Replacement: The Contractor's Construction Superintendent on the job shall not be changed or removed without the consent of the Commissioner.

REQUIRED SAFETY MEETINGS:

A. Prior to commencing construction, the Resident Engineer will schedule and hold a preconstruction kick-off meeting either at DDC's main office or at the Project site with representatives of the Contractor, including the principal on-site project representative and one or more safety representatives, Commissioner's designated representatives and other concerned parties for the purpose of reviewing the Contract Safety requirements. The Contractor's safety requirements shall be reviewed, and implementation of safety provisions pertinent to the Work shall be discussed.
B. The Contractor is responsible for conducting weekly documented jobsite safety meetings, given to all jobsite personnel including all subcontractors on the project, with the purpose of discussing safety topics and job specific requirements at the DDC worksite.

COMPLIANCE WITH REGULATIONS:

A. The Work, including contact with or handling of hazardous materials, disturbance or dismantling of structures containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirement for CFR Parts 1910 and 1926, and 40 CFR, Parts 61, 261, 761 and 763.
B. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763, as applicable.
C. Work shall additionally comply with all applicable federal, state and local safety and health regulations.
D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.
E. All workers working on the DDC project site are required by NYC Local Law 41 to complete the OSHA 10 –hour training course.

SUBMITTALS:

A. The Contractor shall submit, to the Resident Engineer, copies of the Safety Program, Site Safety Plan and other required documentation in accordance with the "*New York City Department of Design and Construction Safety Requirements.*"
B. Permits: If hazardous materials are disposed of off-site submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations to the Resident Engineer.

C. Accident Reporting: Submit a copy of each accident report to the Resident Engineer in accordance with the *"New York City Department of Design and Construction Safety Requirements."*

D. All Asbestos and Lead project regulatory notifications are to be submitted to DDC's Bureau of Environmental and Geotechnical Services (BEGS) through the Resident Engineer.

E. Request for Subcontractor Approval: Any subcontractor performing environmental work shall submit required documentation for approval to perform such work as required by DDC's BEGS.

EMERGENCY SUSPENSION OF WORK:

A. When the Contractor is notified by the Commissioner of noncompliance with the safety provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe condition, at no additional cost to the City.

B. If the Contractor fails to comply promptly, all or part of the Work may be stopped by notice from the Commissioner.

C. When, in the opinion of the Commissioner, the Contractor has taken satisfactory corrective action, the Commissioner shall provide written notice to the Contractor that work may resume.

D. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe condition.

PROTECTION OF PERSONNEL:

A. The Contractor shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a subcontractor.

B. Whenever practical, the work area shall be fenced, barricaded or otherwise blocked off from the Public or occupants to prevent unauthorized entry into the work area, in addition the following requirements apply:

1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe condition to the public or occupants.
3. Store, position and use equipment, tools, materials, scraps and trash in a manner that does not present a hazard to the public or occupant by accidental shifting, ignition or other hazardous activity.
4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to the Resident Engineer. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks or other vehicles.

D. COORDINATION DRAWINGS

A. The Contractor shall provide reproducible Coordination Drawing(s) of the reflective ceiling showing the integration of all applicable contract work, including general construction work as well as trade work (Plumbing, HVAC, and Electrical) to be performed by subcontractors. The Coordination Drawing(s) shall include, without limitation, the following information:
   1. General Construction work showing the reflective ceiling plan including starting points, ceiling and beam soffits elevations, ceiling heights, roof openings, etc.
   2. HVAC Contract work showing ductwork, heating and sprinkler piping, location of grilles, registers etc. and access doors in hung ceilings. Locations shall be fixed by elevations and dimensions from column centerlines and/or walls.
   3. Plumbing Contract work including piping, valves, cleanouts etc., indicating locations and elevations and shall indicate the necessary access doors.
   4. Electrical Contract work indicating fixtures, large conduit runs, clearances, pull boxes, junction boxes, sound system speakers, etc.

B. The Contractor shall issue the completed Coordination Drawing(s) to the Resident Engineer for his/her review. The Resident Engineer may call as many meetings as necessary with the Contractor, including attendance by applicable subcontractors, and may call on the services of the Design Consulting where necessary, to resolve any conflicts that become apparent.

C. Upon resolution of any conflicts, the Contractor shall provide a final Coordination Drawing(s) which will become the Master Coordination Drawing(s). The Master Coordination Drawing(s) shall be signed and dated by the Contractor to indicate acceptance of the arrangement of the work.

D. A reproducible copy of the Master Coordination Drawing(s) shall be provided by the Contractor to each of the appropriate subcontractor(s), the Resident Engineer and the Design Consultant for information.

E. Shop Drawings shall not be submitted prior to acceptance of the final coordinated drawings and shall be prepared in accordance with the Master Coordination Drawing(s). No work will be permitted without accepted Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

E. SURVEYS

A. Line and Grade: The City will establish a baseline and bench mark near the site of the work for use of the Contractor in connection with the performance of the work.

B. Responsibility: The Contractor shall establish all other lines and elevations required for its work and shall be solely responsible for the accuracy thereof.

C. Foundations: The Contractor shall furnish certification from a licensed Surveyor that all portions of the foundation work are located in accordance with the Contract Drawings and at the elevations required thereby. This certification shall show the actual locations and the actual elevations of all the work in relation to the locations and elevations shown on the Contract Drawings, including but not restricted to the following:
   1. The locations and elevations of all piles, if any.
   2. Elevations of tops of all spread footings, tops of pile caps, and tops of all foundation walls, elevator pit walls and ramp walls.
   3. Location of all footing centers and pier centers including those for exterior wall columns.
   4. Location of all foundation walls including wall columns, elevator pit walls and ramp walls.

D. Surveyor: The Surveyor selected for any of the purposes mentioned in Paragraph C above, and Paragraph F below, shall be a land Surveyor licensed in the State of New York and shall be subject to the approval of the Commissioner. The Surveyor shall not be a regular employee of the Contractor, nor shall the Surveyor have any interest in the Contract. The Surveyor shall not be employed by the Contractor in laying out any work, it being intended that the Surveyor's certification shall represent an independent and disinterested verification of such layout. The Surveyor shall report to the Department of Design and Construction's Resident Engineer each time upon arrival to and departure from the site and review with the Resident Engineer the data required for the project.

E. Final Certification: Final certification shall be submitted upon completion of the work or upon completion of any subdivision of the work as directed by the Commissioner. Any exceptions or deviations from the drawings shall be noted on the final certificate and there shall be included any maps, plates, notes, pertinent documents and data necessary, in the opinion of the Commissioner, to constitute a full and complete report.

F. Final Survey: The Contractor shall submit to DDC for submission to the Department of Buildings a final Survey by the licensed Surveyor showing the location of the new Structure, before completion of the Structure. This Survey shall show the location of the first tier of beams or of the first floor; the finish grades of the open spaces on the plot; the established curb level and the location of all other Structures on the plan, together with the location and boundaries.

F. CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, and (3) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section includes administrative and general procedural requirements for Closeout Procedures, including without limitation the following:

1. Substantial Completion
2. Final Acceptance
3. Warranties
4. Final Cleaning
5. Repair of the Work

1.3 RELATED SECTIONS: include without limitation the following:

A. CONTRACT RECORD DOCUMENTS
B. DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

1.4 SUBSTANTIAL COMPLETION:

A. Preliminary Procedures: Before requesting inspection to determine the date of Substantial Completion, the Contractor shall complete and supply all items required by the contract specifications, , change orders or other directives from the Commissioner's representatives. The required items will include all contract requirements for substantial completion, including but not limited to items related to releases, regulatory approvals, warranties and guarantees, record documents, testing, demonstration and orientation, final clean up and repairs, and all specific checklist of items by the Resident Engineer. (See Attachment "A" at the end of this section for sample requirements for Substantial Completion).

B. Prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the work is not complete.

C. Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Substantial Completion. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work .If the Resident Engineer makes a determination that the work is substantially complete and approves the Final Punch List and the date for Final Acceptance, he/she will so advise the Commissioner and recommend issuance of the Certificate of Substantial Completion. If the Resident Engineer determines that the work is not substantially complete, he/she will notify the Contractor of those items that must be completed or corrected before the Certificate of Substantial Completion will be issued.

    1. Re-inspection: Contractor shall request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
    2. Results of completed inspection will form the basis of requirements for Final Acceptance.

1.5 FINAL ACCEPTANCE:

A. Preliminary Procedures: Before requesting final inspection for Final Acceptance of the Work, the Contractor shall complete the following. (Note that the following are to be completed, submitted as appropriate, and approved by the Commissioner, as applicable, prior to the final inspection and are not to be submitted for approval or otherwise at the final inspection unless specifically indicated). List exceptions in the request.

1. Verify that all required submittals have been provided to the Commissioner including but not limited to the following:
   a. Manufacturer's cleaning instructions
   b. Posted instructions
   c. As-built Record Documents (Drawings, specifications, and product data) as described in CONTRACT RECORD DOCUMENTS, incorporating any changes required by the Commissioner as a result of the review of the submission prior to the pre-final inspection.
   d. Operation and Maintenance Manuals, including Preventive Maintenance, Special Tools, Repair Requirements, Parts List, Spare Parts List, and Operating Instructions.
   e. Completion of required Demonstration and Orientation, as applicable, of designated personnel in operation and maintenance of systems, sub-systems and equipment.
   f. Applicable LEED Building submittals
   g. Construction progress photographs

2. Submit a certified copy of the final approved Punch List of items to be completed or corrected. The certified copy of the Punch List shall state that each item has been completed or otherwise resolved for acceptance, and shall be endorsed and dated by the Contractor.
3. Submit pest-control final inspection report and survey
4. Submit record documents and similar final record information.
5. Deliver tools, spare parts, extra stock and similar items.
6. Complete final clean-up requirements including touch-up painting of marred surfaces.
7. Submit final meter readings for utilities, as applicable, a measured record of stored fuel, and similar data as of the date when the City took possession of and assumed responsibility for corresponding elements of the work.

B. Final Inspection: The Contractor shall submit to the Resident Engineer a written request for inspection for Final Acceptance of the Work. Within ten (10) days of receipt of the request, the Resident Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, Client Agency Representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer finds that all items on the Final Approved Punch List are complete and no further work remains to be done, he/she will so advise the Commissioner and recommend the issuance of the determination of Final Acceptance. If the Resident Engineer determines that the work is not complete, he/she will notify the Contractor of those items that must be completed or corrected before the determination of Final Acceptance will be issued.

C. Final Acceptance: The Work will be accepted as final and complete as of the date of the Resident Engineer's inspection if, upon such inspection, the Resident Engineer finds that all items on the Punch List are complete and no further Work remains to be done. The Commissioner will then issue a written determination of Final Acceptance.

1.6 WARRANTIES:

A. The items of materials and/or equipment for which manufacturer warranties are required in the Specifications. For each item of material and/or equipment listed in the Specifications, the Contractor shall obtain a written warranty from the manufacturer. Such warranty shall provide that the material or equipment is free from defects for the period set forth in the Specifications and will be replaced or repaired within such specified period. The contractor shall deliver all required warranties to the Commissioner.

B. Unless indicated otherwise Warranties are to take effect on the date of Substantial Completion.
C. Submittal Time: Submit written Warranties on request of the Commissioner for designated portions of the Work where commencement of Warranties other than date of Substantial Completion is indicated.
D. Partial Occupancy: Submit properly executed Warranties to the Commissioner within 15 days of completion of designated portions of the Work that are completed and occupied or used by the City.
E. Organize the Warranty documents into an orderly sequence based on the Project Specification Divisions and Section Numbers.

1. Bind Warranties in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES;" name and location of Project; Capitol Budget Project Number (FMS ID); and Contractor's and applicable subcontractor's name and address.
3. Provide heavy paper dividers with plastic-covered tabs for each separate Warranty. Mark tab to identify the product or installation.
4. Provide a typed description of each product or installation being warranted, including the name of the product, and the name, address, and telephone number of the Installer.
F. When warranted materials and/or equipment require operation and maintenance manuals, provide additional copies of each required Warranty in each required manual. Refer to CONTRACT RECORD DOCUMENTS, for requirements of Operation and Maintenance Manuals.

PART 2 – PRODUCTS

2.1 MATERIALS:

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 – EXECUTION

3.1 FINAL CLEANING:

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations, as applicable, before requesting inspection for Final Acceptance of the Work for entire Project or for a portion of Project:
a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean ducts, blowers, and coils if units were operated without filters during construction.
r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
s. Leave Project clean and ready for occupancy.
t. Construction Waste Disposal: Comply with waste disposal requirements
C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare and submit a Pest Control report to the Commissioner.
D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on City's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 REPAIR OF THE WORK:

A. Subject to the terms of the Contract the Contractor shall complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
B. Contractor shall repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

ATTACHMENT 'A'

The following list is a general sample of Substantial Completion requirements, including but not limited to:

1. Prepare and submit a list to the Resident Engineer, of incomplete items, the value of incomplete construction, and reasons the work is not complete.
2. Obtain and submit any necessary releases enabling the City unrestricted use of the project and access to services and utilities.
3. Regulatory Approvals: Submit all required documentation from applicable Governing Authorities, including, but not limited to, Department of Buildings (DoB); Department of Transportation (DoT);

Department of Environmental Protection (DEP); Fire Department (FDNY); etc. Documentation to include, but not limited to, the following: a. Building Permits, Applications and Sign-offs.

b. Permits and Sign-off for construction fences; sidewalk bridges; scaffolds, cranes and derricks; utilities; etc.
c. Certificates of Inspections and Sign-offs.
d. Required Certificates and Use Permits.
e. Certificate of Occupancy (C.O.), Temporary Certificate of Occupancy (T.C.O.) or Letter of Completion as applicable.

3. Submit specific warranties required by the specifications, final certifications, and similar documents.
4. Prepare and submit Record Documents as described in, CONTRACT RECORD DOCUMENTS, including but not limited to; approved documentation from Governing Authorities; as-built record drawings and specifications; product data; operation and maintenance manuals; Final Completion construction photographs; damage or settlement surveys; final property surveys; and similar final record information. The Resident Engineer will review the submission and provide appropriate comments. If comments are significant the initial submission will be returned to the Contractor for correction and re-submission incorporating the comments prior to the Final Inspection.
5. Record Waste Management Progress Report: Submit C&D Waste Management logs, with legible copies of weight tickets and receipts required
6. If applicable submit LEED Letter Template,
7. Schedule applicable Demonstration and Orientation required in other Sections of the Project Specifications
8. Deliver tools, spare parts, extra materials, and similar items to location designated by Resident Engineer. Label with manufacturer's name and model number where applicable.
9. Make final changeover of permanent locks and deliver keys to the Resident Engineer. Advise Commissioner of changeover in security provisions.
10. Complete startup testing of systems as applicable.
11. Submit approved test/adjust/balance records.
12. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements as directed by the Resident Engineer.
13. If applicable complete Commissioning requirements
14. Complete final cleaning requirements, including touchup painting.
15. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

END OF SECTION

G. DEC Requirements

Contractor to comply with the provisions provided in the DSNY Landfill Infrastructure Modifications Report, drawings and specifications including but not limited to the following:

1. The General Contractor, including the Contractor's Superintendent and the Contractor's Construction Quality Control (CQC) Manager, selected by DDC, will:
    a. Construct the items associated with the project in accordance with the design plans and specifications using appropriate construction procedures and techniques.
    b. Retain and oversee qualified subcontractors to perform specialized components of construction.
    c. Develop a CQC implementation plan for construction quality control to assure compliance with the design plans, specifications and the Construction Quality Assurance (CQA) / Construction Quality Control (CQC) Plan.
    d. Submit required reports, results, shop drawings, etc. to the Construction Quality Assurance/ Manufacturing Quality Control (MQC) Manager for distribution to the Design Engineer for review, and approval;
2. The Construction Certification Report (CCR) and record drawings are subject to NYS DEC acceptance and approval. As per the Fresh Kills Landfill Order on Consent, the CCR and record drawings must be submitted to NYSDEC within 180-days of completing the construction work. The general Contractor is to prepare the CCR and submit the report to the Engineer within 90-days of completing the construction work.
3. Contractor to provide access to NYSDEC inspectors/monitors to witness components of the work. NYS DEC inspectors will be inspecting closure construction and post-closure operations and maintenance. NYS DEC may also be involved in the review of the Construction Certification Report.
4. Ground water encountered during the excavation on either side of the cutoff wall will be considered leachate and will be handled as such.
5. Areas with leachate requiring dewatering during the construction of the storm detention system and the force main installation are identified in the DSNY Landfill Infrastructure Modifications Report, drawings and specifications.
6. Contractor to dewater all excavations. Dewatering during the construction of excavation pits and trenches for the construction of the storm detention system and the sanitary force main installation shall be as prescribed in the DSNY Landfill Infrastructure Modifications Report, drawings and specifications.
7. Dewatering, soil stockpiling and disposal is discussed in the DSNY Landfill Infrastructure Modifications Report, drawings and specifications.

Attachment.1 Contract Record Documents

PART 1 – GENERAL

1.1 SUMMARY:

A. This Section includes administrative and general procedural requirements for Contract Record Documents, including:
   1. As-built Contract Record Drawings.
   2. As-built marked-up copies of Record Specifications, addenda and Change Orders.
   3. As-built marked-up Product Data
   4. Record Samples
   5. Construction Record Photographs
   6. Operating and Maintenance Manuals
   7. Final Site Survey
   8. Guarantees and Warranties
   9. Waste Disposal Documentation
   10. LEED Materials and Matrix
   11. Miscellaneous Record Submittals

B. The Department of Design and Construction, at the start of construction (kick-off meeting), will furnish to the Contractor at no cost a complete set of Contract Drawings Mylars (reproducible) pertaining to the work to be performed under the Contract. It is the responsibility of the Contractor to modify the Contract Drawings to indicate all changes and corrections, if any, occurring in the work as actually installed. The Contractor is required to furnish all other Mylar (reproducible) drawings, if necessary, such as Addenda Drawings and Supplementary Drawings as may be necessary to indicate all work in detail as actually completed. All professional seals must be blocked out. Title box complete with Project title and Design Consultants' names will remain.

C. Maintenance of Documents and Samples: The Contractor shall maintain, during the progress of the work, an accurate record of the work as actually installed, on Contract Record Drawings, on Mylar (reproducible), in ink. Store record documents and samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition. Make documents and samples available at all times for the Resident Engineer's inspections.

   The Contractor's attention is particularly directed to the necessity of keeping accurate records of all subsurface and concealed work, so that the Contract Record Drawings contain this information in exact detail and location. Contract Record Drawings shall also show all connections, valves, gates, switches, cut-outs and similar operating equipment.

   For projects designated to achieve a LEED rating the Contractor shall receive a copy of the Project's LEED scorecard for the purpose of monitoring compliance with the target objectives and to facilitate coordination with the LEED Consultant. The Contractor shall receive periodic updates of this scorecard, and is required to submit the final version of the Scorecard at Substantial Completion with other Project Record Documents.

1.2 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 SUBMITTALS:

A. As-Built Contract Record Drawings: Comply with the following:

1. Progress Submission: As directed by the Resident Engineer, submit progress As-Built Contract Record Drawings at the 50% Construction Completion stage.

2. Final Submission: Before substantial completion payment, the Contractor shall furnish to the Commissioner one (l) complete set of marked-up Mylar (reproducible) As-Built Contract Record Drawings, in ink indicating all of the work and locations as actually installed, plus one (1) set of paper prints which will be furnished to the sponsoring agency by DDC.

3. As-Built Contract Record Drawings shall be of the same size as that of the Contract Drawings, with a one (1) inch margin on three (3) sides and a two (2) inch margin on the left side for binding.

4. Each As-Built Contract Record Drawing shall bear the legend "AS-BUILT CONTRACT RECORD DRAWING" in heavy block lettering, one half (l/2) inch high, and contain the following data:

AS-BUILT CONTRACT RECORD DRAWING

Contractor's Name _____

Contractor's Address _____

Subcontractor's Name (where applicable) _____

Subcontractor's Address _____

Made by: Date _____

Checked by: Date _____

Commissioner's Representatives

(Resident Engineer) DDC

(Plumbing Inspector) DDC

(Heating & Ventilating Inspector) DDC

(Electrical Inspector) DDC

5. Record Drawing Title Sheet: The Contractor shall prepare a title sheet, the same size as the Contract Record Drawings, which shall contain the following:
   a. Heading:
      The City of New York
      Department of Design and Construction
      Division of Public Buildings
   b. Capital Budget Project Number (FMS ID)
   c. Name and Location of Project
   d. Contractor's Name and Address
   e. Subcontractor's Name and Address (where applicable)
   f. Record of changes (a caption description of work affected, and the date and number of Change Order or other authorization)
   g. List of Record Drawings

B. Record Specifications, Addenda and Change Order: Submit to the Commissioner two (2) copies each of marked-up Record Specifications, Addenda and Change Orders.

C. Record Product Data: Submit to the Commissioner two (2) sets of Record Product Data.

D. Record Construction Photographs: Submit to the Commissioner final as-built construction photographs of the completed work.

E. Operating and Maintenance Manuals:

1. Submit three (3) copies each of preliminary manuals to the Resident Engineer for review and approval. The Contractor shall make such corrections, changes and/or additions to the manual until deemed satisfactory by the Resident Engineer. Deliver three (3) copies of the final approved manuals to the Resident Engineer for distribution.

2. Commissioning: Comply with the requirements of the CX-Pages, as well as the requirements set forth in sections of the Project Specifications, for projects designated for Commissioning. Submit four (4) copies each of data designated to be included in the Commissioning Operation and Maintenance Manual to the Resident Engineer. The Resident Engineer will forward such data to the Commissioning Authority/Agent (CxA) for review and comment. The Contractor shall make such corrections, changes and/or additions to the data until deemed satisfactory and deliver four (4) copies of the final data to the Resident Engineer for use by the Commissioning Authority/Agent (CxA) to prepare the Commissioning Operation and Maintenance Manual.

   a. Non-Commissioning Data: All remaining data not designated for Commissioning and required as part of Maintenance and Operation Manual shall be prepared and assembled in accordance with the requirements of this section for Operating and Maintenance Manuals.

F. Final Site Survey: Submit Final Site Survey as described in the S-Pages, Article E, EXECUTION, in quantities requested by the Commissioner, signed and sealed by a Land Surveyor licensed in the State of New York.

G. Guarantees and Warranties.

H. Waste Disposal Documents and Miscellaneous Record Documents.

PART 2 – PRODUCTS

2.1 CONTRACT RECORD DRAWINGS:

A. Record Prints: The Contractor shall maintain one set of blue- or black-line white prints as applicable of the Contract Drawings and Shop Drawings. If applicable, the Record Contract Drawings and Shop Drawings shall incorporate the arrangement of the work based on the accepted Master Coordination Drawing(s).

1. Preparation: The Contractor shall mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
   a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   b. Accurately record information in an understandable drawing technique.
   c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
2. Change Orders: All changes from Contract Drawings shall be distinctly encircled and identified by Change Order number correlating to changes listed on the "Title Sheet." The Contractor shall show within the encircled areas the work as actually installed.

B. Content: Types of items requiring marking include, but are not limited to, the following:

1. Dimensional changes to Drawings.
2. Revisions to details shown on Drawings.
3. Depths of foundations below first floor.
4. Locations and depths of underground utilities.
5. Revisions to routing of piping and conduits.
6. Revisions to electrical circuitry.
7. Actual equipment locations.
8. Duct size and routing.
9. Locations of concealed internal utilities.
10. Changes made by Change Order
11. Changes made following Commissioner's written orders.
12. Details not on the original Contract Drawings.
13. Field records for variable and concealed conditions.
14. Record information on the Work that is shown only schematically.

C. Progress Record Mylar's (reproducible): As directed by the Resident Engineer at 50% construction completion, review marked-up Record Prints with the Resident Engineer and the Design Consulting. When directed by the Resident Engineer transfer progress mark-ups to a full set of Mylar's (reproducible) and submit one blue line or black line record copy to the Resident Engineer. The marked-up Mylar's (reproducible) shall be retained by the contractor for completion of mark-up and final submission.

D. Final Contract Record Mylar's (reproducible): Immediately before final inspection for Certificate of Substantial Completion, review marked-up Record Prints with the Resident Engineer and the Design Consulting. When authorized, complete mark-up of a full set of corrected Mylar's (reproducible) of the Contract Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Resident Engineer for resolution.
3. Print the As-Built Contract Drawings and Shop Drawings for use as Record Transparencies as described in Part 1.4.SUBMITTALS of Attachment.1 Contract Record Documents.

2.2 RECORD SPECIFICATIONS, ADDENDA AND CHANGE ORDERS:

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders and Record Drawings where applicable.
6. Upon completion of mark-up, submit two (2) complete copies of the marked-up Record Specifications to the Commissioner.

2.3 RECORD PRODUCT DATA:

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. If possible, a Change Order proposal should include resubmitting updated Product Data. This eliminates the need to mark up the previous submittal.
4. Note related Change Orders and Record Drawings where applicable.
5. Upon completion of mark-up submit to the Commissioner two (2) sets of the marked-up Record Product Data.
6. Where Record Product Data is required as part of Maintenance Manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data.

2.4 RECORD SAMPLE SUBMITTAL:

A. Prior to the date of Substantial Completion, the Contractor shall meet with the Resident Engineer at the site to determine which of the Samples maintained during the construction period shall be transmitted to the Commissioner for record purposes.

B. Comply with the Resident Engineer's instructions for packaging, identification marking and delivery to DDC. Dispose of other samples as specified for disposal of surplus and waste material.

2.5 OPERATING AND MAINTENANCE MANUALS:

A. The Contractor shall provide preliminary and final versions of Operating and Maintenance Manuals required for those systems, equipment and materials listed in other Sections of the Project Specifications.

B. Format: Prepare and assemble Operation and Maintenance Manuals in heavy-duty, 3-ring, hardback loose leaf binders in the form of an instructional manual. All binders for each discipline shall be the same color. When multiple binders are used, correlate data into related consistent groupings. Binder front shall containing permanently attached labels displaying the following:

1. Heading:
   The City of New York
   Department of Design and Construction

Division of Public Buildings
2. Capital Budget Project Number (FMS ID)
3. Name and Location of Project
4. Contractor's name and Address
5. Subcontractor's Name and Address (where applicable)
6. Dates of the work covered by the contents of the Project Manual.
7. Binder spine shall display Project Number (FMS ID) and date of completion.

C. Organization: Include a section in the directory for each of the following:

1. List of documents
2. List of systems
3. List of equipment
4. Table of contents

D. Each manual shall contain the following materials, in the order listed:

1. Title page

2. Table of contents

3. Manual contents

E. Arrange contents alphabetically by system, subsystem, and equipment and sequence of Table of Contents of the Project Manual. Cross-reference Specification Section numbers. Provide tabbed flyleaf for each separate product, equipment and/or system/subsystem with typed description of product and major component parts of equipment.

F. Safety warnings or cautions shall be visibly highlighted within each maintenance procedure. Use of such highlights shall be limited to only critical items and shall not be used in an excessive manner which would reduce their effectiveness.

G. For each product or system, list names, addresses and telephone numbers of Subcontractors and Suppliers, including local source of supplies and replacement parts. Vendors and Supplier listings are to include names, addresses and telephone numbers, including nearest field service telephone numbers.

H. Where contents of the manual include any manufacturer's catalog pages, clearly indicate the precise items and options included in the installation and delete all manufacturers' data regarding products not included in the installation.

I. All material within manuals shall be new. Copies used for prior submittals or used in construction shall not be used.

J. Submit preliminary and final manual editions to the Commissioner according to the approved progress schedule.

K. Manuals shall present all technical material to the greatest extent possible, with respect to text, tabular matter and illustrations. Illustrations shall preferably consist of line drawings. All applicable drawings shall be included. If available, color photograph prints may be included.

L. Preliminary manual editions shall be as technically complete as the final manual edition. All illustrations shall be in final forms.

M. Final manual editions shall be technically accurate and complete and shall represent all "as-built" systems, pieces of equipment, or materials, which have been accepted by the Commissioner. All illustrations, text and tabular material shall be in final form. All shop drawings shall be included as specified in individual Specification Sections.

N. Building products, applied materials, and finishes: Include product data, with catalog number, size, composition, and color texture designations. Where applicable, provide information for re-ordering custom manufactured products.

O. Instructions for care and maintenance: Include manufacturers' recommendations for cleaning agents and methods, and recommended schedule for cleaning and maintenance.

P. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical compositions, and details of installation. Provide recommendations for inspections, maintenance, and repair.

Q. Additional Requirements: Specified in individual Specification Sections.

2.6 DEMONSTRATION AND ORIENTATION DVD:

A. The Contractor shall submit final version of applicable Demonstration and Training DVD recordings in compliance with this attachment, DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

2.7 GUARANTEES AND WARRANTIES:

A. Requirements for guarantees and warranties for the Project are set forth in the Project Specifications.

B. FORM – For all guarantee requirements set forth, the Contractor shall provide a written guaranty, in the form set forth herein.

C. Submit fully executed and signed manufacturers' Warranties as listed in the Project Specifications.

GUARANTY

DDC PROJECT # _____

PROJECT DESCRIPTION _____

_____

CONTRACT #_____

SPECIFICATION SECTION # AND TITLE_____

_____

GUARANTY TO BE IN EFFECT FROM_____

TO_____

The Contractor hereby guarantees that the work specified under the above section of the aforesaid Contract will be free from defects of material and/or workmanship, for the period indicated above.

The Contractor also guarantees that it will promptly repair, restore, rebuild or replace whichever may be deemed necessary by the City, any or all defective material or workmanship of the aforementioned section, that may appear within the guaranty period and any finished work to which damage may occur because of such defects, to the satisfaction of the City and without any cost or expense to the City.

The Contractor hereby agrees to pay to the City the cost of the repairs or replacements should the City make the same because of the failure of the Contractor to do so.

Contractor: _____

By: _____
Signature of Partner or Corporate Officer

Print Name: _____

Subscribed and sworn to before me this
day of _____ , year _____

_____
Notary Public

2.8 WASTE DISPOSAL DOCUMENTATION:

A. Certify and deliver to the Commissioner all documentation including reports, receipts, certificates, records etc. for the collection, handling, storage, classification, testing, transportation, recycling and/or disposal of all Non-Hazardous Construction Waste as required by the HAZ-Pages SPECIFICATIONS FOR HANDLING, TRANSPORTATION, AND DISPOSAL OF POTENTIAL AND IDENTIFIED CONTAMINATED AND HAZARDOUS MATERILAS , and Hazardous Waste as required by other Project Specification Sections. Certify compliance with all applicable governing laws, codes, rules and regulations.

2.9 MISCELLANEOUS RECORD DOCUMENTS:

A. Refer to other Project Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Prior to Final Acceptance, complete miscellaneous records and place in good order, properly identified and bound or otherwise organized to allow for use and reference.

B. Submit three (3) copies of each document to the Commissioner or as otherwise directed by the Commissioner.

PART III – EXECUTION

3.1 RECORDING AND MAINTENANCE:

A. Recording: Maintain one copy of each submittal during the construction period for Contract Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Contract Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to the Contract Record Documents for the Resident Engineer's reference during normal working hours.

Attachment.2 OMC TRAFFIC STIPULATION

NEW YORK CITY DOT **Department of Transportation**

POLLY TROTTENBERG, Commissioner

OCMC TRAFFIC STIPULATIONS **08/02/2019**

OCMC FILE NO: REC-17-834
CONTRACT NO: S134-367
PROJECT: GRAVITY SEWER AT ARTHUR KILL ROAD AND WEST SERVICE ROAD

LOCATION(S): ARTHUR KILL ROAD AT MULDOON AVENUE
WEST SERVICE ROAD AT MULDOON AVENUE

PERMISSION IS HEREBY GRANTED TO THE NYC DDC AND ITS DULY AUTHORIZED AGENT, TO ENTER UPON AND RESTRICT THE FLOW OF TRAFFIC AT THE ABOVE LOCATION(S) FOR THE PURPOSE OF CARRYING OUT THE ABOVE NOTED PROJECT, SUBJECT TO THE STIPULATIONS, AS NOTED BELOW:

I. SPECIAL STIPULATIONS

A. **EMBARGOES** – A CONSTRUCTION EMBARGO WILL APPLY TO THOSE LOCATIONS BELOW WHICH FALL WITHIN THE **HOLIDAY EMBARGO** OR ANY OTHER SPECIAL EVENT PUBLISHED BY THE BUREAU OF PERMIT MANAGEMENT AND CONSTRUCTION CONTROL.

B. **BIKE LANES** – IF WORK IS IN OR AFFECTING A BIKE LANE, THE PERMITTEE MUST POST ADVANCE WARNING SIGNS 350 FEET AND 200 FEET PRIOR TO THE WORK ZONE STATING **"CONSTRUCTION IN BIKE LANE AHEAD PROCEED WITH CAUTION"**, AND ALSO POST A SIGN AT THE WORK ZONE STATING **"CONSTRUCTION IN BIKE LANE PROCEED WITH CAUTION"**. SUCH SIGNS SHALL BE ORANGE, 3' X 3', DIAMOND-SHAPED WITH 4" BLACK LETTERING. SIGNS SHALL BE POSTED IN ACCORDANCE WITH THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

C. **BIKE SHARE STATIONS**: THE PERMITTEE SHALL NOT REMOVE, RELOCATE, DAMAGE OR DISRUPT THE OPERATION OF EXISTING BIKE SHARE STATIONS WITHOUT FIRST CONTACTING NYC BIKE SHARE AT 855-245-3311 FOR THEIR REQUIREMENTS PRIOR TO COMMENCING WORK.

