
PROJECT MANUAL

ORANGE COUNTY
DEPT. OF PUBLIC WORKS

RFB-OC044-22

Valley View Center for
Nursing Care and
Rehabilitation

Total Trihalomethane
Removal System for
Drinking Water

2 GLENMERE COVE ROAD
GOSHEN, NEW YORK 10924

ENGINEER: Lanc and Tully Engineering and Surveying, P.C.

PROJECT NO.: 0000000

ISSUED: JULY 20 , 2022

OWNER
County of Orange
2455-2459 Route 17M
Goshen, NY 10924
Phone: (845) 291-2750

CONSTRUCTION MANAGER

Phone: (000) 000-0000

ARCHITECT/ENGINEER

John Queenan, P.E.
Phone: (845) 294-3700

SECTION 00 0001

TABLE OF CONTENTS

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

| | |
|-----------|---|
| 00 0200 | NOTICE TO BIDDERS |
| 00 1000 | INSTRUCTIONS TO BIDDERS |
| 00 3000 | BID FORM – CONTRACT 1G GENERAL CONSTRUCTION |
| 00 3100 | BID FORM – CONTRACT 1H HVAC Not Used |
| 00 3200 | BID FORM – CONTRACT 1P PLUMBING & FIRE PROTECTION – Not Used |
| 00 3300 | BID FORM – CONTRACT 1E ELECTRICAL – Not Used |
| 00 4100 | BID BOND |
| 00 4300 | STOCKHOLDER & PARTNERSHIP INTEREST AFFIDAVIT |
| 00 4800 | NON-COLLUSIVE AFFIDAVIT |
| 00 4900 | CONTRACTOR'S QUALIFICATION STATEMENT |
| 00 4950 | DISCLOSURE OF PRIOR NON-RESPONSIBILITY DETERMINATIONS |
| 00 4951 | IRAN DIVESTMENT ACT CERTIFICATION |
| 00 4952 | DISCLOSURE OF CONTRACTOR-SUBCONTRACTOR AND SUBSTANTIALLY AFFILIATED ENTITY RELATIONSHIPS |
| 00 5000 | AGREEMENT BETWEEN OWNER AND CONTRATOR |
| 00 6100-A | PERFORMANCE BOND |
| 00 6100-B | PAYMENT BOND |
| 00 6100-C | MAINTENANCE BOND |
| 00 7000 | GENERAL CONDITIONS |
| 00 8100 | PREVAILING WAGE SCHEDULE |

DIVISION 01 – GENERAL REQUIREMENTS

| | |
|----------|--|
| 01 01011 | WORK UNDER THIS CONTRACT |
| 01 01013 | WORK BY OTHERS |
| 01 01035 | PROHIBITED CONSTRUCTION PROCEDURES |
| 01 01068 | WASTE MATERIALS DISPOSAL |
| 01 01047 | UTILITIES – NOTIFICATION AND MARKOUT |
| 01 01070 | ABBREVIATIONS AND SYMBOLS |
| 01 01150 | MEASUREMENT AND PAYMENT |
| 01 01153 | CHANGE ORDER PROCEDURES |
| 01 01201 | PRECONSTRUCTION CONFERENCE |
| 01 01340 | SHOP DRAWINGS AND SAMPLES |
| 01 01341 | REVIEW OF CONTRACTOR'S CONSTRUCTION PROCEDURES |
| 01 01420 | FINAL INSPECTION |
| 01 01500 | TEMPORARY FACILITIES AND CONTROLS |
| 01 01516 | TEMORARY SANITARY FACILITIES |
| 01 01546 | PROTECTION OF EXISTING PROPERTY |
| 01 01620 | PRODUCT DELIVERY, STORAGE AND HOLDING |
| 01 01701 | CONTRACT CLOSEOUT |
| 01 01710 | CLEANING |
| 01 01732 | SELECTIVE DEMOLITION |

DIVISION 02 – SITE WORK

02 02201 EXISTING UTILITIES AND STRUCTURES

DIVISION 13 – SPECIAL CONSTRUCTION

13 13205 FIBERGLASS REINFORCED PLASTIC TANKS

DIVISION 15 – MECHANICAL

15 15052 STAINLESS STEEL PIPE
15 15060 HANGERS AND SUPPORTS
15 15095 PIPE SUPPORTS
15 15112 VALVES SMALLER THAN 4-INCHES
15 15210 DUCTILE IRON PIPE
15 15290 POLYVINYLCHLORIDE (PVC) PIPE AND FITTINGS

DIVISION 16 – ELECTRICAL

16 16000 ELECTRICAL WORK
16 16111 CONDUITS AND BOXES
16 16120 WIRES AND CABLES
16 16134 PANEL BOARDS
16 16170 DISCONNECTS, BREAKERS AND TRIPS
16 16450 GROUNDING

DIVISION 17 – INSTRUMENTATION AND CONTROLS

17 17425 DIFFERENTIAL PRESSURE TRANSMITTERS

LIST OF DRAWINGS

DRAWING 1 OF 1 IMPROVEMENTS PLAN

END OF SECTION

SECTION 00 200**NOTICE TO BIDDERS**

The County of Orange is seeking Bids for **RFB-OC044-22 Valley View Center for Nursing Care and Rehabilitation Total Trihalomethane Removal System for Drinking Water**, County of Orange – Goshen, NY at The Valley View Center for Nursing Care and Rehabilitation, 2 Glenmere Cove Road, Goshen, NY 10924. Bids will be received by the Commissioner of the Department of General Services, 255 Main Street Goshen New York 10924 Goshen NY 10924, up to and including **Tuesday, August 16, 2022 at 3:00 P.M.**, prevailing time, when they will be opened and read aloud.

Copies of the Request for Bids may be obtained beginning **Wednesday, July 20, 2022** through <https://www.orangecountygov.com/577/General-Services.com> under "Current Bids and Proposals". This will lead you to the BidNet website which requires a free registration. You may not receive addenda or important information regarding this RFB if you are not registered as having obtained a copy of this RFB through BidNet.

A Pre-Bid site walk will be held at the project location noted above **on Thursday, July 28, 2022 at 10:00 AM**. Attendance by prospective Bidders is **strongly recommended**. Please note that masks are required at all times in the Valley View building. All visiting personnel will be responsible for their own personal protective equipment.

Awarded Contractors shall be required to provide Performance and Payment Bonds, each equal to 100% of the Contract amount and insurance coverages as specified in the Contract Documents, with the County and the Architect/Engineer named as additional insureds, and prior to Final Payment, a one-year Maintenance Bond against any defects in workmanship or materials in an amount equal to 10% of the Contract Price at Substantial Completion.

ADDITIONAL BIDDING REQUIREMENTS ARE INCLUDED IN THE INSTRUCTIONS TO BIDDERS.

DATED: July 20, 2022

BY: James P. Burpoe
Commissioner of General Services

SECTION 00 1000

INSTRUCTIONS TO BIDDERS

1.0 PRE-BID CONFERENCE

- 1.1 A pre-bid conference will be held at the **The Valley View Center for Nursing Care and Rehabilitation, 2 Glenmere Cove Road, Goshen, New York, on Thursday, July 28, 2022 at 10:00 A.M.** Attendance by prospective Bidders is **strongly recommended**. Please note that masks are required at all times in the Valley View building. All visiting personnel will be responsible for their own personal protective equipment, and no one will be allowed on site without the proper compliance with all health and safety precautions, including but not limited to those related to COVID-19 applicable under federal, state, and local laws, regulations, ordinances or other guidance.

2.0 RESTRICTED COMMUNICATIONS

- 2.1 Pursuant to State Finance Law §139-j and §139-k, this solicitation includes and imposes certain restrictions on communications between the Owner and a bidder during the procurement process. A bidder is restricted from contacting other than designated staff from the earliest notice of intent to solicit offers through final award and approval of the Procurement Contract by the County Executive ("restricted period") unless it is a contact that is included among certain statutory exceptions set forth in State Finance Law §139-j(3)(a). Owner employees are required to obtain certain information when contacted during the restricted period. The designated staff contact is the Commissioner of General Services or his representative, telephone (845) 291-2792, fax (845) 378-2378. Bidders responding to this Advertisement must familiarize themselves with these State Finance Law requirements and will be expected to affirm that they understand and agree to comply on the Bid Form.

3.0 COPIES OF BID DOCUMENTS

- 3.1 Copies of the Request for Bids may be obtained beginning **Wednesday, July 20, 2022** through www.orangecountygov.com/generalservices under "Current Bids and Proposals". This will lead you to the BidNet website which requires a free registration. You may not receive addenda or important information regarding this RFB if you are not registered as having obtained a copy of this RFB through BidNet.
- 3.2 Complete sets of Bid Documents shall be used in preparing Bids. Neither Owner, Construction Manager, nor Architect assumes any responsibilities for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents. Only the documents obtained from the official source should be relied upon. The only "official source" is the office of the Commissioner of General Services of the County of Orange, Government Center, 255-275 Main Street, Goshen, New York 10924.
- 3.3 In making copies of Bid Documents available, Owner, Construction Manager and Architect does so only for the purpose of obtaining Bids on the Work and do not confer permission or a license or grant for any other use.

4.0 EXAMINATION OF BID DOCUMENTS AND SITE

- 4.1 Before submitting a Bid, each Bidder must (a) examine the Bid Documents thoroughly, (b) visit the Site to familiarize itself with local conditions that may in any manner affect cost, progress or performance of the

Work, (c) familiarize itself with Federal, State and local laws, ordinances, rules and regulations that may, in any manner, affect cost, progress or performance of the Work, and (d) study and carefully correlate Bidder's observations with the requirements of the Bid Documents.

- 4.2 The lands upon which the Work is to be performed and the rights-of-way for access thereto and other lands designated for use by Contractor in performing the Work are identified on the Drawings.
- 4.3 Surveys, investigative and clearance reports (such as investigative reports of subsurface or latent physical conditions, hazardous materials, etc) obtained by Owner or Architect shall be enclosed in the Project Manual and/or provided as completed during the term of the Agreement. These reports are for informational purposes only and are not guaranteed or warranted as to accuracy, completeness or quantities.
- 4.4 The submission of a Bid will constitute an incontrovertible representation by the Bidder that it has complied with every requirement of the Instructions to Bidders and that the Bid Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

5.0 QUESTIONS; INTERPRETATIONS; NON-SPECIFIED PRODUCTS; ADDENDA

- 5.1 All questions about the meaning or intent of the Bid Documents may be submitted until **3:00 P.M. on Wednesday, August 3, 2022.** . Questions submitted prior to this deadline shall be responded to through the Addendum process. Questions submitted after the deadline shall receive no response. Submit questions in writing on company letterhead with date of question and contact information (name, fax, email, and phone number of person asking question) to: **generalservices@orangecountygov.com.**
- 5.2 Written clarifications or interpretations will be issued by Addenda before the bid opening date. Only questions answered by written Addenda will be binding. Oral and other clarifications or interpretations will be without legal effect. Addenda will be sent by overnight service and/or e-mail, to all parties recorded as having received the Bid Documents from the official source.
- 5.3 Each Bidder must be responsible for determining that it has received all Addenda issued and shall acknowledge receipt of all Addenda on the Bid Form, and by faxing acknowledgement back to the Department of General Services at (845) 378-2378.

6.0 BID SECURITY

- 6.1 Each Bid must be accompanied by Bid Bond or a Cashier's Check issued by a responsible surety, bank or trust company acceptable to the Owner (collectively, "Bid Security"), payable to County of Orange, Commissioner of Finance. The Bid Security shall be in the amount of TEN PERCENT (10%) of the Bid Price.
- 6.2 In case a party to whom a Contract is awarded fails to execute a Contract in the form enclosed in the Bid Documents, and/or furnish the required Bonds, and/or Certificate(s) of Insurance within ten (10) days of the Notice of Award, Owner may determine that the Bidder has abandoned the Bid and Contract, and the Bid Security accompanying the Bid Form shall be forfeited to Owner as liquidated damages for such failure and to indemnify said Owner for any loss sustained by Bidders failure to act. After execution by Owner of a Contract and acceptance of the Bonds by Owner, the Bid Security accompanying the Bid Form of the successful Bidder will be returned in accordance with the terms and conditions of the Contract Documents.

7.0 PERFORMANCE, PAYMENT, MAINTENANCE, AND OTHER BONDS

- 7.1 Performance and Payment Bonds: The Contractor shall furnish Performance and Payment Bonds in an amount equal to ONE HUNDRED PERCENT (100%) of the total Contract Price as security for the faithful performance of this Contract, and for the payment of all persons performing labor or furnishing materials in connection with this Contract.
- 7.2 Maintenance Bond: Upon application for Final Payment, the Contractor shall provide the Owner with a Maintenance Bond in the amount of TEN PERCENT (10%) of the total Contract Price at Substantial Completion which shall remain in effect for one year from the date of issue of Final Payment check to Contractor, as a guarantee that the Contractor shall make good any faults or defects in the Work arising from improper or defective workmanship or materials which may appear during that period. The Maintenance Bonds shall be in addition to any other warranties, guarantees or similar obligations called for in the Contract Documents.
- 7.3 Acceptable Types of Security: Acceptable types of security shall be limited to a Bond in a form satisfactory to the Owner or a Cashier's Check. The surety company for all Bonds must be licensed in the State of New York, has an A.M. Best Rating of A- or better, and appear on the most recent published Department of the Treasury's Listing of Approved Sureties (Department Circular 570) at the time of filing the Bonds.
- 7.4 Power of Attorney: Attorneys-in-fact who sign Performance or Payment Bonds must file with each bond a certified copy of their Power of Attorney to sign said Bonds.
- 7.5 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the Bonds or shall permit a copy to be made.

8.0 CONTRACT TIME

- 8.1 The Contractor agrees and covenants that TIME IS OF THE ESSENCE and the Contract Time shall commence on the date specified in the Contract. The Contractor further agrees that **Substantial Completion and Final Completion shall be achieved in accordance with Table 1-1**. Liquidated damages as specified in the Owner-Contractor Agreement and Table 1-1 shall apply for failure to comply with Substantial and Final Completion deadlines.

9.0 PREVAILING WAGE; APPRENTICE TRAINING REQUIREMENTS

- 9.1 This Project is subject to Prevailing Wage Rates, as determined by the New York State Department of Labor. It is the responsibility of the Contractor, before Bid publication and Bid opening, to request, if necessary, any additional information on Prevailing Wage Rates for those who may be employed for the work under this Bid Document. The Contractor is also responsible for complying with all reporting requirements of the State of New York including, but not limited to, providing a certified payroll with each application of payment.
- 9.2 Pursuant to Labor Law Section 222(e), this Project requires participation in Apprentice Training Programs for any Contract in excess of \$500,000.
- 9.3 Pursuant to Orange County Local Law No. 3 of 2019, for any contracts over \$350,000, unless Bidder's trade is not included among the list of trades maintained by the New York State Commissioner of Labor for

apprenticeship agreements, Bidders are required to have apprenticeship agreements appropriate for the type and scope of work to be performed which are registered with the New York State Commissioner of Labor in accordance with Article 23 of New York State Labor Law. Each apprenticeship programs must have a graduation rate of at least 30% as determined by the New York State Department of Labor.

10.0 SAFETY AND HEALTH REGULATIONS

- 10.1 This Project is subject to, and the Contractor shall apply with, all applicable Federal, State and Local Laws, regulations, ordinances, codes, rules and requirements.
- 10.2 The Contractor shall have a competent person or persons, as may be required under the Federal Occupational Safety and Health Act, on the Site to inspect the Work and to supervise the conformance of the Work with OSHA regulations and any other necessary or applicable health and safety standards and practices.
- 10.3 COVID-19: Consultant shall fully comply, and shall ensure that each individual performing contract services on its behalf fully complies, with all applicable Federal, New York State, and Local laws, rules, regulations, directives, orders, guidance, and requirements pertaining to the prevention and control of COVID-19 including, but not limited to, those requiring testing, vaccination, and masking as may be in effect, issued, and/or amended during the contract term.

11.0 NONDISCRIMINATION IN EMPLOYMENT

- 11.1 Contracts for work under this Project will obligate the Contractor and Subcontractors not to discriminate in employment practices.
- 11.2 Bidders shall indicate in their Bids whether they have previously performed work subject to the President's Executive Order No. 11246 and the applicable regulations.

12.0 OTHER BID PRICING ISSUES

- 12.1 The prices submitted shall be exclusive of New York state sales and use taxes (or other taxes inapplicable to government entities) and must not include any tax for which the Bidder may claim exemption because of doing business with the County. Unless otherwise indicated in this RFB, prices shall be net, including any applicable transportation and delivery charges fully prepaid by the successful Contractor to the destination indicated in the Bid. No additional (post-bid) freight and/or handling and/or fuel surcharges will be accepted, unless otherwise agreed to in the Contract.
- 12.2 Contractor acknowledges that the Contract Price and detailed schedule for completion of the Work are based on its own knowledge and judgment of the conditions and hazards involved, and not upon any representation of the Owner, Construction Manager or Architect. The Owner, Construction Manager and Architect assume no responsibility for any understanding or representation made by any of their representatives during or prior to execution of this Contract unless such understanding or representations are expressly stated in the Contract and the Contract expressly provides that the responsibility is assumed by Owner, Construction Manager, or Architect. The cost of all of the following will be included in the Contract Price and Contractor shall have full responsibility for:

- .1 Review and checking all such information and data;

- .2 Locating all Underground Facilities shown or indicated in the Contract Documents;
- .3 Coordination of the Work with the owners of such Underground Facilities during construction; and
- .4 The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

12.3 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the Site and required taxes, if any, less applicable trade discounts; Contractor's costs for unloading and handling at the Site, labor, installation costs, overhead, profit and other expenses contemplated for stated Allowance amounts shall be included in the Contract Sum and not in the Allowances.