D. **CITYBENCH**: THE PERMITTEE SHALL NOT REMOVE, RELOCATE, DAMAGE OR DISRUPT AN EXISTING CITY BENCH WITHOUT FIRST CONTACTING NYC DOT AT 212-839-6569, OR VIA EMAIL AT CITYBENCH@DOT.NYC.GOV PRIOR TO COMMENCING WORK.

E. **PROTECTION OF NYC DEP GREEN INFRASTRUCTURE**: THE PERMITTEE SHALL TAKE PRECAUTION OF NYC DEP GREEN INFRASTRUCTURE IN THE RIGHT-OF-WAY. THE PERMITTEE MUST PROTECT NYC DEP GREEN INFRASTRUCTURE DOWNSTREAM OF THE WORK OR WITHIN FIVE (5) FEET OF THE WORK AREA. THE PERMITTEE MUST EMAIL NYC DEP AT SUSTAINABILITY@DEP.NYC.GOV FOR PROTECTION REQUIREMENTS PRIOR TO COMMENCING WORK. THE PERMITTEE IS RESPONSIBLE FOR RESTORATION OF DAMAGED NYC DEP INFRASTRUCTURE AS DIRECTED BY NYC DEP.

F. **BUS STOPS** – THE PERMITTEE SHALL PROVIDE WRITTEN NOTICE TO NYC DOT OCMC AND NEW YORK CITY TRANSIT (NYCT) A MINIMUM OF FIVE (5) WEEKS IN ADVANCE FOR LANE/STREET CLOSURES THAT AFFECT BUS ROUTES/BUS STOPS.

G. **STREET LIGHTS / TRAFFIC SIGNALS**: THE PERMITTEE SHALL NOT REMOVE OR RELOCATE EXISTING STREET LIGHTS OR TRAFFIC SIGNALS WITHOUT FIRST OBTAINING APPROVAL FROM NYCDOT STREET LIGHTING / TRAFFIC SIGNALS UNIT.

H. **TRAFFIC CAMERAS, DETECTION/COMMUNICATION EQUIPMENT**: IF AT ANY TIME DURING THE APPROVED WORK, THE PERMITTEE ENCOUNTERS TRAFFIC SURVEILLANCE CAMERAS, DETECTION EQUIPMENT OR ANY TYPE OF COMMUNICATION EQUIPMENT (WIRELESS OR HARD-WIRED) ON ANY NYC DOT FACILITY, THAT IS NOT INCLUDED ON THE DESIGN/BUILD DRAWINGS, THE PERMITTEE SHALL IMMEDIATELY NOTIFY NYC DOT TRAFFIC MANAGEMENT BY PHONE AT 718-433-3390 OR 718-433-3340 AND VIA EMAIL AT TMC@DOT.NYC.GOV AND AWAIT DIRECTION PRIOR TO CONTINUING WORK.

I. **METERS** – THE PERMITTEE SHALL NOT REMOVE OR RELOCATE PARKING METERS WITHOUT FIRST OBTAINING APPROVAL FROM NYCDOT PARKING METER DIVISION AT 718 – 894 – 8651.

J. **TEST PITS** – THE BELOW TRAFFIC STIPULATIONS DO NOT APPLY TO TEST PIT WORK RELATED TO THIS CONTRACT. WORK HOURS AND OTHER REQUIREMENTS FOR TEST PIT OPERATIONS MAY DIFFER FROM THE STIPULATIONS IDENTIFIED BELOW. THE PERMITTEE SHALL BE REQUIRED TO OBTAIN SEPARATE PERMITS RELATED TO TEST PITS.

K. **TEMPORARY PARKING REGULATIONS/PAVEMENT MARKINGS** – THE PERMITTEE IS REQUIRED TO INSTALL, MAINTAIN AND REMOVE ALL NECESSARY TEMPORARY PARKING AND REGULATORY SIGNS AND PAVEMENT MARKINGS, AND RESTORE THEIR ORIGINAL CONDITION PER NYC DOT STANDARDS, PRIOR TO EXPIRATION OF THEIR PERMITS. THE PERMITTEE OR AGENCY PERFORMING PUBLIC OUTREACH SHALL POST AND MAINTAIN ADVISORY SIGNS A MINIMUM OF 48 HOURS PRIOR TO CHANGING EXISTING PARKING REGULATION SIGNS TO APPROVED TEMPORARY CONSTRUCTION PARKING REGULATION SIGNS. THE ADVISORY SIGNS SHOULD BE POSTED ON ALL POLES AND DRIVE RAILS ON THE SEGMENT AFFECTED, INDICATING THE DATE OF THE CHANGE, THE NEW REGULATIONS AND A TELEPHONE NUMBER TO OBTAIN MORE INFORMATION.

L. **ACCESS TO ABUTTING PROPERTIES** – THE PERMITTEE SHALL COORDINATE ALL ACTIVITIES WITH ABUTTING PROPERTY OWNERS TO ENSURE ACCESS IS PROVIDED TO/FROM ENTRANCES/DRIVEWAYS AT ALL TIMES.

NYC Department of Transportation
Bureau of Permit Management and Construction Control
55 Water Street - 7th Floor, New York, NY 10041
T: 212.839.9621 F: 212.839.8970
www.nyc.gov/dot

M. **AUTHORIZED PARKING** – PRIOR TO PERFORMING WORK WHICH IMPACTS AUTHORIZED PARKING, THE PERMITTEE SHALL SUBMIT IN WRITING, AND COPY OCMC-STREETS, A REQUEST TO OCCUPY SPACE CURRENTLY USED BY AUTHORIZED VEHICLES. APPROVAL MUST BE RECEIVED FROM AUTHORIZED PARKING PRIOR TO OCCUPYING THESE AREAS.

N. **NOTIFICATION** – THE PERMITTEE MUST AT LEAST TWO (2) WORKING DAYS BEFORE THE START OF CONSTRUCTION NOTIFY THE NYC FIRE DEPARTMENT, NYC POLICE DEPARTMENT, NYCEMS, LOCAL COMMUNITY BOARD, BOROUGH PRESIDENT'S OFFICE-CHIEF ENGINEER, NYCDOT OCMC OFFICE, AND ALL ABUTTING PROPERTY OWNERS.

O. **CONSTRUCTION INFORMATIONAL SIGNS** – THIS PROJECT REQUIRES A CONSTRUCTION PROJECT INFORMATIONAL SIGN (CPIS) IN ACCORDANCE WITH NYCDOT HIGHWAY RULE SECTION 2-02 (4) AND (5). CRITERIA AND A PROTOTYPE FOR THIS SIGN MAY BE FOUND ON THE NYCDOT WEBSITE AT:

HTTP://WWW.NYC.GOV/HTML/DOT/DOWNLOADS/PDF/DOT_CPIS_DIRECTIONS.PDF

P. **ENHANCED MITIGATIONS**

- **VARIABLE MESSAGE SIGNS (VMS)** SHALL BE PROVIDED FOR THIS PROJECT. **A TOTAL OF 2 VMS SHALL BE PLACED FOR THIS CONTRACT.** THE LOCATIONS AND MESSAGES SHALL BE RECOMMENDED BY NYCDDC AND THEIR CONTRACTOR A MINIMUM OF TWO (2) WEEKS PRIOR TO WORK COMMENCING, FOR OCMC REVIEW AND APPROVAL.
- **"NO STANDING ANYTIME-TEMPORARY CONSTRUCTION" SIGNS** AND TEMPORARY PAVEMENT MARKINGS SHALL BE INSTALLED AND MAINTAINED AS WARRANTED BY THE MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) REQUIRED TO FACILITATE TRAFFIC MOVEMENTS THROUGH THE WORK ZONE. ALL TEMPORARY SIGNS AND PAVEMENT MARKINGS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.
- **COMMUNITY OUTREACH** SHALL BE PROVIDED FOR THE DURATION OF THE PROJECT.

II. MAINTENANCE AND PROTECTION OF TRAFFIC

A. ARTHUR KILL ROAD BETWEEN ILYSSA WAY AND MULDOON AVENUE

B. ARTHUR KILL ROAD BETWEEN MULDOON AVENUE ANDARDEN AVENUE

1. Work hours shall be as follows: 9:00 pm – 5:00 am Monday - Friday
   7:00 pm – 5:00 am Saturday
2. During working hours, the contractor shall maintain one-12ft. lane for 2-way traffic for local and emergency access at all times.
3. Flagmen must be provided to assist traffic and pedestrians during working hours.
4. The work zone has to be one side of the roadway at a time.
5. After working hours, the contractor shall restore all travelling lanes.
6. Must coordinate with MTA Bus Company regarding Bus lines/stops before mobilization.
7. VMS boards shall be installed on both sides of the work zone

C. WEST SERVICE ROAD BETWEEN WEST SHORE EXPRESSWAY EXIT 6 AND MULDOON AVENUE

1. Work hours shall be as follows: 9:00 pm – 5:00 am Monday - Friday
   7:00 am – 5:00 pm Saturday
2. During construction phase #1, the contractor shall maintain 2-12ft lanes for traffic at all times
3. During construction phase # 2, the contractor shall maintain 2-12 ft. lanes for traffic merging to one lane c by the intersection of west service road at Muldoon Avenue.

D. WEST SERVICE ROAD BETWEEN MULDOON AVENUE AND ARDEN AVENUE

1. Work hours shall be as follows: 9:00 pm – 5:00 am Monday – Friday
   7:00 am – 5:00 pm Saturday
2. The contractor shall maintain 2-12ft lane for traffic at all times.

E. INTERSECTION OF WEST SERVICE ROAD AND MULDOON AVENUE

1. Work hours shall be as follows: 9:00 pm – 5:00 am Monday – Friday
   7:00 am – 5:00 pm Saturday
2. The contractor has to work on one phase of work at a time.

LIMITED-ACCESS ARTERIAL HIGHWAY, WRITTEN APPROVAL FROM THE NYCDOT OCMC-HIGHWAYS IS REQUIRED. WHEN THE LOCATION IS WITHIN THE RIGHT-OF-WAY OF A PUBLIC STREET OR PUBLIC PARK, WRITTEN APPROVAL FROM THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION OR NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION IS REQUIRED. WHEN THE LOCATION IS WITHIN THE RIGHT-OF-WAY OF ANY OTHER JURISDICTION SUCH AS PRIVATE PROPERTY, STATE, FEDERAL ETC., IT IS THE PERMITTEE'S RESPONSIBILITY TO DETERMINE THE PROPERTY OWNER AND OBTAIN THE WRITTEN APPROVAL.

G. THE PERMITTEE SHALL ADHERE TO THE NYCDOT BUREAU OF BRIDGES' SPECIAL PROVISIONS FOR LANDSCAPE PROTECTION, MAINTENANCE AND RESTORATION, ITEMS 1.18.15 THROUGH 1.18.19, WHENEVER AND WHEREVER ANY OF THE PERMITTEE'S ACTIVITIES OCCUR WITHIN A LIMITED ACCESS ARTERIAL HIGHWAY RIGHT - OF - WAY.

H. NO DEVIATION OR DEPARTURE FROM THESE STIPULATIONS WILL BE PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL FROM THE OCMC-STREETS. REQUEST FOR SUCH MODIFICATIONS SHALL BE SUBMITTED TO THE OFFICE OF THE OCMC-STREETS, NEW YORK CITY DEPARTMENT OF TRANSPORTATION, A MINIMUM OF TWENTY (20) DAYS IN ADVANCE FOR CONSIDERATION.

I. FOR ANY CONSTRUCTION ACTIVITY RESULTING IN THE FULL CLOSURE OF A ROADWAY FOR MORE THAN 180 CONSECUTIVE CALENDAR DAYS, THE CONTRACTOR MUST PRODUCE AND SUBMIT A COMMUNITY REASSESSMENT, IMPACT AND AMELIORATION (CRIA) STATEMENT TO NYCDOT PLANNING AND OBTAIN THEIR APPROVAL BEFORE APPLYING FOR PERMITS, IN COMPLIANCE WITH THE PROVISIONS OF **LOCAL LAW 24 STREET CLOSURE LAW.**

J. FOR THIS PROJECT THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN ALL NECESSARY ADVANCE WARNING AND DETOUR SIGNS, TEMPORARY CONTROL DEVICES, BARRICADES, LIGHTS AND FLASHING ARROW BOARDS IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," THE TYPICAL SCHEMES INCLUDED IN THIS SPECIFICATION AND AS ORDERED BY THE ENGINEER-IN-CHARGE AND THE OCMC-STREETS.

K. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING HIS CONSTRUCTION SIGNAGE. THE IDENTIFICATION SHALL INCLUDE THE CONTRACTOR'S NAME, SPONSORING AGENCY NAME AND THE CONTRACT NUMBER. THE IDENTIFICATION SHALL BE PLACED ON THE BACK OF THE SIGN. THE LETTERING SHALL BE THREE (3) INCHES HIGH.

L. THE OCMC-STREETS RESERVES THE RIGHT TO VOID OR MODIFY THESE STIPULATIONS SHOULD CONSTRUCTION FAIL TO COMMENCE WITHIN TWO (2) YEARS OF THE SIGNED DATE OF THESE STIPULATIONS.

GARY SMALLS
DIRECTOR
OCMC-STREETS

H. Guirguis
HEBA GUIRGUIS
PROJECT MANAGER
OCMC-STREETS

a. **CONSTRUCTION PHASE # 1**
   i. During working hours, the contractor shall maintain 1-12ft. westbound lane for thru traffic. and one temporary travelling right turning lane through the island separating northbound/southbound traffic at **Muldoon Avenue**.
   ii. The contractor shall maintain 1-12 ft. lane south bound traffic from Muldoon Avenue to WEST SERVICE ROAD.

b. **CONSTRUCTION PHASE # 2**
   i. During working hours, the contractor shall maintain 1-12ft.shared lane for westbound thru traffic and right turning lane on **West Service Road**.
   ii. The contractor shall maintain 1-12 ft. lane for 2-way traffic on **Muldoon Avenue** west of the island with 1 certified flaggers at each end of working zone.

4. After working hours, the contractor shall restore all travelling turning lanes for traffic.

III. GENERAL NOTES

A. **THIS IS NOT A PERMIT.** THIS STIPULATION SHEET MUST BE SUBMITTED WITH ALL REQUESTS FOR PERMITS PERTAINING TO THE ABOVE CONTRACT AND PRESENT AT THE WORK SITE ALONG WITH ALL ACTIVE CONSTRUCTION PERMITS WHEN THE APPROVED WORK IS BEING PERFORMED.

B. THE PERMITTEE MUST COMPLY WITH ALL CONSTRUCTION EMBARGOS ISSUED BY THE NYCDOT INCLUDING THE HOLIDAY EMBARGO.

C. THE PERMITTEE SHALL COMPLY WITH ALL REQUIREMENTS OF THE NYCDOT SPECIAL EVENTS UNIT AS IDENTIFIED BELOW:

1. STREET FAIRS / FESTIVALS
- ALL EXCAVATIONS MUST BE PLATED WITH SKID RESISTANT PLATES.
- PLATES MUST BE RECESSED AND FLUSH WITH PAVEMENT.
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

2. RUNNING / WALKING / BIKING EVENTS
- ALL EXCAVATIONS MUST BE BACKFILLED AND PAVED OR PLATES MUST BE RECESSED AND PAVED OVER FLUSH WITH PAVEMENT.
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

3. PARADES
- ALL EXCAVATIONS MUST BE BACKFILLED AND PAVED OR PLATES MUST BE RECESSED AND PAVED OVER FLUSH WITH PAVEMENT.
- FORMATION AND DISPERSAL AREA PLATES MUST BE RECESSED AND FLUSH WITH PAVEMENT (PLATES MUST BE SKID RESISTANT).
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

4. MAYORAL EVENTS
- ALL EXCAVATIONS MUST BE BACKFILLED AND PAVED OR PLATES MUST BE RECESSED AND PAVED OVER FLUSH WITH PAVEMENT.
- ALL PAVEMENT DEFECTS MUST BE CORRECTED WITHIN OR ADJACENT TO THE WORK ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DEFECTS WITHIN THE IMMEDIATE VICINITY IF NYCDOT STREET & ARTERIAL MAINTENANCE CANNOT MAKE REPAIRS DUE TO PROJECT INTERFERENCE (AS DETERMINED BY NYCDOT).
- ALL EQUIPMENT, TRAILERS AND MATERIAL STORAGE MUST BE REMOVED.

D. ALL RELOCATION WORK BY THE UTILITIES SUCH AS; CON EDISON, TELEPHONE, GAS AND CABLE COMPANIES SHALL PRECEDE THE CONTRACTORS' START OF WORK ON ALL AFFECTED ROADWAYS IN THE IMPACTED CONTRACT AREA.

E. THE CONTRACTOR IS ADVISED THAT OTHER CONTRACTORS MAY BE WORKING IN THE GENERAL AREA DURING THE TERM OF THIS STIPULATION. IN WHICH EVENT, THE CONTRACTOR MAY REQUIRE MODIFICATIONS BY THE OCMC-STREETS.

F. THE PERMITTEE IS NOT AUTHORIZED TO ENTER, OCCUPY OR USE ANY PUBLICLY-OWNED OR PRIVATELY OWNED, NON-PAVED, LANDSCAPE OR NON-LANDSCAPED LOCATION WITHOUT SPECIFIC WRITTEN PERMISSION. WHEN THE LOCATION IS WITHIN THE RIGHT-OF-WAY OF A

Attachment.3 ITEM CROSS REFERENCE

Specification Item Cross Reference Sheet

Phase 1 - 100% CD

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
55.11	Abandoning Basins And Inlets	55.11 AB	ABANDONING BASINS AND INLETS	Removing and disposal existing area drains, inlets and manholes
6.01	Clearing and Grubbing	6.01 AA	CLEARING AND GRUBBING	Removal and disposal of fences, trees, branches, down timber, brush, vegetation, debris, tires, batteries, automotive parts, rubbish, stumps, roots and root systems, miscellaneous minor structures.
6.02	Unclassified Excavation	6.02 AAN	UNCLASSIFIED EXCAVATION (To be used when Suitable Excavated Material is NOT required to be delivered to a City Yard)	Removing pavements, curbs, sidewalks. Disconnecting/capping and removal of storm and sanitary piping.
6.27	Demolition of Structures	6.27	DEMOLITION OF STRUCTURE	Removal of sanitary treatment plant, foundations, basins, and all appurtenances. Removal and disconnect of light poles, foundations, cable, and conduit. Removal of mobile trailers and storage containers Removal of ConEd electric wires, poles, and equipment at existing trailer.
6.55	Sawcutting Existing Pavement	6.55	SAWCUTTING EXISTING PAVEMENT	Saw cutting of existing pavement for trenching or pavement removal limits of work
DSNY-UPI	**Install Timber Utility Poles**	**DSNY-UPI**	**REQUIREMENTS FOR TREATED WOOD UTILITY POLES AND POLE INSTALLATION**	**Installing and removing Con Edision Utility Poles**

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
72.11	Hydraulic Fill For Abandoned Sewers And Water Mains	72.11 HF	HYDRAULIC FILL FOR ABANDONED SEWERS AND WATER MAINS	Cutting and capping of pipes to be abandoned. DSNY to confirm if this includes pipes through cut off wall.
8.01	Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials	8.01 C1	HANDLING, TRANSPORTATION, & DISPOSAL OF NON-HAZARDOUS CONTAMINATED SOIL	Removal of any hazardous soil encountered
8.01	Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials	8.01 C2	SAMPLING & TESTING OF CONTAMINATED/POTENTIALLY HAZARDOUS SOIL FOR DISPOSAL PARAMETERS	Removal of any hazardous soil encountered
8.01	Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials	8.01 H	HANDLING, TRANSPORTATION, & DISPOSAL OF HAZARDOUS SOILS	Removal of any hazardous soil encountered
8.01	Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials	8.01 S	HEALTH & SAFETY	Removal of any hazardous soil encountered

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
8.01	Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials	8.01 W1	REMOVAL, TREATMENT & DISPOSAL/DISCHARGE OF WATER	Removal of any contaminated groundwater encountered
8.01	Handling, Transporting, and Disposal of Potential and Identified Contaminated and Hazardous Materials	8.01 W2	TREATMENT AND DISPOSAL/DISCHARGE OF CONTAMINATED WATER SAMPLING AND TESTING OF CONTAMINATED WATER	Removal of any contaminated groundwater encountered
		C-100 Series - Erosion and Sediment Control		
4.22	Protective Tree Barrier	4.22	PROTECTIVE TREE BARRIER, TYPE A	Fabrication, furnishing, installation, erection, maintenance, and subsequent removal and disposal of a tree protection
9.30	Storm Water Pollution Prevention	9.30	STORM WATER POLLUTION PREVENTION	Implementation of Storm Water Pollution Prevention Plan (SWPPP). Installing and maintaining construction entrances, silt fence, inlet protection, concrete washout, hay bales, and all erosion and sediment control measures
		C-200 Series - Site Plan and Details		
4.02	Asphaltic Concrete Wearing Course	4.02 AF-R	ASPHALTIC CONCRETE WEARING COURSE, 2" THICK	Wearing Course for trench restoration and private sewer installation
4.02	Binder course (3RA mixture	4.02 ACA	Binder course (3RA mixture)	Binder course
4.04	Concrete Base for Pavement	4.04 B	CONCRETE BASE FOR PAVEMENT, VARIABLE THICKNESS FOR TRENCH RESTORATION, CLASS B-32	Concrete base for trench restoration and private sewer installation

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
4.08	Curb, Concrete	4.08 AA	CONCRETE CURB (18" DEEP)	Installation of curb associated with trench restorations
6.91	Reflective Cracking Membrane (18" Wide)	6.91	REFLECTIVE CRACKING MEMBRANE (18" Wide)	Pavement repair for trench restorations
4.20	Seeding	4.20	SEEDING	Seeding of restoring of areas disturbed by trenching and construction
			C-300 Series - Drainage Plan	
50.41	Ductile Iron Pipe Sewers	50.41 M6S36	36" D.I.P. CLASS 56 STORM SEWER, ON CRUSHED STONE BEDDING	Installation of 36" storm sewer pipe
51.11	Chambers	51.11 C000	CHAMBER	Installation of combination outlet structure
51.11	Chambers	51.11 C001	CHAMBER NO. 1	Installation of lower basin outlet control structure
51.11	Chambers	51.11 C002	CHAMBER NO. 2	Installation of middle basin outlet control structure
51.11	Chambers	51.11 C003	CHAMBER NO. 3	Installation of upper basin outlet control structure
51.11	Chambers	51.11 P004	STANDARD 4'-0" DIAMETER PRECAST MANHOLE	Installation of 4-ft diameter manholes for onsite storm, sanitary, and Arthur Kill Road Sanitary Sewer
51.11	Chambers	51.11 P005	STANDARD 5'-0" DIAMETER PRECAST MANHOLE	Installation of 5-ft diameter manholes for onsite storm sewer
51.11	Chambers	51.11 P007	STANDARD 7'-0" DIAMETER PRECAST MANHOLE	Installation of 7-ft diameter manholes for onsite storm sewer, and air release manholes
51.11	Chambers	51.11 P010	STANDARD 10'-0" DIAMETER PRECAST MANHOLE	Installation of 10-ft diameter manholes for onsite storm sewer
51.41	Catch Basins	51.41 S001	STANDARD CATCH BASIN, TYPE 1	Installation of catch basin, type 1
51.41	Catch Basins	51.41 S001	STANDARD CATCH BASIN, TYPE 2	Installation fo catch basin, type 2

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
51.71	Modification of Existing Structures	51.71 M00000	MODIFICATION OF EXISTING MANHOLE	Connecting proposed drainage piping to existing drainage structure Connecting proposed sanitary in Arthur Kill Road to existing DEP sewer.
52.11	Catch Basin Connections	52.11D12	12" DUCTILE IRON PIPE BASIN CONNECTION	Connection from catch basin in Muldoon Avenue to proposed drainage system
52.41	House Conneciton Drains	52.41D06n	New 6" D.I.P. house connection for drain on stone bedding	
DSNY-WQU	**Water Quality Unit**	**DSNY-WQU**	**WATER QUALITY UNIT**	**Installation of Water Quality Unit**
9.13 HD	**High-Density Polyethylene Drainage Pipe**	**9.13 HD12**	**12" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
		9.13 HD15	**15" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
		9.13 HD18	**18" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
		9.13 HD24	**24" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
		9.13 HD30	**30" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
		9.13 HD36	**36" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
		9.13 HD60	**60" HIGH-DENSITY POLYETHYLENE DRAINAGE PIPE**	**Installation of HDPE Pipe, including anchor bolts and straps**
GI-2.09	**Geotextile Fabric**	**GI-2.09**	**GEOTEXTILE FABRIC**	**Geotextile fabric for installation of detention systems**
63.11	Furnishing And Delivering Various Castings; Etc.	63.11VC	FURNISHING AND DELIVERING VARIOUS CASTINGS	Shall include cleanout frame and castings
4.06	Concrete in Structures	4.06	CONCRETE IN STRUCTURES, Class A-40	Concrete for dead man system Concrete in light pole foundations
4.14	Steel Reinforcement in Concrete	4.14 W	WELDED STEEL WIRE FABRIC	Welded wire fabric for dead man system

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
4.14	Steel Reinforcement in Concrete	4.14	STEEL REINFORCEMENT BARS	Rebar in light pole foundations
61.41 ICVXX	**Inline Check Valve**	**ICV08**	**INLINE CHECK VALVE**	**Furnishing and installing Inline Check Valve**
61.41 ICVXX	**Inline Check Valve**	**ICV24**	**INLINE CHECK VALVE**	**Furnishing and installing Inline Check Valve**
4.11	Excavation and Filling	4.11 CA	FILL, PLACE MEASUREMENT	Shall apply to NYC DOT Type 1 Grade B and AASHTO 57 stone that is placed over the detention systems during Phase 1. Shall apply to site grading Jacking Pits
DSNY-L-INF	**Leachate Infrastructure**	**L-INF**	**LEACHATE INFRASTRUCTURE**	**Geotextile filter fabric, HDPE pressure pipe and fittings for leachate header pipe offset, leachate collection trench stone, anti-seep collar, cement bentonite seal, and backfill.**
C-500 Series - Utility Plan				
6.23	Fire Department Facilities	6.23 AB	REMOVE EXISTING FIRE ALARM POST	FDNY Relocations
6.23	Fire Department Facilities	6.23 BA	FURNISH AND INSTALL FIRE ALARM POST AND SUBBASE IN ACCORDANCE WITH F.D. STD. DWG. #141	FDNY Relocations
6.23	Fire Department Facilities	6.23 BD	FURNISH AND INSTALL 4 PAIR FIRE ALARM CABLE	FDNY Relocations
6.23	Fire Department Facilities	6.23 BFC	FURNISH AND INSTALL FIRE DEPARTMENT 12 WIRE TERMINAL BOX AND TERMINATE FIRE ALARM CABLES	FDNY Relocations

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
6.23	Fire Department Facilities	6.23 BGS	FURNISH AND INSTALL 4" P.V.C. CONDUIT, SCHEDULE 40, U.L. 651 (WITHOUT PAVEMENT EXCAVATION)	FDNY Relocations
6.23	Fire Department Facilities	6.23 BH	FURNISH AND INSTALL 4" 90 DEGREE P.V.C. WIDE BEND, SCHEDULE 40, U.L. 651 (WITHOUT PAVEMENT EXCAVATION) IN ACCORDANCE WITH F.D. STD. DWG. #141 OR #145AA	FDNY Relocations
6.23	Fire Department Facilities	6.23 BP	FURNISH AND INSTALL FIRE ALARM PEDESTAL BUMPERS (2 REQUIRED PER SET) IN ACCORDANCE WITH F.D. STD. DWG. #168	FDNY Relocations
6.23	Fire Department Facilities	6.23 RM	REMOVE EXISTING F.D.N.Y. MANHOLE	FDNY Relocations
50.31	Vitrified Pipe Sewers	50.31 SC10	10" E.S.V.P. SANITARY SEWER, ON CONCRETE CRADLE	10" Sanitary Sewer on concrete cradle in Arthur Kill Road, including sheet piling
50.31	Vitrified Pipe Sewers	50.31 SC12	12" E.S.V.P. SANITARY SEWER, ON CONCRETE CRADLE	12" Sanitary Sewer on concrete cradle in Arthur Kill Road, including sheet piling
DSNY-XCE	**Protection of existing utilities**	**DSNY-XCE**	**Protection of existing utilities**	**Protection of existing utilities**
50.41	Ductile Iron Pipe Sewers	50.41 S6S08	8" D.I.P. CLASS 56 SANITARY SEWER, ON CRUSHED STONE BEDDING	Installation of 8" sanitary sewer pipe
50.41	Ductile Iron Pipe Sewers	50.41 S6S06	6" D.I.P. CLASS 56 SANITARY SEWER, ON CRUSHED STONE BEDDING	Installation of 6" sanitary sewer force main pipe. Include 15" casing pipe
51.21	Manholes	51.21S0 A1000V	STANDARD MANHOLE TYPE A-1	Presure relief manhole
70.11	Piles	70.11 TT	TIMBER PILES (TREATED)	Piles for sanitary sewer and manholes in Arthur Kill Road

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
70.12	Continuous Flight Auger (CFA) Piles	70.12 AN	CONTINUOUS FLIGHT AUGER (CFA) PILES	Augered pile for sanitary sewer in Arthur Kill Road
DSNY-SPS	**Pump Station**	**SPS**	**SANITARY PUMP STATION**	**Wastewater Pumping Station, Force Main and Appurtenances** **Wastewater Pumping Station Electrical** **Electrical General Provisions** **Field Tests** **Demonstration of Complete Electrical Systems** **Codes and Fees** **Outlet Boxes** **Pull and Junction Boxes** **Wire and Cable Terminations** **Cable and Wires** **Grounding System** **Conduit and Raceways** **Identification, Tagging and Marking** **Instrumentation and Control Work** **Panelboards** **Motor Controls and Control Centers** **Cabinets and Enclosures** **Vendor Supplied Panels** **Switches and Receptacles** **Safety and Disconnect Switches** **Enclosed Circuit Breakers** **Motors** **Supporting Devices** **Heating and Ventilation Equipment** **Electrical and Communication/Telephone Service**

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
			MPT Plans	
4.03	Temporary Surfacing For Roadways	4.03	TEMPORARY SURFACING FOR ROADWAYS	Pavement for the temporary driveway at Muldoon Avenue and the West Service Road
6.70	Maintenance and Protection of Traffic	6.70	MAINTENANCE AND PROTECTION OF TRAFFIC (for Construction and Reconstruction type Contracts)	Furnishing, installing, and maintaining the MPT including all appertenances, barrels, barricades, temporary timber curbs, cones, flags, etc.
			SOE Series - Support of Excavation	
50.61	Sewer in Jacked Steel Sleeves	51S6D15	6" D.I.P. Class 56 Sanitary Sewer in Jacked 15" Steel Sleeve	Microtunneling of 6" Sewer in 15" sleeve
70.11	**Piles**	**70.11CS**	**Concrete filled Steel Pipe Piles**	**Tapered Steel Piles for Salt Shed**
70.81	Clean Backfill	70.81 CB	Clean Backfill (Not less than $XX.XX/C.Y)	Backfilling excavations to grade
73.31	Additional Earth Excavation Including Test Pits	73.31 AE0	Additional Earth Excavation Including Test Pits (All Depths)	Jacking Pit Excavation; Excavation for the Storm Pipe at the leachate wall; salt shed foundation excavation; grading and compacting
76.11	Construction Report	76.11 CR	CONSTRUCTION REPORT	Preconstruction report studying the Conctractor's proposed means and methods of construction including the installation of sheeting system, pile system, tunneling system, and dewatering system; and vibration study
DSNY-PTBR	**Petroleum Tank Bulk Remova**	**PTBR**	**DSNY PETROLEUM TANK BULK REMOVAL**	

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
			Plumbing	
DSNY-PLUMB	Plumbing	PLUMB	PLUMBING CONNECTION WORK ASSOCIATED WITH THE PUMP STATION	All plumbing piping and accessories within the Existing Building necessary for installation and connection of the new hose bibb to serve the new Sanitary Pump Station: Metering Piping Hangers Insulation Piping Plumbing Speciaties
			Electrical	
DSNY-ELECT	Electrical	ELECT	ELECTRICAL CONNECTION WORK ASSOCIATED WITH THE PUMP STATION	All electrical wiring and accessories within the Existing Building necessary for installation and connection of the new Sanitary Pump Station electrical panels located within the Existing Building: Conductors and Cables Grounding and Bonding Hangers and Supports Raceways and Boxes Identification LV Transformers Wiring Devices Fuses Switches and Circuit Breakers

Spec Section	Spec Section Name	Item Number	Item Number Description	Work to Include
			Existing Building Penetrations	
DSNY-IJS	**Interior Joint Sealants**	**IJS**	**PENETRATION SEALANTS AT THE EXISTING GARAGE BUILDING**	**Sealing of all penetrations at existing partitions and floors to accommodate new Electrical and Plumbing work in the Existing Garage building associated with the new Pump Station (DSNY-SPS)**
DSNY-FS-SS	**Firestops and Smokeseals**	**FS-SS**	**RATED PENETRATION SEALANTS AT THE EXISTING GARAGE BUILDING**	**Sealing of all rated partition penetrations and floors to accommodate new Electrical and Plumbing work in the Existing Garage building associated with the new Pump Station (DSNY-SPS)**
			General Conditions	
7.13 B	Maintenance of Site			
6.40 D	Engineer's Field Office			
6.39B	Mobilization			

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CX-PAGES

COMMISSIONING PROVISIONS

NOTICE

THE PAGES CONTAINED IN THIS SECTION REPRESENT (COMMISSIONING REQUIREMENTS) THAT SHALL APPLY TO AND BECOME A PART OF THE CONTRACT.

(NO TEXT ON THIS PAGE)

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GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the Contract [City of New York Standard Construction Contract].

B. The Owner's Project Requirements (OPR) and Basis of Design (BOD) documents are included by reference for information only.

C. The Commissioning Plan, prepared by the Commissioning Agent (CxA) under separate contract with the City of New York, contains requirements that apply to this section.

1.2 SUMMARY:

This Section includes general requirements that apply to implementation of Commissioning without regard to systems, subsystems, and equipment being commissioned. General Requirements for Building Enclosure Commissioning are addressed in a separate specification.

A. This Section includes:
   1. Definitions
   2. Commissioning Team
   3. City's Responsibilities
   4. Contractor's Responsibilities
   5. CxA Responsibilities
   6. Commissioning Documentation
   7. Submittals
   8. Coordination
   9. Execution

1.3 RELATED SECTIONS: Include without limitation the following:

A. System-Specific Commissioning requirements indicated in other sections of the Project Specifications for specific requirements for commissioning systems.

B. This Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning shall be in accordance with ASHRAE and USGBC LEED procedures, and specific commissioning requirements of the Project Specifications, whichever is more stringent. The Contractor shall cooperate with the CxA and provide whatever assistance is required.

1.4 DEFINITIONS:

A. Basis of Design (BOD): A document, prepared by the Design Consultant, that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

B. Checklists: Forms that outline the step by step process that must be executed to fulfill the test requirements and to verify that materials, equipment, assemblies, and systems are installed in accordance with the Contract Documents. The CxA shall develop the checklists; the Contractor shall complete them.

C. Commissioning: Commissioning is a systematic process of ensuring and documenting that the building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The process does not eliminate or reduce the responsibility of the installing contractors to provide a finished product.

D. Commissioning Agent (Aka Commissioning Authority) (CxA): Consultant under separate contract with the City of New York to provide Commissioning Services for this project. The CxA shall not be an employee of the Contractor, nor shall the CxA have any interest in the Contract.

E. Commissioning Plan: A document developed by the CxA that outlines the organization, schedule, roles and responsibilities, allocation of resources, and documentation requirements of the commissioning process.

F. Deferred Performance Tests: Performance tests that are performed, at the discretion of the CxA, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design, or other site conditions that disallow the test from being performed.

G. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and Specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

H. Factory Testing: Testing of equipment on-site or at the factory, by factory personnel, with or without an owner's representative.

I. Functional Performance Test (FPT): Functional performance testing includes the dynamic functions and operations of equipment and systems using manual or monitoring methods under various levels of operation. Systems are tested under various modes, such as during low cooling loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarms, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to respond as the sequences state. Such tests shall be performed as per the protocol written by the CxA, defining the methods, personnel, and expectations.

J. Issue (or Deficiency): A condition in the installation or function of a component, piece of equipment, or system that is not in compliance with the Contract Documents.

K. Issues Log: A formal and ongoing record of problems, deficiencies or concerns that have been raised by members of the Commissioning Team during the course of commissioning. The issues log is the primary tracking tool to address all commissioning issues by concerned parties. All issues must be addressed and resolved by the concerned parties before the closeout of the Project. This log tracks the resolution performed and date of closure of each issue.

L. Master Equipment List (MEL): A complete listing of all commissioned building equipment, including details such as make, model, location, ID Tag number, etc. that is taken from submittals and is the basis from which checklists will be generated. The MEL is a spreadsheet which is also used as a tracking tool for all milestones of the commissioning process, such as the creation and performance of checklists, startup of equipment, TAB work, etc.

M. Monitoring: The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.

N. Owner (City of New York) Contracted Tests: Tests paid for by the City of New York outside of the Contractor's Contract and for which the CxA does not provide oversight. These tests will not be repeated during functional testing if properly documented.

O. Owner's (City of New York) Project Requirements (OPR): A document, prepared by the Design Consultant that details the functional requirements of a Project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

P. Pre-functional (Installation) Checklists: A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CxA to the Contractor. Installation checklists are primarily static inspections and procedures to prepare equipment or systems for initial operation. Pre-functional (Installation) checklists augment, and are combined with, the manufacturer's startup checklist. The Checklists are filled out by the Contractor and reviewed by the CxA.

Q. Sampling: Functional testing for a percentage of the total number of identical or near-identical pieces of equipment.

R. Seasonal Performance Tests: Functional tests that are deferred until, or performed again when, the system(s) will experience climate conditions close to their design conditions.

S. Startup: The initial starting or activating of equipment, including executing construction checklists.

T. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.

U. Systems Manual: A system-focused composite document that includes the Operation and Maintenance Manual, and additional information of use to the owner during the occupancy and operations phase.

V. Testing, Adjusting, and Balancing (TAB): Testing, adjusting, and balancing of the Heating Hot Water (HHW), Chilled Water (CHW) and Heating, Cooling, and Ventilation Airflow distribution system flows and pressures as specified in Contract Documents by a subcontractor certified to perform such work.

W. Test requirements: Requirements specifying what modes and functions, etc. shall be tested on any given piece of equipment or any given system (integrated or standalone). The test requirements are not the detailed test procedures. The test requirements for each system are specified in the respective Contract Documents.

X. Trending: Monitoring using the building controls system, and analysis of the data gathered over a period of time.

1.5 COMMISSIONING TEAM:

A. Members Appointed by the Contractor and its Subcontractors: Individuals, each having authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated actions. The Commissioning Team shall consist of, but not be limited to, representatives of the Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.

B. Members Appointed by the City:

1. Commissioning Authority/Agent (CxA): The designated person, company, or entity under separate Contract with the City that plans, schedules, and coordinates the Commissioning Team to implement the commissioning process.
2. Representatives of the facility user and operation and maintenance personnel.
3. Design Consultant and other concerned entities.

1.6 CITY'S RESPONSIBILITIES:

A. Provide the OPR and BOD documentation to the CxA for use in developing the Commissioning Plan; systems manual; operation and maintenance orientation plan; and testing plans and checklists.

B. Assign operation and maintenance personnel to participate in Commissioning Team activities.

C. Provide full details and results of any Owner Contracted tests relevant to the current Project.

1.7 CONTRACTOR'S RESPONSIBILITIES:

A. The Contractor shall provide utility services required for the commissioning process.

B. As a member of the Commissioning Team, the Contractor and subcontractor(s) shall assign representatives with expertise and authority to act on behalf of the Contractor and its subcontractor(s) and schedule them to participate in and perform Commissioning Team activities including, but not limited to, the following:

1. Participate in scheduled construction-phase coordination and Commissioning Team meetings.
2. Integrate and coordinate commissioning process activities with the construction schedule.
3. Provide any and all factory acceptance test reports to the CxA through the Engineer .
4. Respond to any additional specific information requests from the CxA. CxA may request additional documentation necessary for the commissioning process. Requests by CxA may precede, be concurrent with, or follow normal submittals.

5. Ensure the cooperation and participation of all subcontractors and manufacturers of equipment to be commissioned.
6. Verify and confirm that components, equipment, and system are functioning as per design prior to CxA witnessing testing.
7. Perform testing required in the Commissioning Schedule as per the Commissioning Process test procedures provided by the CxA, providing no less than 48 hours' notice to the CxA through the Engineer .
8. Complete installation checklists as Work is completed and return to CxA through the Engineer .
9. Provide written responses to to the CxA through the Engineer for resolution of issues recorded in the Issues Log within five (5) business days.
10. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
11. Submit As-Built documents, operation and maintenance manuals for systems and subsystems, and equipment in accordance with the Contract Documents. Such documents shall be submitted prior to functional testing.
12. Provide orientation sessions for operation and maintenance personnel (sessions will be witnessed by the CxA) in accordance with DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION in these pages. Provide no less than 48 hours' notice to the CxA, through the Engineer . Video record and edit orientation sessions and provide recording to the CxA and Engineer no later than two weeks after the orientation session occurs. Edit as requested by the Engineer .

1.8 COMMISSIONING AGENT'S (CxA) RESPONSIBILITIES:

A. Organize and lead the Commissioning Team.

B. Prepare a construction-phase Commissioning Plan. Collaborate through the Engineer with each Contractor and with subcontractors to develop test and inspection procedures. Include design changes and coordinate commissioning activities with the overall Project schedule. Identify Commissioning Team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task. Update the Commissioning Plan during construction as required.

C. Review and comment on submittals from the Contractor for compliance with the OPR, BOD, Contract Documents, and construction-phase Commissioning Plan. Review and comment on performance expectations of systems and equipment and interface between systems relating to the OPR and BOD.

D. Coordinate with the Engineer to convene Commissioning Team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes.

E. At the beginning of the construction phase, coordinate with the Engineer 's kick-off meeting schedule to conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for operation and maintenance submittals, operation and maintenance orientation sessions, TAB Work, testing, and Project completion.

F. Perform site visits to observe and inspect construction as described in the Commissioning Plan. Report progress and deficiencies to the Engineer . In addition to compliance with the OPR, BOD, and Contract Documents, inspect systems and equipment installation for adequate accessibility required for component maintenance replacement and repair.

G. Prepare and distribute project-specific test and inspection procedures and checklists and maintain a Master Equipment List.

H. Verify air and water systems balancing by sampling, by reviewing completed reports, and by selected site observation. Coordinate submittal reviews with the Engineer so that the comments are combined into a single review and submitted to the Contractor.

I. Coordinate with the Engineer to witness and document tests, inspections, and systems startup, as per the Commissioning Plan.

J. Maintain an issues log and a record of functional testing. Report all issues as they occur to the Engineer .

K. Compile test data, inspection reports, and certificates and include them in the systems manual and Commissioning Report.

L. Certify date of acceptance and startup for each item of equipment for start of warranty periods.

M. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BOD, and Contract Documents. Operation and maintenance documentation requirements are specified in other sections of the Project Specifications.

N. Review agenda for orientation; witness and confirm orientation session conforms with agenda and Contract Documents; review recording of demonstration and orientation sessions provided by the Contractor on USB drive or other electronic media as requested by the Engineer and provide appropriate comments for editing.

O. Return to the site 10 months into the 12-month guaranty period, to review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Interview facility staff and identify problems or concerns they have with operating the building as originally intended.

P. Prepare Commissioning Reports.

Q. Assemble the final commissioning documentation, including the Commissioning Report and Systems Manual.

R. Perform all CxA tasks as defined by LEED; prepare LEED submittal documents.

1.9 COMMISSIONING DOCUMENTATION:

The Contractor shall assist the CxA in the development and compiling of the following Commissioning Documentation:

A. Index of Commissioning Documents: The CxA will prepare an index including the storage location of each document.

B. Commissioning Plan: A document prepared by the CxA that outlines the schedule, allocation of resources, roles and responsibilities, and documentation requirements of the commissioning process.

C. Test Checklists: The CxA will develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. The CxA will prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Space will be provided for testing personnel to sign off on each checklist. Specific checklist content requirements are specified in other sections of the Project Specifications, but shall include without limitation:

1. Identification of tested item
2. Date of test
3. Indication of whether the record is for a first test or retest following correction of a problem or issue
4. Dated signatures of the person performing the test and of the witness if applicable
5. Deficiencies and issues, if any, generated as a result of the test

D. Inspection Checklists will be signed by the Contractor, Subcontractor(s), Installer(s), and CxA certifying that systems, subsystems, equipment, and associated controls are ready for testing.

E. Test and Inspection Reports: The CxA will record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate for the application will be included with data. CxA shall compile test and inspection reports and test and inspection certificates and include them in systems manual and Commissioning Report.

F. Corrective Action Documents: The CxA will document corrective action taken for systems and equipment that fail tests and include required modifications to systems and equipment and revisions to test procedures, if any. The Contractor shall retest systems and equipment requiring corrective action. The CxA will document retest results.

G. Issues Log: The CxA will prepare and maintain an issues log that describes design, installation, and performance issues that are at variance with the OPR, BOD, and Contract Documents. The log will identify and track issues as they are encountered, documenting the status of unresolved and resolved issues. The Issues Log will identify, at a minimum:

1. The party responsible for correcting the issue,
2. The person documenting the issue resolution,
3. The exact location of the issue (floor and room),
4. The applicable system component,
5. A detailed description of the issue,
6. The issue status, and
7. The date the issue was discovered and the date the issue was resolved.

H. Commissioning Report: The CxA will document results of the commissioning process including unresolved issues and performance of systems, subsystems, and equipment. The Commissioning Report will indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BOD, and Contract Documents. The Commissioning Report shall include:

1. An Executive Summary, including participants and their roles, a brief building description, an overview of the commissioning and testing scope, and a general description of testing and verification methods,
2. Installation/ Pre-Functional Checklists,
3. Start-up Reports,
4. Functional Test documentation,
5. Trend Log Analysis,
6. The final Issues Log, with all issues identified through the commissioning process, identifying which, if any, issues remain unresolved,
7. The Commissioning Plan,
8. Commissioning progress and field reports,
9. Commissioning review documents, and
10. Record of Owner's Orientation.

I. Systems Manual: The CxA will gather required information and compile systems manual as specified in other sections of the Project Specifications.

1.10 SUBMITTALS:

A. Submittal of shop drawings, product data, samples, etc., relevant to commissioning shall be provided to the CxA as requested.

B. As-Built Contract Record Drawings and Operating and Maintenance Manuals relevant to commissioning shall be provided to the CxA as requested. Such submittals shall be in compliance with the Contract Documents.

C. All demonstration and orientation submittals relevant to commissioning shall be provided to the CxA as requested. Such submittals shall be in compliance with DEMONSTRATION AND OWNER'S PREACCEPTANCE ORIENTATION in these pages.

D. Completed Prefunctional (Installation) Checksheets shall be provided to the CxA.

1.11 COORDINATION:

A. Coordination of Commissioning is the responsibility of all Commissioning Team members.

B. Coordinating Meetings: The CxA will coordinate with the Engineer 's regularly scheduled construction progress meetings to conduct coordination meetings of the Commissioning Team to review progress on the Commissioning Plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities. Engineer and Contractor shall ensure that all required Commissioning Team members attend.

C. Construction Documents: The Contractor, through the Engineer , will furnish copies of all construction documents, addenda, change orders and appropriate submittals and shop drawings to the CxA.

D. Pre-testing Meetings: The CxA will coordinate with the Engineer to conduct pretest meetings of the Commissioning Team to review startup reports, pretest inspection results, testing procedures, testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested. Engineer and Contractor shall ensure that all required Commissioning Team members attend.

E. Testing Coordination: Contractor shall coordinate schedule times with the Commissioning Team, through the Engineer , for tests, inspections, obtaining samples, and similar activities. The CxA will advise the Commissioning Team as to the sequence of testing activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

F. Manufacturers' Field Services: The Contractor shall coordinate manufacturers' field services, as per the Commissioning Plan.

G. The CxA will regularly apprise the Engineer of progress, pending problems and/or disputes, as well as provide regular status reports on progress of each system.

PART 2 – PRODUCTS

2.1 TEST EQUIPMENT

A. All industry standard test equipment required for performing the specific tests shall be provided by the Contractor responsible for testing. Any proprietary Vendor-specific test equipment shall be provided by that Vendor or Manufacturer.

B. Special equipment, tools, instruments, software, and equipment communication network access hardware and software (only available from Vendor, specific to the piece of equipment) required for testing equipment according to the Contract Documents shall be included at no extra cost to the City and shall be turned over to the City at Project close-out, except for stand-alone data logging equipment that may be used by the CxA.

C. Any portable or handheld setup and/or calibration devices required to initialize the control system shall be made available by the control vendor for use by the CxA at no additional cost to the City.

D. The instrumentation used in the commissioning process shall comply with the following:
   1. Be of sufficient quality and accuracy to test and/or measure system performance within the tolerances required
   2. Be calibrated at the manufacturer's recommended intervals with calibration tags permanently affixed to the instrument
   3. Be maintained in good repair and operating condition throughout use duration on this Project
   4. Be immediately recalibrated or repaired if dropped and/or damaged in any way during this Project.

PART 3 – EXECUTION

3.1 COMMISSIONING PROCESS

A. The following provides an overview of the Commissioning tasks during Project construction and the general order in which they occur.

1. Construction-phase Commissioning begins with a Commissioning Kickoff Meeting, conducted by the CxA through the Engineer , where the Commissioning process is reviewed with all the Commissioning Team Members.
2. Additional meetings may be required throughout construction, scheduled by the CxA through the Engineer with necessary parties attending, to plan, scope, coordinate and schedule future activities and resolve open issues.
3. The CxA will review the Contractor submittals concurrent with the Engineer and provide comments to the Engineer for inclusion in their review. The reviewed submittals will include all commissioned equipment information, including detailed startup procedures, and coordination drawings that include commissioned equipment and systems, control drawings and sequences, and interfaces and interlocks between systems.
4. The CxA works with the Engineer and Contractor in developing Pre-functional and Functional Test documentation formats.
5. Periodically throughout the construction process, the CxA will perform site visits to observe component and system installations.
6. The checkout and performance verification generally proceeds from component level to equipment to systems and intersystem levels. Pre-functional (Installation) Checklists are to be completed before Functional Performance Checklists.
7. The Contractor shall, with guidance from the CxA, execute and document the Pre-Functional (Installation) Checklists and perform startup and initial checkout of equipment and systems. The CxA documents that the checklists and startup are completed according to the approved plans. This will include the CxA witnessing selected assembly markups, portions of the startup of selected equipment, and spot checking the Pre-Functional (Installation) Checklists.
8. The CxA develops specific equipment and system Functional Checklists. The Contractor receives a copy of the procedure through the Engineer . The CxA may request additional design narrative from the Engineer and Controls Contractor, depending on the completeness of the Basis of Design and sequences provided within the design documents.
9. The Functional Checklists are executed by the Contractor and witnessed and documented by the CxA.
10. Items of non-compliance in material, installation startup, and operation are corrected and the equipment or system is rechecked. The CxA will maintain an Issues Log to track issues and issue resolution.
11. The CxA will review the Operation & Maintenance documentation for completeness.
12. Commissioning, excluding the Warranty Walkthrough, shall be completed prior to Substantial Completion.
13. The CxA reviews the orientation documentation. The orientation schedules and agenda are provided by the subcontractors. The CxA verifies that orientation is completed, attended by the appropriate City of New York personnel, is thorough and provides all necessary information required to operate and service the equipment or system.
14. Deferred testing/ checkouts are conducted, as specified or required in the Contract Documents.

3.2 COMMISSIONING PLAN AND SCHEDULE

A. Commissioning Plan: The Commissioning Plan provides guidance in the execution of the commissioning process. After the initial construction phase Commissioning kickoff meeting, the CxA will update the plan. This plan is a living document that shall evolve and expand as the Project progresses. The Commissioning Plan shall include:

1. Description of the facility and Project.
2. Description of the commissioning process and associated deliverable documents.
3. Description of equipment and systems to be commissioned.
4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.
5. Sample rates for equipment to be tested.
6. Identification of task items that must be completed before the next operation can proceed.
7. Description of responsibilities of Commissioning Team members.
8. Description of observations to be made and reported on during testing and witnessing of testing by all parties involved in the Project.

B. Commissioning Schedule: Contractor shall provide construction schedules to the CxA. The CxA will develop and submit a schedule identifying the commissioning process and provide commissioning scheduling information to the Engineer and Contractor for review and planning activities. The Contractor shall incorporate the CxA's activities into the Project schedule.

3.3 TESTING PROCEDURES

A. The CxA will determine and document the acceptance procedures for each system within disciplines. The acceptance procedures shall incorporate the commissioning standards and successful testing results as referred to throughout the Specifications.

B. The CxA will provide performance checklists and performance checkout data sheets for each system based on actual system configuration. Special emphasis shall be placed on checkout procedures that shall conclusively determine actual system performance and compliance with the OPR and BoD.

C. The Contractor and appropriate Vendor(s) shall be informed of what tests are to be performed and the expected results. The Commissioning Plan shall address the test requirements and be distributed to all parties involved with that system.

D. Prior to Functional Testing, the Contractor shall provide the following:

1. Contractor shall certify in writing that commissioned systems, subsystems, and equipment have been installed, calibrated and started, and are operating according to the Contract Documents.
2. Contractor shall certify in writing that all relevant instrumentation and control systems have been completed and calibrated; are operating according to the Contract Documents; and that pretest set points have been recorded.
3. Contractor shall certify in writing that TAB procedures have been completed, and that the TAB report has been submitted, discrepancies corrected, and corrective work approved.
4. Contractor shall perform tests for system and intersystem performance only after CxA and Engineer have approved the completed testing checklists for systems, subsystems, and equipment.

E. The Functional Performance tests shall be performed by the Contractor and Vendor(s) with oversight by the CxA. The CxA shall witness, verify, and document these tests.

1. Functional Performance Tests shall include operating the systems and components through each of the written sequences of operation, other significant modes of miscellaneous alarms, power failure, and security alarm when impacted by and interlocked with commissioned equipment, as detailed in the Commissioning Plan.

2. Checklists shall be completed comprehensively and to the extent necessary to enable the CxA to assure the Engineer that the systems perform as per the OPR, BOD, and Contract Documents.
3. If a test is failed for any reason and retesting is required, the Contractor shall provide retesting at no additional cost to the City.
4. After testing, Contractor shall return settings to normal operating conditions.

3.4 OPERATION & MAINTENANCE MANUALS

A. General

i. The CxA shall review the Operation & Maintenance manuals provided by the Contractor for completeness of the document. The review process shall verify that Operation & Maintenance instructions meet Specifications and are included for all commissioned equipment furnished by the Contractor.

ii. Published literature shall be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.

iii. The Contractor shall incorporate the standard technical literature into system specific formats for this facility as designed and as actually installed. The resulting Operation & Maintenance information shall be system specific, concise, to the point and tailored specifically to this facility. The CxA shall review these documents as necessary for final corrections by the Contractor.

iv. Contractor shall submit Operations & Maintenance Manuals for each piece of equipment for review no later than 45 days after submittal approval.

B. The Operation & Maintenance Manual review and coordination efforts shall be completed prior to Owner orientation sessions, as these documents are to be utilized in the orientation sessions.

C. System Operations Manual

i. The CxA shall prepare and deliver these documents with inputs from the Contractor. The Contractor shall provide all required documents to the CxA, through the Engineer . The required documents shall be described in the Commissioning Plan and Contract Documents. Typically, the manual includes the following:

1. System, subsystem, and equipment descriptions
2. Commissioned systems single line diagrams (to be provided by Mechanical, Electrical, Plumbing, and Building Management System (BMS) subcontractors).
3. As built sequences of operations, control drawings and original set points (to be provided by Design Consultant and BMS subcontractor).
4. Operating instructions for integrated building systems (to be provided by Mechanical and BMS subcontractors).
5. Recommended schedule of maintenance requirements and frequency (to be provided by subcontractors).
6. Recommended schedule for calibrating sensors and actuators (to be provided by BMS subcontractor).

3.5 DEMONSTRATION AND INSTRUCTION

A. The Contractor shall schedule and coordinate instruction sessions for the facility's staff for each commissioned system. Demonstrations shall be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio orientation aids onsite with equipment.

B. The equipment vendors shall provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.

C. The Contractor shall record and edit demonstration and orientation sessions, and provide these records to the CxA, through the Engineer .

D. For additional direction pertinent to instruction, refer to other specific divisions for demonstration and instruction requirements.

3.6 WARRANTY REVIEW / SEASONAL TESTING

A. The CxA will return upon the start of the new season (cooling or heating) after Project completion to conduct performance tests that could not be performed due to ambient conditions. The seasonal testing will only be performed if unsuitable loads / conditions were unavailable during the performance testing stages (in other words; the requirement for testing is warranted).

B. The CxA will return to the site approximately 10 months into the 12-month guaranty period and interview the occupants and maintenance staff, review the operation of the building, provide recommendations for installation and operational problems and document warranty and operational issues in the issues database.

3.7 RECORD DRAWINGS

A. The CxA shall review the as built Contract Documents to verify incorporation of both design changes and as built construction details. Discrepancies noted shall be corrected by the appropriate party.

COMMISSIONING OF PLUMBING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the project:
1. Contract Drawings
2. Specifications
3. City of New York Standard Construction Contract

1.2 SUMMARY

A. This section includes commissioning process requirements for Plumbing systems, assemblies, and equipment.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City of New York with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of each contractor to provide a complete and finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City of New York.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:
1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing subcontractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Service documentation is complete and transferred to City of New York.
4. Verify that the City of New York's operating personnel are adequately oriented.
5. Perform a post occupancy review with O&M staff within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the Engineer , Contractor, subcontractors, manufacturers and equipment suppliers.

E. The Cx process shall not reduce the responsibility of the Contractor to comply with the Contract Documents.

1.4 SUBMITTALS

Refer to following:

A. Certificates of readiness
B. Certificates of completion of installation, prestart, and startup activities.
C. O&M manuals
D. Test reports

1.5 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: contractors will comply with test manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup, initial checkout and functional performance testing shall be provided by the contractor for the equipment being tested. A sufficient quantity of two-way radios shall be provided by the contractor.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be included in the base bid price to the City of New York and left on site, except for stand-alone data logging equipment that may be used by the CxA.

C. Test equipment and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Proprietary test equipment (and software) shall become the property of the City of New York upon completion of the commissioning process.

D. Data logging equipment and software required to test equipment, if provided by the CxA, shall not become the property of the City of New York.

E. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications. If not otherwise noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to accuracy of 0.5°F and a resolution of ±0.1°F. Pressure sensors shall have an accuracy of ±2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.

PART 3 - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. With assistance from the installing subcontractors, the CxA will prepare Pre-Functional Checklists for commissioned components, equipment, and systems

B. Red-lined Drawings:

1. The contractor will verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.

2. Preliminary red-lined drawings must be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.

3. Changes, as a result of Functional Testing, must be incorporated into the final as-built drawings, which will be created from the red-lined drawings.

4. The contracted party, as defined in the Contract Documents will create the as-built drawings.

C. Operation and Service Data:

1. Contractor will provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.

2. The CxA will review the O&M literature once for conformance to project requirements.

3. The CxA will receive a copy of the final approved O&M literature from the Contractor once corrections have been made by the subcontractor.

D. Demonstration and Instruction:

1. Contractor will provide demonstration and instruction as required by the specifications.

2. A complete instruction plan and schedule must be submitted by the contractor to the CxA four weeks (4) prior to any instruction.

3. An instruction agenda for each instruction session must be submitted to the CxA one (1) week prior the training session.

4. The CxA shall be notified at least 72 hours in advance of scheduled tests so that testing may be observed by the CxA. A copy of the test record shall be provided to the CxA and Engineer .

5. Engage a Factory-authorized service representative to orient facility's service personnel to adjust, operate, and maintain specific equipment.

6. Orient facility's service personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.

7. Review data in O&M Manuals.

3.2 CONTRACTOR'S RESPONSIBILITIES FOR SUBCONTRACTOR'S PERFORMANCE

A. The Contractor shall cause the specified subcontractor to have the following instruction responsibilities

B. Perform commissioning tests at the direction of the CxA

D. Attend construction phase controls coordination meetings.

E. Attend domestic water balancing review and coordination meetings.

F. Participate in Plumbing systems, assemblies, equipment, and component service orientation and inspection as directed by the CxA.

G. Provide information requested by the CxA for final commissioning documentation.

H. Include requirements for submittal data, operation and maintenance data, and instruction in each purchase order or sub-contract written.

I. Prepare preliminary schedule for Plumbing system orientations and inspections, operation and maintenance manual submissions, orientation sessions, pipe and duct system testing, flushing and cleaning, equipment start-up, testing and balancing and task completion. Distribute preliminary schedule to commissioning team members.

J. Update schedule as required throughout the construction period.

K. During the startup and initial checkout process, execute the related portions of the pre- functional checklists for all commissioned equipment.

L. Assist the CxA in all verification and functional performance tests.

M. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.

N. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA (45) days after submittal acceptance.

O. Coordinate with the CxA to provide (72) hour advance notice so that the witnessing of equipment and system start-up and testing can begin.

P. Notify the CxA a minimum of (2) weeks in advance of the time for start of the balancing work. Attend the initial balancing meeting for review of the balancing procedures.

Q. Participate in, and schedule vendors and subcontractors to participate in the instruction sessions.

R. Provide written notification to the CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.

1. A plumbing equipment including backflow preventers,, pumps, and all other equipment furnished the Contract Documents.

2. Gas piping, sanitary waste and vent piping, storm drainage piping, sump pumps and, sewage ejectors.

S. The equipment supplier shall document the performance of his equipment.

T. Provide a complete set of red-lined drawings to the CxA prior to the start of Functional Performance Testing.

U. Perform Test, Adjust and Balance work:

1. Attend initial commissioning coordination meeting scheduled by the CxA.

2. Submit the site specific balancing plan to the CxA for review and acceptance.

3. Attend the balancing review meeting scheduled by the CxA. Be prepared to discuss the procedures that shall be followed in balancing the Plumbing system.

4. At the completion of the balancing work, and the submittal of the final balancing report, notify the Contractor.

5. Participate in verification of the balancing report, which will consist of repeating measurements contained in the balancing reports. Assist in diagnostic purposes when directed.

V. Provide instruction of the facility's operating staff using qualified personnel, as specified.

W. Equipment Suppliers

1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities, to keep warranties in force.

2. Assist in equipment testing per agreements with respective subcontractors.

3. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

3.3 TESTING PREPARATION

A. Certify in writing to the CxA that Plumbing systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that Plumbing instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that balancing procedures have been completed and that testing, adjusting, and balancing reports have been submitted, discrepancies corrected, and corrective work approved.
D. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).
E. Inspect and verify the position of each device and interlock identified on checklists.
F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.
G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.4 DOMESTIC WATER BALANCING VERIFICATION

A. Prior to performance of Domestic Water Balancing work, provide copies of reports, sample forms, checklists, and certificates to the CxA.

B. Notify the CxA at least ten (10) days in advance of testing and balancing Work, and provide access for the CxA to witness balancing Work.

C. Provide technicians, instrumentation, and tools to verify testing and balancing of Plumbing systems at the direction of the CxA

1. The CxA will notify testing and subcontractor performing balancing work ten (10) days in advance of the date of field verification. Notice will not include data points to be verified.

2. The subcontractor performing balancing work shall use the same instruments (by model and serial number) that were used when original data were collected.

3. Failure of an item includes a deviation of more than 10 percent. Failure of more than 10 percent of selected items shall result in rejection of final balancing report.

4. Remedy the deficiency and notify the CxA so verification of failed portions can be performed.

3.5 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of Plumbing testing shall include entire Plumbing installation. Testing shall include measuring capacities and effectiveness of operational and control functions.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The CxA along with the subcontractor performing plumbing work and the subcontractor performing balancing work shall prepare detailed testing plans, procedures, and checklists for Plumbing systems, subsystems, and equipment.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by the CxA and document

G. Simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

H. The CxA may direct that set points be altered when simulating conditions is not practical.

I. The CxA may direct that sensor values be altered with a signal generator when design or simulating conditions and altering set points are not practical.

J. If tests cannot be completed because of a deficiency outside the scope of the Plumbing system, document the deficiency and report it to the Engineer . After deficiencies are resolved, reschedule tests.

K. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.6 PLUMBING SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing and Acceptance requirements are specified in the I-Pages Provide submittals, test data, inspector records, and certifications to the CxA.

B. Plumbing Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in the Contract Documents. Assist the CxA with preparation of testing plans.

C. Pipe system cleaning, flushing, hydrostatic tests and chemical treatment: Subcontractor performing plumbing work shall prepare a pipe system cleaning, flushing, and hydrostatic testing plan. Provide cleaning, flushing, testing, and treating plan and final reports to the CxA.

D. Plumbing Distribution System Testing: Provide technicians, instrumentation, tools, and equipment to test performance of domestic water distribution system.

E. Vibration and Sound Tests: Provide technicians, instrumentation, tools, and equipment to test performance of vibration isolation and seismic controls.

F. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and subsystems.

3.7 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Documents requirements.

3.8 INSTRUCTION OF FACILTY PERSONNEL

A. The contractor shall cause the plumbing subcontractor to have the following instruction responsibilities:

1. Provide the CxA with an instruction plan two weeks before the planned instruction.

2. Provide the facility personnel with comprehensive orientation and instruction in the understanding of the systems and the operation and service of each piece of Plumbing equipment.

3. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

4. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing subcontractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the instruction.

5. The instruction sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.

6. Hands-on instruction shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.

7. The subcontractor work shall fully explain and demonstrate the operation, function and overrides of any local packaged controls.