12.4 The previously listed items in this Section are examples of provisions that may impact bid pricing. Contractor is responsible for reading the Bid Documents in full to ascertain that it understands and accounts for all cost impacts. The Owner shall assume no liability for and has no obligation to compensate Contractor for failure to consider such impacts in the calculation of bid prices. By submitting a Bid, Contractor certifies that it has read and understood this provision and the rest of the Bid Documents and has submitted pricing in accordance with its own observations, correlations, and investigations of and among the Bid Documents, the Site, the labor market, materials and equipment costs, legal and regulatory requirements, and other pertinent factors.

13.0 BID FORM

13.1 Each Bid shall be submitted on the forms included in the Bid Documents, as applicable. The forms shall be removed and submitted separately. All blank spaces for Bid Prices must be filled in with the Unit Price for the item or the Lump Sum for which the Bid is made. All blank spaces for any Alternates shall be filled in with Lump Sum Amounts for that work.

13.2 Bid Forms shall be completed in ink or by typewriter. The Bid price of each item on the form shall be stated in words and figures. If unit prices are required on the Bid Form, discrepancies between unit prices and their respective total amounts will be resolved in favor of the unit prices. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.3 Bids by corporations shall be executed in the corporate name by a duly authorized person, shall be accompanied by evidence of authorization to sign the bid and bind the corporation and a certified corporate resolution designating the duly authorized individual shall accompany the Bid. Additionally, the corporate seal shall be affixed and attested to by a corporate officer. The complete corporate address and state of domestic incorporation shall be shown below the signature. Any corporation or limited liability corporation not incorporated in the State of New York must be properly registered under applicable New York law and show proof that they are authorized to do business in New York State.

13.4 Bids by partnerships shall be executed in the partnership name and shall be signed by the partner(s) authorized to make the bid and bind the partnership. The partner's title shall appear below his/her signature and evidence of such authority must accompany the Bid. The primary business address of the partnership shall be shown below the signature. Any limited partnership or limited liability partnership must be properly registered under applicable New York law and show proof that they are authorized to do business in New York State.

- 13.5 All names shall be typed or printed below the signature.
- 13.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- 13.7 The name, address, fax, email, and telephone number to which communications regarding the Bid are to be directed shall be provided.

14.0 SUBMISSION OF BIDS

- 14.1 **One (1) original (marked as "Original") and three (3) copies** of each bid must be submitted on the forms furnished in this Request for Bids and/or addenda address to County of Orange, James P. Burpoe, Commissioner, Department of General Services, PO Box 218, 255-275 Main Street, Goshen, New York 10924. Bids must be enclosed in a sealed opaque envelope and plainly marked with the name and address of the Bidder, the Prime Contract being bid and the Project Title **RFB-OC044-22 Valley View Center for Nursing Care and Rehabilitation Total Trihalomethane Removal System for Drinking Water**. If submitted by mail, the sealed envelope marked as described above and containing the bid shall be enclosed in another envelope with the notation "BID ENCLOSED" on the face and addressed as indicated in the Invitation to Bid. Each Bid must be accompanied by a Bid Bond or Certified Check made payable to the County of Orange, Commissioner of Finance, in the amount of TEN PERCENT (10%) of the Bid and a minimum of five (5) references for satisfactory completion of work at least equal in size and complexity to the Work proposed. The following documents must also be enclosed with the Bid:

1. Bid Bond – Section 004100
2. Bid Form – Section 003000, – 1 original and three (3) copies
3. Stockholder & Partnership Affidavit – Section 004300
4. Non-Collusive Affidavit – Section 004800
5. Contractor's Qualifications Statement – Section 004900
6. Disclosure of Prior Non-Responsibility Determinations – Section 004950
7. Iran Divestment Act- Section 00 4951
8. Disclosure of Contractor-Subcontractor and Substantially Owned-Affiliated Entity Relationships – Section 004952
9. Proof of authorization to do business in New York State (this may be a certificate filed with the Department of State or County Clerk, as applicable to the business entity type)
10. Corporation Resolution and Seal, as applicable to the business entity type
11. Supplier Form

15.0 RECEIPT OF BIDS; WITHDRAWAL

- 15.1 Sealed Bids will be received at the time and place indicated in the Notice to Bidders as may be modified by Addenda.
- 15.2 Owner, in its sole discretion, may refuse to consider as non-responsive any Bid not prepared and/or not submitted in accordance with the Bid Documents.
- 15.3 Bidders are cautioned that it is the responsibility of each individual Bidder to assure that its Bid is in the possession of the responsible official or his or her designated alternate prior to the stated time and at the place of opening of the Bid. Owner is not responsible for Bids delayed by mail and/or delivery services of any nature.

- 15.4 Bids may be withdrawn prior to the scheduled time (or authorized postponement thereof) for Bid Opening.
- 15.5 Any Bid received after the specified time for Bid Opening shall not be considered. No Bidder may withdraw its Bid for a period of forty-five (45) calendar days, after the actual date of the Bid Opening, without the consent of the Commissioner of Public Works, solely at the Commissioner's discretion.

16.0 LOWEST RESPONSIVE AND RESPONSIBLE BIDDER

- 16.1 A contract may be awarded to the Lowest Responsive and Responsible Bidder. The term "Lowest Responsive and Responsible Bidder" as used herein shall mean the Bidder whose Total Bid Price is determined by the Owner to be the lowest of those Bidders determined to possess the skill, ability, expertise, experience, qualifications, integrity, and other qualities necessary for the faithful performance of the Work. The Owner may consider Alternate pricing, if any, solely at its discretion, in determining the Low Bidder.
- 16.2 Owner reserves the right to reject any and all Bids, to decline to make an award, to waive any and all informalities, to disregard any nonconforming, nonresponsive or conditional Bids, and to act in Owner's best interest.
- 16.3 All Bidders shall complete and submit as part of their Bids the Contractor's Qualifications Statement and be prepared to submit within three (3) business days of Owner's request, written evidence of any additional information and data requested by the Owner to make the determination that the Contractor has the requisite qualifications, in the opinion of the Owner, to perform Work set forth in the Contract Documents.
- 16.4 Bidders may be further investigated by Owner, Construction Manager and Architect to determine if they are responsible, qualified and eligible to perform the Work. The investigation of a Bidder may include, among other factors, whether the organization is adequate in size, is authorized to do business in the jurisdiction where the Project is located, has had sufficient and successful previous experience, and whether available equipment, financial resources, expertise, and other factors are adequate to assure Owner that the Work will be completed in accordance with the terms of a contract. The amount of other work to which the Bidder is committed may also be considered.
- 16.5 In evaluating Bids, Owner reserves the right to consider the qualifications of only those Bidders whose Bids are in compliance with the prescribed requirements and therefore are considered responsive.
- 16.6 Pursuant to State Finance Law §139-j and §139-k, the Owner is required to make a determination of the responsibility of any Bidder. Certain findings of non-responsibility can result in rejection for contract award and in the event of two findings within a 4-year period the Bidder is debarred from obtaining governmental Procurement Contracts. Bidders must familiarize themselves with these State Finance Law requirements and will be expected to affirm that they understand and agree to comply on the bid form.
- 16.7 Owner reserves the right to reject the Bid of any Bidder that is non-responsive or that the Owner considers non-responsible if they do not possess the qualities set forth herein as evaluated through the Qualifications Statement, Bidder Disclosure of Prior Non-Responsibility Determinations, and any additional information requested, or investigation done by the Owner.

17.0 AWARD AND EXECUTION OF CONTRACT

- 17.1 No Bid shall be withdrawn for a period of forty-five (45) days after Bid Opening without the consent of the

Commissioner of Public Works, at the Commissioner's sole discretion.

- 17.2 No Contract will be awarded to any individual or entity not properly registered to do business in the State of New York in accordance with applicable New York laws.
- 17.3 If a contract is to be awarded, Owner will give the Lowest Responsive and Responsible Bidder a Notice of Award after bid opening and due diligence is performed. The successful Bidder will be required to execute a Contract. For a violation of this provision, the Bidder shall forfeit its Bid Security to the Owner as liquidated damages. Unsuccessful bidders shall have their Bid Security checks returned to them within forty-five (45) days of the Bid Opening.
- 17.4 Subsequent to a Notice of Award to the Lowest Responsive and Responsible Bidder, multiple unsigned copies of the Contract and all other applicable Contract Documents will be delivered to that bidder. Within ten (10) calendar days, after the date of receipt of such Contract Documents, the Contractor shall execute and return to Owner all copies of the Contract and all other applicable Contract Documents, including without limitation, required bonds and certificates of insurance. Thereafter, upon all required reviews and approvals, the Owner will deliver one fully signed copy to Contractor. The Owner shall incur no obligations, contractual or otherwise, unless and until the Owner both executes the Contract and delivers to the Contractor a written Notice to Proceed. Failure to submit all required documentation may result in disqualification of the Bidder as non-responsible and forfeiture of Bid Security.
- 18.0 SPECIAL NOTICE**
- 18.1 Bidders are responsible for reading and seeking clarification of all Bid Documents prior to submitting a bid.

END OF SECTION

SECTION 00 3000

**BID FORM FOR
CONTRACT NO. 1G – GENERAL CONSTRUCTION**

NAME OF CONTRACTOR SUBMITTING BID:

(PLEASE PRINT)

PART 1 – GENERAL

The undersigned declares that the Bid is made without any collusion with any other persons, firms, or corporations; that the Bidder has carefully examined all Bid Documents as prepared by Lanc and Tully Engineering and Surveying, P.C., P.O. Box 687, Goshen, NY 10924, dated July 20, 2022; that the Bidder has informed itself fully regarding all conditions pertaining to the Work and the place where it is to be performed; that the undersigned has full authority to submit this Bid from the entity on behalf of which he or she is signing; and that with these representations, the undersigned makes this Bid. These prices shall cover all expenses incurred in performing the Work set forth in the Bid Documents and Contract. If a contract is awarded and fully executed, the Bid Documents and Bid Form shall become a part of the Contract.

All Bids shall remain open for forty-five (45) calendar days, after the actual date of the opening of the Bids.

The premiums for all Bonds and/or insurance required shall be paid by Contractor.

The undersigned further agrees that the Bid Security accompanying this Bid shall be forfeited to Owner if the Bidder fails to execute the contract and deliver proof of insurance and bonds in the manner and timeframe stated in the Bid Documents. **Award is conditional upon receipt of such documents in the stated timeframe and Owner reserves the right, but not the obligation, to declare a Bidder who does not comply with the timeframe nonresponsive, rescind the conditional award and proceed to the next Lowest Responsive and Responsible Bidder.**

The undersigned hereby agrees to all obligations and terms contained in the Bid Documents, shall commence on the date specified in the Contract and agrees that the **Substantial Completion and Final Completion Dates shall be in accordance with Table 1-1** and other applicable terms and conditions in the Contract Documents. The undersigned agrees to pay Owner liquidated damages in accordance with the provisions for such stated in the Contract Documents, for each day beyond Substantial Completion and/or Final Completion.

00 3000-1G-2

Amount shall be shown in both words and figures where indicated. In case of discrepancy, the amount shown in words shall govern.

The Award will be made to the Lowest Responsive and Responsible Bidder based upon Item #3, TOTAL BID PRICE.

PART 5 – CERTIFICATION

The complete Bid shall include the following completed documents:

- a. Bid Form – Section 00 3000
- b. Bid Bond – Section 00 4100
- c. Stockholder & Partnership Affidavit – Section 00 4300
- d. Non-Collusion Affidavit – Section 00 4800
- e. Qualifications Statement – Section 00 4900
- f. Disclosure of Prior Non-Responsibility Determinations – Section 00 4950
- g. Iran Divestment Act Certification – Section 00 4951
- h. Corporate Resolution and Seal
- i. Certificate of Authority to do business in New York
- j. Copy of Acknowledgement of the Addenda
- k. Supplier Application

The undersigned agrees that extra work or omitted work, if any, shall be performed as directed and will be paid for, in accordance with the Contract Documents.

The individual submitting this Bid on behalf of the business entity noted above, certifies under the penalties of perjury by his or her signature below that:

- that this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the work “person” shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity;
- he or she is able to furnish labor that can work in harmony with all elements of labor employed or to be employed on the work;
- he or she has read and understood the full Request for Bid;
- he or she is duly authorized to submit the Bid on behalf of the business entity;
- he or she understands and has complied with the requirements of State Finance Law Sections 139-j and 139-k and will continue to do so throughout the Restricted Period; and
- that the business entity submitting this bid, and in the case of a joint bid each party as to its own organization, has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of Section 201-g of the New York State Labor Law.

(Signature of Individual or Corporate Name)

(Date)

(Signature of Corporate Officer – if applicable)

PART 6 – NOTICE

Notices regarding this Bid should be mailed or delivered to:

(Name)

(Title)

(Business Name)

(Business Address)

(City and State)

END OF SECTION

SECTION 00 4100

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we,

hereinafter referred to as the "Principal", and

hereinafter referred to as the "Surety" are held and firmly bound to THE COUNTY OF ORANGE, NEW YORK,
hereinafter referred to as the "COUNTY", 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 submit (or has submitted) to the COUNTY the accompanying proposal, hereby
made a part hereof, to enter into a contract in writing for:

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall not withdraw said Proposal
without the consent of the COUNTY 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 COUNTY, if the Principal shall:

- (a) Within ten (10) days after notification by the COUNTY, execute the number of multiples provided by the
COUNTY and deliver to the COUNTY 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 COUNTY, for the
faithful performance and proper fulfillment of such Contract, which bonds shall be satisfactory in all
respects to the COUNTY 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
Instructions to Bidders, bound herewith and made a part hereof, or if the COUNTY shall reject the aforesaid
Proposal, then this obligation shall be null and void; otherwise to remain in full force and effect.

In the event that the Proposal of the Principal shall be accepted and the Contract be awarded to Principal the Surety
hereunder agrees subject only to the payment by the Principal of the premium therefore, if requested by the
COUNTY, 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 COUNTY, either a performance bond or payment bond, or both, shall not be required by the COUNTY on or before the 30th day after the date on which the COUNTY 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 COUNTY will receive or open bids, or by an extensions of time within which the COUNTY may accept the Principal's Proposal, or by any waiver by the COUNTY of any of the requirements of the Instructions to 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 hereunto affixed and these presents to be signed by their proper officers, this ____ day of _____, ____.

(Seal)

_____(L.S.)
Principal

By: _____

(Seal)

_____(L.S.)
Surety

By: _____

If the Principal is a partnership, the bond should be signed by each of the individuals who are partners.

If the Principal is a corporation, the bond should be signed in its correct corporate name by a duly authorized officer, agent, or attorney-in-fact.

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.

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

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 is the _____ of

the corporation described in and which executed the foregoing instrument; that he/she 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 signed his/her name thereto by like order.

Notary Public

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/she acknowledged to me that he/she executed the same as and for the act and deed of said firm.

Notary Public

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/she executed the same.

Notary Public

END OF SECTION

SECTION 004300**STOCKHOLDER AND PARTNERSHIP INTEREST AFFIDAVIT**

STATE OF _____

COUNTY OF _____

| | |
|----------------------|---------|
| (Name) | (Title) |
| of the firm of _____ | _____ |
| (Firm Name) | |

being sworn according to law on his or her oath deposes and says that:

I am duly authorized to make this affidavit on behalf of the firm named herein.

The following are the names and addresses of all stockholders or partners in the corporation or partnership who own ten percent (10%) or more of its stock of any class, or of all individual partners in the partnership who own a ten percent (10%) or greater interest therein. If one or more such stockholders or partners is itself a corporation or partnership, the stockholders holding ten percent (10%) or greater interest in the corporation's stock, or the individual partners owning ten percent (10%) or greater interest in the partnership that shall also be listed accordingly. This disclosure shall include names and addresses of every non-corporate stockholder, and individual partner, exceeding the ten percent (10%) ownership criteria.

I hereby certify that the following is the complete list (attach additional sheets as necessary) of all stockholders and/or partners in the corporation(s)/partnership(s) with ten percent (10%) or greater interest herein as set forth above.

By: _____

Title: _____

Notary Public

Subscribed and sworn to before me

This ____ day of _____, 20__

END OF SECTION

SECTION 00 4800**NON-COLLUSIVE AFFIDAVIT**

(a) 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 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 bidder, with any competitor;
- (2) Unless otherwise required by law, the prices which have been 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;
- (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;

(b) A bid shall not be considered for award nor shall any award be made where (a)(1)(2) and (3) above have not been complied with; provided however, that, if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where (a)(1)(2) and (3) above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department, agency or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

(c) The fact that a bidder (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute, without more, a disclosure within the meaning of subparagraph one (a).