8. Instruction shall occur after functional testing is complete, unless approved otherwise by the Engineer .

END OF SECTION

COMMISSIONING OF ELECTRICAL

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The followings documents apply to all required work for the project:

1. Contract drawings
2. Specifications
3. City of New York Standard construction Contract.

1.2 SUMMARY

A. This section includes commissioning process requirements for Electrical systems, assemblies, and equipment.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems, including the mechanical and electrical systems, have been installed in the prescribed manner, are functionally checked and capable of being operated and maintained to perform with the design intent and have documentation to support proper installation and operation. The Commissioning Agent (CxA) shall provide the City of New York with an unbiased, objective view of the system's installation, operation and performance. This process does not eliminate or reduce the responsibility of each system contractor to provide a complete design or installing contractor(s) to provide a finished product. Commissioning is intended to enhance the quality of each system installation, startup and transfer to beneficial use by the City of New York.

B. Commissioning during the construction phase is intended to achieve the following specific objectives, according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that Operation & Maintenance documentation is complete and transferred to City of New York.
4. Verify that proper orientation program has been implemented for the City of New York's operating personnel.
5. Ensure that provisions are in place for a post occupancy review with O&M staff within 10 months after Substantial Completion.

C. The Commissioning process shall be a team effort and encompass, as well as coordinate, the traditionally separate functions of system documentation, system installation, equipment startup, control system calibration, testing, balancing and verification and performance checkouts.

D. The CxA will work closely with the construction team, cooperating on and coordinating all Cx activities with the DDC Project Manager, Contractor, subcontractors, manufacturers and equipment suppliers.

E. The Cx process shall not reduce the responsibility of the Contractor to comply with the Contract Documents.

1.4 SUBMITTALS

A. In addition, provide the following:

1 Certificates of readiness

2 Certificates of completion of installation, prestart, and startup activities.

3 O&M manuals

4 Field / factory Test reports

1.5 QUALITY ASSURANCE

A. Test Equipment Calibration Requirements: contractors will comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately after instruments have been repaired resulting from being dropped or damaged. Affix calibration tags to test instruments. Furnish calibration records to CxA upon request.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup, initial checkout and functional performance testing shall be provided by the Contractor for the equipment being tested. For example, the Contractor shall ultimately be responsible for all standard testing equipment for the electrical systems and control systems. A sufficient quantity of two- way radios shall be provided by the contractor.

B. Special equipment, tools and instruments (specific to a piece of equipment and only available from vendor) required for testing shall be included in the base bid price to the City of New York and left on site, except for stand-alone data logging equipment that may be used by the CxA.

C. Test equipment and software required by any equipment manufacturer for programming and/or start-up, whether specified or not, shall be provided by the manufacturer of the equipment. Manufacturer shall provide the test equipment, demonstrate its use, and assist in the commissioning process as needed. Proprietary test equipment (and software) shall become the property of the City of New York upon completion of the commissioning process.

D. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Specifications.

PART 3 - EXECUTION

3.1 GENERAL DOCUMENTATION REQUIREMENTS

A. The Contractor shall cause the subcontractor(s) to provide instruction responsibility to the CxA in preparing Installation Check Sheets for all commissioned components, equipment, and systems

B. Red-lined Drawings:

1. The Contractor shall cause the subcontractor(s) to verify all equipment, systems, instrumentation, wiring and components are shown correctly on red-lined drawings.
2. Preliminary red-lined drawings must be made available to the Commissioning Team for use prior to the start of Functional Performance Testing.
3. Changes, as a result of Functional Testing, must be incorporated into the final as- built drawings, which will be created from the red-lined drawings.
4. The contracted party, as defined in the Contract Documents will create the as-built drawings.

C. Operation and Maintenance Data:

1. Contractor shall cause the Subcontractor to provide a copy of O&M literature within 45 days of each submittal acceptance for use during the commissioning process for all commissioned equipment and systems.
2. The CxA will review the O&M literature once for conformance to project requirements
3. The CxA will receive a copy of the final approved O&M literature once corrections have been made by the contractor.

D. Demonstration and Instruction:

1. Contractor shall cause the Subcontractor to provide demonstration and operator's instruction as required by the contract document.
2. A complete instruction plan and schedule must be submitted by the contractor to the CxA four weeks (4) prior to any such event.
3. Agenda for each instruction session shall be submitted to the CxA at least one (1) week prior to the session.
4. The CxA shall be notified at least seventy-two (72) hours in advance of scheduled tests so that testing may be observed by the CxA. A copy of the test record shall be provided to the CxA.
5. Engage a Factory-authorized service representative to demonstrate City of New York's maintenance personnel to adjust, operate, and maintain specific equipment.
6. Instruct City of New York's service personnel on procedures and schedules for starting and stopping, trouble shooting, servicing, and maintaining equipment.
7. Review and update data in O&M Manuals.

3.2 CONTRACTOR'S RESPONSIBILITIES FOR SUBCONTRACTOR PERFORMANCE

A. Perform commissioning tests as per the written procedures and at the direction of the CxA C.

Attend construction phase controls coordination meetings.

B. Participate in Electrical systems, assemblies, equipment, and component maintenance orientation and inspection as directed by the CxA.

C. Provide information requested by the CxA for final commissioning documentation.

D. Include requirements for submittal data, operation and maintenance data, and instruction in each purchase order or sub-contract written.

E. Prepare preliminary schedule for Electrical system orientations and inspections, operation and maintenance manual submissions, instruction sessions, equipment start-up and task completion for the City of New York. Distribute preliminary schedule to commissioning team members.

F. Update schedule as required throughout the construction period.

G. During the startup and initial checkout process, execute the related portions of the prefunctional checklists for all commissioned equipment.

H. Perform all verification and functional performance tests in the presence of the CxA as required.

I. Provide measuring instruments and logging devices to record test data, and provide data acquisition equipment to record data for the complete range of testing for the required test period.

J. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the specifications. Submit to CxA forty five (45) days after submittal acceptance.

K. Coordinate with the CxA to provide seventy-two (72) hour advance notice so that the witnessing of equipment and system start-up and testing can begin.

L. Notify the CxA a minimum of two weeks in advance for start of the testing work.

M. Participate in, and schedule vendors and respective subcontractors to participate in the operator's orientation sessions.

N. Provide written notification to the Engineer and CxA that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.

O. The Contractor shall attend the 10-month warranty walkthrough with the facility representative and the CxA.

P. Electrical equipment including switchgear, panel boards, motor control centers, lighting, receptacles, and all other electric equipment furnished under the Contract Documents.

Q. The equipment supplier shall document the performance of his equipment.

R. Equipment Suppliers
   1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City of New York, to keep warranties in force.
   2. Assist in equipment testing per agreements with contractors.
   3. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

3.3 TESTING PREPARATION

A. Certify in writing to the CxA that Electrical systems, subsystems, and equipment have been installed, megerred, calibrated, and started and are operating according to the Contract Documents.

B. Certify in writing to the CxA that Electrical instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.

C. Certify in writing that testing procedures have been completed and that testing reports have been submitted, discrepancies corrected, and corrective work approved.

D. Place systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

E. Inspect and verify the position of each device and interlock identified on checklists.

F. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

G. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.4 GENERAL TESTING REQUIREMENTS

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Scope of Electrical testing shall include the entire Electrical installation, from the incoming power equipment throughout the distribution system. Testing shall include measuring, but not limited to resistance, voltage, and amperage of system(s) and devices.

C. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

D. The Contractor and other contracted subcontractors, including contractor performing fire alarm work shall prepare detailed testing plans, procedures, and checklists for Electrical systems, subsystems, and equipment with guidance from CxA.

E. Tests will be performed using design conditions whenever possible.

F. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

G. The CxA may direct that set points be altered when simulating conditions is not practical.

H. If tests cannot be completed because of a deficiency outside the scope of the Electrical system, document the deficiency and report it to the Engineer . After deficiencies are resolved, reschedule tests.

I. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.5 ELECTRICAL SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

A. Equipment Testing and Acceptance Procedures: Testing requirements are specified in the Contract Documents. Provide submittals, test data, inspector record, infrared camera and certifications to the CxA.

B. Electrical Instrumentation and Control System Testing: Field testing plans and testing requirements are specified in contract documents Assist the CxA with preparation of testing plans.

C. Fire Detection and Alarm System Testing: Provide technicians, instrumentation, tools and equipment to test performance of designated systems and devices at the direction of the CxA.

D. The CxA shall determine the sequence of testing and testing procedures for each equipment item to be tested.

E. Electrical Distribution System Testing: Provide technicians, load banks, infrared cameras, instrumentation, tools and equipment to test performance of designated systems and devices at the direction of the CxA. The CxA shall determine the sequence of testing and testing procedures for each equipment item and pipe section to be tested

F. Variable Frequency Drive System Testing: Contractor to prepare a variable frequency drive system testing plan to include tuning to minimize vibration. Contractor to coordinate witnessing of testing with CxA.

G. Vibration and Sound Tests: Provide technicians, instrumentation, tools, and equipment to test performance of vibration isolation and seismic controls.

H. The work included in the commissioning process involves a complete and thorough evaluation of the operation and performance of all components, systems and sub-systems.

3.9 OPERATION AND MAINTENANCE MANUALS

A. The Operation and Maintenance Manuals shall conform to Contract Documents requirements.

3.10 INSTRUCTION OF FACILTY PERSONNEL

A. Contractor. The Contractor shall have the following instruction responsibilities:

1. Provide the CxA with an instruction plan four weeks before the planned instruction.
2. Provide the facility operating personnel with comprehensive instruction in the understanding of the systems and the operation and maintenance of each major piece of commissioned electrical equipment or system.
3. Instruction shall be recorded by the Contractor and start with classroom sessions, if necessary, followed by hands on instruction on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.
4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the instruction.
6. The instruction sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
7. Instruction shall include:
   a. Use the printed installation, operation and maintenance instruction material included in the O&M manuals.
   b. Include a review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The instruction shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
   c. Discuss relevant health and safety issues and concerns. d. Discuss warranties and guarantees.
   e. Cover common troubleshooting problems and solutions.
   f. Explain information included in the O&M manuals and the location of all plans and manuals in the facility.
   g. Discuss any peculiarities of equipment installation or operation.
8. Hands-on instruction shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance of all pieces of equipment.
9. The Contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.
10. Instruction shall occur after functional testing is complete, unless approved otherwise by the Engineer .

END OF SECTION

DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements, when set forth in sections of the Project Specifications, for instructing facility's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Owner's Pre-Acceptance Orientation in operation and maintenance of systems, subsystems, and equipment.
3. Demonstration and Orientation video recordings.

B. The Contractor shall provide the services of equipment manufacturers orientation specialists experienced in the type of equipment to be demonstrated.

C. Separate Orientation sessions shall be conducted for mechanical operations and maintenance personnel and for electronic and electrical maintenance personnel.

D. Commissioning: For Commissioned projects the Contractor shall provide Demonstration and Orientation as described in this section and cooperate with the Commissioning Authority/Agent (CxA) to implement Commissioning requirements.

1.3 DEFINITIONS:

A. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

1.4 SUBMITTALS:

A. Instruction Program: Submit three (3) copies of outline of instructional program for demonstration and orientation, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each orientation module to the Engineer for approval no less than thirty (30) days prior to the date the proposed orientation is to take place. Include learning objectives and outline for each orientation module.

1. At completion of orientation, submit three (3) complete training manual(s) and three (3) applicable video recording(s) to the Engineer for the facility's and City's use.

B. Qualification Data: For facilitator, instructor and Videographer.

C. Attendance Record: For each orientation module, submit list of participants and length of instruction time

D. Evaluations: For each participant and for each orientation module, submit results and documentation of

performance-based test.

E. Submit all final orientation material to the Resident Engineer a minimum of fourteen (14) days prior to the scheduled orientation.

F. Demonstration and Orientation Recordings:

1. All Projects:

a. The Contractor shall submit to the Engineer three (3) copies of Demonstration and Orientation Video recordings within seven (7) days of end of each orientation module.

b. Identification: On each copy, provide an applied label with the following information:

1) Project Contract I.D. Number
2) Project Contract Name
3) Name of Contractor
4) Name of Subcontractor as applicable
5) Name of Design Consultant
6) Name of Construction Manager as applicable
7) Date recorded.
8) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
9) Table of Contents including list of systems covered.

c. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding DVD recording. Include name of Project and date of recording on each page.

d. Commissioned Projects: The Contractor shall submit one (1) additional copy of the Demonstration and Orientation video recording to the Commissioning Agent through the Resident Engineer who will include the approved recording in the Commissioning Report.

1.5 QUALITY ASSURANCE:

A. Facilitator Qualifications: A firm or individual experienced in orientation or educating maintenance personnel in an orientation program similar in content and extent to that indicated for this Project.

B. Instructor Qualifications: A factory-authorized service representative, experienced in operation and maintenance procedures and orientation.

C. Videographer Qualifications: A professional Videographer who has experience with orientation and construction projects.

D. Pre-instruction Conference: Schedule with the Resident Engineer a conference at Project site. Review methods and procedures related to demonstration and orientation including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION:

A. Coordinate instruction schedule with the Resident Engineer and facility's operations. Adjust schedule as req to minimize disrupting facility's operations.
B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of orientation modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by the Engineer .

PART 2 – PRODUCTS

2.1 INSTRUCTION PROGRAM:

A. Program Structure: Develop an instruction program that includes individual orientation modules for each system and equipment not part of a system, as specified and required by individual Specification Sections.
B. Orientation Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
   a. System, subsystem, and equipment descriptions.
   b. Performance and design criteria if Contractor is delegated design responsibility.
   c. Operating standards.
   d. Regulatory requirements.
   e. Equipment function including auxiliary equipment and systems.
   f. Operating characteristics.
   g. Limiting conditions.
   h. Performance curves.

2. Documentation: Review the following items in detail:
   a. Emergency manuals.
   b. Operations manuals.
   c. Maintenance manuals.
   d. Project Record Documents.
   e. Identification systems.
   f. Warranties

3. Emergencies: Include the following, as applicable:
   a. Instructions on meaning of warnings, trouble indications, and error messages.
   b. Instructions on stopping.
   c. Shutdown instructions for each type of emergency.
   d. Operating instructions for conditions outside of normal operating limits.
   e. Sequences for electric or electronic systems.
   f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:
   a. Startup procedures.
   b. Equipment or system break-in procedures.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Control sequences.
   f. Safety procedures.
   g. Instructions on stopping.

h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:
   a. Alignments.
   b. Checking adjustments.
   c. Noise and vibration adjustments.
   d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:
   a. Diagnostic instructions.
   b. Test and inspection procedures.

7. Maintenance: Include the following:
   a. Inspection procedures.
   b. Types of cleaning agents to be used and methods of cleaning.
   c. List of cleaning agents and methods of cleaning detrimental to product.
   d. Procedures for routine cleaning
   e. Procedures for preventive maintenance.
   f. Procedures for routine maintenance.
   g. Instruction on use of special tools.
   h. Housekeeping practices

8. Repairs: Include the following:
   a. Diagnosis instructions.
   b. Repair instructions.
   c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   d. Instructions for identifying parts and components.
   e. Review of spare parts needed for operation and maintenance.

PART 3 – EXECUTION

3.1 INSTRUCTION:

A. Facilitator: Engage a qualified facilitator to prepare instruction program and orientation modules, to coordinate instructors, and to coordinate between Contractor and the Resident Engineer for the number of participants, instruction times, and location.

B. The Contractor shall engage qualified instructors to instruct facility's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Schedule instruction with the Resident Engineer at mutually agreed times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

   1. Schedule orientation with the Resident Engineer with at least fourteen (14) days' advance notice.

D. Evaluation: At conclusion of each orientation module, assess and document each participant's mastery of module(s) by use of an oral a written or a demonstration performance-based test.

Cleanup: Collect and remove used and leftover educational materials from project site. Remove instructional

equipment. Restore systems and equipment to condition existing before initial orientation use.

3.2 DEMONSTRATION AND ORIENTATION VIDEO RECORDINGS:

A. All projects:
   1. The Contractor shall engage a qualified commercial Videographer to video record demonstration and orientation sessions. Record each orientation module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   2. At beginning of each orientation module, record each chart containing learning objective and lesson outline.
   3. All recordings must be close captioned.
   4. Recording Format: Provide high-quality video recording on USB drive or other electronic media requested by the Engineer .
   5. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and orientation. Display continuous running time.
   6. Narration: Describe scenes on the recording by audio narration by microphone while recording or by dubbing audio narration off-site after. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.
   7. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from opposite the corresponding narration segment.

B. Commissioned Projects:
   1. The Commissioning Authority/Agent (CxA) under separate contract with the City of New York will assess and comment on the adequacy of the Orientation Instruction sessions by reviewing the Orientation and Instruction program and agenda provided by the Contractor. The provider of the Orientation program will video record the sessions and provide a copy to the CxA for final review and comments. If necessary, Contractor shall edit the recording per CxA comments.

END OF SECTION

LEED-PAGES

LEED PROVISIONS

NOTICE

THE PAGES CONTAINED IN THIS SECTION REPRESENT (LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN) THAT SHALL APPLY TO AND BECOME A PART OF THE CONTRACT.

(NO TEXT ON THIS PAGE)

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(NO TEXT ON THIS PAGE)

A. CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART I – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, and (3) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. This section includes administrative and procedural requirements for the management and disposal of construction waste and includes the following requirements:
   1. Waste Management Goals
   2. Waste Management Plan
   3. Progress Reports
   4. Progress Meetings
   5. Management Plan Implementation

B. This Section includes:
   1. Definitions
   2. Waste Management Performance Requirements
   3. References, Resources
   4. Submittals
   5. Quality Assurance
   6. Waste Plan Implementation
   7. Additional Demolition and Salvage Requirements
   8. Disposal
   9. Quality assurance
   10. References

1.3 RELATED SECTIONS: Include without limitation the following:

A. SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS PART B OF THIS DOCUMENTS.

1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Alternative Daily Cover (ADC): Material other than earthen material placed on the surface of the active face of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter and scavenging.

C. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

D. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk or the like.

E. Construction and Demolition Waste: Solid wastes typically including building materials, trash debris and rubble resulting from remodeling, repair and demolition operations. Hazardous materials and land clearing waste are not included.

F. Diversion from Landfill: To remove, or have removed, from the site for recycling, reuse or salvage, material that might otherwise be sent to a landfill.

G. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product.

H. Recycle (recycling): To sort, separate, process, treat or reconstitute solid waste and other discarded materials for the purpose of redirecting such materials into the manufacture of useful products. Recycling does not include burning, incinerating or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors.

J. Reuse: To reuse excess or discarded construction material in some manner on the Project site.

K. Salvage: To remove a waste material from the Project site for resale or reuse.

L. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable and reusable material.

M. Waste Management Plan: A Project-related plan for the collection, transportation and disposal of waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material becoming landfill.

N. Waste-to-Energy: The conversion of non-recyclable waste materials into usable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolization, anaerobic digestion and landfill gas recovery.

1.5 WASTE MANAGEMENT PERFORMANCE REQUIREMENTS:

A. The City of New York has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, inaccurate planning, breakage, mishandling, contamination, or other factors shall be employed.

B. Of the waste that is generated during demolition, as many of the waste materials as economically feasible, and as stated here, shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

C. LEED CERTIFICATION: The City of New York will seek LEED (Leadership in Energy and Environmental Design) Silver certification for this Project from the U.S. Green Building Council. The documentation required here will be used for this purpose. LEED awards points for a variety of sustainable design measures on a project, one of which is the reuse and recycling of project waste.

D. DIVERSION REQUIREMENTS. With the exception of LEED v4 projects with demolition ADC waste, a minimum of 75% of total Project demolition and construction waste (by weight) shall be diverted from landfill. LEED v4 projects with demolition ADC waste shall divert a minimum of 50% of total Project demolition and construction waste (by weight) from landfill. The following waste categories are likely candidates to be included in the diversion plan as applicable for this Project:

1. Concrete
2. Bricks
3. Concrete masonry units (CMU)
4. Asphalt
5. Metals (e.g. banding, stud trim, ceiling grid, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, brass, bronze)
6. Clean dimensional wood
7. Carpet and pad
8. Drywall
9. Ceiling tiles
10. Cardboard, paper and packaging

11. Reuse items indicated on the Drawings and/or elsewhere in the Specification

E. All fluorescent lamps, HID lamps and mercury-containing thermostats removed from the site shall be recycled. Do not use bulb crusher on site.

F. Recycling on the job, subject to the Commissioner's approval, is encouraged on the site itself, such as the crushing and reuse of removed sound concrete and stone. Include these categories in the Waste Management Plan.

G. Land-clearing debris is not considered construction, demolition or renovation waste and is not to be included as contribution to waste diversion.

H. A minimum of five material types, both structural and nonstructural, are to be identified in the Construction Waste Management Plan for diversion.

I. For LEED v4 projects, material to be used as ADC does not qualify as material diverted from disposal.

1.6 REFERENCES, RESOURCES:

A. DDC encourages its contractors to seek information from websites and experts in salvage or recycling in order to minimize disposal costs. There are numerous opportunities to sell, salvage, or to donate materials and accrue tax benefits (which would accrue to the contractor); there are also outlets that will pick up, and in some cases, buy recyclable materials. Examples of information resources are as follows:

1. DDC's Sustainable Design web site: https://www1.nyc.gov/site/ddc/about/sustainable-design.page. A standard Construction and Demolition Waste Management Log form is included at the end of this section.
2. Web Resources

   (Information only; no warranty or endorsement is implied.)

   www.wastematch.org Site of New York Waste Match, a materials exchange database and service

   www.bignyc.org Site of Build It Green NYC, a non-profit outlet for salvaged and surplus building materials

   www.usgbc.org Site of the United States Green Building Council, with a description of the LEED certification process and requirements for C&D waste recycling

   http://www.epa.gov/epawaste/index.htm Site of the U.S. Environmental Protection Agency that discusses construction and demolition waste issues, and links to other resources.
3. For Waste-to-Energy Facilities that need to comply with European Standard (EN) for waste management and emissions into air, soil, surface water and groundwater:

   www.ec.europa.eu/environment/waste/framework/index.htm European Commission Waste Framework Directive 2008/98/EC

   http://www.europa.eu/legislation_summaries/environment/waste_management European Commission Waste Incineration Directive 2000/76/EC

   www.cen.eu/cen/Products EN standards 303-1, 303-2, 303-3, 303-4, 303-5, 303-6, 303-7

1.7 SUBMITTALS:

A. The Contractor shall be responsible for the development and implementation of a Waste Management Plan for the Project. The Contractor's subcontractors shall assist in the development of that Plan, and collect and deposit their waste and recyclable materials in accordance with the approved Plan.

B. DRAFT WASTE MANAGEMENT PLAN. Within fifteen (15) days after receipt of 'Notice to Proceed', or prior to any waste removal, whichever occurs sooner, the Contractor shall submit to the Commissioner a Draft Waste Management Plan. Include separate sections for demolition and construction waste. The Plan shall demonstrate how the performance goals will be met, and contain the following:

1. List of materials targeted for reuse, salvage, or recycling, and names, addresses, and phone numbers of receiving facilities/companies that will be purchasing or accepting each material.
2. Description of on-site and/or off-site sorting methods for all materials to be removed from site.
3. If mixed construction and demolition waste is to be sorted off-site, provide a letter from the processor stating the average percentage of mixed construction and demolition waste they recycle.
4. Account for all materials, including land-clearing debris, materials to be used for ADC, and other materials not contributing to diversion but not included in the diverted waste total.
5. The safe removal and disposal of hazardous materials must be covered in the CWM Plan. Hazardous materials must be tracked separately and not be included in the project's total waste.
6. Landfill information: Names of landfills where non-recyclable/reusable/salvageable waste will be disposed, and list of applicable tipping fees.
7. Materials handling procedures: Specify whether materials shall be separated or commingled and describe the planned diversion strategies. Describe expected amount of each material type, where materials shall be taken and how the recycling facility shall process the material. Provide a description of the means by which any recyclable, salvaged, or reused materials will be protected from contamination, and collected in a manner that will meet the requirements for acceptance by the designated recycling processors.
8. The plan must account for all materials, including land-clearing debris, materials to be used for alternative daily cover (ADC), and other materials not contributing to diversion but not included in the diverted waste total.
9. Transportation: A description of the means of transportation and destination for recycled materials.
10. Meetings: Description of regular meetings to be held to address waste management.
11. Sample spreadsheet and description of how the implementation of the plan will be documented and submitted on a monthly basis.

C. FINAL WASTE MANAGEMENT PLAN. Within fifteen (15) days of Commissioner's approval of the Draft Waste Management Plan, the Contractor shall submit a Final Waste Management Plan.

D. PROGRESS REPORTS. The Contractor shall submit monthly a Waste Management Progress Report, containing the following information:

1. Project title, name of company completing report, and dates of period covered by the report
2. Report on the disposal of all jobsite waste. A DDC C&D Waste Management Log form is included at the end of this section. For each shipment of material removed from the site, provide the following:
   a. Date and ticket number of removal
   b. Identity of material hauler
   c. Material category
   d. Total quantity of waste, in tons/cubic yards, by type
   e. Quantity of waste salvaged, recycled and/or reused, by type
   f. Total quantity of waste diverted from landfill (recycled, salvaged, reused) as a percentage of total waste
   g. Recipient of each material type
3. Provide monthly and cumulative Project totals of waste, quantity diverted, and percentage diverted.
4. Note that the unit of measure may be either tons or cubic yards, but must be consistent for all shipments and all materials throughout the Project. Reports with inconsistent or mixed units will not be reviewed and will be returned for re-submission.
5. Include legible copies of on-site logs, weight tickets and receipts. Receipts shall be from charitable organizations, recycling and/or disposal site operators who can legally accept the materials for the

purpose of reuse, recycling or disposal. Contractor shall save such original documents for the life of the Project plus seven (7) years.

E. LEED Submittal: For LEED designated projects, submit final LEED construction waste report signed by the Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met. Waste report must include:
   1. For diverted materials, include at least four material streams
   2. For commingled facilities, submit documentation of recycling rates
   3. For waste-to-energy strategy, submit documentation of facility adherence to relevant EN standards, and justification of strategy

F. Refrigerant Recovery: Where refrigerant is recovered, submit statement of refrigerant recovery, which must include:
   1. Name, address, qualification data and signature of the refrigerant recovery technician responsible for recovering refrigerant
   2. Statement that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations
   3. Date refrigerant was recovered

1.8 QUALITY ASSURANCE:

A. The Contractor shall designate a Construction Waste Management Representative, to ensure compliance with this section. Coordinator shall be present at Project site full-time for the duration of the Project.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste management plans, documentation and implementation shall be discussed at the following meetings:
   1. Pre-demolition kick-off meeting
   2. Pre-construction kick-off meeting
   3. Regular job-site meetings
   4. Contractor toolbox meetings

E. For LEED v4 projects, Waste-to-Energy Facilities: Comply with EN standards for waste management and emissions into air, soil, surface water and groundwater.

PART II – EXECUTION

2.1 WASTE PLAN IMPLEMENTATION:

A. Prior to the demolition and construction start, the Contractor shall implement the Waste Management Plan, coordinate the Plan with all affected trades, and designate one individual as the Construction Waste Management Representative, who will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis, and for assembling the required LEED documentation.

B. The Contractor shall be responsible for the provision of containers and the removal of all waste, non-returned surplus materials and rubbish from the site in accordance with the approved Waste Management Plan. The Contractor shall oversee and document the results of the Plan. Monies received for salvaged materials shall remain with the Contractor, except the monies for those items specifically identified elsewhere in the specifications, or indicated on the drawings as belonging to others.

C. Responsibilities of Subcontractors: Each Subcontractor shall be responsible for collecting its waste, non-returned surplus materials and rubbish, in accordance with the Waste Management Plan.

D. Distribution: The Contractor shall distribute copies of the Waste Management Plan to each Subcontractor, Resident Engineer, Construction Manager and Commissioner.

E. Instruction: The Contractor shall provide on-site instruction of proper waste management procedures to be used by all parties in appropriate stages of the Project.

F. Procedures: Conduct waste management operations to ensure minimum interference with site vegetation, roads, streets, walks and other adjacent occupied and used facilities.

1. Collect commingled waste and/or separate all recyclable waste in accordance with the Plan. Specific areas on the Project site are to be designated, and appropriate containers and bins clearly marked with acceptable and unacceptable materials.
2. Inspect containers and bins for contamination and remove contaminated materials if found.
3. Comply with the General Conditions for controlling dust and dirt, environmental protection and noise control.

2.2 ADDITIONAL DEMOLITION AND SALVAGE REQUIREMENTS:

A. Demolition and salvage of additional items indicated in other sections of the Project Specifications require special attention as part of the overall 75% diversion from landfill. Specific requirements for special attention are designated in other sections of the Project Specifications.

2.3 DISPOSAL:

A. General: Except for items or material to be salvaged, recycled or otherwise reused, remove waste material from the Project site and legally dispose of them in a manner acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Project site and legally dispose of them.

END OF SECTION

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG

For Month:

Project Name: _____

Project I.D.: _____

Contractor: _____

Prepared by: _____

For Month: _____

Haul Date	Ticket #	Hauling Company	*Material Category[2]	Material Quantity (tons or cubic yards)[1]				*Material Recipient
				*Total Weight	Excluded Material[3]	*Diverted Material[4]	*Landfilled Material	
				*Total		*Diverted	*Landfilled	
			Monthly Totals					
			% Diverted this Month*					
			Cumulative Totals					
			% Diverted to Date					

Notes:

1. Volume (cubic yards) may be used instead of weight if used for ALL amounts and ALL materials.
2. Includes concrete; bricks; concrete masonry units (CMU); asphalt; metals; clean dimensional wood; carpet and pad; drywall; ceiling tiles; cardboard, paper, and packaging; and any other reuse items indicated on the Drawings and/or elsewhere in the Specification.
3. Excluded material includes soil or land clearing debris and for LEED v4 projects, alternative daily cover (ADC) such as screen fines and 6" minus.
4. Diverted material includes recycled and reused material diverted from landfill. Recycled material is reprocessed into new products. Reused material is reclaimed, salvaged or otherwise used in its original form, either on-site or off-site.

* These items must be listed in order to receive LEED credit.

NEW YORK CITY DEPARTMENT OF
DESIGN + CONSTRUCTION

No Text

B. SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS

PART I – GENERAL

1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, and (3) the Contract [City of New York Standard Construction Contract].

1.2 SUMMARY:

A. LEED BUILDING - GENERAL REQUIREMENTS:

The City of New York is committed to implementing good environmental practices and procedures which include achieving a LEED™ Green Building rating. Specific Project requirements related to this goal are listed in the applicable paragraphs of this section of the General Conditions. The Contractor shall ensure that these requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, shall not be allowed if such changes compromise the stated LEED BUILDING criteria.

B. This Section includes:

1. Definitions
2. LEED Provisions
3. LEED Building Submittals
4. LEED Building Submittal Requirements
5. LEED Action Plan

1.3 RELATED SECTIONS: Include without limitation the following:

A. CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
B. GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS

1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: "Design Consultant" shall mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

C. LEED: The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council (USGBC).

D. Permanently Installed Building Product: See Product. .

E. Product: An item that arrives on the Project site either as a finished element ready for installation or as a component to another item assembled on-site. The product unit is defined by the functional requirement for use in the Project; this includes the physical components and services needed to serve the intended function of the permanently installed building product. Similar products within a specification shall each contribute as a separate product. Materials within Construction Specifications Institute (CSI) Divisions 3-10, 31 and 32 are considered products.

1.5 LEED PROVISIONS:

A. The project is to achieve a LEED Silver rating. The provisions to achieve this LEED rating are integrated within the Project construction documents and specifications. Additional LEED requirements are met through aspects of the Project design, including material and equipment selections, which may not be specifically identified as LEED Building requirements. Compliance with the requirements needed to obtain LEED prerequisites and credits will be used as one criterion to evaluate substitution requests.

1.6 LEED BUILDING SUBMITTALS:

A. Scope: LEED Building Submittals are required for all permanently installed materials included in General Construction work.

B. Applicability: The extent of the LEED Building Submittals varies depending on the specification section. Applicable LEED Building Submittals are listed under the "LEED Building Submittals" heading in each specification section. The detailed requirements for the LEED Building Submittals are defined in Sub-Section 1.6 C below.

C. Detailed Requirements: Sub-Sections 1.6 C.1 through 1.6 C.3 below define the information and documents to be submitted for each type of LEED Building Submittal as identified in the LEED Building Submittals heading in each specification section:

1. With each submittal of a product permanently installed in the Project, the Contractor shall be responsible for providing:

   a. Cost breakdowns for the materials included in the contractor or sub-contractor's scope of work. Cost reporting shall include itemized material costs (excluding the contractor's labor, equipment, overhead and profit).

   b. Submit the updated total material cost breakdown for all products on a monthly basis.

2. HIGH ALBEDO PAVING AND WALKWAY MATERIALS: For paving and walkway materials made from concrete or brick, submit published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying a minimum 3-year aged Solar Reflectance (SR) value of 0.28. If 3-year aged value information is not available, submit published product literature or letter verifying an initial SR value of at least 0.33 at installation.

3. CONCRETE: Submit concrete mix design for each mix, designated by a distinct identifying code or number and signed by a Professional Engineer licensed in the state of New York.

D. Work of this project includes completed building and application for LEED certification. Work is not complete until The City of New York has accepted USGBC's final review of LEED certification.

1. Provide documentation required by LEED and LEED review.

E. Provide materials and procedures necessary to obtain LEED prerequisites and credits required in this Section.

F. Respond to questions and requests for additional information from Commissioner and the USGBC regarding LEED credits until the USGBC has made its determination on the project's LEED certification application.

G. Submit to the City of New York / Commissioner, for review, all submittals required for compliance with LEED requirements and by the Contract Documents and for such other items as the City of New York / Commissioner may reasonably request. Provide the following submittals in support of LEED compliance:

1. SS prerequisite Construction Activity Pollution Prevention: Provide contractor declaration, photos, or implementation narrative. (Samples can be provided on request). Meet with the requirements of specs pertaining to 'Erosion and Sedimentation Control'.

2. MR prerequisite/MR credit, Construction and Demolition Waste Management: Comply with submittal requirements of Section A of this document: "Construction Waste Management and Disposal."

3. MR credit, Building Product Disclosure and Optimization: Please provide an itemized breakdown of the cost of all permanently installed building products in the project. Note that the cost should be the cost of the product only, exclusive of labor or installation charges.

H. LEED Progress Reports: submit progress reports indicating progress in actual construction and purchasing activities per LEED submittals above.

1.7 LEED BUILDING SUBMITTAL REQUIREMENTS:

A. The LEED Building Submittal information shall be assembled and submitted into one package per contract specification section(s) (or per subcontractor). Incomplete or inaccurate LEED Building Submittals may be used as the basis for the rejection of products or assemblies.

B. All final LEED Building Submittal information with back-up documentation shall be submitted within two (2) months of the Project's substantial completion. If in the Project's LEED review, the USGBC or their third party reviewer requires additional documentation as it relates to the LEED Building Submittals, the Contractor shall provide the requested documentation within two (2) weeks.

1.8 LEED ACTION PLANS:

A. Construction Waste Management Plan- Refer to Section CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for detailed requirements.

B. DRAFT EROSION AND SEDIMENTATION CONTROL PLAN. Within fifteen (15) days after receipt of 'Notice to Proceed', or prior to any mobilization, whichever occurs sooner, the Contractor shall submit to the Commissioner a Draft Erosion and Sedimentation Control (ESC) Plan.
   1. The Plan shall be in accordance with the New York State Department of Environmental Conservation (NYSDEC)'s New York State Standards and Specifications for Erosion and Sediment Control (Blue Book) or the 2012 EPA Construction General Permit, whichever is more stringent.
   2. The Plan shall demonstrate how the performance goals will be met, and contain the following:
      a. Include the Stormwater Pollution Prevention Plan, if required.
      b. Identify the party responsible for Plan monitoring and documentation. The party must be regularly on site.
      c. Describe all site work that will be implemented on the Project and include timing of implementation.
      d. Submit site plan with location of ESC measures, including, but not limited to, stormwater quantity controls, stormwater quality controls, stabilized construction entrances, washdown areas, inlet/catch basin protection and perimeter controls.
      e. Establish and clearly delineate construction buffer zones to avoid soil compaction and other construction damage to greenfields.
      f. Describe the inspection and maintenance protocols of the ESC measures. Submit a construction schedule indicating weekly site review.
      g. Describe reporting and documentation measures.

C. FINAL EROSION AND SEDIMENTATION CONTROL PLAN: Within fifteen (15) days of Commissioner's approval of the Draft ESC Plan, the Contractor shall submit a Final ESC Plan.

D. ESC TRACKING LOG. Establish an ESC Tracking Log at the start of mobilization. Maintain an active log of ESC implementation, inspections and findings and specific control measure actions.
   1. The Log shall:
      a. Note date of major rain events, describe damage, describe any repairs or maintenance of specific control measures performed, and note responsible party.
      b. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party. Submit date-stamped photographs, inspection reports or other recording processes.
      c. Be submitted monthly.

E. ESC Plan Implementation: Before Demolition and/or Construction begins, the Contractor shall implement the ESC Plan, coordinate the Plan with all affected trades, and designate one individual as the Erosion and Sedimentation Control Representative, who will be responsible for communicating the progress of the Plan with the Commissioner monthly, and for assembling the required LEED documentation.
   1. The Contractor shall be responsible for:
      a. The provision, maintenance, and repair of all ESC measures. Any problems identified in site inspections shall be resolved in a timely manner.
      b. Demonstration. The Contractor shall provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.
   2. All sub-contractors shall promptly notify the ESC Representative if damage to an ESC measure is observed.
   3. Meetings. Urgent or ongoing ESC issues shall be discussed at weekly on-site job meetings.
   4. All projects, including zero lot line buildings and projects that cause minimal or even no exterior site disturbance, must have ESC Plan that meets requirements.
   5. Contractor shall save such original documents for the life of the Project plus seven (7) years.

F. DUST CONTROL: The Contractor shall prepare, execute and manage a "Dust Control Plan" for the prevention of the emission of dust from construction related activities in compliance with 15 RCNY 13-01 et. seq.

1.9 QUALITY ASSURANCE:

A. The Contractor shall implement all LEED Action Plans, coordinate the Plans and LEED Building Submittals with all affected trades, and designate one individual as the Sustainable Construction Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of LEED activities with the Commissioner monthly, and for assembling the required LEED documentation. The Contractor shall facilitate measurements taken by authorized parties on site for LEED compliance verification purposes.

B. Responsibilities of Contractor's Subcontractors: The Contractor shall be responsible for his/her subcontractors complying with the LEED Action Plans and for providing required LEED documentation as required for the Project.

C. Distribution and Compilation: The Contractor shall be responsible for distributing any forms or templates required for the subcontractors to record LEED documentation. The Contractor shall also be responsible for collecting and compiling information into packages.

D. Meetings: Sustainable design and construction issues shall be discussed at the following meetings:
   1. Demolition kick-off meeting
   2. Construction kick-off meeting
   3. Construction kick-off meeting for LEED (independent meeting)
   4. Weekly job-site progress and coordination meetings
   5. Closeout meeting

1.10 REFERENCES:

A. New York State Standards and Specifications for Erosion and Sediment Control, amended November 2016: http://www.dec.ny.gov/docs/water_pdf/2016nysstanec.pdf

B. 2012 EPA Construction General Permit: https://www.epa.gov/npdes/epas-2012-construction-general-permit-cgp-and-related-documents

PART II – PRODUCTS (Not Used)

PART III – EXECUTION (Not Used)

END OF SECTION

UI - PAGES UTILITY INTERFERENCES SECTION

NOTICE

THE PAGES CONTAINED IN THIS SECTION (UI - PAGES) REPRESENT ADDITIONAL CONTRACT REQUIREMENTS APPLYING TO WORK PERFORMED IN THE PRESENCE OF PRIVATELY OWNED UTILITY FACILITIES.

(NO TEXT ON THIS PAGE)

UTILITY INTERFERENCES (UI) SECTION

DATED: June 26, 2019

1. The Contractor shall be responsible for compliance with all the provisions of the following Sections and Schedules, which are hereby made a part of the original contract documents:

   A. "UI SECTION: Additional Contract Requirements Applying to Work Performed in the Presence of Privately Owned Utility Facilities" (Pages UI-3 through UI-11).

   B. Schedule U-1 (Page UI-13).

   C. Schedule U-2 (Con Edison Pages UI-14 through UI-15, Verizon Pages UI-16 through UI-17, National Grid pages UI-18 through UI-21).

   D. Schedule U-3 Page UI-22 (as per the Private Utilities reference document for UI SECTION called "CET SPECIFICATIONS AND SKETCHES", dated November 2010),

   E. Utility drawings (8 Sheets) consisting of:

      * Con Edison - Conduit & Duct Occupancy Plate (4 sheets)
      * Con Edison – Overhead Electrical Conditions Report (2 sheets)
      * National Grid – Gas Main Utility Plate (2 sheets)

      All Eight (8) drawings are attached to the Plans.

2. Each facility operator shall provide inspectors at the work site to inspect methods of interference work, verify quantities and items of Utility Work, and coordinate all phases of the facility operator operations.

3. In addition, the following statements are made to provide clarification of various Paragraphs under UI Section:

   A. UI Section, Paragraph 4, requires the Contractor to immediately commence negotiations with each Company for an Interference Agreement under which the Company will compensate the Contractor for any Interference Work which the Company does not elect to perform with its own forces or by specialty contractors retained by the Company. Thus the Contractor is on notice that its work under the Contract may be affected by Interference Work performed by (a) the Contractor pursuant to a separate Interference Agreement with the Company, (b) the Company, or (c) partly by each.

B. UI Section, Paragraph 2, informs the Contractor that the duration of the Contract as shown in Schedule A includes the time which may be necessary for the Contractor to perform the necessary Interference Work.

C. The Contractor is hereby informed that the duration of the Contract as shown in Schedule A includes the time which may be necessary for the Company to perform whatever portion of the Interference Work which the Company elects to perform with its own forces or by specialty contractors retained by the Company.

D. UI Section informs the Contractor that the City has entered into an Interference Agreement with the Companies regarding interferences to the City work in this Contract created by the facilities owned and/or operated by such Companies. Pursuant to this Section, a sample of the Utility Agreement letter as executed by the Companies is annexed on page UI-12, as an Exhibit to the Contract. Signed copies of those Utility Agreement letters are on file with New York City Department of Design and Construction (DDC).

E. The City has no contract with any of the Companies for work on or adjacent to the site of work under this Contract, and the Companies are not "Other Contractors" as defined for the purposes of this Contract. The Contractor is reminded, however, that pursuant to UI Section, Paragraph 4, the City will not compensate the Contractor for any direct and/or indirect costs related to Interference Work, regardless of whether such Interference Work is covered by an Interference Agreement between the Contractor and the Company or is performed by the Company using its own forces or by specialty contractors retained by the Company.

F. UI Section, Paragraph 14, provides that the provisions of UI Section are material provisions of the Contract and that the Contractor's failure to comply with the procedures set forth in UI Section are sufficient for the Commissioner to declare the Contractor in default pursuant to Article 48 of the Contract.

Pursuant to this Section, the Contractor is informed that the Performance Bond required of the Contractor pursuant to the Contract is not deemed to guarantee performance of any of the Interference Work.

Utility Interferences Section - Additional Contract Requirements Applicable to Work Performed in the Presence of Privately Owned Utility Facilities

The Contractor is hereby notified that pursuant to the law and franchise agreements issued by the City, certain private utility and public service companies named in Schedule U-1 ("the Companies") own and/or operate surface and/or subsurface facilities within the limits of this contract. The existence of these facilities impacts the productivity of the City work called for in the contract. In order to improve coordination of the City construction with the private utility facilities owned and/or operated by the Companies named in Schedule U-1, Article 1.06.30 of the Standard Highway Specifications of the New York City Department of Transportation, Dated August 1, 2015; and/or Articles 10.15 through 10.18 of the Standard Sewer and Water Main Specifications of the New York City Department of Environmental Protection, Dated July 1, 2014; as applicable, are amended and will be implemented as follows:

1. ***Pre-engineering:***

The anticipated scopes of private utility facilities interferences and anticipated work items and specifications are included in this contract. The locations of these interferences are indicated on the plans and/or listed in the specifications for this contract, and a schedule of estimated quantities by type of interference expected to be encountered within the limits of this project area have been listed on Schedule U-2. In addition, in Schedule U-3 the Companies have provided standard details and methods for supporting, protecting, relocating, and/or working around their facilities when they are in interference with City contract work.

2. ***Means and methods for City work***:

a) The Contractor is hereby notified that the utility interferences identified on the plans and/or listed in the Specifications to be known conditions which may impact the performance of, and/or interferes with, City work. The Contractor will be required to perform such utility work as directed by the Resident Engineer in order to clear all utility interferences from the project site as required for satisfactory completion of City work within specified contract schedule.

b) In areas serviced by overhead lines on poles carrying electric, telecommunication and cable system, the Contractor understands and by bidding for this contract agrees that he/she has reviewed the schedule of estimated quantities by type of interference expected to be encountered within the limits of this project and that he/she will be required to perform the public work in the presence of these overhead lines and appurtenances located in areas adjacent and/or within the project area. As a consequence he/she will select means and method of construction appropriate to maintain the safety clearances required or as permitted by contract specifications (e.g. "CET 350 – Overhead Accommodation Protection of Overhead Facilities, Poles, and Appurtenances") in order to avoid damaging the insulation or shielding of these lines and also to prevent knocking

them down. The duration of the contract as shown in Schedule A thus includes the time which may be necessary for the Contractor to remove, repair, protect, support, shift, temporarily remove and replace, work around and/or work in the presence of the Companies' facilities ("Interference Work") as described on the plans and/or specifications of the contract during the progress of the City work.

3. Field inspection prior to construction:

Prior to the start of any contract work in areas serviced by overhead electric lines , and after the award to the apparent low bidder for this contract, the Contractor must request a field walk of the project area along with the operator of the overhead electrical facilities and the DDC Engineer-In-Charge. At that time the facility operator, pursuant to contract specification (e.g. "CET 350 – Overhead Accommodation Protection of Overhead Facilities, Poles, and Appurtenances") will confirm the type and condition of the overhead electrical lines and the sufficiency of their insulating properties with respect to the means and methods proposed by the Contractor. The Contractor must be prepared to describe in enough details his/her proposed means and methods of construction operations in order to anticipate the likelihood that electric lines insulation would be cut or otherwise compromised. Also such details will allow the facility operator to anticipate the need for added insulation and/or shielding of non-insulated lines.

4. Compensation for interference work:

Compensation for Interference Work is a matter of adjustment between the Contractor and each private utility company located within the limits of the project area and whose utility facilities are affected by City contract work. In particular, the City will not compensate the Contractor for any direct and/or indirect costs related to Interference Work, including, but not limited to, delay, lost profit, increased overhead, or any other impact costs which are deemed to be included in cost agreement between the Contractor and private utility company affected by such work. Upon receipt of a Notice of Award from the City, the Contractor shall immediately commence negotiations with each of the Companies concerning the manner in which and the price for which the Contractor, through its own forces or by others hired by it, will perform and be paid by the Company for all necessary Interference Work as defined above that the Company(ies) choose(s) not to perform with its(their) own forces or by specialty Contractors hired by it (them) (as per "Interference Agreement"). Specialty contractors' work is limited to (i) insulation installation and removal, (ii) live gas and steam work, (iii) cleanup and disposal of hazardous materials, (iv) splicing live electrical and telecommunications facilities, and (v) work not within the competence of general construction contractors.

5. Interference Agreement:

a) The Companies have provided estimate of the quantity of each type of interferences expected to be encountered in the contract in Schedule U-2. The parties may negotiate an Interference Agreement in any format or manner they deem fit based on quantities and types of Interferences expected to be encountered on this Contract as stated in Schedule U-2.

b) Furthermore, in Schedule U-3, standard unit work measurement and payment provisions are specified and shall apply only if the Contractor and affected Utility companies enters into a unit price based on an Interference Agreement, otherwise the unit of work measurement, and payment provisions set forth in Schedule U-3 shall not apply. The Contractor shall notify the City upon concluding an Interference Agreement with each of the Companies, which shall be binding and final once concluded.

6. City contract work to continue without Interference Agreement:

If, prior to the start of construction, as directed by the City's Order to work / Notice To Proceed (OTW/ NTP) date any of the Companies and the Contractor have not concluded an Interference Agreement as described above, then the City will issue to private utility company (ies) in a written "48 Hours' notice to Public Corporation" in accordance with the Administrative Code of the City of New York. Construction will then proceed as ordered and the Contractor will be directed by the Resident Engineer (RE) to perform the City work on Time, Material and Equipment basis (T&M) as specified in standard City contract agreement Article 26.2. T&M records will include identification of types of utility facilities interfering with City work, utility facility owners, specifying the nature and quantity of any materials, plant and equipment furnished or used in connection with the performance of such work and crew size, such as: name and number of each worker employed on such work. T&M records will also indicate the hours of active time, standby time and idle time. The Company (ies) and the Contractor will maintain separate records of the actual quantity and cost of labor, materials, and equipment expended, and will provide copies of this information to the other party on a daily basis for reconciliation. These T&M records along with cost evaluations will be submitted daily to the Resident Engineer for review and approval. The total cost of City work will be based on quantity of work performed multiplied by unit price contract bid items. The total interference cost will be calculated as the difference between the total T&M cost and total cost for City work. The Resident Engineer will conduct a monthly reconciliation session of the daily T&M records with the affected Company (ies) and the Contractor. If the Contractor and affected utility companies cannot reconcile their T&M records, by the last day of each month, then the Resident Engineer will submit the approved City's T&M records along with total cost evaluations to the DDC Director of Construction who will review these records and recommend approval and validity certification by the DDC Construction Assistant Commissioner.

a) Copies of the DDC approved and certified T&M records will then be transmitted by the DDC to the Contractor and the utility companies. These certified records may be used by the Contractor for compensation claims against the responsible private facility owners, or may be used by any party as supporting documentation in dispute regarding compensation for performing Interference Work as identified in Schedule U-2. The Contractor will be required to perform City work while invoices are submitted by the Contractor to the utility companies for payment within 30 days, or while compensation disputes between the Contractor and affected company (ies) are submitted to Binding Arbitration process described in Paragraph 10.

b) All issues related to utility work and/or delays due to compensation disputes or claims against utility companies are not allowable as justification for granting contract time extensions or delay claims against the City. The City may assess liquidated damages specified in the contract for net overall delays suffered by City contract work as a result of utility issues, disputes and claims.

c) The standard City contract dispute resolution process specified in Article 27 "Presentation of disputes to Commissioner", of the standard City contract agreement is not applicable to any disputes related to utility work and/or compensation for such work or claim against utility companies. Utility work issues, disputes and claims may only be submitted to Binding Arbitration process described in Paragraph 10.

d) The Contractor will notify the Resident Engineer when utility capital work not specified in Schedule U-2 and/or for utility work that require the intervention of company utility specialty crews causes excessive contractor's labor and equipment standby or idleness and, thereby jeopardizing the City project schedule. The Resident Engineer will submit the facts to the DDC Director of Construction who will recommend to the DDC Deputy Commissioner regarding the issuance of a "48 Hours' notice to Public Corporation" to the concerned utility company as authorized by the New York City Administrative Code Section 19-143 and/or Section 24-521 as applicable.

e) Utility delays caused by utility capital work not listed in Schedule U-2 and/or by unavailability of utility specialty crews cannot be discounted for earning any contractual bonus when such bonus clause is included in a contract. However, if such specified bonus is not earned or is disallowed by the City or if the City assesses specified liquidated damages as a result of such excessive delays, the Contractor may seek damages from the responsible utility company (ies).

7. Extra utility work with Interference Agreement:

If during construction the Contractor encounters utility facilities interferences or utility scope of work that it believes is not covered by the Interference Agreement as described above, then the Contractor shall immediately notify the Company in writing, with a copy to the City, describing the nature and location of the extra work in question. The Company then has five (5) business days to investigate the conditions and then:

a) Advise the Contractor and the City in writing that no interference with its facilities exists at the location in question, and hence that the Contractor may proceed with City work without providing for any impact from Company facilities;

b) Advise the Contractor and the City in writing that the Interference Agreement negotiated pursuant to Paragraph 6, above, provides for the scope of work encountered, specifying the exact unit items and/or terms of the agreement that cover the work;

c) Advise the Contractor and the City in writing that it intends to perform the necessary utility work with company forces or with its own contractor including, but not limited to, relocating its facility out of the way of the proposed City work. In this case, the Company shall provide a written schedule for the performance of the utility work it proposes to perform, which shall be subject to approval by the City based on its impact to the Contractor's currently approved progress schedule. Upon approval of the Company's schedule by the City, the Contractor shall provide access to the worksite to the Company and/or any contractors hired by it to perform this utility work. If necessary, the City may grant a contract time extension for delays caused by the performance of such utility work by the company.

d) Reasonably specify in writing the scope of work to be performed by the Contractor on behalf of the Company that is not covered under the Interference Agreement negotiated pursuant to Paragraph 6, including, but not limited to, relocating, supporting, and/or protecting the Company's facilities, and/or shifting the City facility if approved by the Resident Engineer, and/or otherwise changing its operations to work in the presence of the Company's facilities. Should the Company elect this option, it must adequately define and provide an initial price offer for the work required to be performed.

8. Means and Methods for utility work:

Upon receipt of the Company's determination pursuant to Paragraphs 7.b, or 7.d, above, the Contractor shall determine reasonable means and methods of performing the work defined by the Company. These means and methods are subject to approval of the Company, which shall not be unreasonably withheld. If, however, the Company objects to the Contractor's proposed means and methods then it shall define an alternate method of construction. Upon receipt of the Company's approval or its

proposed alternate method of construction, the Contractor shall commence performance of the work defined by the Company as soon as possible, and shall perform the work in a good, workmanlike, and efficient manner, using the means and methods approved by the Company, in order to permit the City work to proceed in the most expeditious manner possible, but without imposing unreasonable and/or unnecessary costs on the Company. It is expressly understood by all parties that the City's rights pursuant to Article 4 of the Contract apply to Utility Work performed pursuant to this Section.

9. Disputed utility work covered by an interference agreement:

The City Work will continue as described in Paragraph 6 above. In the event of any dispute between the Company (ies) and the Contractor regarding any issue related to the performance of, or payment for, utility work, including, but not limited to, any indirect or impact costs incurred by the Contractor due to the Utility Work and/or to the existence of facilities owned or operated by the Company (ies) on the line of the work. The Company (ies) and the Contractor hereby agree to submit to each other a "Final Offer," in writing, by certified mail. Each party shall then have three business days to consider each other's Final Offer. In the event that neither party accepts the other's Final Offer within those three days, the Company (ies) and the Contractor agree to immediately submit the dispute to binding arbitration as described in Paragraph 10. During the pendency of any arbitration, the Company (ies) and the Contractor shall maintain separate records of the actual quantity and cost of labor, materials, and equipment expended, and to provide copies of this information to the other party on a daily basis for reconciliation. Any and all disagreement with the records maintained and provided by the other, must be documented in writing to all parties. However, these records are solely for the benefit of presentation to the arbitrator, whose decision may not necessarily be based on these records and in any event is final. Both parties should be aware that the City will not confirm or deny the accuracy of any records that is not certified by DDC. While the arbitration is pending, the Company shall pay the Contractor on a monthly basis, based on the price offered by the Company to the Contractor for the performance of the work.

10. Arbitration of utility work:

The arbitration of the issues described above shall be conducted pursuant to the Construction Industry Arbitration Rules of the American Arbitration Association (hereinafter "the Rules" and "AAA") in effect on the date the arbitration is initiated except as set forth herein. The arbitration award shall be final and binding upon the parties to the arbitration and judgment upon the award may be entered in a court having jurisdiction.

a) Once an arbitrator(s) has been appointed by the AAA, the arbitration shall be scheduled as promptly as possible given the arbitrator(s) and the parties' schedules.

b) No later than seven days prior to the first arbitration hearing, Company and the Contractor shall submit to the arbitrator(s), and to each other, a summary of each party's respective position and such other information as is deemed appropriate, along with a copy of each party's Final Offer as specified in Paragraph 9.

c) The arbitration shall be conducted and concluded in two days.

d) On the morning of the first day of the arbitration, the Contractor and/or representatives shall have 3 ½ hrs to make a presentation of its claim to the arbitrator. During its presentation, the Contractor shall not be permitted to produce any documents or cost records which have not already been provided to the Company. The Contractor shall be permitted to produce any analysis or description of its claim which has been prepared for the purpose of its presentation.

e) Company and/or its representatives shall have two hours to ask the Contractor questions about its claim and its presentation. Thereafter the arbitrator(s) shall have two hours to ask the Contractor questions about its claim and its presentation.

f) On the morning of the second day of the arbitration, Company and/or its representatives shall have 3 ½ hours to make a presentation of its claim to the arbitrator. During its presentation, the Company shall not be permitted to produce any documents or cost records which have not already been provided to the Contractor. The Company shall be permitted to produce any analysis or description of its claim which has been prepared for the purpose of its presentation.

g) The Contractor and/or its representatives shall have two hours to ask Company questions about its claim and its presentation. Thereafter the arbitrator(s) shall have two hours to ask Company questions about its claim and its presentation.

h) Subject to the above time limitations, the arbitrator(s) may conduct the arbitration in such manner as the arbitrator(s) deems reasonable.

i) The arbitrator(s) shall then have one week to select in writing, as the arbitrator ('s) award, that party's Final Offer which appears to be more reasonable, based on the presentations at the arbitration hearings.

j) The arbitrator shall have no discretion to grant an award other than one of the two Final Offers submitted by the parties.

k) Any award for work that has already been performed shall be paid on the 7th day after receipt of the arbitrator's decision, or on the 30th day after completion of the work, whichever is later. Payment for work not yet completed at the time of the arbitrator's decision shall be paid within 30 days of completion of work. Interest shall accrue from the date payment is due at the rate of 9% per annum. Either

party may cause judgment to be entered in accordance with the arbitrator(s) decision in a court in the State of New York, County of New York.

l) The arbitrator's fees and any other costs of the arbitration shall be initially shared equally by Company and the Contractor. The non-prevailing party shall then pay all arbitrator's fees and costs of the arbitration and shall reimburse the prevailing party for its share of such fees and costs theretofore paid.

m) The parties may, at any time, settle any matter submitted to arbitration.

11. Order-out waiver:

The Contractor and all subcontractors hired by it, if an Interference Agreement is executed as specified between the concerned parties, agree to waive any rights they may have, if any, under law, contract or otherwise to compel the City to assert any right the City may have, including the issuance of any directives required under the New York City Administrative Code, Section 19-143 and Section 24-521, to require any or all of the Companies to maintain, repair, replace, protect, support, shift, alter, relocate, and/or remove utility facilities in connection with the work to be performed under this contract. However, nothing in this Section shall preclude the City from exercising its rights under the Law to issue such a directive to the Company.

12. Cost of insurance:

Each of the named Companies, at their option and if an Interference Agreement is executed as specified between the concerned parties, may be named as an additional insured on all insurance policies required to be maintained under this contract. In the event that a Company opts to be so named as an additional insured, the actual incremental cost, if any, to the Contractor of providing such insurance coverage shall be borne by that Company. The Contractor shall provide a written statement from its insurance provider documenting the actual cost of this added coverage to the Company. Under no circumstances shall the cost of insurance coverage on behalf of any Company be borne by the City. Nothing in this paragraph shall be interpreted to imply the City's acceptance of any additional responsibility or liability for any matter related to the performance of Utility Work. In particular, the Company and the Contractor bear joint and full responsibility to ensure that any Utility Work performed by the Contractor is in compliance with all applicable government and Company regulations.

13. Cost of utility interference work:

The Companies, by virtue of participating in design alignment meetings and submitting their scope of Utility Interferences Work to the City, have agreed to perform their obligations described in this Section. It is expressly understood that the cost of Utility Work or any delays caused by such Utility Work shall not be a charge against the City, but shall be a matter for adjustment between the Contractor and the Company or Companies concerned. The City and the Contractor agree that the Companies are

third party beneficiaries of this Section of the contract, if an Interference Agreement is executed between the Contractor and utility company (ies). The provisions of this Section shall govern in all cases where Company property interferes with or is about to be disturbed by the City work, notwithstanding any other provision of the Contract, except for Natural Gas transmission/distribution facilities covered subject to the Gas Facility Cost Allocation Act (GFCAA) and covered separately in this contract.

14. Default declaration:

The Contractor agrees that the provisions of this Section are material provisions of the contract, and that the Contractor's failure to comply with the procedures set forth above are sufficient for the Commissioner to declare the Contractor in default pursuant to Article 48 of the Contract.

15. NYS Labor Law:

The Contractor is hereby advised that New York State Labor Law and/or, Davis-Bacon Act if federally funded, applies to public work. The work described in this Utility Interferences Section of the contract performed by utility company (ies) with their own forces or vendors hired by such company (ies) is not public work.

16. Facility operators:

The insurance requirements in Paragraph 12 of this UI Section apply to: (i) additional Companies, if any, who were not named in Schedule "A" but which have executed an Interference Agreement with the Contractor for utility work; and (ii) additional coverage, if any, paid for by Utility Companies whose utility facilities are located within the project limits, that they may require for the utility work pursuant to an Interference Agreement between the Contractor and such utility company (ies).

(End of Section)

PROJECT ID: S136-367

"STANDARD UTILITY LETTER OF AGREEMENT"

(Name)
Deputy Commissioner, Infrastructure Division
Department of Design and Construction
30-30 Thomson Avenue
Long Island City, NY 11101

RE: City Work Performed in the Presence of Private Utility Facilities
Project No: _____

Dear (Name):

This letter is to certify that _____, has requested the inclusion of the attached "Utility Interferences (UI) Section: Additional contract requirements applying to work performed in the presence of privately owned utility." The company agrees to abide by the terms of this UI Section at the company's own expenses due to their facilities interferences with the Public work.

Sincerely,

_____
By: Authorized Company Representative

_____
Title

NOTARY PUBLIC

CERTIFIED AS TO FORM
AND LEGAL AUTHORITY:

By:_____

SCHEDULE U-1

LISTING OF COMPANY (IES) NAMED FOR THIS CONTRACT

COMPANY NAME	CONTACT NAME	CONTACT TELEPHONE
CON EDISON	O'NEIL WRIGHT	212-460-3870
VERIZON	AUBREY MAKHANLALL	516-758-3705
NATIONAL GRID	NEVILLE JACOBS	718-963-5612

SCHEDULE U-2

UTILITY INTERFERENCE
FOR INFORMATION ONLY
ENGINEER'S ESTIMATE OF QUANTITY AND TYPES OF INTERFERENCE
FOR CONSOLIDATED EDISON
S136-367
DSNY NEW SEWERS

CET ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY
CET 350	OVERHEAD ACCOMMODATION, PROTECTION OF OVERHEAD FACILITIES, POLES AND APPURTENANCES	LS	1

CON EDISON SCOPE OF WORK
SUPPORT AND PROTECTION
S136-367
DSNY NEW SEWERS

CET 350	**OVERHEAD ACCOMMODATION, PROTECTION OF OVERHEAD FACILITIES, POLES AND APPURTENANCES**	**LS**

At the following locations:

Various

AS SHOWN ON CONTRACT DOCUMENTS

Total Quantity for CET 350 = 1

SECTION U WORKSHEET

FOR INFORMATION ONLY
ENGINEER'S ESTIMATE OF QUANTITY AND TYPES OF INTERFERENCE
FOR VERIZON
BOROUGH OF STATEN ISLAND

CET ITEM NUMBER	DESCRIPTION	Unit of Measure	Estimated Quantity
CET 350	OVERHEAD ACCOMMODATION, PROTECTION OF OVERHEAD FACILITIES, POLES AND APPURTENANCES	LS	1
CET 351	UTILTY POLE SUPPORTS	EA.	2

For Information Only

Borough of Staten Island

Schedule UI: Scope of Work for CET Items

CET 350		
OVERHEAD ACCOMMODATION, PROTECTION OF OVERHEAD FACILITIES, POLES AND APPURTENANCES		**QTY (LS)**
@ THE FOLLOWING LOCATIONS		
ARTHUR KILL ROAD BTWN ILYSSA WAY & ARDEN AVENUE		**1**
	CET 350 TOTAL	**1**
CET 351		
UTILITY POLE SUPPORTS		**QTY (EA)**
@ THE FOLLOWING LOCATIONS		
ARTHUR KILL ROAD BTWN ILYSSA WAY & ARDEN AVENUE		**2**
	CET 351 TOTAL	**2**

nationalgrid

287 Maspeth Avenue
Brooklyn, N.Y. 11211-1788

Support & Protection

Muldoon Ave Area
Borough of Staten Island

CET Item Number	Description	Unit	Estimated Quantity
101.2	Utilities Crossing Trench For Sewers 12" To 24" Diameter (Type . 2)	Each	2
300	Special Care Excavation & Backfilling	CY	30
400	Test Pits	CY	10
636EA RD	Adjustment Of Utility Hardware (Under 7")	Each	2
636EB RD	Adjustment Of Utility Hardware (7" To 14")	Each	2
636EC RD	Adjustment Of Utility Hardware (14" To 30")	Each	6
700	Special Modification Of Work To Accommodate Utilities	CY	20

nationalgrid

287 Maspeth Avenue
Brooklyn, N.Y. 11211-1788

CET Item Number	Description
101.2	**Utilities Crossing Trench For Sewers 12" To 24" Diameter (Type .2)** At the following locations: AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity – 2 Ea
300	**Special Care Excavation & Backfilling** At the following locations: AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity – 30 CY
400	**Excavation of Test Pits** At the following locations: AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity – 10 CY
636EA RD	**Adjustment Of Utility Hardware (under 7" width)** At the following locations: AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity – 2 Ea.
636EB RD	**Adjustment Of Utility Hardware (7" To 14")** At the following locations: AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity –2 Ea.
636EC RD	**Adjustment Of Utility Hardware (14" To 30")** At the following locations: AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity – 6 Ea.