(d) Any bid hereafter made to any political subdivision of the state or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in subdivision one of this section, shall be deemed to have been authorized by the board of directors of the bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

COMPANY NAME

SIGNATURE

DATE

PRINT NAME

PRINT TITLE**END OF SECTION**

SECTION 00 4900**CONTRACTOR'S QUALIFICATION STATEMENT**

Please complete in full, typed or in ink. Attach additional pages or supporting documentation as necessary for all questions. Both this questionnaire and the Disclosure of Prior Non-Responsibility Determinations MUST be completed.

1. Company Name: _____

Address of Principal Place of Business:

Street: _____

City, State, Zip: _____

Telephone: _____ Fax: _____

Name of Authorized Contact for this questionnaire: _____

Title: _____ Phone: _____

Email: _____ Fax: _____

2. Former or Other DBA or Trade Name(s), Other Identities, or EIN(s) used in the Past Five (5) Years (Include Business Entity Type, Name, EIN, State or County where filed and indicate active or inactive status. Attach additional pages as necessary):

3. Business Entity Type: _____

Date of Incorporation / Registration / Establishment: _____

If sole proprietorship, years in Business: _____

If general partnership, County formed in (if formed in NY): _____

State Business Entity was formed in, if other than NY: _____

If your business entity is other than a sole proprietorship or general partnership, is it registered to do business in NY? Yes No

Is your business entity a joint venture? Yes No

(If yes, separate Qualifications Statements must be submitted for each entity in the joint venture).

4. Company Resources

4.1 What services does your company provide?

4.2 How many full-time, permanent staff does your firm employ? _____

4.3 What is the average number of employees for the past five (5) years?

2017____ 2018____ 2019____ 2020____ 2021____

4.4 What services does the Company intend to self-perform on this Project?

4.5 What services does the Company intend to subcontract on this Project?

5. Identify each person who is, or has been within the past five (5) years, a Business Entity Official or Principal Owner of 5.0% or more of the entity's shares or one of the five largest shareholders or an officer, a director, partner or proprietor. Joint Ventures provide information for all firms involved.

Name: _____

Title: _____

Percentage Ownership: _____

Employment Status: Current Former

License(s) or Professional Registration(s) at time employed: _____

Name: _____

Title: _____

Percentage Ownership: _____

Employment Status: Current Former

License(s) or Professional Registration(s) at time employed: _____

Name: _____

Title: _____

Percentage Ownership: _____

Employment Status: Current Former

License(s) or Professional Registration(s) at time employed: _____

Name: _____

Title: _____

Percentage Ownership: _____

Employment Status: Current Former

License(s) or Professional Registration(s) at time employed: _____

Name: _____

Title: _____

Percentage Ownership: _____

Employment Status: Current Former

License(s) or Professional Registration(s) at time employed: _____

6. Name(s) and Relationships of Parent Company, Affiliates, Subsidiaries, Partners, include any other entities in which now, or in the past five years, the responding entity or any of the individuals listed in Question 5 either owned 5.0% or more of the shares of or was or is one of the five largest shareholders or an officer or a director, partner or proprietor.

Company _____

Address _____

City, State, Zip _____

Relationship _____

Company _____

Address _____

City, State, Zip _____

Relationship _____

Company _____

Address _____

City, State, Zip _____

Relationship _____

6.1 If a parent company or limited partnership exists, are there any guarantees? Please describe:

7. Financial Status

7.1 Provide a summary of your firm's annual revenues for the past five (5) years and a copy of the annual financial statement for the last year.

7.2 D-U-N-S number, or similar identifier, if available, to reference business credit reporting:

7.3 Banking References

Name of Bank _____
Address: _____
City, State, Zip: _____
Bank Officer: _____

Name of Bank: _____
Address: _____
City, State, Zip: _____
Bank Officer: _____

Name of Bank: _____
Address: _____
City, State, Zip: _____
Bank Officer: _____

7.3 Bonding Information:

Bonding Company: _____
Address: _____
City, State, Zip: _____
Agent Name and Phone Number: _____
Number of years with bonding company: _____
What is the Business Entity's bonding capacity?
Single Project: _____ Aggregate (all projects): _____

7.4 Federal Tax ID Number: _____

7.5 Has there been a change of ownership in the Company within the last three (3) years?

Yes _____ No _____

7.6 During the past seven (7) years, has the Company had any final judgments issued against it with respect to any claim? If yes, provide details:

7.7 During the past seven (7) years, has the Company ever filed for protection under the Federal bankruptcy laws? If yes, provide details.

7.8 Is the Business Entity a certified Minority Owned Business Enterprise, Women Owned Business Enterprise or Disadvantaged Business Enterprise (indicate certifying agency or entity):

8. Extent of Insurance Coverage

8.1 Describe the ability of the Company to comply with 29 CFR 1910 120 and OSHA.

8.2 List the Company's Experience Modification Rate (EMR) for the three (3) most recent years:

| Year | Intrastate - NY | Interstate |
|------|-----------------|------------|
| 2021 | <hr/> | <hr/> |
| 2020 | <hr/> | <hr/> |
| 2019 | <hr/> | <hr/> |

8.3 List the names, address and telephone numbers for verification of EMR's.

8.4 If the Company does not have an EMR, please explain.

8.5 How long has the Company been covered by its current provider of Worker Compensation Insurance?

8.6 Provide the following information from the Company's OSHA 200 logs. Attach the OSHA 200 logs for the company for the past five (5) years.

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|-------|-------|-------|-------|-------|
| (a) Number of Lost Workday Cases | _____ | _____ | _____ | _____ | _____ |
| (b) Number of Restricted Workday Cases | _____ | _____ | _____ | _____ | _____ |
| (c) Number of Medical Treatment Cases (not first aid) | _____ | _____ | _____ | _____ | _____ |
| (d) Employee Hours Worked Each Year | _____ | _____ | _____ | _____ | _____ |
| (e) Total Recordable Frequency Rate | _____ | _____ | _____ | _____ | _____ |

8.7 List any fatalities your Company has had in the last three (3) years. Include location, cause and corrective action.

9. Geographic Operating Areas

10. Experience/Work History

10.1 List the ten most recent construction contracts the Business Entity has COMPLETED. If less than ten, include most recent completed subcontracts on projects up to that number. Include the following information on this list:

- Name of Client
- Client Contact Name and Phone Number
- Name of Project
- Award Date
- Completion Date
- Contract Amount
- Architect or Design Engineer
- Joint Venture name, if applicable
- Indicate if Prime or Subcontractor
- Description of Project – (Include specific details describing the scope and complexity for each project and how that experience is relevant to this project.)

10.2 List ALL current INCOMPLETE construction contracts held by the Business Entity. Include the following information on this list:

- Name of Client

- Client Contact Name and Phone Number
- Name of Project
- Award Date
- Scheduled Completion Date
- Architect or Design Engineer
- Joint Venture name, if applicable
- Indicate if Prime or Subcontractor
- Total Contract Amount
- Amount Subcontracted to Others
- Incompleted Amount
- Description of Project – (Describe the scope and complexity for each project and how that may impact your resources or ability to meet the proposed schedule on this Project.)

10.3 Within the past five (5) years, has the Business Entity, predecessor or affiliate:

a) ever had a contract terminated, suspended, cancelled or been declared in default or breach within the past five (5) years? Yes No If yes, provide details.

b) been a party in a lawsuit or other dispute resolution proceeding, including, without limitation, administrative proceedings or arbitration, within the past five (5) years?

Yes No If yes, provide details.

c) had any judgment or awards against it in the past five (5) years, including specific performance, restitution, or formal monitoring agreements?

Yes No If yes, provide details.

d) been suspended or debarred from any government contract process, been disqualified on any government procurement, or agreed to any voluntary exclusion from bidding or contracting with a government entity? Yes No If yes, provide details.

e) initiated a request to withdraw a bid submitted to a government entity or made any claim of error on a bid submitted to a government entity? Yes No If yes, provide details.

f) ever has a surety called upon to complete any contract whether government or private sector?

Yes No If yes, provide details.

g) had a revocation or suspension of any business or professional permit and/or license?

Yes No If yes, provide details.

h) had a denial, decertification, revocation or forfeiture of a Minority Owned Business Enterprise, Women Owned Business Enterprise or Disadvantaged Business Enterprise certification for other than a change of ownership?

Yes No If yes, provide details.

i) been the subject of a criminal investigation, whether open or closed, or an indictment for any business related conduct constituting a crime under federal, state or local law?

Yes No If yes, provide details.

j) been the subject of an indictment, grant of immunity, judgment or conviction (including entering into a plea bargain) for conduct constituting a crime?

Yes No If yes, provide details.

k) been the subject of any criminal investigation, felony indictment or conviction concerning the formation of, or any business association with, an allegedly false or fraudulent Minority Owned Business Enterprise, Women Owned Business Enterprise or Disadvantaged Business Enterprise?

Yes No If yes, provide details.

l) had a government entity find a willful prevailing wage or supplemental payment violation?

Yes No If yes, provide details.

m) entered into a consent order with the New York State Department of Environmental Conservation, or a federal, state or local government enforcement determination involving violation of federal, state or local environmental laws?

Yes No If yes, provide details.

n) other than disclosed elsewhere in this Qualifications Statement, been the subject of any citations, notices of violations, pending administrative hearings or proceedings or determinations of a violation of:

i) federal, state or local health laws, rules or regulations? Yes No

ii) federal, state or local environmental laws, rules or regulations? Yes No

iii) federal, state or local human rights laws? Yes No

iv) federal, state or local security laws? Yes No

v) unemployment insurance or workers compensation coverage or claim requirements?

Yes No

vi) Employee Retirement Income Security Act (ERISA)? Yes No

If yes to any of the above, provide details.

o) had any liquidated damages assessed over \$25,000? Yes No

If yes, provide details.

n) had any liens, claims or judgments (not including UCC filings, over \$25,000 which remain undischarged or were unsatisfied for more than 90 days?

Yes No If yes, provide details.

10.4 Within the past five (5) years, has any individual previously identified above or any Individual having the authority to sign, execute or approve bids, proposals, contracts or supporting documentation with governmental entities been subject to:

a) a sanction imposed relative to any business or professional license?

Yes No If yes, provide details.

b) a criminal investigation, whether open or closed, or an indictment for any business-related conduct constituting a crime under federal, state or local law?

Yes No If yes, provide details.

c) any misdemeanor or felony charge, indictment or conviction for:

i) any business-related activity including but not limited to fraud, coercion, extortion, bribe or bribe-receiving, giving or accepting unlawful gratuities, immigration or tax fraud, racketeering, mail fraud, wire fraud, price fixing or collusive bidding?; or

ii) any crime, whether or not business-related, the underlying conduct of which related to truthfulness, including but not limited to the filing of false documents or false sworn statements, perjury or larceny?

Yes No If yes, provide details.

d) a debarment from any government contracting process? Yes No

If yes, provide details.

11. Health and Safety Program

11.1 Does the Company have an official Health and Safety Department? Yes No

11.2 Provide a copy of the organization chart for the Company's health and safety department and resumes of key individuals.

11.3 Attach list of any State or Federal Health and Safety citation received in the past three (3) years.

11.4 Would you provide us with a copy of your Corporate Health and Safety Plan/Program if asked?
Yes No

11.5 Are accident reports (OSHA 200) circulated to:

| | | Monthly | Qtrly | Annually |
|---------------------------------|--|--------------------------|--------------------------|--------------------------|
| Employees? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Supervisors and/or foreman? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vice President/General Manager? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| President Owner of the Firm? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

11.6 Indicate the number of employees by labor category who have undergone OSHA 1910.20 health and safety measures and provide the types of programs and procedures the Company adheres to:

| | Labor Category | Number of Employees |
|--------------------------|----------------|---------------------|
| Health & Safety Training | _____ | _____ |
| Medical Monitoring | _____ | _____ |

11.7 Does the Company conduct field safety inspections? Yes No

If yes, who conducts the inspection (include title) _____

If so, how often? ☐ Weekly ☐ Bi-Weekly ☐ Monthly ☐ As Needed

11.8 During foreman performance reviews, does the Company use safety as a criterion for rating purposes? Yes No

- 11.9 Does the Company hold tailgate or tool box safety meetings? Yes No
 If so, how often? ☐ Weekly ☐ Bi-Weekly ☐ Monthly ☐ As Needed

- 11.10 Does the Company have a pre-job employee and new hire safety orientation program? Yes
 No

If yes, does it include instructions on the following:

| | Yes | Hrs* | No |
|---|-------|-------|-------|
| Company Safety Policy | _____ | _____ | _____ |
| Company safety rules, procedures incorporating clients safety rules and regulations | _____ | _____ | _____ |
| Safety meeting attendance | _____ | _____ | _____ |
| Work hazard reporting | _____ | _____ | _____ |
| Injury reporting | _____ | _____ | _____ |
| Personal protective equipment | _____ | _____ | _____ |
| 1. Head protection | _____ | _____ | _____ |
| 2. Eye protection | _____ | _____ | _____ |
| 3. Hearing protection | _____ | _____ | _____ |
| 4. Respiratory protection | _____ | _____ | _____ |
| Housekeeping | _____ | _____ | _____ |
| Fire protection | _____ | _____ | _____ |
| Driving safety | _____ | _____ | _____ |
| Toxic substances | _____ | _____ | _____ |
| First aid | _____ | _____ | _____ |
| Electrical safety | _____ | _____ | _____ |
| Rigging safety | _____ | _____ | _____ |
| Safety belts and lifeline | _____ | _____ | _____ |
| Scaffolding | _____ | _____ | _____ |
| Perimeter guarding | _____ | _____ | _____ |
| Trenching and excavation | _____ | _____ | _____ |
| Signs, barricades, flagging | _____ | _____ | _____ |
| Other (specify) | _____ | _____ | _____ |

*If yes is marked, provide hours to each employee at each job site.

- 11.11 Does the Company hold specialized safety/training meetings for

| | | |
|-----------------|------------------------------|-----------------------------|
| New Hires? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Supervisors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Foreman? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Subcontractors? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

If yes to any of the above, do the meetings include the following instructions:

| | Yes | Hrs* | No |
|------------------------------------|-------|-------|-------|
| Safe work practices | _____ | _____ | _____ |
| Safety supervisors and enforcement | _____ | _____ | _____ |
| Tailgate safety meetings | _____ | _____ | _____ |
| Emergency procedures | _____ | _____ | _____ |
| Incident reporting | _____ | _____ | _____ |
| First aid procedures | _____ | _____ | _____ |
| Accident investigation | _____ | _____ | _____ |
| New employee orientation | _____ | _____ | _____ |
| Fire protection and prevention | _____ | _____ | _____ |

*If marked yes, provide hours of instructions provided to each new foreman.

11.12 How are accident records and accident summaries kept? How often are they reported?

| | Yes | No | Monthly | Annually |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| Accidents totaled for the entire company | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Accidents related to the Project | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Accidents totaled by Project | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

11.13 How are the costs of individual accidents kept? How often are they reported?

| | Yes | No | Monthly | Annually |
|----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Costs totaled for entire company | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Costs totaled for projects | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

11.14 List any OSHA citations and resolutions during the past three (3) years.

11.15 List any OSHA citations and resolutions during the past three (3) years for any of the Company's proposed major subcontractors.

11.16 Does the Company have a drug/alcohol program? Yes No

11.17 Does the Company have a safety recognition program? Yes No

12. Quality Assurance/Quality Control Program

12.1 Does the Company have an official Quality Assurance/Quality Control (QA/QC) Department?

12.2 Who is the Department Head and to whom does this person report?

12.3 Does the Company have a formal Quality Assurance/Quality Control (QA/QC) Manual or Procedure?
Yes No

12.4 Would the Company provide us with a copy of its Corporate Quality Assurance/Quality Control Manual if asked? Yes No

12.5 What type of QA/QC training does your Company provide for its employees?

12.6 Indicate how your firm ensures project compliance with regulatory and industry codes and standards

13. Additional Information

Attach any additional information which would assist the Owner and its agents to evaluate the Company's qualifications, history, financial standing, safety record, and insurability as it relates to a project of similar scope, complexity, and size to this Project.

14. Indicate whether any information provided herein is believed to be exempt from disclosure under the Freedom of Information Law (FOIL). Note: A determination of whether such information is exempt from FOIL will be made at the time of any request for disclosure under FOIL.

Yes No Indicate question number(s) and basis for FOIL exemption, attaching additional pages as necessary.

15. Certification and Signature of Authorized Representative:

The undersigned: (1) recognizes that this questionnaire is submitted for the express purpose of assisting the County of Orange in making responsibility determinations regarding an award of a contract or approval of a subcontract; (2) recognizes that the County of Orange will rely on information disclosed herein in making responsibility determinations in approving a contract or subcontract; (3) acknowledges that the County of Orange may, in its discretion, by means which it may choose, verify the truth and accuracy of all statements made herein; and (4) acknowledges that intentional submission of false or misleading information may constitute a misdemeanor or felony under New York State Penal Law, may be punishable by a fine and/or imprisonment under Federal Law, and may result in a finding of non-responsibility, contract suspension or contract termination.

The undersigned certifies that he or she:

- is knowledgeable about the submitting Business Entity's business and operations;
- has read and understands all of the questions contained herein;
- has not altered the content of this questionnaire in any manner;
- has reviewed and/or supplied full and complete responses to each question;
- to the best of his or her knowledge, information and belief, confirms that the Business Entity's responses are true accurate and complete, including all attachments, if applicable;
- understands that the County of Orange will rely on the information disclosed herein when entering into a contract with the Business Entity; and
- is under obligation to update the information provided herein to include any material changes to the responses at the time of the bid submission through the contract award notification, and may be required to update the information at the request of the County prior to the award and/or approval of a contract, or during the term of the contract.