PROJECT ID: S136-367

287 Maspeth Avenue
Brooklyn, N.Y. 11211-1788

nationalgrid

CET Item Number

700

Description

Special Modification Of Work To Accommodate Underground Utilities with Limited Cover

At the following locations:
AS ENCOUNTERED AND REQUIRED BY NATIONAL GRID Quantity – 20 CY

NATIONAL GRID GAS NOTES/PROVISIONS:

National Grid's (NG) 20" and 4" Transmission Gas Main (TGM) shall be maintained and supported at no cost to National Grid. Contractor shall adhere to the following guidelines when working near NG's 20" and 4" TGM.

Contractor shall only be able to work near NG's TGM from April to September within any given year. Upon NG's request the contractor shall test pit and expose the 20" and 4" TGM. All excavations in the vicinity of the TGM shall be as required by NYS Industrial Code 753. No saw cutting of pavement or masonry over or crossing TGM. The contractor shall use power excavation for the removal of pavement or masonry but only to the depth of such pavement or masonry **(breaking of pavement or masonry shall be done by means of hand held pneumatic breaking equipment).** Upon removal of pavement or masonry the contractor shall use hand excavation methods only **(pick and shovel; no power tools)** to ascertain the clearances of the TGM with respect to the proposed excavations and micro tunneling. Once the location of the TGM with respect to the proposed excavations and micro tunneling is verified to the satisfaction of NG the contractor shall then proceed with micro tunneling and/or hand only within the zone of protection described as
2 feet from the face of the TGM in all directions of the facility as required to preserve the integrity
of the facility. Once outside of the zone of protection as described above the contractor may use a combination of hand and machine to complete the excavation.

SCHEDULE U-3

(NO TEXT IN THIS SECTION)

SPECIFICATIONS FOR HANDLING, TRANSPORTATION, AND DISPOSAL OF POTENTIAL AND IDENTIFIED CONTAMINATED AND HAZARDOUS MATERIALS

NOTICE

THE PAGES CONTAINED IN THIS SECTION ARE ISSUED FOR THE PURPOSE OF SPECIFYING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND HEREBY MADE PART OF SAID CONTRACT DOCUMENTS .

(NO TEXT ON THIS PAGE)

SPECIFICATIONS FOR HANDLING, TRANSPORTATION, AND DISPOSAL OF POTENTIAL AND IDENTIFIED CONTAMINATED AND HAZARDOUS MATERIALS

DSNY SI 1/3 – PHASE I

BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

Capital Project ID: S136-367

Prepared By:

NYC DDC Department of Design and Construction

30-30 Thomson Avenue
Long Island City, New York 11101

June 27, 2019

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ITEM 8.01 C1 HANDLING, TRANSPORTING, AND DISPOSAL OF NON-HAZARDOUS, CONTAMINATED SOILS

8.01 C1.1 WORK TO INCLUDE

A. General

This work will consist of the handling, transportation, and disposal of contaminated soils. The materials covered by this specification are soils that are contaminated with petroleum or chemical products but cannot be classified as hazardous waste. For the purpose of this specification, soil will be defined as any material excavated below the pavement (concrete and/or asphalt) and pavement base (concrete and/or asphalt).

Soil to be excavated can be classified as non-contaminated, contaminated, or hazardous soil. Non-contaminated soils are defined as soils not exhibiting any of the following characteristics.

- x Exceedances of New York State Department of Environmental Conservation (NYSDEC) Part 375-6 Restricted Commercial Soil Cleanup Objectives (SCOs) for street work, Restricted Residential SCOs for work areas in parkland, or Residential SCOs for housing projects.
- x Elevated Photo-Ionization Detector (PID) readings, subsequently confirmed by laboratory analysis and showed exceedances of applicable SCOs.
- x Visual evidence of contamination, such as the presence of staining, discoloration.
- x Petroleum and/or chemical odors, subsequently confirmed by laboratory analysis and showed exceedances of applicable SCOs.
- x Physical evidence of coal ash, municipal solid waste, construction and demolition debris, or dredged spoils.

Contaminated soils are defined as soils exhibiting one or more of the above characteristics. Contaminated soils must be handled, transported, and disposed of in accordance with the specifications for Item 8.01 C1 – Handling, Transporting, and Disposal of Non-Hazardous Contaminated Soils.

Hazardous soils are defined as soils showing exceedances of Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Levels for Hazardous Waste published in Resource Conservation and Recovery Act (RCRA), 6 New York Codes, Rules, and Regulations (NYCRR) Part 371, or 40 Code of Federal Regulations (CFR) Section 261. Hazardous soils must be handled, transported, and disposed of in accordance with the specifications of this section.

This entire specification 8.01 covers the handling, transportation, and disposal of contaminated soils and hazardous soils only. Non-contaminated soil can be reused at the project site, provided it meets other contract requirements. Excess non-contaminated soil becomes the property of the Contractor.

The Contractor must ensure that all operations associated with the handling, sampling, loading, transportation, and disposal of contaminated soils are in compliance with all applicable Federal, State, and City statutes and regulations.

The Contractor must supply all equipment, material and labor required to conduct the specified work of this Item. The Contractor must document the excavation, handling, transportation and disposal of contaminated soils.

B. Request for Approval of Subcontractors

A subcontractor/subconsultant, such as the independent Environmental Consultant and the waste hauler, is not permitted to start work until approved by the Engineer. If the Contractor performs work using a subcontractor/subconsultant prior to approval, the Contractor will not be paid for the work performed by that subcontractor/subconsultant and the Contractor may be subject to sanctions including, but not limited to, initiation of default proceedings.

The Contractor must submit a completed original Request for Approval of Subcontractors (RFAS) form and all required documents, such as legal identity, project reference list, Corporate Health and Safety Plan (HASP), waste transporter permits, Occupational Safety and Health Administration (OSHA) 10 certification, Hazardous Waste and Emergency Response (HAZWOPER) certification, etc., to the Engineer at least 30 days prior to the scheduled subcontract work start date. The Engineer must then submit the original RFAS to DDC Safety and Site Support, Office of Environmental and Geotechnical Services (OEGS) for review and approval. If the RFAS is denied by OEGS, OEGS will issue the final denial and return the original RFAS to the Engineer. If the RFAS is approved by OEGS, OEGS will forward the original RFAS package and an approval memo to the DDC ACCO for further review and approval. The ACCO's Vendor Integrity Unit and Office of Contract Opportunity (OCO) will review the subcontractor/subconsultant's overall business integrity and compliance with Vendor Exchange System (VENDEX), Executive Order 50, Local Law 1, and Minority- and Women-Owned Business Enterprise/ Disadvantaged Business Enterprise (MWBE/DBE) participation as per the contract. ACCO will issue the final Approval or Denial. The original RFAS will be returned to the Engineer, who will subsequently notify and return the original RFAS to the Contractor.

C. Independent Environmental Consultant

The Contractor must retain an independent Environmental Consultant to obtain all permits, prepare the plans required in the specification 8.01, and perform all field screening, sampling, air monitoring, and other health and safety services. The independent Environmental Consultant must be approved under the RFAS process and must demonstrate the minimum requirements as set forth below:

1. The independent Environmental Consultant project supervisor on site and other designated key personnel must have a minimum of three (3) years of experience in the environmental field dealing with issues associated with contaminated soils. Such experience must include oversight on environmental, specifically volatile organic compounds and dust monitoring services as a routine part of its daily operations.

2. The independent Environmental Consultant must be experienced in work of similar nature, size, and complexity and must have previous experience in working with DDC.

3. The independent Environmental Consultant must furnish a project listing identifying the location, nature of services provided, owner, owner's contact, contact's working telephone number, project duration and value for at least five (5) projects within the last 3 years.

D. Sampling and Analysis

Prior to the performance of soil sampling, the Contractor will submit a Field Sampling Plan (FSP). Soil sampling must not be conducted until OEGS has approved the FSP. The Contractor must conduct sampling and analysis of the impacted soils as specified under Item 8.01 C2 – In-Situ and Ex-Situ Soil Sampling and Analysis for Waste Disposal Parameters. The laboratory results must be forwarded to OEGS for review to determine if the soils would be handled and disposed of as contaminated soils or hazardous soils.

E. Material Handling Plan

At least 45 days prior to the commencement of work, the Contractor must submit to the OEGS for review a Material Handling Plan (MHP). The MHP must be approved by the OEGS prior to the Contractor beginning any soil excavation work. The MHP must, at a minimum, consist of:

1. The Contractor's procedures for identifying contaminated soils during excavation, including the specific model and manufacturer of intended organic vapor monitoring equipment and calibration procedures to be used. It should also include the training and experience of the personnel who will operate the equipment.
2. The Contractor's procedures for safely handling contaminated soils. The procedures must include personnel safety and health as well as environmental protection considerations.
3. For the proposed laboratory for analysis of representative soil samples, provide the following: (a) name, (b) address, (c) telephone number, and (d) New York State Department of Health's (NYSDOH) Environmental Laboratories Accreditation Program (ELAP) status.
4. Identification of the Contractor's proposed waste transporter(s) (hauler). This information must include:
    1. Name and Waste Transporter Permit Number
    2. Address
    3. Name of responsible contact for the waste transporter
    4. Telephone number for the contact
    5. All necessary permit authorizations for each type of waste transported
    6. Previous experience in performing the type of work specified herein
5. The name and location of the facility where an off-site scale is located. The Contractor must outline the procedures on controlling trucks leaving the work site and en-route to the off-site scale.
6. All staging/stockpiling areas (if stockpiling areas are intended and available), or alternate procedures that will be used. Alternate procedures may include, but are not limited to, agreements from the intended disposal facilities to accept boring data and/or analytical data previously obtained during the site characterization so that materials may be directly loaded into vehicles for shipment to the disposal facility.
7. A backup facility must be provided, should the staging/stockpile areas become unavailable, insufficient in area or presented by some other unforeseen difficulty.
8. Identification of the Contractor's two proposed Treatment Storage or Disposal (TSD) facilities for contaminated soils (primary and back-up) for final disposal of the soils. Both primary and backup TSD facilities must be currently state-licensed disposal facilities approved to receive contaminated soil. The information required for each facility must include:
    a. General Information
        1. Facility name and the State identification number
        2. Facility location

3. Name of responsible contact for the facility

4. Telephone number for contact

5. Signed letter of agreement to accept waste as specified in this contract. The letter must indicate agreement to handle and accept the specified estimated quantities and types of material during the time period specified in the project schedule and any time extension as deemed necessary.

6. Unit of measure utilized at disposal facility for costing purposes

b. A listing of all permits, licenses, letters of approval, and other authorizations to operate, which are currently held and valid for the proposed facility.

c. A listing of all permits, licenses, letters of approval, and other authorizations to operate which have been applied for by the proposed facility but not yet granted or issued.

d. The Contractor must specify and describe the disposal/containment unit(s) that the proposed facility will use to manage the waste. The Contractor must identify the capacity available in the units and the capacity reserved for the subject waste.

e. The Contractor must provide the date of the proposed facility's last compliance inspection.

f. A list of all active (unresolved) compliance orders (or agreements), enforcement notices, or notices of violations issued to the proposed facility must be provided. The source and nature of the cause of violation must be stated, if known.

9. Description of all sampling and field/laboratory analyses that will be needed to obtain disposal facility approval.

8.01 C1.2 MATERIALS

A. The Contractor must provide containers as specified in the United State Department of Transportation (USDOT) regulations.

B. The Contractor must provide polyethylene sheeting, which is to be placed under (20 mil. thickness minimum) and over (10 mil. thickness minimum) soil piles.

C. The Contractor must assure that the waste transporter's appropriate choice of vehicles and operating practices are fitted to prevent spillage or leakage of contaminated material during transportation.

D. The Contractor must provide, install, and maintain any temporary stockpiling or loading facilities on site as required until completion of material handling activities. The location and design of any such facilities must be included in the MHP.

8.01 C1.3 CONSTRUCTION DETAILS

A. Material Handling

1. Immediately after excavation of non-hazardous contaminated soil the Contractor must:

a. Load material directly onto trucks/tankers/roll offs for disposal off site; or

b. If interim stockpiling is required, place contaminated soil on a minimum of 20 mil. polyethylene sheeting and cover it securely by minimum of 10 mil. polyethylene sheeting to protect against cross contamination, airborne dust, leaching or runoff of contaminants into the subsurface, groundwater, or stormwater. Weight or secure the sheeting by appropriate means and seal seams as approved by the DDC to prevent tearing or removal by wind or weather. Grade surrounding surface to provide for positive drainage away from pile. Each stockpile must not exceed 500 cubic yards. Contaminated soils must be stockpiled separately from uncontaminated and hazardous soil at an off-site location approved by DDC or secured on-site by the Contractor, meeting all required Federal, State and Local stipulations. Stockpiles must be at least 800 feet away from any sensitive receptors, such as schools, daycare center, hospitals, nursing homes, etc., and at least 100 feet away from any water body.

2. Institute appropriate procedures and security measures to ensure the protection of site personnel and the public from contaminated materials as described in the approved MHP, Site HASP, and Item 8.01 S - Health and Safety.

3. Any soil encountered that appears to contain unknown contaminants (based on visual, odor, or other observation), or that vary substantially from the material originally identified must be segregated in stockpiles and the independent Environmental Consultant promptly notified to collect soil samples for analysis. Construct stockpiles to the same requirements as stated in subsection (A)(1)(b) above.

4. Provide any dewatering that is necessary to complete the work. Contaminated water must be disposed of in accordance with Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

5. Provide and operate field organic vapor test equipment, a photoionization detector (PID) or a flame ionization detector (FID), to detect general organic vapor levels at intervals of approximately 50 cubic yards of soil excavated, when visual or odor observations indicate the material may substantially differ from the soil previously excavated and/or as directed by the independent Environmental Consultant.

B. Off-Site Transportation to Disposal Facility

1. General

a. The Contractor must furnish all labor, equipment, supplies and incidental costs required to transport contaminated material from the work area to the off-site disposal facility, and any other items and services required for transporting contaminated material for disposal at an off-site facility.

b. The Contractor will be responsible for tracking all materials and vehicles from the site to the off-site scale.

c. The Contractor must submit to the Engineer the certified tare and gross weight slips for each load received at the accepted facility which must be attached to each returned manifest. These documents must be maintained and kept with project field records.

d. Contaminated soils must be delivered to the disposal or treatment facility within 30 calendar days after excavation.

e. The Contractor must coordinate the schedule for truck arrival and material deliveries at the job site to meet the approved project schedule.

f. The Contractor must inspect all vehicles leaving the project site to ensure that contaminated soils adhering to the wheels or undercarriage are removed prior to the vehicle leaving the site.

g. The Contractor must obtain letters of commitment from the waste haulers and the TSD facility to haul and accept shipments.

h. The Contractor must provide waste profile forms to OEGS for review and approval before transporting contaminated soil to the approved TSD facility.

2. Hauling

a. The Contractor must coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities must be measured and recorded upon arrival at the disposal facility. If any deviation between the two (2) records occurs, the matter is to be reported immediately to the Engineer and to be resolved by the Contractor to the satisfaction of the Engineer.

b. The Contractor will be held responsible, at its own cost for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site.

c. The Contractor must ensure that trucks are protected against contamination by properly covering and lining them with polyethylene sheeting or by decontaminating them prior to and between acceptances of loads. Trucks with loaded contaminated soil must be covered securely with tarps before leaving the project site to prevent generation of airborne dust during hauling.

d. The Contractor will be responsible for inspecting the access routes for road conditions, overhead clearance, and weight restrictions.

e. The Contractor must only use the transporter(s) identified in the approved MHP for the performance of work. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitute or additional transporters.

f. The Contractor must develop, document, and implement a policy for accident prevention.

g. The Contractor must not combine contaminated materials from other projects with material from this project.

h. No material will be transported until approval by the Engineer is obtained.

3. Off-Site Disposal

a. The Contractor must use only the disposal facility(ies) identified in the approved MHP for the performance of the work. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitutions or additions of disposal facility.

b. The Contractor must be responsible for acceptance of the materials at an approved facility, for ensuring that the facility is properly permitted to accept the stated materials, and for ensuring that the facility provides the stated treatment and/or disposal services.

c. The City reserves the right to contact and visit the TSD facility and regulatory agencies to verify the agreement to accept the stated materials and to verify any other information provided.

d. In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility(ies) for accepting materials. The alternate facility(ies) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(ies). This must be done at no extra cost or delay to the City.

e. The Contractor must obtain manifest forms, and complete the shipment manifest records required by the appropriate regulatory agencies for verifying the material and quantity of each load in unit of volume and weight. Copies of each manifest must be submitted to the Engineer within four (4) business days following shipment, and within three (3) business days after notification of receipt of the facility. The signed manifests must be maintained and kept with the project field records. Any manifest discrepancies must be reported immediately to the Engineer and be resolved by the Contractor to the satisfaction of the Engineer.

4. Equipment and Vehicle Decontamination

a. The Contractor must design and construct a portable decontamination station to be used to decontaminate equipment and vehicles that have been used to handle contaminated soil. The cost for this work will be paid under Item 8.01 S - Health and Safety.

b. Water generated during the decontamination process must be disposed of in accordance with Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

8.01 C1.4 METHOD OF MEASUREMENT

Quantities for contaminated soils will be measured in tons. The tonnage will be determined by off-site truck scales, as per Subsection 8.01 C1(3)(B)(1), that are capable of generating load tickets.

8.01 C1.5 PRICE TO COVER

A. The unit bid price per ton for Item 8.01 C1 must include the cost of furnishing all labor, materials, equipment, plan, and insurance for excavation, handling, transportation, disposal, documentation, fees, permits, loading, stockpiling, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of non-hazardous contaminated soil.

B. Final disposal of hazardous soil will be paid for under Item 8.01 H – Handling, Transporting and Disposal of Hazardous Soils. Disposal of decontamination water will be paid for under Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

C. Backfill will be paid for under its respective item as specified in the contract document.

D. The independent Environmental Consultant will be paid under Item 8.01 S – Health and Safety.

Payment will be made under:

ITEM NUMBER	ITEM	PAYMENT UNIT
8.01 C1	Handling, Transporting, and Disposal of Non-Hazardous Contaminated Soil	Tons

ITEM 8.01 C2 IN-SITU AND EX-SITU SOIL SAMPLING AND ANALYSIS FOR WASTE DISPOSAL PARAMETERS

8.01 C2.1 WORK TO INCLUDE

A. Description

The work will consist of collecting and analyzing representative samples of soil to be excavated in-situ and/or ex-situ from stockpiles for parameters typically requested by the disposal facilities to determine if the soil to be excavated is suitable for reuse, or to be hauled off-site for disposal purposes as contaminated and/or hazardous soil.

B. Sampling and Laboratory Analysis

1. At least forty-five (45) days prior to the commencement of work, the Contractor's independent Environmental Consultant must submit an FSP and an Investigation Health and Safety Plan (Investigation HASP) to OEGS for review and approval, prior to conducting the field sampling. The FSP must include, at a minimum, the following information:

   a. Project information

   b. Description of sample collection methodology for soil to be excavated and soil which appears to contain unknown contaminants based on field observation

   c. Type of analyses

   d. Sample preservation and handling

   e. Training and experience of the personnel who will collect the samples

   f. Equipment Decontamination

   g. Analytical laboratory's name, address, New York State Department of Health's ELAP certification number, and telephone number

   h. Map of the project area

   i. Sample location plan

   j. Chain of Custody

   The Investigation HASP must identify actual and potential hazards associated with planned sampling field activities and stipulate appropriate health and safety procedures, so as to minimize field personnel exposures to physical, biological, and chemical hazards that may be present in the sampling media. The Investigation HASP must include, at a minimum, the following information:

   a. Project information

   b. Description of work to be performed

   c. Names of responsible health and safety personnel

   d. Worker training

   e. Job hazard analysis

   f. Confined Space Entry Plan (if applicable)

   g. Personal monitoring (if applicable)

   h. Community Air Monitoring Plan (CAMP, if applicable)

i. Personnel Protection Equipment (PPE)

j. Decontamination

k. Safety rules

l. Spill prevention and control, dust control, vapor/odor suppression procedures

m. Identification of nearest hospital and route

n. Emergency Incident Reporting

2. The Contractor's Environmental Consultant must collect one (1) grab and one (1) composite sample per 500 cubic yards of soil to be excavated in-situ and/or ex-situ from stockpiles. Sample locations must be placed throughout along the project area. For in-situ sampling, each grab soil sample must be collected from either the 6-inch interval above the water table (when encountered) or the 6-inch interval above the bottom of the proposed excavation depth (where recovery allowed), or from the 6-inch interval showing the highest potential for contamination based on field observation. For composite soil sampling, grid sampling must be performed for projects with excavation depth deeper than six (6) feet below grade. Each composite sample must consist of five (5) grab samples collected from various intervals along the depth of excavation at each sampling location. For stockpiled soils, each composite sample must consist of five (5) grab samples collected from various depths within each soil stockpile, at least two feet below the soil surface. For drummed soil, one (1) composite sample per 10 drums must be collected. Each composite soil sample must consist of one (1) grab sample from each of the 10 drums.

3. The quality of the data from the sampling program is the Contractor's responsibility. The Contractor must furnish all qualified personnel, materials, equipment and instruments necessary to carry out the sampling. Unless directed otherwise, all sampling procedures must follow the NYSDEC sampling guidelines and protocols. All sampling must be conducted by a qualified person trained in sampling protocols using standard accepted practices for obtaining representative samples.

4. Each grab and composite sample must be analyzed for all parameters required by disposal facilities accepting contaminated and hazardous soil. .

5. All sample containers must be marked and identified with legible sample labels, which must indicate the project name, sample location and/or container, the sample number, the date and time of sampling, preservatives utilized and other information that may be useful in determining the character of the sample. Chain-of-custody must be tracked from laboratory issuance of sample containers through laboratory receipt of the samples.

6. The Contractor must maintain a bound sample logbook. The Contractor must provide the Engineer access to it at all times and must turn it over to the Engineer in good condition at the completion of the work. The following information, at a minimum, must be recorded to the log:

a. Sample identification number

b. Sample location

c. Field observation

d. Sample type

e. Analyses

f. Date/time of collection

g. Collector's name

h. Sample procedures and equipment utilized

i. Date sent to laboratory and name of laboratory

7. The City reserves the right to direct the Contractor to conduct alternative sampling in lieu of the parameters described in subsection 8.01 C2(1)(B)(4), if the situation warrants. The substitute sampling parameters will be of equal or lesser monetary value than those described in subsection 8.01 C2(1)(B)(4), as determined by industry laboratory pricing standards.

8. Only dedicated sampling equipment may be used to collect these samples. All equipment involved in field sampling must be decontaminated before being brought to the sampling location, and must be properly disposed after use.

9. The Contractor's Environmental Consultant must prepare a Field Sampling Result Report (FSSR), tabulate the analytical results, and compare the data to the applicable NYSDEC Part 375.6 Soil Cleanup Objectives, and TCLP for Hazardous Waste published in RCRA and 6 NYCRR Part 371, or 40 CFR Section 261. If the soil is to be disposed of in a disposal facility outside of the State of New York, the soil sampling data must also be compared to the applicable regulatory criteria established by the state in which the disposal facility is located. The FSSR, with the tabulated tables and laboratory analytical data, must be submitted to OEGS for review and approval prior to any soil reuse or disposal activities.

10. Soils exceeding any of the hazardous characteristic criteria meet the legal definition of hazardous soils (rather than non-hazardous contaminated soils) and must be transported or disposed of under Item 8.01 H – Handling, Transporting and Disposal of Hazardous Soils. All analyses must be done by a laboratory that has received approval from the ELAP for the methods to be used. The Contractor must specify the laboratory in the MHP.

11. The Contractor must contact the disposal facility where the waste will be sent for permanent disposal, and arrange to collect any additional samples required by the facility. The cost associated with additional sampling and testing must be included in the bid price of this Item.

8.01 C2.2 METHOD OF MEASUREMENT

Quantities for samples must be measured as the number of sets of samples that are tested. A set will be defined as one (1) grab and one (1) composite samples per 500 cubic yards to be analyzed for the full range of parameters as specified in subsection 8.01 C2(1)(B)(4).

8.01 C2.3 PRICE TO COVER

The unit price bid per set for Item 8.01 C2 will include the cost of furnishing all labor, materials, equipment, plan, and insurance necessary for sampling, handling, transporting, testing, documentation, fees, permits, and any other incidentals necessary to complete the work as specified herein for in-situ and ex-situ soil sampling and analysis for waste disposal parameters.

Payment will be made under:

ITEM NUMBER	ITEM	PAYMENT UNIT
8.01 C2	In-Situ and Ex-Situ Soil Sampling and Analysis for Waste Disposal Parameters	Set

ITEM 8.01 H HANDLING, TRANSPORTING, AND DISPOSAL OF HAZARDOUS SOILS

8.01 H.1 WORK TO INCLUDE

A. General

This work will consist of the handling, transportation, and disposal of hazardous soils, which are defined as soils showing exceedances of TCLP for Hazardous Waste published in RCRA, 6 NYCRR Part 371, or 40 CFR Section 261. Hazardous soil can also be contaminated soils, as defined in Item 8.01 C1, but must be handled, transported, and disposed of as hazardous soil under Item 8.01 H, in accordance with the specifications herein. For the purpose of this specification, soils will be defined as any materials excavated below the pavement and base for pavement.

The Contractor must ensure that all operations associated with the handling, sampling, loading, transportation, and disposal of hazardous materials are in compliance with the applicable Federal, State, and Local statutes and regulations. The Contractor must supply all equipment, material and labor required to conduct the specified work under this section.

The Contractor must document the excavation, handling, sampling, and testing, transportation, and disposal of hazardous soils. The City must be listed in the disposal documents as the waste generator.

The Contractor must decontaminate all equipment prior to its removal from the exclusion zone and/or following contact with hazardous materials, as detailed in Item 8.01 S - Health and Safety. Water generated during the decontamination process must be disposed of under Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

The Contractor must retain an independent Environmental Consultant, meeting the requirements specified in Section 8.01 C1. The independent Environmental Consultant must conduct sampling for laboratory analysis of soil to be excavated to determine whether the soil is contaminated and/or hazardous.

All work under Item 8.01 H must be performed under the direct supervision of the Contractor's Environmental Consultant, as approved by the OEGS.

B. Material Handling Plan:

At least 45 days prior to the commencement of work, the Contractor must submit to the OEGS for review a MHP. The MHP must be approved by the OEGS prior to the Contractor beginning any soil excavation work. The MHP must, at a minimum, consist of:

1. The Contractor's procedures for identifying hazardous soils during excavation, including the specific model and manufacturer of intended organic vapor monitoring equipment and calibration procedures to be used. It should also include the training and experience of the personnel who will operate the equipment.
2. The Contractor's procedures for safely handling hazardous soils or soils which have not yet been tested but are believed to be potentially hazardous. The procedures must include personnel safety and health as well as environmental protection considerations.
3. Name, address, NYSDOH ELAP status and telephone number of the proposed laboratory for analysis of representative soil samples.
4. Identification of the Contractor's proposed waste transporter(s). This information must include:
    1. Name and Waste Transporter Permit Number
    2. Address
    3. Name of responsible contact for the waste transporter

4. Telephone number for the contact

5. All necessary permit authorizations for each type of waste transported

6. Previous experience in performing the type of work specified herein

5. The name and location of the facility where an off-site scale is located. The Contractor must outline the procedures on controlling trucks leaving the work site and en-route to the off-site scale.

6. All staging/stockpiling areas (if stockpiling areas are intended and available), or alternate procedures that will be used. Alternate procedures may include, but are not limited to, agreements from the intended disposal facilities to accept boring data and/or analytical data previously obtained during the site characterization so that materials may be directly loaded into vehicles for shipment to the disposal facility.

7. A backup facility must be provided, should the staging/stockpile areas become unavailable, insufficient in area or not be present by some other unforeseen difficulty.

8. Identification of the Contractor's two proposed Treatment Storage or Disposal (TSD) facilities for hazardous soils (primary and back-up) for final disposal of the hazardous soils. Both primary and backup TSD facilities must be currently USEPA or State-approved RCRA TSD facilities for hazardous soils. The information required for each facility must include:

   a. General Information

      7. Facility name and the USEPA identification number

      8. Facility location

      9. Name of responsible contact for the facility

      10. Telephone number for contact

      11. Signed letter of agreement to accept waste as specified in this contract. The letter must indicate agreement to handle and accept the specified estimated quantities and types of material during the time period specified in the project schedule and any time extension as deemed necessary.

      12. Unit of measure utilized at disposal facility for costing purposes

   b. A listing of all permits, licenses, letters of approval, and other authorizations to operate, which are currently held and valid for the proposed facility.

   c. A listing of all permits, licenses, letters of approval, and other authorizations to operate which have been applied for by the proposed facility but not yet granted or issued.

   d. The Contractor must specify and describe the disposal/containment unit(s) that the proposed facility will use to manage the waste. The Contractor must identify the capacity available in the units and the capacity reserved for the subject waste.

   e. The Contractor must provide the date of the proposed facility's last compliance inspection under RCRA.

   f. A list of all active (unresolved) compliance orders (or agreements), enforcement notices, or notices of violations issued to the proposed facility must be provided. The source and nature of the cause of violation must be stated, if known.

9. Description of all sampling and field/laboratory analyses that will be needed to obtain disposal facility approval.

8.01 H.2 MATERIALS

A. The Contractor must provide containers as specified in the USDOT regulations.

B. The Contractor must provide polyethylene sheeting, which is to be placed under (20 mil. thickness minimum) and over (10 mil. thickness minimum) soil piles.

C. The Contractor must assure that the waste transporter's appropriate choice of vehicles and operating practices are fitted to prevent spillage or leakage of contaminated material during transportation.

D. The Contractor must provide, install, and maintain any temporary stockpiling or loading facilities on site as required until completion of material handling activities. The location and design of any such facilities must be included in the MHP.

8.01 H.3 CONSTRUCTION DETAILS

A. Material Handling

1. Immediately after excavation of hazardous soil the Contractor must:

   a. Load material directly onto drums/trucks/tankers/roll offs for disposal off site. Containers must be labeled as hazardous soil while being held for disposal; or

   b. If interim stockpiling is required, place hazardous soil on a minimum of 20 mil. polyethylene sheeting and cover it securely by minimum of 10 mil. polyethylene sheeting to protect against cross contamination, airborne dust, leaching or runoff of contaminants into the subsurface, groundwater, or stormwater. Weight or secure the sheeting by appropriate means and seal seams as approved by the Engineer to prevent tearing or removal by wind or weather. Grade surrounding surface to provide for positive drainage away from pile. Each stockpile must not exceed 500 cubic yards. Hazardous soils must be stockpiled separately from uncontaminated and contaminated soil at an off-site location approved by the Engineer or secured on-site by the Contractor, meeting all required Federal, State and Local stipulations. Stockpiles must be labelled as hazardous soil and situated at least 800 feet away from any sensitive receptors, such as schools, daycare center, hospitals, nursing homes, etc., and at least 100 feet away from any water body.

2. Institute appropriate procedures and security measures to ensure the protection of site personnel and the protection of the public from hazardous soils as described in the approved MHP, Site HASP, and Item 8.01 S - Health and Safety.

3. Any soil encountered that appears to contain unknown contaminants (based on visual, odor, or other observation), or that vary substantially from the material originally identified must be segregated in stockpiles and the independent Environmental Consultant promptly notified to collect soil samples for analysis. Construct stockpiles to the same requirements as stated in subsection (A)(1)(b) above.

4. Provide any dewatering that is necessary to complete the work. Contaminated water must be disposed of in accordance with Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

5. Provide and operate field organic vapor test equipment, a PID or a FID, to detect general organic vapor levels at intervals of approximately 50 cubic yards of soil excavated, when visual or odor observations indicate the material may substantially differ from the soil previously excavated and/or as directed by the independent Environmental Consultant.

C. Off-Site Transportation to Disposal Facility

1. General

a. The Contractor must furnish all labor, equipment, supplies and incidental costs required to transport contaminated material from the work area to the off-site disposal facility, and any other items and services required for transporting hazardous material for disposal at an off-site facility.

b. The Contractor is responsible for obtaining the USEPA hazardous waste generator identification number for the City. The application must be submitted to OEGS for review and approval prior to submission to USEPA. The Contractor must prepare the annual hazardous waste report for the project and submit to the NYSDEC and USEPA.

c. The Contractor will be responsible for tracking all material/vehicles from the site to the off-site scale and to the approved disposal facility.

d. The Contractor must provide to the Engineer certified tare and gross weight slips for each load received at the accepted facility which must be attached to each returned manifest. These documents must be maintained and kept with project field records.

e. Hazardous soils must be delivered to the disposal or treatment facility within 30 calendar days after excavation.

f. The Contractor must coordinate the schedule for truck arrival and material deliveries at the job site to meet the approved project schedule.

g. The Contractor must inspect all vehicles leaving the project site to ensure that hazardous soils adhering to the wheels or undercarriage are removed prior to the vehicle leaving the site.

h. The Contractor must obtain letters of commitment from the waste haulers and the TSD facility to haul and accept shipments.

i. The Contractor must provide waste profile forms to OEGS for review and approval before transporting hazardous soil to the approved TSD facility.