Name of Business Entity: _____

Signature: _____

Name: _____

Title: _____

Notary Public

Sworn to before me this ____ day of _____, 20__

END OF SECTION

SECTION 00 4950**DISCLOSURE OF PRIOR NON-RESPONSIBILITY DETERMINATIONS**

See instructions on next page before completing this form.

Name of Individual or Entity Seeking to Enter into the Procurement Contract:

Address: _____

Name and Title of Person Submitting this Form: _____

1. Has any Governmental Entity made a finding of non-responsibility regarding the individual or entity seeking to enter into the Procurement Contract in the previous four years? No Yes

If Yes, please answer the next questions:

2. Was the basis for the finding of non-responsibility due to a violation of State Finance Law §139-j?

No Yes

3. Was the basis for the finding of non-responsibility due to the intentional provision of false or incomplete information to a Governmental Entity? No Yes

4. If you answered yes to any of the above questions, please provide details regarding the finding of non-responsibility below and attach additional pages as necessary.

Governmental Entity: _____

Date of Finding of Non-responsibility: _____

Basis of Finding of Non-responsibility: _____

5. Has any Governmental Entity or other governmental agency terminated or withheld a Procurement Contract with the above names individual or entity due to the intentional provision of false or incomplete information?

No Yes

6. If yes, please provide details below and attach additional pages as necessary.

Governmental Entity: _____

Date of Termination or Withholding of Contract: _____

Basis of Termination or Withholding: _____

Offeror certifies that all information provided to the Governmental Entity with respect to State Finance Law §139-k is complete, true and accurate.

By: _____ Date: _____

Signature

Instructions for Completing the Bidder Disclosure of Prior Non-Responsibility Determinations**Background:**

New York State Finance Law §139-k(2) obligates a Governmental Entity to obtain specific information regarding prior non-responsibility determinations with respect to State Finance Law §139-j. This information must be collected in addition to the information that is separately obtained pursuant to State Finance Law §163(9). In accordance with State Finance Law §139-k, an Offeror must be asked to disclose whether there has been a finding of non-responsibility made within the previous four (4) years by any Governmental Entity due to: (a) a violation of State Finance Law §139-j or (b) the intentional provisions of false or incomplete information to a Governmental Entity. The terms "Offeror" and "Governmental Entity" are defined in State Finance Law §139-k(1). State Finance Law §139-j sets forth detailed requirements about the restrictions on Contacts during the procurement process. A violation of State Finance Law §139-j includes, but is not limited to, an impermissible Contact during the restricted period (for example, contacting a person or entity other than the designated contact person, when such contact does not fall within one of the exemptions).

As part of its responsibility determination, State Finance Law §139-k(3) mandates consideration of whether an Offeror fails to timely disclose accurate or complete information regarding the above non-responsibility determination. In accordance with law, no Procurement Contract shall be awarded to any Offeror that fails to timely disclose accurate or complete information under this section, unless a finding is made that the award of the Procurement Contract to the Offeror is necessary to protect public property or public health safety, and that the Offeror is the only source capable of supplying the required Article of Procurement within the necessary timeframe. See State Finance Law §§139-j(10)(b) and 139-k(3).

Instructions:

The County of Orange includes this disclosure request regarding prior non-responsibility determinations in accordance with State Finance Law §139-k in its solicitation of proposals or bid documents or specifications or contract documents, as applicable, for procurement contracts. The attached form is to be completed and submitted by the individual or entity seeking to enter into a Procurement Contract, Supplemental or Change Order. It shall be submitted with your Bid to the County agency conducting the Governmental Procurement.

This document must accompany each Bid Form, Letter of Interest, or Proposal submitted by all Offerors.

END OF SECTION

SECTION 00 4951**IRAN DIVESTMENT ACT CERTIFICATION**

The Iran Divestment Act of 2012 ("Act"), Chapter 1 of the 2012 Laws of New York, added State Finance Law (SFL), §165-a and General Municipal Law §103-g, effective April 12, 2012. Under the Act, the Commissioner of the New York State Office of General Services ("OGS") developed a list ("Prohibited Entities List") of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law). In accordance with SFL § 165-a(3), the Prohibited Entities List may be found on the OGS website at:

<http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf>.

Pursuant to General Municipal Law §103-g, by signing below, Bidder certifies as true under the penalties of perjury that:

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 that each Bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the State Finance Law.

A Bid shall not be considered for award nor shall any award be made where the certification has not been made, provided, however, that if in any case the Bidder cannot make the certification, the Bidder shall so state and shall furnish with the Bid a signed statement which sets forth in detail the reasons therefor. The County may award a contract to a Bidder who cannot make the required certification on a case-by-case basis if:

- (1) The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, 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 County makes a determination that the goods and services are necessary for the County to perform its functions and that, absent such an exemption, the political subdivision 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.

During the term of the Contract, should the County receive information that a person is in violation of the above-referenced certifications, the County will offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the County shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the contractor in default.

The County reserves the right to reject any bid, proposal, contract or request for assignment for an entity that appears on the Prohibited Entities List prior to the award or execution of a contract or any renewal thereof, as applicable, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities List after contract award.

BUSINESS NAME

NAME

TITLE

SIGNATURE

DATE

END OF SECTION

SECTION 00 04952**DISCLOSURE OF CONTRACTOR-SUBCONTRACTOR AND
SUBSTANTIALLY OWNED-AFFILIATED ENTITY RELATIONSHIPS**

Effective March 18, 2018, New York State General Municipal Law §103(1-c) and New York State Labor Law §220-b declares contractors, subcontractors and any "substantially owned-affiliated entities" who have been debarred for violations under the federal Davis Bacon Act, pursuant to 40 U.S.C. 3144; the Copeland Act, pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145; or the Contract Work Hours and Safety Standards Act, pursuant to 40 U.S.C. 332; ineligible to bid on or be awarded low bid contracts.

New York State Labor Law §220(5)(g) defines a Substantially Owned-Affiliated Entities to mean:

"...the parent company of the contractor or subcontractor, any subsidiary of the contractor or subcontractor, or any entity in which the parent of the contractor or subcontractor owns more than fifty percent of the voting stock, or an entity in which one or more of the top five shareholders of the contractor or subcontractor individually or collectively also owns a controlling share of the voting stock, or an entity which exhibits any other indicia of control over the contractor or subcontractor or over which the contractor or subcontractor exhibits control, regardless of whether or not the controlling party or parties have any identifiable or documented ownership interest. Such indicia shall include, power or responsibility over employment decisions, access to and/or use of the relevant entity's assets or equipment, power or responsibility over contracts of the entity, responsibility for maintenance or submission of certified payroll records, and influence over the business decisions of the relevant entity."

For a bid to be considered, and to enable the County to perform the required due diligence on potential bidders to determine if they are eligible and therefore responsive, all bidders must disclose all Contractor-Subcontractor relationships that would be involved in the performance of any contract awarded under this RFB, as well as any Substantially Owned-Affiliated Entities of the bidder (i.e. Contractor) and all subcontractor(s), if any.

Please list the legal name of the Bidder/Contractor, any Subcontractor(s), and any Substantially Owned-Affiliated Entities, in addition, please also include any "doing business as" name for each of the foregoing and describe the nature of the relationship (e.g. bidder/contractor, subcontractor, owns 60% of voting stock of contractor, shareholder of subcontractor, partner of contractor, etc.). Attach additional sheets, if necessary.

Entity Name: _____

Nature of Relationship: _____

Entity Name: _____

Nature of Relationship: _____

Entity Name: _____

Nature of Relationship: _____

PUBLIC IMPROVEMENT CONTRACT

THIS AGREEMENT ("Contract") entered into and effective Month/Day, 20 between the County of Orange, a municipal corporation and county of the State of New York, by and through its Department of Public Works having its principal office at 2455-2459 Route 17M, Goshen, New York, 10924 ("Owner"), and Contractor's Name a State of Registration business entity type e.g. sole proprietorship having its principal office at principal business address, if different than service address add "with services to be performed from offices at address" ("Contractor"),

WITNESSETH: That Owner and Contractor, for the promises and consideration set forth herein, agree as follows:

1. CONTRACT DOCUMENTS & DEFINITIONS. The Contract Documents are defined in §1.1(3) of Division 01 Section 010000 - General Conditions ("General Conditions") and shall include all properly executed Contract modifications. Definitions of terms of art in this Public Improvement Contract (e.g. Contract Documents, Work, Project, etc.) are as in §1.1 of the General Conditions, unless otherwise indicated herein.

2. WORK TO BE DONE. Contractor, at its cost and expense, shall furnish all materials, appliances, tools, and labor of every kind required by the Contract Documents including Bid Alternative(s) ###/name and will complete and finish the Work in the most workmanlike manner in strict compliance with the Contract Documents, for the price of:

Dollars (\$###.##)

("Contract Sum"). Should the amount of Work be increased or decreased due to special conditions encountered in the Work, or where ordered by the Owner, the Contractor agrees that the basis of compensation for such increase or decrease shall be by Unit Bid Prices or as otherwise agreed upon pursuant to §7 of this Contract.

3. EXAMINATION OF DOCUMENTS AND SITE. Contractor agrees that before making its bid, it carefully examined the Contract Documents, together with the Work Site and is fully informed regarding all of the conditions affecting the Work to be done and the labor and materials to be furnished for the completion of this Contract. Contractor shall secure, at its cost and expense, all applicable and necessary permits from applicable authorities having jurisdiction required in connection with the Work.

4. TIME OF COMPLETION. Contractor shall begin the Work in accordance with Table 1-1 of the General Conditions, unless the written consent of the Owner is given to begin at a later date. Time is of the essence and Contractor will prosecute the Work without interruption, so that it will be entirely completed and performed by in accordance with Table 1-1 of the General Conditions, unless the time is extended by written change order at the sole discretion of the Owner.

5. LIQUIDATED DAMAGES FOR DELAY. The parties recognize and agree that time is of the essence and the Work shall be accomplished within the time stated in §4 of this Contract. Since actual damages are speculative in nature and not readily ascertainable, liquidated damages shall apply if Contractor is unable to achieve Substantial Completion by the date agreed upon and through no fault of the Owner, its officers, employees and/or other contractors. Should the Work, including any previously approved change orders, not be substantially completed within the time specified and, unless an extension of time has been granted by the Owner, the Contractor shall forfeit the sum of **Five Hundred Dollars (\$500.00) per Day**, for each and every Day from and after the time during which the Work, including any approved change orders, shall remain unfinished and incomplete. The forfeited sum(s) shall be deemed Liquidated Damages and shall be deducted from the sum agreed to be paid to the

Contractor by the Owner under the terms of this Contract or any binding addendum and/or change order. This provision shall not be construed as a penalty.

6. PERFORMANCE. The Work under this Contract is to be done to the satisfaction of the Owner and all materials shall be subject to Owner's acceptance.

7. CHANGES IN THE WORK AND CLAIMS FOR EXTRA WORK. To the extent permissible under New York State Law, and in accordance with Division 01 Section 010000 - General Conditions §1.41, Owner reserves the right to order extra Work, or make changes by altering, adding to, or deducting from the Work without invalidating the Contract. The Contract Sum shall be increased or decreased by any one of the following mutually agreeable methods, to the extent any are legally applicable:

- 7.1** Using the Unit Price Bid;
- 7.2** Negotiated Lump Sum price; or
- 7.3** Negotiated Time and Material price.

Any claims for extension of time caused by changes shall be stated in writing and shall be subject to Owner approval.

8. DEDUCTIONS. Owner shall make an equitable deduction from the Contract Sum for any uncorrected Work or Work not done in accordance with the Specifications. In addition, Owner shall deduct contingency or other amounts required to close out the Contract upon completion of the Work.

9. PAYMENT.

9.1 Contractor shall adhere to all provisions of New York State Labor Law regarding certified payrolls. With each requisition, Contractor shall submit a certified payroll of the amount paid for wages and applicable supplements for all employees. Certified payrolls shall be submitted for all employees of the Contractor and any Subcontractor(s) utilized by the Contractor. In addition, Owner reserves the right to require Contractor to submit with any requisition a detailed statement of all materials utilized and paid for by Contractor.

9.2 The Owner will audit each month and pay such amount, as the Owner certifies has been earned by Contractor, less Five (5) percent retainage which will be paid to Contractor upon completion of the Work.

9.3 Upon the faithful performance and full completion of the Work and within Thirty (30) Days after acceptance by Owner, Owner will pay to Contractor the remaining amount of the Contract Sum, (taking into account any additions or deductions) less the total of all previous payments. The acceptance by the Contractor of the Final Payment shall be and operate as a release to the Owner of all claims and liability to the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner, and others relating to or arising out of this Work, excepting the Contractor's claim for interest upon the final payment, if this payment be improperly delayed. No payment, however, final or otherwise, shall operate to release the Contractor or Contractor's sureties from any obligations under this Contract or the Performance or Payment Bonds.

10. LABOR LAW COMPLIANCE.

10.1 Pursuant to New York State Labor Law 220(2), 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 shall be permitted or required to work more than eight hours in any One (1) Calendar Day or more than Five (5) Days in any one week except in cases of extraordinary emergency including fire, flood or danger to life or property. No such person shall be so employed more than Eight (8) hours in any Day or more than Five (5) Days in any One (1) week except in such emergency. Extraordinary emergency within the meaning of this §10 shall be deemed to include situations in which sufficient laborers, workers and mechanics cannot be employed to carry on public work expeditiously 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 public work is necessary in the judgment of the New York State Commissioner of Labor ("Labor Commissioner") for the preservation of the Contract Site and for the protection of the life and limb of the persons using the same. Upon the application of any person interested, the Labor Commissioner shall make a determination as to whether or not on any public project or on all public projects in any area of this state, sufficient laborers, workers and mechanics of any or all classifications can be employed to carry on Work expeditiously if their labor is restricted to Eight (8) hours per Day and Five (5) Days per week, and in the event that the Labor Commissioner determines that there are not sufficient workers, laborers and mechanics of any or all classifications which may be employed to carry on such Work expeditiously if their labor is restricted to Eight (8) hours per Day and Five (5) Days per week, and the immediate commencement or prosecution or completion without undue delay of the public work is necessary in the judgment of the Labor Commissioner for the preservation of the Project Site and for the protection of the life and limb of the persons using the same, the Labor Commissioner shall grant a dispensation permitting all laborers, workers and mechanics, or any classification of such laborers, workers and mechanics, to work such additional hours or Days per week on such public project or in such areas the Labor Commissioner shall determine. Whenever such a dispensation is granted, all Work in excess of Eight (8) hours per Day and Five (5) Days per week shall be considered overtime Work, and the laborers, workers and mechanics performing such Work shall be paid a premium wage commensurate with the premium wages prevailing in the area in which the Work is performed. No such dispensation shall be effective with respect to any public work unless and until the Owner certifies to the Labor Commissioner that such Project is of an important nature and that a delay in carrying it to completion would result in serious disadvantage to the public. Time lost in any week because of inclement weather by employees engaged in the construction, reconstruction and maintenance of highways outside of the limits of cities and villages may be made up during that week and/or the succeeding three weeks.

10.2 Pursuant to New York State Labor Law 220(3)(a) each laborer, workman or mechanic, employed by Contractor, any Subcontractor(s) or other person on this Project shall be paid not less than the prevailing rate of wages and supplements set by the New York State Department of Labor.

10.3 Pursuant to New York State Labor Law 220(3)(d)(iv), the filing of payrolls in a manner consistent with Labor Law 220(3-a) is a condition precedent to payment of any sums due and owing for Work done upon the Project.

10.4 Pursuant to Labor Law 220-d, the prevailing wage rate and supplement schedule was specified in the Contract Documents. Laborers, workmen or mechanics shall be paid not less than such prevailing wage rates and supplements.

10.5 Pursuant to Labor Law 220-e, Contractor and every Subcontractor agrees:

10.5.1 that in the hiring of employees for the performance of Work under this Contract or any subcontract hereunder, no Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color, disability, sex 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;

10.5.2 that no Contractor, Subcontractor, nor any person on his 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, disability, sex or national origin;

10.5.3 that there may be deducted from the amount payable to Contractor by the Owner under this Contract a penalty of fifty dollars (\$50.00) for each person for each Calendar Day during which such person was discriminated against or intimidated in violation of the provisions of the Contract;

10.5.4 that this Contract may be cancelled or terminated by New York State or the Owner, 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 §10 of the Contract; and

10.5.5 the aforesaid provisions covering every Contract for or on behalf of New York State or the Owner for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the state of New York.

10.6 Pursuant to Labor Law 220-h, if the Contract Sum of this Contract is at least two hundred fifty thousand dollars (\$250,000) all laborers, workers, and mechanics employed in the performance of the contract on the Project Site, either by Contractor, any Subcontractor(s) 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 on the Project 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.

10.7 Pursuant to Labor Law 222(2)(d), the design of this Project shall be subject to the review and approval of Owner and Contractor shall furnish performance and payment bonds as specified in the Contract Documents, which shall conform to the provisions of New York State, Owner and applicable local law, and that a copy of such performance and payment bonds shall be kept by Owner and shall be open to public inspection.