2. Hauling

a. The Contractor must coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities must be measured and recorded upon arrival at the disposal facility. If any deviation between the two records occurs, the matter is to be reported immediately to the Engineer and to be resolved by the Contractor to the satisfaction of the Engineer.

b. The Contractor will be responsible, at its own cost for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site.

c. The Contractor must ensure that trucks are protected against contamination by properly covering and lining them with polyethylene sheeting or by decontaminating them prior to and between acceptances of loads. Trucks with loaded contaminated soil must be covered securely with tarp before leaving the project site to prevent generation of airborne dust during hauling.

d. The Contractor will be responsible for inspecting the access routes for road conditions, overhead clearance, and weight restrictions.

e. The Contractor must only use the transporter(s) identified in the approved MHP for the performance of work. Only a transporter with a current Part 364 Waste Transporter Permit from NYSDEC may transport hazardous soil. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitute or additional transporters.

f. The Contractor must develop, document, and implement a policy for accident prevention.

g. The Contractor must not combine hazardous materials from other projects with material from this project.

h. No material will be transported until approval by the Engineer is obtained.

3. Off-Site Disposal

a. The Contractor must use only the disposal facility(ies) identified in the approved MPH for the performance of the work. A revised MHP or an addendum to the original approved MHP must be submitted to OEGS for review and approval at no additional cost to the City for any use of substitutions or additions of disposal facility.

b. The Contractor will be responsible for acceptance of the materials at an approved facility, for ensuring that the facility is properly permitted to accept the stated materials, and for ensuring that the facility provides the stated treatment and/or disposal services.

c. The City reserves the right to contact and visit the TSD facility and regulatory agencies to verify the agreement to accept the stated materials and to verify any other information provided.

d. In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility(ies) for accepting materials. The alternate facility(ies) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(ies). This must be done at no extra cost or delay to the City.

e. The Contractor must obtain manifest forms, and complete the shipment manifest records required by the appropriate regulatory agencies for verifying the material and quantity of each load in unit of volume and weight. Copies of each manifest must be submitted to the Engineer within four (4) business days following shipment, and within three (3) business days after notification of receipt of the facility. The signed manifests must be maintained and kept with the project field records. Any manifest discrepancies must be reported immediately to the Engineer and be resolved by the Contractor to the satisfaction of the Engineer.

f. The Contractor must submit all results and weights to the Engineer.

g. The Contractor is responsible to pay all fees associated with the generation and disposal of all excavated hazardous waste. These fees include, but are not limited to, the New York State Department of Finance and Taxation (DFT) quarterly fees for hazardous waste and the NYSDEC annual hazardous waste regulatory fee program. The Contractor must submit a copy of proof of payment to the Engineer and OEGS.

4. Equipment and Vehicle Decontamination

   a. The Contractor must design and construct a portable decontamination station to be used to decontaminate equipment and vehicles that have been used to handle contaminated soil. The cost for this work will be paid under Item 8.01 S - Health and Safety.

   b. Water generated during the decontamination process must be disposed of in accordance with Item 8.01 W1 – Removal, Treatment, and Discharge/Disposal of Contaminated Water.

8.01 H.4 METHOD OF MEASUREMENT

Quantities for hazardous soils will be measured in tons. The tonnage will be determined by off-site truck scales, as per Subsection 8.01 H1.3.B, that are capable of generating load tickets.

8.01 H.5 PRICE TO COVER

B. The unit bid price bid per ton for Item 8.01 H will include the cost of furnishing all labor, materials, equipment, plan, and insurance for excavation, handling, transportation, disposal, documentation, fees, permits, loading, stockpiling, hauling, and any other incidentals necessary to complete all the work as specified herein for handling, transporting, and disposal of hazardous soil.

B. Final disposal of contaminated soil will be paid for under Item 8.01 C1 – Handling, Transporting and Disposal of Non-Hazardous Contaminated Soils. Disposal of decontamination water will be paid for under Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

C. Backfill will be paid for under its respective item as specified in the contract document.

D. The independent Environmental Consultant will be paid under Item 8.01 S – Health and Safety.

Payment will be made under:

ITEM NUMBER	ITEM	PAYMENT UNIT
8.01 H	Handling, Transporting, and Disposal of Hazardous Soil	Tons

ITEM 8.01 S HEALTH AND SAFETY

8.01 S.1 WORK TO INCLUDE

Health and Safety Requirements

A. Scope of Work

It is the Contractor's responsibility to stage and conduct the Contractor's work in a safe manner. The Contractor must implement a Health and Safety Plan (HASP) for contaminated/hazardous soil intrusive activities as set forth in OSHA Standards 1910.120 and 1926.650-652. The Contractor must ensure that all workers have at a minimum hazard awareness training. The Contractor must segregate contaminated work area in secured exclusion zones. These zones must limit access to Contractor personnel specifically trained to enter the work area. The exclusion zone must be set up to secure the area from the public and untrained personnel. The project health and safety program will apply to all construction personnel including persons entering the work area. In addition, the Contractor must protect the public from on-site hazards, including subsurface contaminants associated with on-site activities. The HASP must be signed off by a Certified Industrial Hygienist and reviewed and approved by OEGS.

Work must include, but not be limited to:

1. Implementation of a baseline medical program.
2. Providing safety equipment and protective clothing for site personnel, including maintenance of equipment on a daily basis; replacement of disposable equipment as required; decontamination of clothing, equipment and personnel; and providing all other health and safety measures.
3. Providing, installing, operating and maintaining on-site emergency medical first aid equipment as specified in this section for which payment is not provided under other pay items in this Contract.
4. Providing, installing, operating, maintaining and decommissioning all equipment and personnel decontamination facilities specified within this section, including, but not limited to, the decontamination pad, decontamination water supply, decontamination water collection equipment and all other items and services required for the implementation of the health and safety requirements for which pay items are not provided elsewhere in this Contract.
5. Provide the minimum health and safety requirements for excavation activities within the limits of this Contract.
6. Implement and enforce a HASP: The HASP as presented in these specifications is dynamic with provisions for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The HASP will also address measures for community protection, accident prevention, personnel protection, emergency response/contingency planning, air monitoring, odor control and hazardous chemicals expected on site. Providing a Confined Space Entry Program as defined in the Occupational Safety and Health Act, Confined Space Entry Standard, 29 CFR 1910.146.

B. Environmental Consulting Services

The Contractor must retain an independent Environmental Consultant to obtain all permits and perform all field screening, air monitoring, community air monitoring, soil and water sampling, and health and safety services.

4. If conditions within the exclusion zone are deemed hazardous, then the Contractor and its independent Environmental Consultant must ensure that all personnel working within identified exclusion zones and/or involved (direct contact) with the handling, storage or transport of hazardous and contaminated materials must have completed a minimum of forty (40) hours of Health and Safety Training on Hazardous Waste Sites in accordance with 29 CFR 1910.120(e). The training program must be conducted by a qualified safety instructor. If conditions in the exclusion zone are deemed to be non-hazardous, the independent Environmental Consultant must provide site specific training.

5. The Contractor must ensure that on-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations must receive the training specified in above and at least eight (8) additional hours of specialized training on managing such operations at the time of job assignment.

C. Submittals

1. The Contractor must submit a written HASP, as specified herein, to OEGS for review and approval. The written HASP must be submitted, within thirty (30) calendar days after the availability of analytical results of the soil and groundwater testing, as required under Section 8.01 C2 and Section 8.01 W2. The Contractor must make all necessary revisions required by OEGS and resubmit the HASP to OEGS for acceptance. Start-up work for the project will not be permitted until written acceptance has been issued by OEGS.

2. Daily safety logs must be maintained by the Contractor and must be submitted to the Engineer either on request or on completion of the work. Training logs must be maintained by the Contractor and submitted to the Engineer either on request or on completion of the work. Daily logs on air monitoring during excavation activities must be prepared and maintained by the Contractor and submitted to the Engineer either on request or upon completion of the work.

3. A closeout report must be submitted by the Contractor to the Engineer upon completion of the work within the defined exclusion zones. This report must summarize the daily safety and monitoring logs and provides an overview of the Contractor's performance regarding environmental and safety issues. The report must carefully document all areas where contamination has been found including pictures, addresses of locations, and potential sources.

4. Medical Surveillance Examinations: The Contractor must submit to the Engineer the name, office address and telephone number of the medical consultant utilized. Evidence of baseline medical examinations together with the evidence of the ability to wear National Institute for Occupational Safety and Health (NIOSH) approved respirators (as specified in American National Standards Institute (ANSI) Z88.6) must be provided to the Engineer for all construction personnel who are to enter the exclusion zones.

5. Accident Reports: All accidents, spills, or other health and safety incidents must be reported to the Engineer.

D. Health and Safety Plan

The HASP must comply with OSHA regulations 29 CFR 1910.120/1926.65. This document must at a minimum contain the following:

1. Description of work to be performed
2. Site description
3. Key personnel
4. Worker training procedures

5. Work practices and segregation of work area
6. Hazardous substance evaluation
7. Hazard assessment
8. Personal and community air monitoring procedures and action levels
9. Personal protective equipment
10. Decontamination procedures
11. Safety rules
12. Emergency procedures
13. Spill prevention and control, as well as spill reporting procedures
14. Dust control, vapor/odor suppression procedures
15. Identification of the nearest hospital and route
16. Confined space procedures
17. Excavation safety procedures

8.01 S.2 MEASUREMENT

Health and Safety Requirements

A. 25% of the lump sum price will be paid when the following items are implemented or mobilized:

Medical surveillance program

Health and safety training

Health and safety plan

Environmental and personnel monitoring

Instrumentation

Spill control

Dust control

Personnel and equipment decontamination facilities

Personnel protective clothing

Communications

Mobilization

B. 50% will be paid in proportional monthly amounts over the period of work.

C 25% will be paid when the operation is demobilized and removed from the project site.

8.01 S.3 PRICE TO COVER

Health and Safety Requirements

The lump sum price bid for the health and safety requirements will include all labor, materials, equipment, and insurance necessary to complete the work in accordance with these specifications. The price bid will include, but not be limited to, the following:

A. Providing training, safety personnel, air monitoring and medical examinations as specified.

B. Providing safety equipment and protective clothing for site personnel, including maintenance of equipment on a daily basis; replacement of disposable equipment as required; decontamination of clothing, equipment and personnel; and all other health and safety activities or costs not paid for under other pay items in this Contract.

C. Providing, installing, operating and maintaining on-site emergency medical and first aid equipment. This includes all furnishings, equipment, supplies and maintenance of all medical equipment, and all other health and safety items and services for which payment is not provided under other pay items in this Contract.

D. Providing, installing, operating, maintaining, and decommissioning all personnel and equipment decontamination facilities, including decontamination pad, decontamination water supply, and all other items and services required for the implementation of the health and safety requirements for which pay items are not provided elsewhere in this Contract. Vehicle decontamination pads will be included in the price of this item. Disposal of decontamination fluid will be paid for under Item 8.01 W1 – Removal, Treatment and Discharge/Disposal of Contaminated Water.

E. Spill Control

1. Payment will account for furnishing, installing, and maintaining all spill control equipment and facilities. Payment will include equipment and personnel to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage during work within the exclusion zones and handling of excavated soils and liquids from these areas. This collected spill material will be properly disposed of.

2. Payment under this item will not include testing, handling, transportation or disposal of petroleum-contaminated/potentially hazardous soils excavated during construction. The price for this work will be paid for under Items 8.01 C1 – Handling, Transporting and Disposal of Non-Hazardous Contaminated Soils, 8.01 C2 – Sampling and Testing of Contaminated/Potentially Hazardous Soil for Disposal Parameters or 8.01 H – Handling, Transporting and Disposal of Hazardous Soils, as appropriate.

F. Dust Control

Payment will account for furnishing, installing, and maintaining dust control equipment and facilities to be used whenever applicable dust levels are exceeded. Payment will include all necessary labor, equipment, clean water, foam, and all other materials required by the Dust Control Plan. The NYSDOH Community Air Monitoring Plan (CAMP) may be used as guidance.

G. Vapor/Odor Suppression

Payment will account for furnishing, installing and maintaining vapor/odor control equipment and facilities to be used whenever organic vapor monitoring or the presence of odors indicates that vapor suppression is required to protect workers or the public. Payment will include all necessary labor, equipment, clean water, foam and all other materials required by the Vapor/Odor Suppression Plan.

H. Mobilization/Demobilization

1. Mobilization

Payment will include the following, but not be limited to:

a. All work required to furnish, install and maintain all signs, fencing, support zone facilities, parking areas and all temporary utilities;

b. All work required to furnish, install, and maintain an office space with phone and utilities for health and safety personnel;

c. All work required for complete preparation of lay down area for roll-off containers, including sampling, and any required fencing;

d. All direct invoiced cost from bonding companies and government agencies for permits and costs of insurance; and

e. All other items and services required for mobilization and site preparation.

2. Demobilization

Payment will include but not be limited to: All work required to sample the area; remove from the site all equipment, temporary utilities and supporting facilities; performance of necessary decontamination and repairs; disposal of disposable equipment and protective gear and other items and services required for complete demobilization.

Payment will be made under:

ITEM NUMBER	ITEM	PAYMENT UNIT
8.01 S	Health and Safety	Lump Sum

ITEM 8.01 W1 REMOVAL, TREATMENT, AND DISCHARGE/DISPOSAL OF CONTAMINATED WATER

8.01 W1.1 WORK TO INCLUDE

General: This work must consist of the proper removal and disposal of all contaminated groundwater and decontamination water generated during construction operations. The Contractor must be solely responsible for the proper disposal or discharge of all contaminated water generated at the job site. The Contractor will have the option of treating water on-site for discharge to the sewer system or removing contaminated water for off-site disposal. The Contractor must be responsible to choose a method compatible to the construction work and will be compensated on a per day basis regardless of method employed. The Contractor will be compensated for only those days where the system is in full operation.

The Contractor must retain a dewatering/water treatment Specialist (hereinafter the "Specialist") and laboratory as specified under Item 8.01 W2 – Sampling and Testing of Contaminated Water, to conduct any testing that may be required for disposal of impacted water.

The dewatering/water treatment Specialist is responsible to obtain all permits; perform all water sampling, testing; and provide ancillary services related to dewatering and water treatment. The Specialist must at a minimum provide documentation to OEGS demonstrating the minimum requirements as set forth below:

1. The Specialist must demonstrate that it has, at a minimum, three (3) years' experience in the design of dewatering plans. The Specialist should demonstrate expertise dealing with issues associated with contaminated water. During that three (3) year period, the Specialist must demonstrate that it provided dewatering and water treatment systems as a routine part of its daily operations.
2. The Specialist must be experienced in work of this nature, size, and complexity and must have previous experience in working with the NYCDEC.
3. The Specialist must furnish a project listing identifying the location, nature of services provided, owner, owner's contact, contact's telephone number, project duration and value for at least five (5) projects within the last three (3) years of a similar nature, size, and complexity to this one.
4. If conditions within the exclusion zone are deemed hazardous, then the Contractor and its independent Environmental Consultant must ensure that all personnel working within identified exclusion zones and/or involved (direct contact) with the handling, storage or transport of hazardous and contaminated material must have completed a minimum of forty (40) hours of Health and Safety Training on Hazardous Waste Sites in accordance with 29 CFR 1910.120(e). The training program must be conducted by a qualified safety instructor. If conditions in the exclusion zone are deemed to be non-hazardous, the Specialist will be responsible to provide site-specific training to its employees and other affected personnel.
5. The Contractor must ensure that on-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations must receive the training specified in above and at least eight (8) additional hours of specialized training on managing such operations at the time of job assignment.

The Contractor must document all operations associated with the handling, sampling and disposal of contaminated water, and ensure that they are in compliance with applicable Federal, State and Local statutes and regulations.

The Contractor must supply all labor, equipment, transport, plant, material, treatment, and other incidentals required to conduct the specified work of this section.

If water will be disposed of into the sewer system, the Contractor must ensure the Specialist treats the water to comply with the New York City Department of Environmental Protection (NYCDEP) Sewer Effluent Limit concentrations prior to discharge. The Contractor is responsible for providing settling or filtering tanks and any other apparatus required by NYCDEP. Alternatively, the Contractor can provide a plan for transport and disposal at an off-site waste disposal facility.

Within forty-five (45) calendar days after award of Contract, the Contractor must submit to OEGS for review and approval, a Water Handling Plan (WHP). The WHP must be approved by OEGS prior to the Contractor's commencement of work. The minimum requirements for the WHP are specified herein Item 8.01W 1.2, for each type of disposal (disposal into the sewer or off-site disposal). The Contractor must maintain a complete, up to date copy of the WHP on the job site at all times.

8.01 W1.2 CONSTRUCTION DETAILS

For each disposal method the Contractor proposes to utilize (disposal to sewer or off-site disposal), the WHP must include the information required in paragraphs A and B below, as appropriate.

A. On-site treatment and discharge into New York City sewers.

1. Regulations: The Contractor must comply with all applicable regulations. This includes but may not be limited to:

   Title 15-New NYCDEP Sewer Use Regulations.

2. Permits: The Contractor is solely responsible to obtain all necessary and appropriate Federal, State and Local permits and approvals. The Contractor will be responsible for performing all and any system pilot tests required for permit approval. This includes but may not be limited to:

   a. Industrial waste approval for the New York City sewer system.

   b. Groundwater discharge permit for the New York City sewer system (NYCDEP Division of Sewer Regulation and Control), if discharge to sewer exceeds 10,000 gallons per day.

   c. The Contractor must comply with NYCDEC State Pollutant Discharge Elimination System (SPDES) Permit Number GP-0-10-001, General Permit for Stormwater Discharges.

   d. Long Island well permit for Brooklyn and Queens sites, if well points are used for dewatering.

   e. Wastewater quality control application, NYCDEP.

3. The WHP for this portion of the work must include the following at a minimum:

   a. Identification and design of Contractor's proposed treatment to assure that the water meets the NYCDEP sewer use guidelines prior to discharge to the sewer, including identification of all materials, procedures, settling or filtering tanks, filters and other appurtenances proposed for treatment and disposal of contaminated water.

   b. The name, address and telephone number of the contact for the Contractor's proposed chemical laboratory, as well as the laboratory's certifications under Federal, State or non-governmental bodies.

c. The name, address and telephone number of the contact for the Contractor's proposed independent Environmental Consultant.

d. Copies of all submitted permit applications and approved permits the Contractor have received.

4. Materials

The Contractor must supply all settling or filtering tanks, pumps, filters, treatment devices and other appurtenances for treatment, temporary storage and disposal of contaminated water. All equipment must be suitable for the work described herein.

5. Execution

a. The Contractor is solely responsible for disposal of all water, in accordance with all Federal, State and Local regulations.

b. The Contractor is solely responsible for any treatment required to assure that water discharged into the sewer is in compliance with all permits and Federal, State and Local statutes and regulations.

c. The Contractor is solely responsible for the quality of the water disposed of into the sewers.

d. The Contractor is responsible for sampling and testing of water for the NYCDEP Sewer Effluent Limit concentrations. The quality of the data is the Contractor's responsibility. Any sampling and testing must be conducted and paid in accordance with Item 8.01 W2 – Sampling and Testing of Contaminated Water.

e. The Contractor will be responsible to maintain the discharge rate to the sewer such that all permit requirements are met, the capacity of the sewer is not exceeded and no surcharging occurs downstream due to the Contractor's actions. Dewatering by means of well points or deep wells will not be allowed in the Boroughs of Brooklyn or Queens where the rate of pumping exceeds forty-five (45) gallons per minute unless the appropriate permit has been secured from the NYCDEC.

f. Disposal of Treatment Media

(1) The Contractor will be responsible for disposal or recycling of treatment media in accordance with all Federal, State and Local regulations.

(2) The Contractor must provide the Engineer with all relevant documentation concerning the disposal of treatment media, including manifests, bills of lading, certificates of recycling or destruction and other applicable documentation.

(3) **Disposal of treatment media will not be considered as a separate pay item; instead it will be considered as incidental work thereto and included in the unit price bid.**

B. Off-Site Disposal

1. Regulations: The Contractor must conform to all applicable Federal, State and Local regulations pertaining to the transportation, storage and disposal of any hazardous and/or non-hazardous materials as listed in Attachment 2.

2. The following must be submitted to the Engineer prior to initiating any off-site disposal:

a. (1) Name and waste transporter permit number

(2) Address

(3) Name of responsible contact for the waste transporter

(4) Any and all necessary permit authorizations for each type of waste transported

(5) Previous experience in performing the type of work specified herein

b. General information for each proposed treatment/disposal facility and at least one backup treatment/disposal facility

(1) Facility name and USEPA identification number

(2) Facility location

(3) Name of responsible contact for the facility

(4) Telephone number for contact

(5) Unit of measure utilized at facility for costing purposes

c. A listing of all permits, licenses, letters of approval and other authorizations to operate, which are currently held and valid for the proposed facility as they pertain to receipt and management of the wastes derived from this Contract.

d. A listing of all permits, licenses, letters of approval and other authorizations to operate which have been applied for by the proposed facility but not yet granted or issued. Provide dates of application(s) submitted. Planned submittals must also be noted.

e. The Contractor must specify and describe the disposal/containment unit(s) that the proposed facility will use to manage the waste and provide dates of construction and beginning of use, if applicable. Drawings may be provided. The Contractor must identify the capacity available in the units and the capacity reserved for the subject waste.

f. The Contractor must provide the date of the proposed facility's last compliance inspection.

g. A list of all active (unresolved) compliance orders, agreements, enforcement notices or notices of violations issued to the proposed facility must be submitted. The source and nature of the cause of violation must be stated, if known. If groundwater contamination is noted, details of the facility's groundwater monitoring program must be provided.

h. Description of all sampling and field/laboratory analyses that will be needed to obtain disposal facility approval.

3. Materials

All vessels for temporary storage and transport to an off-site disposal facility must be as required in DOT regulations.

4. Execution

a. General

(1) The Contractor must organize and maintain the material shipment records/manifests required by Federal, State and Local laws. The Contractor must include all bills of lading, certificates of destruction, recycling or treatment and other applicable documents.

(2) The Contractor must coordinate the schedule for truck arrival and material deliveries at the job site to meet the approved project schedule. The schedule must be compatible with the availability of equipment and personnel for material handling at the job site.

(3) The Contractor must inspect all vehicles leaving the project site to ensure that contaminated liquids are not spilling and are contained for transport.

(4) The Contractor must obtain letters of commitment from the waste haulers and the treatment, disposal or recovery facility to haul and accept shipment. The letter must indicate agreement to handle and accept the specified estimated quantities and types of material during the time period specified in the project schedule and any time extension as deemed as necessary.

(5) The Contractor must verify the volume of each shipment of water from the site.

(6) The Contractor is responsible for sampling and testing of water for off-site disposal. The quality of the data is the Contractor's responsibility. Any sampling and testing must be conducted and paid in accordance with Item 8.01 W2 – Sampling and Testing of Contaminated Water.

(7) The Contractor is responsible for any additional analyses required by the TSD facility, and for the acceptance of the water at an approved TSD facility.

b. Hauling

(1) The Contractor must not deliver waste to any facility other than the TSD facility(ies) listed on the shipping manifest.

(2) The Contractor must coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities must also be measured and recorded upon arrival at the TSD facility(ies). If any deviation between the two records occurs, the matter is to be reported immediately to the Engineer and must be resolved by the Contractor to the satisfaction of the Engineer.

(3) The Contractor will be responsible for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site. This cleanup must be accomplished at the Contractor's expense.

(4) The Contractor will be responsible for inspecting the access routes for road conditions, overhead clearance and weight restrictions.

(5) The Contractor must only use the transporter(s) identified in the WHP for the performance of work. Only a transporter with a current Part 364 Waste Transporter Permit from NYCDEC may transport this material. Any use of substitute or additional transporters must have previous written approval from the Engineer at no additional cost to the City.

(6) The Contractor must develop, document, and implement a policy for accident prevention.

(7) The Contractor must not combine waste materials from other projects with material from this project.

(8) The Contractor must obtain for the City a hazardous waste generator identification number and will sign the manifest as the generator, if necessary.

(9) No material must be transported until approved by the Engineer.

c. Disposal Facilities

(1) The Contractor must use only the TSD facility(ies) identified in the WHP for the performance of the work. Substitutions or additions must not be permitted without prior written approval from OEGS, and, if approved, must be at no extra cost to the City.

(2) The Contractor will be responsible for acceptance of the material at an approved TSD facility, for ensuring that the facility is properly permitted to accept the stated material, and that the facility provides the stated storage and/or disposal services.

(3) The City reserves the right to contact and visit the disposal facility and regulatory agencies to verify the agreement to accept the stated material and to verify any other information provided. This does not in any way relieve the Contractor of the Contractor's responsibilities under this Contract.

(4) In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility(ies) for accepting materials. The Contractor is responsible for making the necessary arrangements to utilize the facility(ies), and the alternate facility(ies) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(ies). This must be done with no extra cost or delay to the City.

d. Equipment and Vehicle Decontamination

(1) The Contractor must design and construct a portable decontamination station to be used to decontaminate equipment and vehicles exiting the exclusion zone. The cost for this work will be paid under Item 8.01 S – Health and Safety.

8.01 W1.3 METHOD OF MEASUREMENT

The quantity for on-site treatment and discharge or off-site disposal will be on a per day basis.

8.01 W1.4 PRICE TO COVER

A. The per day price bid for Item 8.01 W1 will include the cost of furnishing all labor, materials, equipment, plan, and insurance for handling, transportation, disposal, documentation, permits, hauling, mobilization and demobilization, and any other incidentals thereto to complete the work.

B. The Contractor will not be paid for water that is within the NYCDEP Sewer Discharge Limits.

Payment will be made under:

ITEM NUMBER	ITEM	PAYMENT UNIT
8.01 W1	Removal, Treatment and Disposal/Discharge of Contaminated Water	Day

ITEM 8.01 W2 SAMPLING AND TESTING OF CONTAMINATED WATER

8.01 W2.1 WORK TO INCLUDE

A. Description

The work will consist of sampling and testing of potentially contaminated groundwater, surface runoff within the excavated area and all contaminated water generated during the decontamination process.

B. Sampling and Testing

1. The Contractor is responsible, at a minimum, for sampling and testing of contaminated water for the NYCDEP Sewer Effluent Limit concentrations as listed in Attachment 1, and in accordance with the Engineer-approved SSP/FSP and the Investigation HASP, as specified in 8.01 C2. The quality of the data is the Contractor's responsibility. Any additional testing required by the Federal, State and/or disposal facilities must be included in the bid price of this Item.
2. All sampling and testing must be conducted by a person trained in sampling protocols using accepted standard practices and/or the NYCDEC sampling guidelines and protocols.
3. All sample containers must be marked with legible sample labels which must indicate the project name, sample location and/or container, the sample number, the date and time of sampling, preservatives utilized, how the sample was chilled to 4 degrees Celsius, and other information that may be useful in determining the character of the sample.
4. Chain-of-custody must be tracked from laboratory issuance of sample containers through receipt of the samples.
5. The Contractor must maintain a bound sample log book. The Contractor must provide the Engineer access to it at all times and must turn it over to the Engineer in good condition at the completion of the work. The following information, as a minimum, must be recorded to the log:
   a. Sample identification number
   b. Sample location
   c. Field observation
   d. Sample type
   e. Analyses
   f. Date/time of collection
   g. Collector's name
   h. Sample procedures and equipment used
   i. Date sent to laboratory/name of laboratory
6. Only dedicated sampling equipment may be used to collect these samples. All equipment involved in field sampling must be decontaminated before being brought to the site, and must be properly disposed of after use.
7. Samples must be submitted to the Contractor's laboratory within the holding times for the parameters analyzed.

8. All analyses must be done by a laboratory that has received approval from the NYSDOH's ELAP for the methods to be done. The Contractor must specify the laboratory in the WHP.

9. Analytical results for water discharged to the sewer and for off-site disposal must be submitted to the Engineer no later than five (5) days after sample collection.

10. The City reserves the right to direct the Contractor to conduct alternative sampling in lieu of the parameters described above, if the situation warrants. The substitute sampling parameters will be of equal or lesser monetary value than those described above, as determined by industry laboratory pricing standards.

8.01 W2.2 METHOD OF MEASUREMENT

Quantities for samples will be measured as the number of sets of samples that are tested for the NYCDEP Sewer Effluent Limit concentrations. A set will be defined as one (1) representative sample analyzed for the full range of NYCDEP parameters as specified in Attachment 1.

8.01 W2.3 PRICE TO COVER

The unit price bid per set for Item 8.01 W2 will include the cost of furnishing all labor, materials, equipment, plan, and insurance for handling, transport, sampling, testing, documentation, permits, other incidentals necessary to complete the work of sampling and testing of contaminated water. Any additional costs incurred by the Contractor for sampling and testing of contaminated water will be included in the bid price of this Item.

Payment will be made under:

ITEM NUMBER	ITEM	PAYMENT UNIT
8.01 W2	Sampling and Testing of Contaminated Water	Set

ATTACHMENT 1: NYCDEP LIMITATIONS FOR DISCHARGE TO SEWER

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTEWATER TREATMENT

Limitations for Effluent to Sanitary or Combined Sewers

Parameter[1]	Daily Limit	Units	Sample Type	Monthly Limit
Non-polar material[2]	50	mg/l	Instantaneous	---
pH	5-11	SU's	Instantaneous	---
Temperature	< 150	Degree F	Instantaneous	---
Flash Point	> 140	Degree F	Instantaneous	---
Cadmium	2 0.69	mg/l mg/l	Instantaneous Composite	--- ---
Chromium (VI)	5	mg/l	Instantaneous	---
Copper	5	mg/l	Instantaneous	---
Lead	2	mg/l	Instantaneous	---
Mercury	0.05	mg/l	Instantaneous	---
Nickel	3	mg/l	Instantaneous	---
Zinc	5	mg/l	Instantaneous	---
Benzene	134	ppb	Instantaneous	57
Carbontetrachloride	---	---	Composite	---
Chloroform	---	---	Composite	---
1,4 Dichlorobenzene	---	---	Composite	---
Ethylbenzene	380	ppb	Instantaneous	142
MTBE (Methyl-Tert-Butyl-Ether)	50	ppb	Instantaneous	---
Naphthalene	47	ppb	Composite	19
Phenol	---	---	Composite	---
Tetrachloroethylene (Perc)	20	ppb	Instantaneous	---
Toluene	74	ppb	Instantaneous	28
1,2,4 Trichlorobenzene	---	---	Composite	---
1,1,1 Trichloroethane	---	---	Composite	---
Xylenes (Total)	74	ppb	Instantaneous	28
PCB's (Total)[3]	1	ppb	Composite	---
Total Suspended Solids (TSS)	350[4]	mg/l	Instantaneous	---
CBOD[5]	---	---	Composite	---
Chloride[5]	---	---	Instantaneous	---
Total Nitrogen[5]	---	---	Composite	---
Total Solids[5]	---	---	Instantaneous	---

1 All handling and preservation of collected samples and laboratory analyses of samples must be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the

pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses must be performed using a detection level less than the lowest applicable regulatory discharge limit. If a parameter does not have a limit, then the detection level is defined as the least of the Practical Quantitation Limits identified in NYSDEC's Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters, December 1988

2 Analysis for ***non-polar materials*** must be done by USEPA method 1664 Rev. A. Non-Polar Material will mean that portion of the oil and grease that is not eliminated from a solution containing N–Hexane, or any other extraction solvent the USEPA will prescribe, by silica gel absorption.

3 Analysis for PCBs is required if ***both*** conditions listed below are met:
1) if proposed discharge ≥ 10,000 gpd;
2) if duration of a discharge > 10 days.
Analysis for PCBs must be done by USEPA method 608 with MDL=<65 ppt. PCB's (total) is the sum of PCB-1242 (Arochlor 1242), PCB-1254 (Arochlor 1254), PCB-1221 (Arochlor 1221), PCB-1232 (Arochlor 1232), PCB-1248 (Arochlor 1248), PCB-1260 (Arochlor 1260) and PCB-1016 (Arochlor 1016).

4 For discharge ≥ 10,000 gpd, the TSS limit is 350 mg/l. For discharge < 10,000 gpd, the limit is determined on a case by case basis.

5 Analysis for Carbonaceous Biochemical Oxygen Demand (CBOD), Chloride, Total Solids and Total Nitrogen are required if proposed discharge ≥ 10,000 gpd.