10.8 Pursuant to Labor Law 222(2)(e), Owner shall consider the financial and organizational capacity of contractors and subcontractors in relation to the magnitude of Work they may perform, the record of performance of contractors and Subcontractors on previous Work, the record of contractors and subcontractors in complying with existing labor standards and maintaining harmonious labor relations, and the commitment of contractors to Work with minority and women-owned business enterprises pursuant to Article 15-A of the New York State Executive Law through joint ventures of subcontractor relationships. If the Contract Sum of this Contract is in excess of five hundred thousand dollars (\$500,000), Contractor and any Subcontractor shall participate in apprentice training programs in the trades of work it employs that have been approved by the New York State Department of Labor for not less than three (3) years and shall have graduated at least one apprentice in the last three (3) years and shall have at least one (1) apprentice currently enrolled in such apprenticeship training program. In addition, it must be

demonstrated that the program has made significant efforts to attract and retain minority apprentices, as determined by affirmative action goals established for such program by the New York State Department of Labor.

10.9 Pursuant to Labor Law 222-a, in the construction of public works wherein a harmful dust hazard is created for which appliances or methods for the elimination of harmful dust have been approved by the Industrial Board of Appeals, the installation, maintenance and effective operation of such appliances and methods is required. Failure to comply with this provision shall void this Contract.

11. POSTING. Contractor and all Subcontractors, if any, engaged in the Work described in this Contract shall post and maintain at each of their establishments and at the Work Site(s), any and all notices required of employers by federal and New York State laws and regulations, as may be amended.

12. BONDS. Contractor shall procure and deliver bonds to Owner and maintain them at Contractor's cost and expense, until final acceptance by Owner of the Work covered by this Contract. Types and amounts of Bonds shall be as specified in the Instructions to Bidders.

13. PROCUREMENT OF AGREEMENT.

13.1 Contractor represents and warrants that no person or selling agency has been employed or retained by Contractor to solicit or secure this Contract upon an agreement or upon an understanding for a commission, percentage, a brokerage fee, contingent fee or any other compensation. Contractor further represents and warrants that no payment, gift or thing of value has been made, given or promised to obtain this or any other agreement between the parties. Contractor makes such representations and warranties to induce the Owner to enter into this Contract and the Owner relies upon such representations and warranties in the execution hereof.

13.2 For a breach or violation of such representations or warranties, the Owner shall have the right to annul this Contract without liability, entitling the Owner to recover all monies paid hereunder and Contractor shall not make claim or be entitled to recover, any sum or sums otherwise due under this Contract. This remedy, if effected, shall not constitute the sole remedy afforded the Owner for such falsity or breach, nor shall it constitute a waiver of the Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law, in equity or pursuant to this Contract.

14. CONFLICT OF INTEREST.

14.1 Contractor represents and warrants that neither it, nor any of its officers, directors, partners, members, employees, contractors, agents, assignees or other representatives, have any interest nor shall they acquire any interest, directly or indirectly, which would or may conflict in any manner or degree with the performance of this Contract. Contractor further represents and warrants that no person having such conflict of interest or possible conflict of interest shall be employed or contracted by it unless such person:

14.1.1 if required by the County's "**Local Ethics Law**" (Local Law No. 2 of 1994, as amended) to submit a Disclosure Form to the Orange County Board of Ethics, amends such Disclosure Form to include their interest in this Contract; or

14.1.2 if not required to complete and submit such a Disclosure Form, must either voluntarily complete and submit a Disclosure Form disclosing their interest in this

Contract or seek a formal opinion from the Orange County Ethics Board as to whether or not a conflict of interest exists.

14.2 For a breach or violation of such representations or warranties, Owner shall have the right to annul this Contract without liability, entitling Owner to recover all monies paid hereunder and Contractor shall not make claim to, or be entitled to recover, any sum(s) otherwise due under this Contract. This remedy, if effected, shall not constitute the sole remedy afforded Owner, nor shall it constitute a waiver of Owner's right to claim damages, or otherwise refuse payment, or to take any other action provided for by law, in equity or pursuant to this Contract.

14.3 The foregoing provisions shall not limit Owner's rights under the Local Ethics Law with regard to civil penalties or criminal prosecution as provided in the Local Ethics Law.

15. CURRENT OR FORMER OWNER EMPLOYEES.

15.1 Contractor represents and warrants that it shall not retain the services of any Owner employee or former Owner employee in connection with this Contract or any other Contract that Contractor has or may have with the Owner, without the express written permission of the Owner. This limitation period covers the preceding three (3) years or longer if the Owner employee or former Owner employee has or may have an actual or perceived conflict of interest(s) due to their position with Owner.

15.2 For a breach or violation of such representations or warranties, Owner shall have the right to annul this Contract without liability, entitling Owner to recover all monies paid hereunder and Contractor shall not make claim for or be entitled to recover, any sum or sums otherwise due under this Contract. This remedy, if affected, shall not constitute the sole remedy afforded Owner for such falsity or breach, nor shall it constitute a waiver of Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law or pursuant to this Contract.

16. INDEPENDENT CONTRACTOR.

16.1 In performing the Work and incurring expenses under this Contract, Contractor shall operate as, and have the status of, an independent contractor and shall not act as agent, or be an agent, of Owner. As an independent contractor, Contractor shall be solely responsible for determining the means and methods of performing the Work and shall have complete charge and responsibility for Contractor's personnel and subcontractors engaged in the performance of the same.

16.2 In accordance with such status as independent contractor, Contractor covenants and agrees that neither it nor its employees or agents will hold themselves out as, nor claim to be officers or employees of Owner, or of any department, agency or unit thereof, and that they will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Owner including, but not limited to, Worker's Compensation and Disability, health insurance, Unemployment Insurance Benefits, Social Security coverage or employee retirement membership or credit.

17. ASSIGNMENT.

17.1 Pursuant to New York State General Municipal Law §109, Contractor shall not assign, transfer, convey, sublet or otherwise dispose of any of its rights, title or interests in this Contract, or its power to execute this Contract, without the prior express written consent of the County Executive, or his or her

designee. If Contractor assigns, transfers, conveys, sublets or otherwise disposes of its rights, title or interests in this Contract, or its power to execute it without such consent, Owner shall revoke and annul this Contract and Owner shall be discharged from any and all liability and obligations growing out of this Contract to Contractor and to any party to which such assignment, transfer, conveyance, sublet or other disposition was purportedly made. Contractor shall also forfeit and lose all moneys theretofore earned under this Contract, except so much as may be required to pay its employees performing under this Contract. The provisions of this clause shall not hinder, prevent, or affect any assignment by Contractor for the benefit of its creditors made pursuant to the laws of the State of New York.

17.2 This Contract may be assigned by Owner to any corporation, agency, municipality or instrumentality having authority to accept such assignment.

18. SUBCONTRACTORS.

18.1 Contractor shall submit in writing to the Owner a list of all Subcontractors, if any, whom Contractor shall engage for the Work prior to awarding any subcontracts. The Contractor shall not employ any Subcontractor to whom Owner may have a reasonable objection nor shall Contractor be required to employ any Subcontractor against whom Contractor has a reasonable objection. Contractor may not discharge and/or replace any Subcontractors without Owner's written approval. Contractor shall contractually require every Subcontractors' compliance with the terms of this Contract, as far as applicable to each Subcontractor's Work, and shall assume full responsibility to Owner for acts and omissions of Subcontractors. There shall be no contractual relation between Owner and any Subcontractor, and in no way shall Owner be obligated to pay any sums to any Subcontractor. At the completion of the Work, and before final payment shall be made, Contractor shall submit to Owner lien releases or notarized statements from any and all Subcontractors that full payment was received.

18.2 Contractor agrees not to enter into any subcontracts for the performance of its obligations, in whole or in part, under this Contract, without the prior written approval of the Owner. A copy of any proposed subcontract(s) shall be submitted to the Owner with Contractor's written request for approval. All such subcontracts shall contain provisions specifying:

18.2.1 That the work performed by the subcontractor must be in accordance with this Contract;

18.2.2 That nothing contained in the subcontract shall impair the rights of the Owner;

18.2.3 That nothing contained in this subcontract or under this Contract shall create any contractual relation in law or equity between the subcontractor and the Owner; and

18.2.4 Any terms, conditions, forms or other provisions that may be required by New York State or federal provisions specified in or incorporated by reference into this Contract, as applicable.

18.3 Contractor agrees that it is fully responsible to Owner for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by its subcontractors, to the same extent as Contractor is responsible for acts and omissions employed by Contractor.

18.4 Contractor shall not in any way be relieved of any responsibility under this Contract by any subcontract.

19. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.

19.1 Identification Number(s). For granting, renewing, amending, supplementing or restating the license of any person, and for every invoice or other claim for payment submitted to Owner by Contractor under this Contract, the application, invoice or claim must include Contractor's payee identification number. This number is any or all of the following:

19.1.1 the payee's federal employer identification number;

19.1.2 the payee's federal social security number, and/or

19.1.3 the payee's Contractor Identification Number assigned by Owner, if any.

19.2 Failure to include applicable payee identification number(s), as required by Owner, may delay payment. Where Contractor does not have such number(s), on its application, invoice or other claim for payment, Contractor must give the reason or reasons why it does not have a payee identification number(s).

19.2 Privacy Notification.

19.2.1 The Owner's authority to request the above personal information from Contractor, and its authority to maintain such information, is found in New York State Tax Law §5. Disclosure of this information by Contractor to Owner is mandatory. The principal purpose for collection of the information is for New York State to identify individuals, businesses and others who have been delinquent in filing tax returns, or may have understated their tax liabilities, and to generally identify persons affected by the taxes administered by the New York State Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law.

19.2.2 The Owner may forward the personal information to the New York State Commissioner of Taxation and Finance upon that Commissioner's request pursuant to New York State Tax Law §5(3).

20. RECORDKEEPING. Contractor agrees to maintain separate and accurate books, records, documents and other evidence and accounting procedures and practices which sufficiently and properly reflect all direct and indirect costs of any nature expended in the performance of this Contract.

21. RETENTION OF RECORDS. Contractor agrees to retain all paper and electronic invoices, payment receipts, books, records and other data and documents relevant to this Contract ("**Records**") for six (6) years after the final payment or termination of this Contract or such longer period as may be required the Contract Documents or by law or regulation, whichever later occurs. Owner, or any state and/or federal auditors, and any other persons duly authorized by Owner, shall have full access and the right to examine any records during the term of this Contract and the retention period, unless otherwise specified in schedule a or required by law or regulation.

22. AUDIT BY THE OWNER AND OTHERS. All records and accounts upon which the records are based are subject to inspection, review and audit by the Owner, New York State, United States, and/or other persons or entities duly authorized by Owner. Contractor, upon request, shall submit any and all documentation and justification in support of expenditures or fees under this Contract as may be required for evaluation of the reasonableness of the charges. Such audits may include examination and review of the source and application of all funds relevant to the performance of the Work, whether from the Owner, New York State, the federal government, private sources or otherwise. Contractor shall not be entitled to any interim or final payment under this Contract if any audit requirements and/or requests have not been satisfactorily met.

23. SAFETY OF PERSONS AND PROPERTY.

23.1 Contractor assumes the risk of and shall be responsible for, any loss or damage to Owner property, including property and equipment leased by the Owner, used in the performance of this Contract and caused, either directly or indirectly by the acts, conduct, omissions or lack of good faith of Contractor, its officers, directors, members, partners, employees, contractors, agents, assignees, or other representatives.

23.2 To the fullest extent permitted by law, Contractor agrees to defend, indemnify and hold the Owner and Architect/Engineer harmless from any and all claims, liabilities, expenses, costs, losses, damage or causes of action (including, without limitation, reasonable attorneys' fees and costs of litigation and/or settlement) arising out of, directly or indirectly, the services performed and/or the goods and materials provided pursuant to this Contract.

23.3 In the event that any Owner property is lost, damaged (except for normal wear and tear), or destroyed, then Owner shall have the right to withhold payments for the purposes of set-off in sufficient sums to cover such loss or damage. This remedy, if effected, shall not constitute the sole or exclusive remedy afforded Owner, nor shall it constitute a waiver of that Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law, in equity or pursuant to this Contract.

23.4 Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

23.4.1 employees on the Work and other persons who may be affected thereby including, but not limited to, the Owner, Subcontractors, other contractors, Suppliers, delivery persons or other third parties;

23.4.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site, under care, custody or control of Contractor or Subcontractors;

23.4.3 other property at the Work Site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and

23.4.4 construction by Owner, Subcontractors or other contractors.

23.5 Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

23.6 Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

23.7 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

23.8 Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in §23.4.1 through §23.4.4 caused in whole or in part by the Contractor, Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under §23.4.1 through §23.4.4 caused, except damage or loss attributable to acts or omissions of the Owner or anyone directly or indirectly employed by it, or by anyone for whose acts Owner may be liable.

23.9 Contractor shall designate a responsible member of Contractor's organization at the Work Site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to Owner.

23.10 Contractor shall not load or permit any part of the construction or Work Site to be loaded so as to endanger its safety.

23.11 Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner, other Subcontractors or separate contractors caused by the Contractor's or any of its Subcontractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

24. INSURANCE.

24.1 Prior to commencing performance of the Work, Contractor shall obtain and maintain in full force and effect during the term of this Contract, and any renewal or modification thereof, at its expense, insurance coverage of the types and, at minimum, in the coverage limits listed below. Such policies are to be in the broadest form available on usual commercial terms and shall be written by insurers with an A.M. Best rating of A- or better and satisfactory to Owner, who have been fully informed as to the nature of the Work to be performed and any modification(s) thereto. This insurance shall cover the premises on operations of the Contractor and shall cover all Subcontractors. Policies for insurance must be written as to include contingent liability and contingent property damage insurance to protect Contractor against claims arising from the operations of Subcontractors. Owner may require Contractor to secure miscellaneous property insurance, elevator insurance or other forms of indemnity protection depending upon the Work to be performed. Additional coverage types or limits may be required by Owner if any policy contains a contractual liability exclusion. Policies must protect the Contractor, Subcontractors (as defined in the General Conditions), Owner, and Architect/Engineer from any and all claims which may arise out of or result from the Contractor's or any Subcontractor's performance under the Contract and for which

the Contractor or Subcontractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

24.2 The insurance required hereunder shall be written for not less than the following amounts, or greater, if required by law:

24.2.1 Workers Compensation & Disability: State Statutory Amounts

24.2.2 Employer's Liability: \$1,000,000 aggregate and each occurrence

24.2.3 Commercial General Liability (including Premises; Independent Contractor's Protective; Bodily Injury; Property Damage; Contractual Liability; and Products and Completed Operations to be maintained for two years after Final Payment): \$1,000,000 aggregate and each occurrence

24.2.4 Business Automobile Liability with: \$1,000,000 aggregate and each occurrence

24.2.5 Contractors Pollution Liability: \$1,000,000 aggregate and each occurrence

24.2.6 Umbrella Excess Liability: \$3,000,000, aggregate and each occurrence which may be used to fund any portion of the insurances required above.

Note: this last section can be deleted if there won't be a project trailer.

24.2.7 Insurance for Project Office: Each Contractor shall provide fire insurance, extended coverage and vandalism, malicious mischief and burglary, and theft insurance coverage for their Project office spaces and contents in the amount of no less than \$100,000.

24.3 Coverage listed in this Article 24, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of Final Payment and termination of any coverage required to be maintained after Final Payment. Claims-made policies shall be maintained for three (3) years from the date of Final Payment.

24.4 Contractor and Subcontractors (through Contractor), within Ten (10) Days of the date of issuance of Notice of Intent to Award, shall supply the Owner with a Certificate(s) of Insurance, evidencing compliance with the minimum requirements listed above and shall within Thirty (30) Days thereafter furnish Owner with certified copies of the policies. The certificates and the insurance policies required by this §24.4 shall contain a provision that coverage will not be canceled or allowed to expire until at least Thirty (30) Days prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after Final Payment, an additional certificate evidencing continuation of such coverage shall be submitted with the Final Application for Payment as required by the Contract Documents. Information concerning reduction of coverage on account of revised limits or claims paid under occurrence, aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

24.5 With the exception of Workers Compensation, Disability and Professional Liability, Contractors and Subcontractors shall have the Owner and Architect/Engineer each added as an additional insured to all

policies. The insurance policies shall be endorsed to indicate that they are primary as respects the Owner and Architect/Engineer of record and not contributory with any other insurance available to either of those parties. Each policy shall contain the following cross liability provision.

"In the event of a claim being made hereunder by one insured for which another insured is or may be liable, then this policy shall cover such insured against whom a claim is or may be made in the same manner as if separate policies had been issued to each insured hereunder."

24.6 Waivers of Subrogation: Each Contractor and Subcontractor waives all claims, losses, damages, or expenses against the Owner, Architect/Engineer, Contractor, the other Subcontractors and each of their respective officers, directors, members, partners, subcontractors, subconsultants, agents, and employees, as applicable, from risks actually insured. Insurance policies shall provide such waivers of subrogation by endorsement or otherwise.

24.7 In accordance with New York State General Municipal Law §108 this Contract shall be void and of no effect unless the person or corporation making or performing such Contract shall secure compensation for the benefit of, and keep insured during the life of such Contract, such employees, in compliance with the provisions of the New York State Workers' Compensation Law.

24.8 The Contractor shall not commence Work unless and until all required certificates have been submitted to and accepted by the Owner. Acceptance by the Owner of a certificate hereunder does not excuse the Contractor from securing a policy consistent with all provisions of this Article or of any liability arising from its failure to do so.

24.9 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.

24.10 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 Owner. Upon quitting the Site, except as otherwise directed by the Owner, the Contractor shall leave all plant, materials, equipment, tools and supplies on the Site. Contract time shall continue to run during such periods, no extensions of time shall be granted, and Contractor shall be liable for any delays to the Project incurred by Owner or by other Contractors to their Work. The Owner may also declare the Contractor in default for failure to maintain required insurance.

25. WORKER'S COMPENSATION AND DISABILITY INSURANCE. Pursuant to General Municipal Law §108, this Contract shall be void and of no effect unless Contractor and each Subcontractor, if any, shall secure compensation for the benefit of, and keep insured during the life of this Contract, such employees, in compliance with the provisions of the Worker's Compensation Law, unless Contractor is exempt and provides the applicable New York State Workers Compensation Board certificate of exemption.

26. UNEMPLOYMENT BENEFITS. Contractor shall take out and maintain during the life of this Contract adequate unemployment benefits insurance, in compliance with New York Labor Law Article 18, for all employees and will also require all Subcontractors, if any, to maintain such insurance.

27. INDEMNIFICATION.

27.1 To the fullest extent permitted by law, Contractor shall defend, indemnify and hold harmless Owner and its officers, employees, contractors, agents, assignees and other representatives, from and against any and all claims, liabilities, expenses, costs, losses, damages and causes of action (including without limitation, reasonable attorneys' fees and costs of litigation and/or settlement) arising out of, directly or indirectly, the services performed and/or goods provided pursuant to this Contract.

27.2 Without limiting the foregoing, to the fullest extent permitted by law, Contractor specifically agrees to defend, indemnify and hold Owner harmless against claims, including claims by Contractor's customers and/or subcontractors, based on infringement of copyright, patent, trade secret, trademark, libel, slander, or invasion of privacy, arising out of, directly or indirectly, the services performed and/or goods provided by Contractor or its officers, directors, partners, members, employees, contractors, agents, assignees or other representatives pursuant to this Contract.

27.3 In the event that any claim is made or any action is brought against Owner arising out of, in connection with or otherwise relating to this Contract either within or without the scope of Contractor's duties, obligations or applicable industry standards, or those of any of Contractor's respective officers, directors, partners, members, employees, contractors, agents, or other representative's; then Owner shall have the right to withhold further payments hereunder, for the purpose of set-off, in sufficient sums to cover the claims, liabilities, expenses, costs, losses, damages or causes of action. This remedy, if effected, shall not constitute the sole or exclusive remedy afforded the Owner, nor shall it constitute a waiver of that the Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law, in equity, or pursuant to this Contract.

28. WARRANTY.

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

28.2 Contractor warrants to Owner that all construction and related services provided hereunder shall be performed in a good and workmanlike manner, by workers who are appropriately trained and experienced in the Work being performed, and in accordance with all requirements of the Contract Documents, industry standards for projects of similar type and quality, and all applicable laws, codes, regulations and other requirements, including safety requirements.

28.3 If, within one (1) year after the date of Final Completion of the Work or designated portion thereof, any of the Work is found to be not in accordance with the requirements of the Contract Documents, regardless of prior acceptance by Owner, the Contractor shall correct it promptly, after receipt of written notice from the Owner to do so. Owner shall give such notice promptly after actual discovery of the condition. This period of one (1) year shall be extended with respect to portions of the Work first performed after completion of the Work by the period of time between completion and the actual performance of

that portion of the Work. This obligation under this §28.3 shall survive acceptance of the Work and expiration or earlier termination of this Contract.

28.4 The warranty in §28.3 is separate from the warranties in §28.1 and §28.2 and shall not be construed as a period of limitation on the warranties under §28.1 and §28.2.

29. SUSPENSION OR TERMINATION OF THE CONTRACT.

29.1 Termination by the Contractor

29.1.1 Contractor may terminate the Contract if the Work is stopped for a period of ninety (90) consecutive Days through no act or fault of Contractor or its Subcontractor(s) or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor, for any of the following reasons:

- .1** issuance of an order of a court or other authority having jurisdiction over the Work or parties hereto which requires all Work to be stopped; or
- .2** an act of government, such as a declaration of national emergency which requires all Work to be stopped;

29.1.2 Contractor may terminate the Contract if; through no act or fault of Contractor or its Subcontractor(s) or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with Contractor; repeated suspensions, delays or interruptions of the Work by Owner as described §29.0 constitute in the aggregate more than One Hundred (100) percent of the total number of Days scheduled for completion, or One Hundred Twenty (120) Days in any successive Three Hundred Sixty-Five (365)-Day period commencing from the start date of the Contract, whichever is less.

29.1.3 In case of such termination, Contractor shall be entitled to receive payment for Work executed in accordance with the Contract Documents.

29.2 Termination by the Owner for Cause

29.2.1 Contractor shall be deemed in default, and Owner may terminate this Contract, if Contractor, or any of its Subcontractors, shall:

- .1** fail to begin Work within the time specified;
- .2** persistently or repeatedly refuse or fail to supply sufficient properly skilled workers or sufficient proper equipment or materials to insure the completion of the Work within the specified time as reasonably determined by Owner, which failure shall not be cured within Ten (10) Days after notice from Owner;
- .3** perform the Work in a manner reasonably deemed by Owner to be unsatisfactory, which failure shall not be cured within Ten (10) Days after notice from Owner;

- .4** fail or refuse to remove materials reasonably determined by Owner to be unsuitable, which failure shall not be cured within Ten (10) Days after notice from Owner;
- .5** fail or refuse to perform anew any Work reasonably determined by Owner to be defective or unacceptable, which failure shall not be cured within Ten (10) Days after notice from Owner;
- .6** fail to diligently proceed with the prosecution of the Work according to the agreed schedule for completion, which failure shall not be cured within Ten (10) Days after notice from Owner;
- .7** fail to make prompt payment to Subcontractors or Suppliers for labor or material furnished to or for the Work, which failure shall not be cured within Ten (10) Days after notice from Owner;
- .8** become insolvent or be declared bankrupt, commit any act of bankruptcy or insolvency, or make an assignment for the benefit of creditors;
- .9** violate any laws, ordinances, rules, regulations or orders of any authority having jurisdiction over the Work or the Project, which violation shall not be cured within Ten (10) Days after notice from Owner;
- .10** otherwise fail to perform its obligations hereunder, which failure shall not be cured within Thirty (30) Days after notice from the Owner; or
- .11** pursuant to New York State Finance Law §139-k(5) upon finding by Owner that the information and certification provided by Contractor in the Disclosure of Prior Non-Responsibility Determinations is intentionally false or intentionally incomplete.

29.2.2 When Owner determines that any of the above reasons exist, Owner may, without prejudice to any other rights or remedies Owner may have, and after giving Contractor and Contractor's surety, if any, Seven (7) Days written notice:

- .1** terminate the Contract;
- .2** take possession of the Site and of all materials, equipment, tools, construction equipment and machinery thereon owned by Contractor;
- .3** finish the Work by whatever method Owner, in its sole discretion may deem expedient; and
- .4** provide Contractor with instructions as described in §29.2.3.

29.2.3 Upon receipt of notice of termination, Contractor shall immediately, in accordance with written instructions from Owner, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this §29.2:

- .1** cease operations as specified in the notice;

- .2 place no further orders and enter into no further subcontracts for materials, equipment, labor, services or facilities, except as necessary to complete continued portions of the Contract;
- .3 promptly make every reasonable effort to procure cancellation upon terms satisfactory to Owner of all orders and subcontracts;
- .4 take actions that may be necessary, or that Owner may direct, for the protection and preservation of the terminated Work and to protect materials, plant and equipment on the Work Site or in transit thereto; and
- .5 execute and deliver such papers and documents and take such steps, including legal assignment of its contractual rights, as Owner may require in order to vest in Owner the rights and benefits Contractor may have under any obligations or commitments incurred or undertaken by Contractor in connection with the Work.

29.2.4 In the event that Owner terminates this Contract under §29.2, Contractor shall not be entitled to receive further payment until the Work is finished. If the sum of the costs of finishing the Work; including compensation for the services, as applicable to this Contract, of Architect/Engineer, its consultants, Subcontractors, and any other contractors made necessary thereby; plus the amounts previously paid to Contractor prior to termination, exceed the Contract Sum, Contractor shall pay the difference to the Owner upon demand. If the foregoing costs together with all other costs incurred by Owner as a consequence of having to terminate the Contract are less than the Contract Sum, then upon completion of the Work, Contractor shall be paid the portion of such difference, if any, properly allocable to the portion of the Work completed by Contractor prior to termination by the Owner, and for which Contractor has not previously been paid. In no event, however, shall Contractor be entitled to receive more than the difference between the Contract Sum, minus all costs associated with completing the Work and terminating the employment of Contractor. In determining the amount owing to Contractor, allowances shall be made for claims which Owner has against Contractor under the Contract, and for the value of materials, supplies, equipment and other items that are part of the Cost of the Work to be disposed of by Contractor.

29.2.5 By terminating the employment of Contractor, Owner does not forfeit the right to recover damages from Contractor.

29.3 Suspension by the Owner for Convenience

29.3.1 Owner may, without cause, order Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as Owner may determine.

29.3.2 The Contract Sum and term shall be adjusted for increases in the cost and time caused by suspension, delay or interruption pursuant to bed in §29.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

29.4 Termination by the Owner for Convenience

29.4.1 Owner may, at any time, terminate the Contract for Owner's convenience and without cause.

29.4.2 Upon receipt of written notice from Owner of such termination for Owner's convenience, the Contractor shall:

- .1 cease operations as directed by Owner in the notice;
- .2 place no further orders and enter into no further subcontracts for materials, equipment, labor, services or facilities, except as necessary to complete continued portions of the Contract;
- .3 promptly make every reasonable effort to procure cancellation upon terms satisfactory to Owner of all orders and subcontracts;
- .4 take actions that may be necessary, or that Owner may direct, for the protection and preservation of the terminated Work and to protect materials, plant and equipment on the Work Site or in transit thereto; and
- .5 execute and deliver such papers and documents and take such steps, including legal assignment of its contractual rights, as Owner may require in order to vest in Owner the rights and benefits Contractor may have under any obligations or commitments incurred or undertaken by Contractor in connection with the Work.

29.4.3 In case of such termination for Owner's convenience, Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on Work not executed.

30. CLOSEOUT PROCEDURES.

Upon the expiration or earlier termination of this Contract, Contractor shall comply with any and all Owner closeout procedures, including, but not limited to:

- 30.1** Accounting for and refunding to Owner within Thirty (30) Days, any unexpended funds which have been paid to Contractor pursuant to this Contract; and
- 30.2** Furnishing within Thirty (30) Days an inventory to Owner of all equipment, appurtenances and property purchased by Contractor through or provided under this Contract and carrying out any Owner directive concerning the disposition thereof.

31. NONDISCRIMINATION; EQUAL EMPLOYMENT OPPORTUNITIES.

31.1 To the extent required by Article 15 of the New York State Executive Law (also known as the Human Rights Law) and all other New York State and federal statutory and constitutional non-discrimination provisions, Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex (including gender identity or expression), national origin, sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status or domestic violence victim status.

31.2 Furthermore, in accordance with §220-e of the New York State Labor Law, if the Work for this Contract includes construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this Contract shall be performed within New York State, Contractor agrees that neither it nor its Subcontractors shall, by reason of race, creed, color, disability, sex, or national origin:

31.2.1 discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or

31.2.2 discriminate against or intimidate any employee hired for the performance of the Work under this Contract.

31.3 If this is a building service contract as defined in §230 of the Labor Law, then, in accordance with §239 thereof, Contractor agrees that neither it nor its Subcontractors shall by reason of race, creed, color, national origin, age, sex or disability:

31.3.1 discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or

31.3.2 discriminate against or intimidate any employee hired for the performance of work under this contract.

31.4 Contractor is subject to fines of \$50.00 per person per Day for any violation of §220-e or §239 of New York State Labor Law, as well as possible termination of this Contract and forfeiture of all moneys due hereunder for a second or subsequent violation. These remedies, if effected, shall not constitute the sole or exclusive remedies afforded the Owner, nor shall it constitute a waiver of that the Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law, in equity, or pursuant to this Contract.

31.5 If this Contract involves the sale or rental of property, Contractor specifically agrees to abide by all applicable provisions of federal and state laws and regulations, as applicable to sale or rental of the property. With respect to any sale of the property and selection and treatment of tenants, Contractor shall not in any manner discriminate on the basis of race, color, religion, sex (including gender identity or expression), familial status, national origin, disability, age, sexual orientation, military status or marital status.

32. SECULAR PURPOSE.

32.1 Contractor agrees that no funds received pursuant to this Contract will be used for sectarian purposes or to further the advancement of any religion.

32.2 Additionally, Contractor agrees that if it is, or is deemed to be, a religious or denominational institution or organization, or an organization operated for religious purposes which is supervised or controlled by, or in connection with, a religious or denominational institution or organization, in performing this Contract Contractor will:

32.2.1 not discriminate against any employee or applicant for employment on the basis of religion, and will not limit or give preference in employment to persons on the basis of religion;

32.2.2 not discriminate against any individual or entity, seeking to participate or participating in any program or activity funded under this Contract and will not limit the programs and activities or give preference to persons, on the basis of religion; and

32.2.3 provide no religious instruction or counseling, conduct no religious worship or services, engage in no religious proselytizing and exert no other religious influence in the provision of services or the use of facilities or furnishings funded in whole or in part under this Contract or any other agreement with Owner.

33. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS.

33.1 Contractor certifies and warrants that all wood products to be used in performing the Work under this Contract, if any, will be in accordance with, but not limited to, the specifications and provisions of New York State State Finance Law §165. (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by New York State or any governmental agency or political subdivision or public benefit corporation.

33.2 In addition, when any portion of this Contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the Contractor will indicate and certify in the submitted bid or proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in New York State State Finance Law §165.

33.3 Contractor certifies that any use of tropical hardwood in the Work meets with the exception requirements of New York State State Finance Law §165(2)(d)(iii), as established by the Contractor and was approved by Owner during the quote, bid or proposal process.

34. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH NOTIFICATION ACT.

Both during and after the performance of the Work under this Contract, with respect to all data involved in the performance of this Contract, Contractor shall comply with the New York State Information Security Breach and Notification Act (General Business Law §899-aa; State Technology Law §208, both as may be amended).

35. COMPLIANCE WITH EXECUTIVE ORDER 38.

Contractor is and shall remain in compliance with New York State Executive Order 38 of 2013, as may be amended. More information may be found at: <http://www.executiveorder38.ny.gov/>.

35. COMPLIANCE WITH PROCUREMENT LOBBYING LAWS.

35.1 To the extent this Contract is a "procurement contract" as defined by New York State State Finance Law §139-j and §139-k, Contractor certifies and affirms that all disclosures made in accordance with New York State State Finance Law §139-j and §139-k are complete, true and accurate. In the event such certification is found to be intentionally false or incomplete, Owner may terminate this Contract in accordance with §29.2 of this Contract.

35.2 Notwithstanding any other provision of this Contract, Contractor shall not be relieved of liability to Owner for damages sustained by Owner by virtue of Contractor's breach of this §35. Owner may withhold payments to Contractor for the purposes of set-off until such time as the exact amount of damages due to Owner from Contractor is determined.

35.3 These remedies, if effected, shall not constitute the sole or exclusive remedies afforded the Owner, nor shall it constitute a waiver of that the Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law, in equity, or pursuant to this Contract.

36. COMPLIANCE WITH IRAN DIVESTMENT ACT.

36.1 Contractor certifies in accordance with New York State State Finance Law §165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("**Prohibited Entities List**") posted at:
<http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf>

36.2 Contractor agrees that should it seek to renew or extend this Contract, it must provide the same certification at the time this Contract is renewed or extended. Contractor also agrees that any proposed assignee of this Contract will be required to certify that it is not on the Prohibited Entities List before the assignment will be approved by Owner.

36.3 During the term of this Contract, should Owner receive information that Contractor is in violation of the above-referenced certifications, Owner will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Iran Divestment Act (New York State State Finance Law §165-a) within Ninety (90) Days after the determination of such violation, then Owner shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring Contractor in default and terminating the Contract in accordance with §29.2 of this Contract. These remedies, if effected, shall not constitute the sole or exclusive remedies afforded the Owner, nor shall it constitute a waiver of that the Owner's right to claim damages or otherwise refuse payment or to take any other action provided for by law, in equity, or pursuant to this Contract.

36.4 Owner reserves the right to reject any request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

37. SEXUAL HARASSMENT PREVENTION CERTIFICATION

37.1 Pursuant to State of New York State Finance Law §139-l, by execution of this Agreement, the

Contractor and the individual signing this Agreement on behalf of the Contractor certifies, under penalty of perjury, that the Contractor has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of Section 201-g of the State of New York Labor Law. A model policy and training has been created by the New York State Department of Labor and can be found on its website at:

<https://www.ny.gov/programs/combating-sexual-harassment-workplace>.

37.2 The County's policy against sexual harassment and other unlawful discrimination and harassment in the workplace can be found on the County's website at:

<https://www.orangecountygov.com/1137/Human-Resources>.