ATTACHMENT 2: APPLICABLE REGULATIONS

Applicable regulations include, but are not limited to:

1. 49 CFR 100 to 179 - DOT Hazardous Materials Transport and Manifest System Requirements
2. 6 NYCRR 375-6 - NYSDEC Remedial Program Soil Cleanup Objectives
3. 6 NYCRR 360-1 NYCDEC Solid Waste Management Facilities
4. 6 NYCRR 364- Waste Transporter permits
5. Local restrictions on transportation of waste/debris
6. 40 CFR 260 to 272 - Hazardous Waste Management (RCRA)
7. 6 NYCRR 371 - Identification and Listing of Hazardous Wastes
8. 6 NYCRR 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
9. 6 NYCRR 373-1 - Hazardous Waste Treatment, Storage and Disposal Facility Permitting Requirements
10. 6 NYCRR 376 - Land Disposal Restrictions
11. Posted weight limitations on roads or bridges
12. Transportation Skills Programs, Inc. 1985 - Hazardous Materials and Waste Shipping Papers and Manifests
13. Other local restrictions on transportation of waste/debris
14. Occupational Safety and Health Administration (OSHA), Standards and Regulations, 29 CFR 1910 (General Industry)
15. OSHA 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response
16. OSHA Safety and Health Standards 29 CFR 1926 (Construction Industry)
17. OSHA 29 CFR 1910.146 Confined Space Entry Standard
18. Standard Operating Safety Guidelines, USEPA Office of Emergency and Remedial Response Publication, 9285.1-03
19. NIOSH / OSHA / USCG / USEPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1986)
20. U.S. Department of Health and Human Services (DHHS) "NIOSH Sampling and Analytical Methods," DHHS (NIOSH) Publication 84-100
21. ANSI, Practice for Respiratory Protection, Z88.2 (1980)
22. ANSI, Emergency Eyewash and Shower Equipment, Z41.1 (1983)
23. ANSI, Protective Footwear, Z358.1 (1981)
24. ANSI, Physical Qualifications for Respirator Use, Z88.6 (1984)
25. ANSI, Practice for Occupational and Educational Eye and Face Protection, Z87.1 (1968)
26. Water Pollution Control Federation "Manual of Practice No. 1, Safety in Wastewater Works"
27. NFPA No. 327 "Standard Procedures for Cleaning and Safeguarding Small Tanks and Containers"
28. Occupational Safety and Health Act Confined Space Entry Standard 29 CFR 1910.146.87

29. Department of Transportation 49 CFR 100 through 179
30. Department of Transportation 49 CFR 387 (46 FR 30974, 47073)
31. Environmental Protection Agency 40 CFR 136 (41 FR 52779)
32. Environmental Protection Agency 40 CFR 262 and 761
33. Resource Conservation and Recovery Act (RCRA)
34. Any transporter of hazardous or non-hazardous materials must be licensed in the State of New York and all other states traversed in accordance with all applicable regulations.

ATTACHMENT 3: DEFINITIONS

Contaminated Groundwater and Decontamination Fluids: Groundwater within the excavation trench or decontamination water that contains regulated compounds above the NYCDEP Discharge to Sewer Effluent limits.

Disposal or Treatment Facility: A facility licensed to accept either non-hazardous regulated waste or hazardous waste for either treatment or disposal.

Exclusion Zone: Work area that will be limited to access by Contractor personnel specifically trained to enter the work area only. The exclusion zone will be set up to secure the area from the public and untrained personnel. The project health and safety program will apply to all construction personnel including persons entering the work area.

Hazard Assessment: An assessment of any physical hazards that may be encountered on a work site.

Hazardous Soils: Soils that exhibit any of the characteristics of a hazardous waste, namely ignitability, corrosivity, reactivity, and toxicity, as defined in 6 NYCRR Part 371, Section 371.3 and 40 CFR Section 261.

Hazardous Substance Evaluation: An evaluation of the possible or known presence of any hazardous substances that may be encountered on a job site. This evaluation is included in the Health and Safety Plan and will include the identification and description of any hazardous substances expected to be encountered. Material Safety Data Sheets (MSDS) will be included for each substance.

Health and Safety Plan: A plan employed at a work site that describes all the measures that will be taken to assure that all work is conducted in a safe manner, and that the health of the workers and the public will be insured.

Material Handling Plan: A plan outlining the methods that will be employed to handle, transport and dispose of contaminated materials.

Non-Hazardous Contaminated Soils: Soils which exhibit a distinct chemical or petroleum odor, or exhibit elevated photoionization detector readings but are not classified as hazardous waste under 6 NYCRR Part 371, Section 371.3 and 40 CFR Section 261.

New York State Health Department's Environmental Laboratory Approval Program: A program by which the state of New York approves and accredits environmental testing laboratories.

PCBs: Polychlorinated biphenyls are a group of toxic compounds commonly used as a coolant in transformers and other electrical components.

Photoionization Detector: A hand held instrument used to measure volatile organic compounds in air. The instrument ionizes the organic molecules through the use of an ultraviolet lamp.

RCRA Hazardous Waste Characteristics: Characteristics of a material which may indicate the material is hazardous. These include: ignitability corrosivity, reactivity, and toxicity.

Total Petroleum Hydrocarbons: An analytical procedure used to determine the total amount of petroleum compounds in a material.

ATTACHMENT 4: PHASE II SUBSURFACE CORRIDOR INVESTIGATION REPORT

"The Phase II report file is available from the ACCO Contracts Office on a CD that is part of a purchased set of bid documents. The file will also be uploaded to NYCDDC, BID DOCUMENTS ONLINE website for contractors to download the report."

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID OPENING DATE: **November 13, 2019**

PROJECT NO.: **S136-367**

DESCRIPTION: **CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	10/23/2019	☐	☐	☒	☒	☐ (0)	10/23/19 AP
2		☐	☐	☐	☐	☐ (0)	
3		☐	☐	☐	☐	☐ (0)	
4		☐	☐	☐	☐	☐ (0)	
5		☐	☐	☐	☐	☐ (0)	
6		☐	☐	☐	☐	☐ (0)	
7		☐	☐	☐	☐	☐ (0)	
8		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

ADDENDUM NO. 1

DATED: October 23, 2019

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the BID BOOKLET, VOLUME 3 of 3, TABLE OF CONTENTS;
   Delete TABLE OF CONTENTS in their entirety;
   Substitute New TABLE OF CONTENTS;

2. **Refer** to the BID BOOKLET, VOLUME 3 of 3, I PAGES;
   Add the attached new Section 9.13HD On I-382 to I-385 after page I-381.

3. For additional information, see the attached one (1) page of "Questions Submitted by Bidders and DDC's Responses".

END OF ADDENDUM NO. 1

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of ONE (1) pages, and 6 pages of attachment.
THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Jones, Richard, P.E.
Executive Director

Perkins Contracting Co Inc.
Name of Bidder

By:

Questions Submitted by Bidders and DDC's Responses

QUESTION #1: In regards to drainage on-site (sheet C-300), will this fall under DOB or DEP specification?

DDC's RESPONSE:

On-site drainage, all manholes and catch basins will have to adhere to DEP specifications.
The DOB will be signed on for special inspections under the TR-1 form.

QUESTION #2: I – Pages Table of Contents under section NO. lists multiple "SUBSECTIONS" which do not allow corresponding Attachment 3 to applicable spec sections. Please revise accordingly.

DDC's RESPONSE:

Cross Reference Table refers to Item Numbers, not Section Numbers

QUESTION #3: In Bid Schedule from item 001 through 46, 49, 50, 52 through 70, 72, 73, and 81. We cannot find all of these items in the Bid Booklet. Please Clarify.

DDC's RESPONSE:

Please refer to the I-PAGES cover sheet.
The items above are standard items and can be found in the Following References Specification :
- *New York City Department of Transportation ("NYC DOT") Standard Highway Specifications, dated 8/1/2015;*
- *New York City Department of Environmental Protection ("NYC DEP") Standard Sewer and Water Main Specifications, dated 7/1/2014;*

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID OPENING DATE: **November 13, 2019**

PROJECT NO.: **S136-367**

DESCRIPTION: **CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	10/23/2019	☐	☐	☒	☒	☐ (0)	
2	10/29/2019	☐	☐	☐	☒	☐ (0)	10/29/19 GP
3		☐	☐	☐	☐	☐ (0)	
4		☐	☐	☐	☐	☐ (0)	
5		☐	☐	☐	☐	☐ (0)	
6		☐	☐	☐	☐	☐ (0)	
7		☐	☐	☐	☐	☐ (0)	
8		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

ADDENDUM NO. 2
DATED: October 29, 2019

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the list of the following additional documents:
   A. Reference Volume I:
      a. Geotechnical report
      b. Asbestos Report
      c. Final Phase II Environmental Site Investigation Report
         i. Phase II ESI Appendix C – Laboratory analytical results
   B. Reference volume II
      a. Reference Vol II title sheet
      b. Existing SI 3 Garage reference drawings
      c. S136-383S - WSP Contract documents set

Above documents can be downloaded from DDC BDO website.

END OF ADDENDUM NO. 2

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of ONE (1) page.
THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perkins Contracting Co. Inc.
Name of Bidder

By: _____

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID OPENING DATE: **November 13, 2019**

PROJECT NO.: **S136-367**

DESCRIPTION: **CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	10/23/2019	☐	☐	☒	☒	☐ (0)	
2	10/29/2019	☐	☐	☐	☒	☐ (0)	
3	11/01/2019	☐	☐	☐	☒	☒ (2)	11/4/19 ap
4		☐	☐	☐	☐	☐ (0)	
5		☐	☐	☐	☐	☐ (0)	
6		☐	☐	☐	☐	☐ (0)	
7		☐	☐	☐	☐	☐ (0)	
8		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

ADDENDUM NO. 3
DATED: November 01, 2019

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the the following reference document;
   - DEC Report with appendices

   Above document can be downloaded from DDC BDO website.

2. **Refer** to the Contract Drawing number SOE-103 and SOE-305;
   Delete the drawings SOE-103 and SOE-305 in their entirety;
   Substitute with the revised Contract Drawing number SOE-103 and SOE-305 Dated 11/01/2019, same can be downloaded from DDC BDO website.

END OF ADDENDUM NO. 3

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of ONE (1) page.
THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Name of Bidder

By:

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID OPENING DATE: **November 15, 2019**

PROJECT NO.: **S136-367**

DESCRIPTION: **CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	10/23/2019	☐	☐	☒	☒	☐ (0)	
2	10/29/2019	☐	☐	☐	☒	☐ (0)	
3	11/01/2019	☐	☐	☐	☒	☒ (2)	
4	11/06/2019	☐	☐	☒	☒	☒ (1)	11/6/19 GP
5		☐	☐	☐	☐	☐ (0)	
6		☐	☐	☐	☐	☐ (0)	
7		☐	☐	☐	☐	☐ (0)	
8		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

ADDENDUM NO. 4
DATED: November 06, 2019

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to the Bid Opening for the contract scheduled for November 13, 2019, at 11:00 am is rescheduled to November 11/15/19 @ 11:00am.

2. **Refer** to the the following reference document;
   - Section UI-pages reference utility drawings consisting of:
     a. Con Edison – Conduit and Duct Occupancy Plate (4 Sheets)
     b. Con Edison – Overhead Electrical Conditions Report (2 Sheets)
     c. National Grid – Gas Main Utility Plate (2 Sheets)

   Above document can be downloaded from DDC BDO website.

3. **Refer** to the Contract Drawing number PH-010.00;
   Delete the drawing PH-010.00 in it's entirety;
   Substitute with the revised Contract Drawing number PH-010.00 Dated 11/01/2019, same can be downloaded from DDC BDO website.

4. For additional information, see the attached two (2) pages of "Questions Submitted by Bidders and DDC's Responses".

END OF ADDENDUM NO. 4

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of ONE (1) page and TWO (2) pages of attachment..
THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perlego Contracting Co. Inc.
Name of Bidder

By: _____

Questions Submitted by Bidders and DDC's Responses

QUESTION #1: Contract drawing C-302.00 indicates "57 LF 12" DIP @ 0.70%", attached to AD-45. All other attached pipes are HDPE. Please confirm the material and pipe type for this storm drain branch?

DDC's RESPONSE:
Storm sewer crossing Muldoon shall be DIP per DEP standards. The section of storm sewer through the leachate collection system is also called out as DIP.

QUESTION #2: Various outfits capable of installing continuous flight auger (CFA) piles have expressed concern over the limited quantity seen in this Contract. The methods outlined in Specification Section 5.22A require a large mobilization of forces. Please confirm that the intent is to mobilize, perform a single CFA pile, and then de-mobilize. Confirm whether any alternate method would be considered as a substitution for the single CFA pile.

DDC's RESPONSE:
Please review and follow the methods as outlined in Section 5.22A. No alternate methods will be approved without DEP approval.

QUESTION #3: Please provide the results of any geotechnical borings and/or test pits.

DDC's RESPONSE:
See Addendum 2

QUESTION #4: Please provide the results of any wells or monitoring pits.

DDC's RESPONSE:
See Addendum 2

QUESTION #5: Please provide information on any soil analysis or testing performed.

DDC's RESPONSE:
See Addendum 2

QUESTION #6: Per the notation on page UI-21 regarding work restrictions on the National Grid transmission gas mains, please provide a clarification on the location of the transmission gas mains. The information provided on the Contract Drawings is insufficient to determine safe working distances.

DDC's RESPONSE:
DWG C-503 shows the vertical offset distances from the National Grid gas mains.

QUESTION #7: The 809 LF of 15" diameter microtunnel indicated on drawing C-503 is an usually small bore size for a microtunnel. Page A-9 of the IBB indicates experienced subcontractors are to perform the microtunnel work. Firms with relevant experience have indicated reluctance to pursue a microtunnel of this size, advising that this work is better served by horizontal directional drilling. Please advise if horizontal directional drilling meets the standard of a "trenchless installation of the pipe by jacking the pipe behind a remotely controlled tunnel boring machine" from Specification Section 50.61.2.A.1.

DDC's RESPONSE:
The proposed pipe has to be ductile iron, and HDPE/PVC pipes are not allowed.
We take no exceptions to HDD as long as ductile iron pipes are used.

QUESTION #8: There is extensive erosion control work on this project. Please advise the bid item or items which the erosion control shall be paid.

DDC's RESPONSE:
Specification 9.30 – Storm Water Pollution Prevention.

QUESTION #9: Specification Section 9.13 HD.7. "Prices to Cover" indicates that the cost for installation for the HDPE piping is to include the complete excavation and backfilling of materials. Please confirm that payment for all excavation associated with the individual pipe items, from existing ground surface to required bottom of subbase, is covered under the respective 9.13 HD item and not under "Unclassified Excavation". Please also confirm that payment for all backfilling from the top of subbase through the required cover for the type is covered under the respective 9.13 HD item, and not under "Fill, Place Measurement".

DDC's RESPONSE:

Section 9.13 HD.7 includes all items to be covered by this bid item.

QUESTION #10: Bid item No. 017 50.61SD15 you have a quantity of 1,871 L.F. of 6" D.I.P. Class 56 Sanitary Sewer in a Jacked 15" Steel Sleeve. Of which approximately 800 L.F. is to be pipe jacked. If the delta is to be open trenched than why do you have 1,071 L.F. inside the 15" steel casing?

DDC's RESPONSE:

Only section between jacking pits is in steel casing. Rest is open trench without steel casing.

QUESTION #11: Can the size of the 50.61SD15 Jacked 15" Steel Sleeve casing be increased to a larger casing?

DDC's RESPONSE:

If the steel sleeve casing is enlarged, the outside top of the steel casing pipe shown on C-503 and C-504 shall be maintained, and the 6-inch sanitary force main invert shall remain the same.

QUESTION #12: Bid Items No. 018, 019, 020, & 021 are chambers. However, they are not in the drawings and there are no details either. Could you please provide locations and details of the chambers?

DDC's RESPONSE:

All outlet structures are shown on DWG C-312.

QUESTION #13: Please elaborate on petroleum tank removals. Quantity, locations, etc.?

DDC's RESPONSE:

This item is a contingency item. This item applies only when a tank is encountered.

QUESTION #14: When the Phase 2 contractor takes over the trailer lay down and takes ownership of the trailer and all of its contents, will the phase 1 contractor be compensated for all the trailer and all of its contents. Is there a price or allowance in the contract for the trailer and its contents?

DDC's RESPONSE:

The Phase 1 Contractor retains ownership of the Engineer's Field Office Trailer at the end of the Contract, as described in the Specifications.

QUESTION #15: The cost for labor and to mobilize equipment for such a small amount of CFA's isn't cost effective. Also CFA's need a load test and there is no load test item on the bid list. Please consider utilizing alternatives to CFA's.

DDC's RESPONSE:

No alternate methods will be approved without DEP approval.

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID OPENING DATE: **November 22, 2019**

PROJECT NO.: **S136-367**

DESCRIPTION: **CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	10/23/2019	☐	☐	☒	☒	☐ (0)	
2	10/29/2019	☐	☐	☐	☒	☐ (0)	
3	11/01/2019	☐	☐	☐	☒	☒ (2)	
4	11/06/2019	☒	☐	☒	☒	☒ (1)	
5	11/13/2019	☒	☒	☒	☒	☐ (0)	
6		☐	☐	☐	☐	☐ (0)	
7		☐	☐	☐	☐	☐ (0)	
8		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

ADDENDUM NO. 5
DATED: November 13, 2019

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to ADDENDUM NO. 4 dated: November 06, 2019, wherein the Bid Opening for the contract was scheduled for November 15, 2019, is hereby postponed. The new bid opening date is November 22, 2019 at 11:00 am.

2. **Refer** to the BID BOOKLET, VOLUME 1 OF 3, BID SCHEDULE;
Delete BID SCHEDULE in its entirety;
Substitute the attached revised BID SCHEDULE [REVISION # 1].
CHANGES MADE:
- Bid Item 50.41S6S06: quantity has been changed from 15.00 L.F. to 1077 L.F.
- Bid Item 50.61S6D15: quantity has been changed from 1871.00 L.F. to 809 L.F.
- Bid Item DSNY-PTBR: UNIT has been changed from L.S to F.S.
- Bid Item GI-2.09: has been deleted and replaced by bid item GI-2.09DR-NW.

3. **Refer** to the BID BOOKLET, VOLUME 3 of 3, TABLE OF CONTENTS;
Delete TABLE OF CONTENTS in its entirety;
Substitute New TABLE OF CONTENTS;

4. **Refer** to the BID BOOKLET, VOLUME 3 of 3, I PAGES;
Delete TABLE OF CONTENTS in its entirety;
Substitute New TABLE OF CONTENTS;

5. **Refer** to the BID BOOKLET, VOLUME 3 of 3, I PAGES;
Delete page I-28 in its entirety;
Substitute NEW page I-28;

6. **Refer** to the BID BOOKLET, VOLUME 3 of 3, I PAGES;
Add the attached new Section GI-2.09DR On I-386 to I-390 after page I-385.

7. **Refer** to ADDENDUM NO. 2 dated: October 29, 2019,
   1. Add to reference documents volume II, Existing SI 3 Garage reference drawings
      a. Existing Water Treatment Plant Drawing P-6
   - Above document can be downloaded from DDC BDO website.

8. For additional information, see the attached five (5) pages of "Questions Submitted by Bidders and DDC's Responses".

END OF ADDENDUM NO. 5

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of TWO (2) pages and Twenty seven (27) pages of attachment..
THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Name of Bidder

By:

Questions Submitted by Bidders and DDC's Responses

QUESTION #1: Can you please provide a detail for the air release manholes ?

DDC's RESPONSE:
See DWG C-601.

QUESTION #2: What bid item number will cover the air release manholes ?

DDC's RESPONSE:
Refer to bid item 51.11.

QUESTION #3: What bid item number will be used for the pressure relief manhole ?

DDC's RESPONSE:
Refer to bid item 51.11.

QUESTION #4: The underground basin shows clean crushed aggregate backfill. What bid item will be used for the detention basin aggregate backfill ?

DDC's RESPONSE:
Refer to bid item 4.11.

QUESTION #5: What size clean crushed aggregate is to be used for the detention basin pipe backfill ?

DDC's RESPONSE:
Refer to specification 4.11.

QUESTION #6: Is the concrete slab in the detention basin, a continues slab throughout the entire bottom of each detention basin ?.

DDC's RESPONSE:
Yes, per drawing C-312 and C-302.

QUESTION #7: What bid item numbers will be used for the concrete slab within the detention basins ?

DDC's RESPONSE:
Refer to bid item and specification 4.06.

QUESTION #8: What pay item will be used for the excavation of the detention basins ?

DDC's RESPONSE:
Refer to bid item and specification 9.13.

QUESTION #9: Can you issue an addendum drawing identifying bid item numbers 18,19,20 & 21 ?

DDC's RESPONSE:
See drawing C302 and C311.

QUESTION #10: Are the bid items number 18,19,20 & 21 the detention basin outlet structures. Please verify ?

DDC's RESPONSE:
Yes, bid items number 18,19, 20 & 21 refer to the detention basin outlet structures.

QUESTION #11: The sewer force main profile on drawing C-503.00 shows 809 lf of micro-tunneling with a 15" diameter steel sleeve. The bid item quantifies 1,871 lf. Can you please provide an addendum drawing showing the entire limits of the 6" DIP that is to be micro tunneled or adjust the right quantities into the right bid item ?

DDC's RESPONSE:

Drawings show correct limits of sanitary sewer force main with and without steel casing. Refer to drawing C-503 and C-504. Refer to this addendum for revised bid quantities for 50.41S6S06 and 50.61S6D15.

QUESTION #12: Is the 6" Force main on Muldoon Avenue an open cut installation ? If so can you also provide a roadway restoration detail for Muldoon Ave ?

DDC's RESPONSE:

Yes, force main installation between Route 440 and Arthur Kill Road is open cut installation. Refer to Pavement Repair Detail on drawing C-211.

QUESTION #13: Can you please provide a roadway restoration detail for Arthur Kill Road ?

DDC's RESPONSE:

Pavement repair detail is shown on drawing C-211.

QUESTION #14:

The following question is from ABS, one of the specified pump manufacturers:

a. We are reviewing the pump specifications and have a question regarding the correct duty/operating point.
b. There are three points mentioned in the Part II – Products specification section.
c. 380 gpm @ 57' tdh – 2.1 B.
d. 425 gpm @ 66' tdh – 2.1 C.
e. 500 gpm @ 60' tdh – 2.1 C.1
f. Please confirm to us the correct operating point.

DDC's RESPONSE:

The design of the pump station is based on a flow of 380 gpm at 57 ft of TDH. The selected pump curve should be able to fit the following points:

- *100 GPM at 92 ft. TDH (30% pump efficiency)*
- *500 GPM at 60 ft. TDH (70 % pump efficiency)*

The operating duty point for the pump should be 425 gpm at 66ft TDH (66.3% pump efficiency).

QUESTION #15: Please provide details for the existing Sewage Treatment Plant that is to be demolished.

DDC's RESPONSE:

See reference documents on the BDO website.

QUESTION #16: Where is the Underground Storage Tank to be removed?

DDC's RESPONSE:

This is a contingency item for any unknown tanks that may be discovered during construction.

QUESTION #17: Which Bid Item(s) includes the cost of the steel sheeted Jacking and Receiving Pits for the Microtunnel?

DDC's RESPONSE:

Refer to Bid item 50.61.

QUESTION #18: Where are the limits of the Microtunnel for payment purposes?
DDC's RESPONSE:
See drawings C-503 and C-504.

QUESTION #19: Bid Item 6.23BP appears on the Item Cross Reference list and does not appear on the Bid Schedule Form. Please clarify.
DDC's RESPONSE:
See Bid schedule Seq. No. 40 Bid item 6.23BP.

QUESTION #20: Concrete Filled Tapered Steel Pipe Piles are listed on the Bid Schedule Form as 70.11TS and on the Item Cross Reference list as 70.11 CS. Please clarify.
DDC's RESPONSE:
Item cross refence should be "70.11TS"

QUESTION #21: Clean Backfill (70.81 CB) is listed on the Item Cross Reference List but not on the Bid Schedule Form. Please clarify.
DDC's RESPONSE:
Include within Bid Item 73.31

QUESTION #22: The majority of the Arthur Kill Private Sewer is shown supported by Timber Piles. A very small portion of the sewer is shown to be supported by Continuous Flight Auger (CFA) Piles. The major cost of mobilization of CFA Pile equipment will cause this small quantity of piles to be very expensive. Will it be possible to support this portion of the sewer with an equivalent number of Timber Piles?
DDC's RESPONSE:
The CFA pile is approved by DEP and is required by DEP for this section of private sewer pipe.

QUESTION #23: Bid Item 4.14W Welded Wire Fabric is described as "Welded wire fabric for dead man system". The reinforcing shown on Drawing C312.00 is #5 rebars. Is this the payment item for the #5 rebars?
DDC's RESPONSE:
Provide in Bid Item 4.14 as rebar.

QUESTION #24: What drawing shows line item # 76 DSNY Petroleum tank removal ?
DDC's RESPONSE:
This is a contingency item for any unknown tanks that may be discovered during construction See article DSNY-PTBR.

QUESTION #25: Can you please provide detailed drawings of the staging area set-ups and temporary sanitary facilities?
DDC's RESPONSE:
As shown on amended Phasing Diagram drawing PH-010, areas A-2 & A-3.

QUESTION #26: There are no specification for bid Item # GI-2.09. Please reconcile.
DDC's RESPONSE:
Refer to attached specification Section *GI-2.09DR.*

QUESTION #27: On sheet C-501 there is watermain in and around the proposed building with associated sanitary piping. However, the drawing is labeled "For reference only, not for construction." Please Advise if shaded area is part of the contract. If so what is the size of the water main? Is it 10" or 12"?

a. Additionally please identify the Location of the Watermain Meter Vault.

DDC's RESPONSE:

The shaded area, per the legend and text, is not part of this contract and not for construction. Issued for information only.

QUESTION #28: On Sheet SOE-101 the is excavation identified as SOE-104 for Canopies, is that apart of this contract? As it is listed as "Not in Contract".

DDC's RESPONSE:

This is not part of the contract. Issued for information only.

QUESTION #29: According to the DDC's response, the Outlet Control Structure's on page C-312 are the Bid items 18, 19, 20 & 21. That said it's not clear which chambers are bid 18, which chamber is 19 etc... Please Advise which Outlet Control Basin is Bid item 18, which basin is Bid item 19, which basin is Bid Item is 20 and which basin is Bid item 21.

a. Additionally, the details for the Outlet control Basins do not give complete dimensions and details. Please advise if reinforced and if so what size rebar.

DDC's RESPONSE:

Refer to drawing C-312 and specifications 51.11.

QUESTION #30: Is it in fact all areas Identified in grey labeled "Not in Contract," not part of this contract? If so much of the work will end abruptly.

DDC's RESPONSE:

As stated above, all work shown in grey is not in contract. Phase 1 work is coordinated to meet phase 2 scope of work.

QUESTION #31: Bid Schedule form – item number 4.06 – Concrete in structures , Class A-40 (total of 1,042 C.Y) – Per structural drawings # S1-001 , FO-203 and S3-105 – If the structural Salt storage 's slab is not part of contract , only Tapered steel piles will be installed in this phase , where this 1,042 C.Y concrete will be installed in this phase ? please advise .

DDC's RESPONSE:

The shaded area, per the legend and text, is not part of this contract and not for construction. Issued for information only. The Structural Salt Storage slab is not part of the contract. The 1,042 C.Y. of concrete is for Bid Item 4.06 and refers to the concrete for the dead man system. See drawing C-312.

QUESTION #32: Per Addendum # 04 - Revised drawing # PH-010 – Construction Phase I – Phasing Diagram Phase I , Zone C-2 indicates on plan DSNY day use and Contractor Night use , but the Supplemental instructions to bidders table in the same drawing indicates Contractor access : 6:30 AM -4:30 PM , DSNY access : 4:30 PM – 6:30 PM , Please advise which note should govern ?

DDC's RESPONSE:

Supplemental Instructions to Bidders Table should read, Zone C-2 Contractor work hours Monday – Friday 9:00pm – 5:00am, Saturday 7:00am – 5:00pm. Refer to DOT OMC Traffic Stipulation in S-Pages of the Specification.

QUESTION #33: Please be advised that in accordance with Question 15 of Addendum #4, the CFA pile mobilization will constitute a significant portion of the bid cost. Despite the answer to Question #15, we urge an examination of alternatives. Please advise.

DDC's RESPONSE:

Provide as DEP requirements and as called for in the bid documents.

QUESTION #34: We are formally requesting permission to visit site.
DDC's RESPONSE:
No additional site visits are scheduled at this time.

QUESTION #35: In reference to the answer to Question 13 of Addendum #4, please advise on the maximum size and depth of any petroleum tank that may be encountered.
DDC's RESPONSE:
This work scope is a contingency item.

QUESTION #36: Geotechnical report shows borings SB-4 through SB-15 on the Boring Location Plan for Muldoon Ave. and Arthur Kill Road. Borings SB-14 and SB-15 were drilled on Arthur Kill Road, however the boring logs for those two borings are not in the report. Please provide Boring Logs for SB-14 & SB-15.
DDC's RESPONSE:
Refer to Geotechnical report pages 356 to 363 for Record of Borings, Boring as-drilled location coordinates and Geotechnical Laboratory Test Results for samples collected for borings SB-14 and SB-15.

QUESTION #37: Can you please revise the bid schedule and separate the 809 lf of 6" DIP in Jacked 15"steel sleeve into a separate line item from the 1,062 lf of 6" DIP force main in open cut ? The scope of this installation is two totally different scopes of work and should not be combined.
DDC's RESPONSE:
Refer to amended Bid Scope.

QUESTION #38: After reviewing your answer to RFI (? # 13 of addendum # 4). Can you please eliminate line item # 76 from the bid schedule ? Without knowing any detail of an incidental petroleum tank to be removed cannot be calculated without knowing how many gallon tank, its depth and location would have to be removed under Haz Mat specifications. This item should be a T&M item only.
DDC's RESPONSE:
See article DSNY-PTBR.

QUESTION #39: In the bid items 72 and 73 calls for Rated penetration Sealants @ existing garage building to be applied. We would like to know where does this item need to be applied, also need a quantity. But according to the scope of work, work on the garages should be phase 2 of this project. Could you please reconcile?
DDC's RESPONSE:
Pump station electrical wiring and water lines travels through the building and require fire rated penetration sealants at locations where the conducts penetrate walls.

QUESTION #40: Can you please confirm that the proposed rim heights and grading plan finish grades are correct ? A few of the rim elevations seem to be quite higher than the proposed grading.
DDC's RESPONSE:
Confirmed, the final Phase 1 grading is not the final site grading, only temporary.

QUESTION #41:
the 12" Roof leader at the salt Shed corner top of pipe is at the same grade as the proposed salt shed building pad. Return storm manhole next to proposed salt shed and adjacent 60" manhole next to proposed salt shed are at elevations 6' to 7' above proposed area. Please confirm.
DDC's RESPONSE:
The final Phase 1 grading is not the final site grading, only temporary.

CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF INFRASTRUCTURE

ADDENDA CONTROL SHEET

BID OPENING DATE: **November 22, 2019**

PROJECT NO.: **S136-367**

DESCRIPTION: **CONSTRUCTION OF DSNY STATEN ISLAND 1 & 3 GARAGE – PHASE 1**

Addendum		Addendum Contains:					
No.	Date	Revised Bid Date/Time	Revised Bid Schedule	Questions & Responses	Additional Amendments	Drawings (number)	General Counsel Approval
1	10/23/2019	☐	☐	☒	☒	☐ (0)	
2	10/29/2019	☐	☐	☐	☒	☐ (0)	
3	11/01/2019	☐	☐	☐	☒	☒ (2)	
4	11/06/2019	☒	☐	☒	☒	☒ (1)	
5	11/13/2019	☒	☒	☒	☒	☐ (0)	
6	11/18/2019	☐	☐	☒	☒	☐ (0)	11/19/19 MP
7		☐	☐	☐	☐	☐ (0)	
8		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	
		☐	☐	☐	☐	☐ (0)	

The Table above is a guide. Refer to the referenced Addendum for specific information.

ATTACH TO CONTRACT DOCUMENTS

THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
INFRASTRUCTURE DIVISION
BUREAU OF DESIGN

PROJECT ID: 5136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

ADDENDUM NO. 6
DATED: November 18, 2019

THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS

1. **Refer** to ADDENDUM NO. 2 dated: October 29, 2019, Geotechnical engineering Report;
   Delete Page 3 of 25 and page 19 of 25 of the Geotechnical engineering Report in its entirety;
   Substitute Revised Page 3 of 25 and page 19 of 25 of the Geotechnical engineering Report that can be downloaded from DDC BDO website.

2. For additional information, see the attached ONE (1) page of "Questions Submitted by Bidders and DDC's Responses".

END OF ADDENDUM NO. 6

By signing in the space provided below, the bidder acknowledges receipt of this Addendum consisting of ONE (1) page and ONE (1) page of attachment.
THIS ADDENDUM MUST BE SIGNED BY ALL BIDDERS AND ATTACHED TO THEIR BID

Richard Jones, P.E.
Executive Director

Perfetto Contracting Co. Inc.
Name of Bidder

By:

Questions Submitted by Bidders and DDC's Responses

QUESTION #1: On the Tapered piles on the project, there is the size of the Tapered piles (8" x 16" @ 30') and the size of the pipe (16" @ 50') this makes a complete 80' pile.
There is no thickness of the 16" tapertube tips nor is there a thickness mentioned on the 16" pipe.
It is not specified in the plans or the geotech.

DDC's RESPONSE:
DSNY-70.11TS.02. (A) (4) The tapered piles will consist of an upper 50-foot-long 16-inch-diameter uniform section with a lower 30-foot long tapered section with a 16-inch-butt-diameter and an 8-inch-tip-diameter. The pile sections are to have a thickness of 0.375 inches. The piles should be driven to 80 feet below the bottom of pile caps.
Refer to updated Page 3 and 19 of the Geotechnical Engineering Report.

Department of Design and Construction

DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

VOLUME 3 OF 3

PROJECT ID: S136-367

CONSTRUCTION OF DSNY STATEN ISLAND
1 & 3 GARAGE – PHASE 1

FOR THE CONSTRUCTION OF STORMWATER INFRASTRUCTURE, SANITARY SEWERS, FORCE MAIN, LEACHATE WALL PENETRATION INFRASTRUCTURE, AND PILING.

Together With All Work Incidental Thereto
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

_____
Contractor

Dated_____, **20**_____