38. FORCE MAJEURE.

38.1 A Force Majeure occurrence is an event or effect that cannot be reasonably anticipated or controlled and is not due to the negligence or willful misconduct of the affected party. Force Majeure includes, but is not limited to, acts of God, acts of war, acts of public enemies, terrorism, strikes, fires, explosions, actions of the elements, floods, or other similar causes beyond the control of the Contractor or the Owner in the performance of this Contract where non-performance, by exercise of reasonable diligence, cannot be prevented.

38.2 The affected party shall provide the other party with written notice of any Force Majeure occurrence as soon as the delay is known and provide the other party with a written contingency plan to address the Force Majeure occurrence, including, but not limited to, specificity on quantities of materials, tooling, people, and other resources that will need to be redirected to another facility and the process of redirecting them. Furthermore, the affected party shall use its commercially reasonable efforts to resume proper performance within an appropriate period of time. Notwithstanding the foregoing, if the Force Majeure condition continues beyond Thirty (30) Days, the parties shall jointly decide on an appropriate course of action that will permit fulfillment of the parties' objectives hereunder.

38.3 The Contractor agrees that in the event of a delay or failure in the performance of the Work by Contractor, due to a Force Majeure occurrence, the Owner may purchase from other sources (without recourse to and by the Contractor for the costs and expenses thereof) to replace all or part of the goods and/or services which are the subject of the delay, which purchases may be deducted from the quantities of this Contract, if any, without penalty or liability to the Owner.

38.4 Neither the Contractor nor the Owner shall be liable to the other for any delay in or failure of performance under this Contract due to a Force Majeure occurrence. Any such delay in or failure of performance shall not constitute default or give rise to any liability for damages. The existence of such causes of such delay or failure shall extend the period for performance to such extent as determined by the Contractor and the Owner to be necessary to enable complete performance by the Contractor and Owner if reasonable diligence is exercised after the cause of delay or failure has been removed.

38.5 Notwithstanding the above, at the discretion of the Owner where the delay or failure will significantly impair the value of this Contract to the Owner, the Owner may terminate this Contract or the portion thereof which is subject to delays, and thereby discharge any unexecuted portion of this Contract or the relative part thereof.

39. GENERAL RELEASE.

The acceptance by Contractor or its assignees of the final payment under this Contract (whether based on invoice, judgment of any court of competent jurisdiction, administrative or any other means) shall constitute and operate as a general release to Owner from any and all claims of Contractor arising out of the performance of this Contract.

40. SET-OFF RIGHTS.

40.1 Owner shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but are not limited to, Owner's right to withhold for the purposes of set-off any monies otherwise due to Contractor:

40.1.1 under this Contract;

40.1.2 under any other agreement or contract with Owner, including any agreement or contract for a term commencing prior to or after the term of this Contract; or

40.1.3 from Owner by operation of law.

40.2 Owner also has the right to withhold any monies otherwise due under this Contract for the purposes of set-off as to any amounts due and owing to Owner for any reason whatsoever including, without limitation, tax delinquencies, fee delinquencies or monetary penalties or interest relative thereto.

41. DISPUTE RESOLUTION. Any and all disputes involving this Contract, including the breach or alleged breach thereof, may not be submitted to arbitration unless specifically agreed thereto in writing by the County Executive, or his or her designee, but must instead only be heard in the Supreme Court of the state of New York, with venue in Orange County or if appropriate, in the Federal District Court with venue in the Southern District of New York, White Plains division.

42. GOVERNING LAW. This Contract shall be governed by and construed in accordance with the laws of the State of New York, without giving effect to its conflicts of law principles.

43. BUSINESS AUTHORIZATION AND REGISTRATION; SERVICE OF PROCESS.

43.1 Contractor shall be properly authorized and registered to do business as required by the laws of the state of New York applicable to Contractor's business entity type.

43.2 Regardless of the propriety or legality of Contractor's business authorization and registration status, as a condition of contract, Contractor shall agree to service of process as follows: In addition to the methods of service allowed by New York's Civil Practice Law and Rules, Contractor consents to service of process upon it by registered or certified mail, return receipt requested, to the address indicated in this Contract. Service shall be complete upon Contractor's actual receipt of process, or upon Owner's receipt of the return by the United States Postal Service as refused or undeliverable. Contractor shall immediately notify Owner, in writing, via registered or certified mail, return receipt requested, of each change or address to which service of process can be made. Service by Owner to the last known address shall be sufficient.

44. NOTICE.

44.1 All notices permitted or required hereunder shall be in writing and shall be transmitted either:

44.1.1 via certified or registered United States mail, return receipt requested;

44.1.2 by personal delivery;

44.1.3 by overnight delivery service with a nationally recognized carrier (e.g. FedEx, UPS);

44.1.4 by fax (only as explicitly designated and required by the Contract Documents and when other provisions of this Contract do not control over this §44); or

44.1.5 by email (only as explicitly designated and required by the Contract Documents and when other provisions of this Contract do not control over this §44).

44.2 The parties agree to mutually designate individuals as their respective representative for the purposes of receiving notices under this Contract. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems, and/or for dispute resolution. Notices shall be addressed as follows or to such different addresses as the parties may from time to time designate in accordance with §44.2:

Owner

Name: Laurence LaDue

Title: Administrator

Address: The Valley View Center for Nursing Care and Rehabilitation
2 Glenmere Cove Road
Goshen, NY 10924

Phone Number: (845) 291-4740

Email: lladue@orangecountygov.com

and

Name: Peter Bambino

Title: Director of Plant Operations

Address: The Valley View Center for Nursing Care and Rehabilitation
2 Glenmere Cove Road
Goshen, NY 10924

Phone Number: (845) 291-4167

Email: pbambino@orangecountygov.com

Contractor

Name: insert name

Title: insert title

Address: insert mailing address

Phone Number: insert phone number

Email: insert email

44.3 Any such notice shall be deemed to have been given either at the time of personal delivery or, in the case of expedited delivery service or certified or registered United States mail, as of the date of first attempted delivery at the address and in the manner provided herein, or in the event of a Contract Document permits facsimile transmission or email notice but does not indicate when a notice takes effect, such notices shall be deemed given, upon receipt.

44.4 The parties may, from time to time, specify any new or different contact person or address in the United States as their address for purpose of receiving notice by notifying Owner, in writing, via registered or certified mail, return receipt requested, of each change or address.

45. SURVIVAL.

The rights and obligations under §§ 5, 8, 9, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 27, 28, 29, 30, 34, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51 shall survive the termination of this Contract.

46. MODIFICATION.

46.1 No modification(s) of this Contract shall be valid unless reduced to writing and signed by both parties. Changes in the scope of Work for this Contract shall not be binding, and no payment shall be due in connection therewith, unless prior to the performance of any additional Work, the County Executive, or his or her designee, after consultation with the Department Head, executes a modification to this Contract, which specifically sets forth the additional Work; the amount of compensation; and the extension of the time for performance, all as may be applicable to the change in the Work, at the Owner's discretion.

46.2 Unless otherwise specifically provided for in the modification(s), the provisions of this Contract shall remain in full force and effect and applicable to the modified scope of Work.

47. COMPLIANCE.

47.1 Contractor and its officers, directors, partners, members, employees, Subcontractors, agents, assignees, Suppliers or other representatives shall at all times comply with all applicable state and federal laws and regulations in the performance of the Work.

47.2 Contractor understands that it may be necessary for Owner to submit to governmental agencies or to a court of law part of or all of the data, analyses and/or conclusions developed in the performance of the Work as well as certification, payment applications or other documentation certified and/or signed by Contractor or its officers, directors, partners, members, employees, Subcontractors, agents, assignees, Suppliers, or other representatives. Contractor is aware that there are significant state and/or federal civil and criminal penalties for submitting false information, including the possibility of fines and imprisonment. Contractor is responsible for such penalties resulting from false information submitted by Contractor or its officers, directors, partners, members, employees, Subcontractors, agents, assignees, Suppliers or other representatives and shall, to the fullest extent permitted by law, defend, indemnify and hold harmless Owner and its officers, employees, contractors, agents, assignees and other representatives, from and against any and all claims, liabilities, expenses, costs, losses, damages and causes of action (including without limitation, reasonable attorneys' fees and costs of litigation and/or settlement) arising out of, directly or indirectly, any such submission of false information.

48. WAIVER. No covenant, condition or undertaking contained in this Contract may be waived except by the written agreement of the parties. Forbearance or indulgence in any form by either party in regards to any covenant, condition or undertaking to be kept or performed by the other party shall not constitute a waiver thereof, and until complete satisfaction or performance of all such covenants, conditions and undertakings, the other party may be entitled to invoke any remedy available under this Contract, despite any such forbearance or indulgence.

49. EXECUTORY CONTRACT. Owner shall have no liability under this Contract to Contractor or to anyone else beyond the extent of funds accepted and actually received by Owner from any funding source for this Contract and that are in turn appropriated and made available for this Contract by the Owner.

50. BINDING EFFECT. This Contract shall be binding upon the parties hereto and their respective successors and assigns.

51. SEVERABILITY. If any part, term or provision of this Contract is declared or found to be illegal, unenforceable, or void, then both parties shall be relieved of all obligations arising under such provisions, but the remainder of this Contract shall be interpreted so as to carry out the intent of the parties in an equitable manner.

52. ENTIRE AGREEMENT. This Contract sets forth the entire agreement between the Owner and Contractor with regard to the subject matter hereof, and supersedes all prior representations, agreements and understandings, written or oral and shall bind the successors, assigns, and representatives of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of date above written. The undersigned each represent that he or she is dually authorized to sign this Agreement on behalf and bind the party he or she represents.

COUNTY OF ORANGE

CONTRACTOR

BY: _____
STEFAN (STEVEN) M. NEUHAUS
COUNTY EXECUTIVE

BY: _____
Name: _____
Title: _____

[Acknowledgments continue on the following pages.]

COUNTY ACKNOWLEDGMENT

STATE OF NEW YORK }
COUNTY OF ORANGE }

:SS.

On this _____ day of _____, 20__, before me, the subscriber, personally came

_____, to me known who, being by me duly sworn, did depose and say that he is the _____ of the County of Orange, the municipal corporation described in, and which executed, the above instrument; that he knows the seal of said municipal corporation; that the seal affixed to such instrument is such corporate seal, and that it was so affixed by virtue of §3.02 of the Orange County Charter, and that he was duly authorized to execute the same as the act and deed of the municipal corporation.

Notary Public

**CONTRACTOR ACKNOWLEDGMENT – USE INDIVIDUAL, PARTNERSHIP,
OR CORPORATE ACKNOWLEDGMENT, AS APPLICABLE**

(INDIVIDUAL ACKNOWLEDGMENT)

STATE OF NEW YORK }
COUNTY OF ORANGE }

:SS.

On this _____ day of _____, 20__, before me, the subscriber, personally appeared _____ to me personally known, and known to me to be the same person described in, and who executed, the foregoing instrument, and he/she duly acknowledged to me that he/she was duly authorized to execute the same.

Notary Public

(PARTNERSHIP ACKNOWLEDGMENT)

STATE OF NEW YORK }
COUNTY OF ORANGE }

:SS.

On this _____ day of _____, 20__ before me, the subscriber, personally appeared _____ to me personally known, and known to be a member of the partnership of _____ described in, and who executed the foregoing instrument, and he/she acknowledged to me that he/she was duly authorized to execute the same as the act and deed of the partnership.

Notary Public

(CORPORATE ACKNOWLEDGMENT)

STATE OF NEW YORK }
COUNTY OF ORANGE }

:SS.

On this _____ day of _____, 20__, before me, the subscriber, personally appeared _____
_____ to me personally known, who being by me duly sworn, did depose and
say that he/she is the _____ of _____ the corporation described in the
foregoing instrument; that he/she knows the seal of the corporation; the seal affixed to this instrument is the
corporation seal; that it was so affixed by order of the Board of Directors of said corporation, and that he/she was
duly authorized to execute the same as the act and deed of the corporation.

Notary Public

SECTION 00 6100A**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, _____

hereinafter referred to as the "Principal", and _____

hereinafter referred to as the "Surety" are held and firmly bound to THE COUNTY OF ORANGE, NEW YORK, hereinafter referred to as the "COUNTY", 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 submit (or has submitted) to the COUNTY the accompanying proposal, hereby made a part hereof, to enter into a contract in writing 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, her 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 COUNTY from all cost and damage which it may suffer by reason of failure so to do, and shall fully reimburse and repay the COUNTY for all outlay and expense which the COUNTY may incur in making good any such default, and shall protect the said COUNTY against, and pay any and all amounts, damages, costs and judgments which may or shall be recovered against said COUNTY or its officers or agents of which the said COUNTY may be called upon to pay any person or corporation by reason of any damages arising or growing out of the doing of said work, or the repair or maintenance thereof, or the manner of doing the same, or the neglect of the said PRINCIPAL, or his, her, their, or its agents or servants, or the improper performance of the said work by the said PRINCIPAL, or his, her, their, or its agents or servants, or the infringement of any patent or patent rights by reason of the use of any materials furnished or work done as aforesaid or otherwise, 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, if requested to do so by the COUNTY, to fully perform and complete the Work to be performed under the Contract, pursuant to the terms, conditions, and covenants thereof, if the COUNTY determines that the Principal, for any cause, has failed or neglected to fully perform and complete such Work. The Surety (Sureties) further agrees 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 COUNTY and to complete all Work within such time as the COUNTY may fix. The Surety and the COUNTY 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 Work to be performed thereunder, or by any payment 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.

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 _____, ____.

(Seal)

_____(L.S.)
Principal

By: _____

(Seal)

_____(L.S.)
Surety

By: _____

(Seal)

_____(L.S.)
Surety

By: _____

(Seal)

_____(L.S.)
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.

An appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract should be executed.

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.

ACKNOWLEDGEMENT 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 is the _____ of _____ the corporation described in and which executed the foregoing instrument; that he/she 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 signed his/her name thereto by like order.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____
County of _____ ss:

On this ____ day of _____, 20____, 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 acknowledged to me that he/she executed the same as and for the act and deed of said firm.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____

County of _____ ss:

On this _____ day of _____, 20____, 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 executed the same.

Notary Public

END OF SECTION

SECTION 00 6100B

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

hereinafter referred to as the "Principal", and _____

hereinafter referred to as the "Surety" are held and firmly bound to THE COUNTY OF ORANGE, NEW YORK,
hereinafter referred to as the "COUNTY", 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 submit (or has submitted) to the COUNTY the accompanying proposal, hereby
made a part hereof, to enter into a contract in writing 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 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 of the
Project regardless of any contractual relationship between the Principal or such Subcontractors, or his, her
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 COUNTY 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, her, 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 COUNTY 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 / herself / itself and 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 COUNTY 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, material men 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 COUNTY to require the foregoing provisions to be placed 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.

IN WITNESS HEREOF, 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 _____, _____.

(Seal)

_____(L.S.)
Principal

By: _____

(Seal) _____ (L.S.)
Surety

By: _____

(Seal) _____ (L.S.)
Surety

By: _____

(Seal) _____ (L.S.)
Surety

By: _____

(Seal) _____ (L.S.)
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.

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.

ACKNOWLEDGEMENT 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 is the _____ of _____ the corporation described in and which executed the foregoing instrument; that he/she 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 signed his/her name thereto by like order.

Notary Public**ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP**

State of _____

County of _____ ss:

On this ____ day of _____, 20____, 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 acknowledged to me that he/she executed the same as and for the act and deed of said firm.

Notary Public**ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL**

State of _____

County of _____ ss:

On this ____ day of _____, 20____, 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 executed the same.

Notary Public**END OF SECTION**

SECTION 00 6100C**MAINTENANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, _____

hereinafter referred to as the "Principal", and _____

hereinafter referred to as the "Surety" are held and firmly bound to THE COUNTY OF ORANGE, NEW YORK, hereinafter referred to as the "County", 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, on the ____ day of _____, 20__ the said Principal, as Contractor, entered into a contract for _____

for the sum of _____
Dollars (\$ _____); and

WHEREAS, under the terms and conditions for such work, the Principal as Contractor is required to give a bond for

Dollars (\$ _____), to protect the County as Owner against the result of faulty materials or workmanship for a period of one year from and after the date of the final completion and acceptance of same, namely for a period from _____ through _____.

NOW, THEREFORE, if the Principal shall for a period of one year from and after the date of issue on final payment check to contractor for completion and acceptance of same by County as Owner replace any and all defects arising in said Work whether resulting from defective materials or defective workmanship, after which period then the above obligation shall be void. Otherwise, it shall remain in full force and effect.

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)

_____(L.S.)

Surety

By: _____

(Seal)

_____(L.S.)

Surety

By: _____

(Seal)

_____(L.S.)

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.

An appropriate number of counterparts of the bond corresponding to the number of counterparts of the Contract should be executed.

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.

ACKNOWLEDGEMENT 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 is the _____ of _____ the corporation described in and which executed the foregoing instrument; that he/she 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 signed his/her name thereto by like order.

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____

County of _____ ss:

On this _____ day of _____, 20____, 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 acknowledged to me that he/she executed the same as and for the act and deed of said firm.

Notary Public**ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL**

State of _____

County of _____ ss:

On this _____ day of _____, 20____, 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 executed the same.

Notary Public**END OF SECTION**

SECTION 010000 - GENERAL CONDITIONS

| | | |
|------|---|----|
| 1.1 | Definitions:..... | 3 |
| 1.2 | Initial Submittals: | 4 |
| 1.3 | Visit to Site: | 4 |
| 1.4 | Materials Handling:..... | 5 |
| 1.5 | Security and Safety: | 5 |
| 1.6 | Supervision:..... | 5 |
| 1.7 | Installation: | 5 |
| 1.8 | Time of Completion: | 6 |
| 1.9 | Existing Work: | 6 |
| 1.10 | Existing Equipment: | 6 |
| 1.11 | Equivalents/Substitutions:..... | 7 |
| 1.12 | Warranty/Guarantee: | 7 |
| 1.13 | Communications: | 7 |
| 1.14 | Protection: | 7 |
| 1.15 | Removal and Disposal of Debris: | 8 |
| 1.16 | Ingress, Egress, and Circulation: | 9 |
| 1.17 | Non-Interference with Owner's Operations:..... | 9 |
| 1.18 | Architect/Engineer's Inspections: | 10 |
| 1.19 | Compliance, Permits and Inspections:..... | 10 |
| 1.20 | Submittals - Shop Drawings, Product Data, and Samples:..... | 10 |
| 1.21 | Schedule of Values:..... | 14 |
| 1.22 | Project Coordination:..... | 16 |
| 1.23 | Openings, Channels, Cutting and Patching:..... | 16 |
| 1.24 | Construction Progress Schedule: | 17 |

| | | |
|------|---|----|
| 1.25 | Protection of Work and Property: | 18 |
| 1.26 | Emergencies:..... | 19 |
| 1.27 | Temporary Controls: | 19 |
| 1.28 | Changes in the Work:..... | 20 |
| 1.29 | Application for Payment: | 28 |
| 1.30 | Contract Closeout: | 31 |
| 1.31 | Cleaning: | 33 |
| 1.32 | Project Record Documents: | 35 |
| 1.33 | Operation & Maintenance Data: | 37 |
| 1.34 | Contractor Assumption of Liability: | 37 |
| 1.35 | Lien Interest in Materials and Supplies:..... | 37 |

1.1 Definitions:

Unless otherwise noted, the following definitions apply throughout all Contract Documents:

1. "Architect/Engineer" means Lanc & Tully Engineering and Surveying, P.C., P.O. Box 687, Goshen, NY 10924.
2. "Business Day" means a Calendar Day excluding weekends and holidays
3. "Calendar Day" or "Day" means all days including weekends and holidays.
4. "Contractor" means the entity holding a Public Improvement Contract with the Owner for this Project.
5. The "Contract" consists of the Contract Documents. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect/Engineer and a Contractor or a Subcontractor of any tier, (2) between the Owner and a Subcontractor of any tier or (3) between any persons or entities other than the Owner and Contractor. The Architect/Engineer shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect/Engineer's duties.
6. "Contract Documents" consist of the Public Improvement Contract; all documents in the Request for Bid including, but not limited to, all Drawings and Specifications; the Contractor's Bid, Addenda issued prior to execution of the Contract; other documents listed in the foregoing documents (unless otherwise excluded); and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect/Engineer. Shop Drawings and Submittals are not Contract Documents.
7. "Contract Sum" means the total not-to-exceed cost specified in the Contract Documents.
8. "Day" means Calendar Day unless otherwise specifically defined.
9. "Drawings" means the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.
10. "Owner" means the County of Orange, New York, 255-275 Main Street, Goshen, NY 10924 through its The Valley View Center for Nursing Care and Rehabilitation, 2 Glenmere Cove Road, Goshen, NY 10924.
11. "Project" means the total construction project including the Work performed under all Contractor's Contracts and which may include goods or services provided by the Owner or by separate contractors, vendors or consultants.
12. The word "provide", with respect to constructed items, equipment and materials, means completely furnish and install.

13. "Site" means the The Valley View Center for Nursing Care and Rehabilitation, 2 Glenmere Cove Road, Goshen, NY 10924.

14. "Specifications" mean that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

15. "Subcontractor" means subcontractors, of every tier, performing Work which is the responsibility of Contractor.

16. "Supplier" means entities, of every tier, supplying materials or services to Contractor to complete its Work for this Project.

17. "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

18. "Working Day" means a day the Contractor's crew is typically performing Work for this Project which may include some non-Business Days (e.g. if the Project work schedule is Monday-Saturday).

1.2 Initial Submittals:

1. A Construction Progress Schedule shall be submitted to the Architect/Engineer by the Contractor within Ten (10) Days of issuance of Notice to Proceed and shall be adhered to at all times. Any deviation from the Construction Progress Schedule shall be brought to the immediate attention of the Architect/Engineer, and an updated Construction Progress Schedule shall be provided at that time.

2. Within forty-five (45) Days of issuance of Notice to Proceed, the Contractor shall submit to the Architect/Engineer for approval (4) copies of a list of materials, with trade names, proposed to be furnished and Shop Drawings as requested by the Architect/Engineer and in accordance with §1.21 of these General Conditions and Division 01 Section 01 01340 – Shop Drawings and Samples. Submittals shall be representative of materials to be used by the Contractor in completing its Work.

1.3 Visit to Site:

1. The Contractor shall examine the Drawings and Specifications; must visit the Site and note all Field Conditions which will influence the Work required by its Contract prior to bidding.

2. The Contractor must verify the data noted in the Drawings and Specifications. Contractor shall report any discrepancies between the bid documents and the field conditions to the Architect/Engineer during the Question period of the Bid so that the Architect/Engineer may issue clarification addenda if required. Failure to report any discrepancies within the time frame noted, will nullify any extra cost claim by the Contractor, if claim is based on discrepancies between Specifications, Drawings, and field conditions.

1.4 Materials Handling:

1. Delivery: The Contractor shall be responsible for all materials being delivered in manufacturer's original unopened containers with manufacturer's labels intact and legible.
2. Storage: Storage space for materials and equipment is considered limited and the Contractor will schedule deliveries to minimize space required for storage. The Contractor shall place and store materials and equipment in spaces agreed upon by the Owner, Architect/Engineer, and Contractor. The Contractor shall provide continuous protection against damage or loss for all materials (including those of Subcontractors and Suppliers) prior to final incorporation into the Work.
3. Waste Materials: All waste materials shall be stored and removed daily from the Site in a manner agreed upon by the Contractor, the Owner, and the Architect/Engineer. In the event material and debris are left at the Site and not removed in accordance with the Specifications, the Owner may remove the offending materials at the Contractor's expense.

1.5 Security and Safety:

1. The Contractor shall maintain adequate security at all times to protect the materials and Work in place from damage, theft, malicious mischief and vandalism.
2. The Contractor shall also observe and comply with all codes and regulations applicable to the safety of employees, tenants, and the general public.
3. The Contractor shall meet all applicable requirements of federal and New York State Occupational Safety and Health laws and regulations as related to the Work.
4. All Work shall be performed with the safety of the building occupants, including but not limited to tenants, employees, students, staff, visitors and the general public taken into consideration.

1.6 Supervision:

1. All Work shall be carried out under the direction of the Architect/Engineer and with the approval of the Owner with the least interference with the routine use of the building.
2. All materials, equipment, etc., shall be stored where and as directed.
3. The Owner shall determine the compliance with the terms of the Contract Documents based upon same and Owner's decision shall be final and conclusive as to the intent of the Specifications and the sufficiency in quality and quantity of any Work performed or material furnished in connection with the Work covered by the Specifications. The Architect/Engineer shall assist and advise the Owner as necessary.

1.7 Installation:

In addition to any other requirements of Contract Documents related to Installation, Contractor is responsible for the following:

1. The Contractor is responsible for complete and fully functioning installation of all Work in accordance with current industry standards. Any services, equipment, materials or supplies not indicated in Specifications or Drawings to allow complete installation shall be brought to Architect/Engineer's and Owner's attention during the Question period of the Bid. Additional costs for anything necessary and not indicated during the Question period shall not be allowed and shall be assumed as included in Contractor's bid price.
2. The complete installation shall be in accordance with the latest rules and regulations of all authorities having jurisdiction.
3. Any item or requirement necessary for a complete installation but not specifically described in this Specification shall conform to the governing rules and regulations.
4. The Contractor shall procure all the necessary and usual certificates for all Work installed by it or its Subcontractors and Suppliers and deliver same to the Architect/Engineer before final acceptance by Owner.
5. The Contractor is responsible for all rigging, scaffolding, and hoisting that is required to install the equipment as specified.

1.8 Time of Completion:

1. Time of Completion shall be as indicated in Table 1-1 of these General Conditions.
2. The Contractor, in preparing its Construction Progress Schedule, shall comply with the requirements of Table 1-1 which lists the total weeks for completion from the date of issuance of Notice to Proceed.
3. Any objections by a prospective Bidder to the Project Schedule indicated in Table 1-1 shall be submitted during the Question period for the Bid as well as indicated on the Bid Form with submittal of Bid.

1.9 Existing Work:

1. Existing Work shall be cut, drilled, altered, removed or temporarily removed and replaced as necessary for the performance of the Contract. However, unless otherwise provided by the Specifications, no structural members shall be cut or altered without the authorization of the Architect/Engineer.
2. Work remaining in place which is damaged or defaced by reason of Work as done under this Contract, shall be restored equal to its condition at the time of the award of this Contract.

1.10 Existing Equipment:

Equipment temporarily removed as a result of Work under this Contract shall be protected, cleaned, and replaced equal to its condition at the time of the award of this Contract.

1.11 Equivalents/Substitutions:

1. Equivalents: When a product or material is specified by name, as noted in these Specifications, such Specification establishes the standard type and quality considered most satisfactory for the particular purpose and the Bid therefore should be based upon the same or substituted (in accordance with the procedure below) approved equal, so that all Bid under the same conditions.
2. Substitutions: Another product or material of the same type and meeting the requirements may be submitted for consideration as a substitute only under the following conditions:
 - a. If a Bidder intends to offer substitution of the product specified, such intentions must be clearly stated in the Bid. Bidder must prove equivalence of substitution and furnish detailed specifications and catalog cuts or drawings. Failure to identify exceptions or deviations from equipment specified must be interpreted to indicate that the product offered complies with the Specification in every respect.
 - b. Requests for substitution must be submitted during the Question period of the Bid. All Bidders will, in turn, be notified if the proposed substitutes will be approved prior to the receipt of Bids. Bids must be submitted with approved Submittals.

1.12 Warranty/Guarantee:

1. By execution of the Contract, Contractor warrants and guarantees all labor and materials for a period of one (1) year from the date of Final Completion, which shall include repairing and making good, at Contractor's own expense, any and all defects, which may appear in the Work.
2. Where special warranties or guarantees covering installation, operation, or performance of any systems or appliances furnished under this Contract for this Work are required by the Contract Documents, documentation indicating Contractor's full responsibility for the fulfillment of such warranties or guarantees, shall be provided in triplicate, including for materials and services provide by any and all Subcontractors and Suppliers, two (2) copies of which shall be filed with the Architect/Engineer before Final Completion.

1.13 Communications:

Should there be any problems with the Contract including but not limited to: working conditions, cooperation of the Owner personnel, tenants, vandalism, job safety, stolen equipment and materials, or unusual field conditions; the Contractor will immediately notify the Architect/Engineer and the Owner in writing for resolution by the Architect/Engineer and the Owner.

1.14 Protection:

Contractor shall:

1. Be responsible for protecting the existing building, new Work, new facilities, and all improvements within the area where Work is being accomplished. Any damage resulting directly or indirectly from the Contractor's operations, including operations of Subcontractors and Suppliers, shall be promptly corrected at the Contractor's expense.

2. Provide all necessary temporary enclosures, covers, guardrails, barricades, safety devices, etc., to adequately protect all workmen and the public, especially children, from possible injury due to the various processes required to accomplish the Work required.
3. Provide all necessary temporary partitions, enclosures, and coverings for the confinement of dust, dirt, and debris.
4. Temporarily protect partially completed construction items such as structural steel, roof deck, roofing, insulation, exposed wall cavities, interior walls, etc., as needed to protect against weather damage.
5. Provide all required protective measures for removal Work. Give particular attention to the protection requirements so as to prevent any damage to existing construction or to adjoining public and private property, including thoroughfares. The Contractor will be held responsible and shall restore, at its own expense, any such damage to the complete satisfaction of the Architect/Engineer.
6. Protect adjoining public and private property, including thoroughfares, from damage due to disposal operations.
7. Protect from damage all heating, plumbing, and electrical lines to remain.
8. Take extreme care to protect the occupants of adjoining areas and prevent any harm to them through the required operations.

1.15 Removal and Disposal of Debris:

1. Contractor is responsible for removal from the building and Site, through legal off-Site disposal, of all rubble, trash, combustible materials and debris of all kinds created by the Work for this Project. This includes all debris created by or connected with the operations of Contractor, Subcontractors and Suppliers engaged in the Work.
2. Contractor shall pay all costs, fees, and permits attendant to the loading, unloading, cartage, dumping and disposal of all waste and debris. No Subcontractor or Supplier shall be obliged to pay any costs attendant to this operation. The complete removal of all waste and debris shall be performed with such frequency as to maintain the grounds around the building free from waste and debris. Waste and debris removed will be loaded directly into waiting trucks or containerized vehicles so as not to litter the adjacent grounds.
3. In addition, the Site will be maintained in a clean and orderly manner to conform with all local fire safety regulations and in accordance with the latest editions of the Safety Code of the National and State Board of Fire Underwriters.
4. Areas designated by Architect/Engineer will be the only place the Contractor will be allowed to load and unload usable materials, waste and/or debris. Contractor shall ensure that at no time the fire exists of the building are blocked.
5. Contractor will further repair any damage done to the sidewalks, pavements, and lawn areas upon completion of the Project.

1.16 Ingress, Egress, and Circulation:

1. Contractor shall be responsible for performing the Work in such manner to maintain essential ingress and egress for visitors and occupants of Owner-occupied areas and to continuously maintain all required emergency exits from and circulation between existing facilities.
2. Passageways for emergency exits shall be kept continuously free from debris, construction equipment, tools, stockpiles of materials, and other hazards to speedy evacuation.
3. Contractor shall provide all necessary temporary Work as prudence and good practice may dictate and in accordance with federal and New York State laws and regulations, to obtain and maintain all such ingress, egress, and circulation requirements. All temporary Work shall be removed by Contractor, at its expense, when no longer required.

1.17 Non-Interference with Owner's Operations:

1. Contractor shall acquaint itself with the general character of the Owner's operations prior to commencing Work and shall schedule Work to avoid interference with Owner's operations.
2. The sequence of demolition and removal operations shall be in accordance with a Construction Progress Schedule approved by the Owner and Architect/Engineer.
3. An approved Construction Progress Schedule will be established for the Work, per §1.34 of these General Conditions, that will not interfere with the Owner's operations. The Construction Progress Schedule may be modified from time to time by the Owner if changes in Owner's schedule of activities require it.
4. The Owner will occupy the existing building and the outdoor facilities and grounds during normal business hours and also for after-hours activities. There will be outdoor building activities during active construction.
5. Emergency exit ways shall be kept clear at all times that people are in the building.
6. It shall be the responsibility of Contractor to provide sufficient supervision of vehicles of Contractor, Subcontractors and Suppliers, accessing the construction Site. Any construction vehicle traffic must be supervised by a designated responsible representative of the Contractor.
7. The Contractor's and Subcontractor's use of the premises is restricted to the areas involved in the Work.
8. Telephone facilities of the Owner are not at the disposal of the construction personnel.
9. The Owner is not responsible for any materials, tools, or equipment of the Contractor, Subcontractors or Suppliers.
10. All streets and all drive areas throughout and adjacent to the property must be kept free of obstructions.

1.18 Architect/Engineer's Inspections:

1. Contractor shall accommodate Architect/Engineer's inspections by providing manpower, equipment, etc. as required by the inspector.
2. Contractor shall assist the inspector as requested.

1.19 Compliance, Permits and Inspections:

1. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for all applicable permits, fees, licenses and inspections necessary for proper execution and completion of the Work.
2. Tests and inspections shall be made in the presence of representatives of authorities having jurisdiction as may be applicable pursuant to federal or New York State laws or regulations.
3. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of authorities having jurisdiction applicable to performance of the Work.
4. All Work is to be done in accordance with all applicable and current federal, New York State and local codes, including, but not limited to, New York State Building Codes, NFPA 101 Life Safety Code, and ADA Standards for Accessible Design. No Work requiring inspections and approvals of construction code officials is to be covered or enclosed prior to inspection and approval by appropriate code enforcement officials.
5. It is the Contractor's responsibility to ascertain that the Contract Documents are in accordance with the current version of all applicable laws, statutes, ordinances, building codes, rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect/Engineer and Owner, in writing, and necessary changes shall be accomplished by appropriate modifications.
6. If the Contractor performs Work knowing it to be contrary to current applicable laws, statutes, ordinances, building codes, rules or regulations without such notice to the Architect/Engineer and Owner; the Contractor shall be responsible for correcting all such Work and shall be responsible for all resulting costs, losses or damages.
7. Prior to the start of any crane equipment operations, each Contractor shall make all necessary applications and obtain all required permits from the Federal Aviation Administration (FAA). The sequence of operations, timing and methods of conducting the Work shall be approved by the FAA to the extent that it relates to their jurisdiction.
6. Contractor shall supply the Architect/Engineer and Owner, within Two (2) Business Days of issuance, One (1) copy each of all permits, licenses, inspection reports, releases, jurisdictional settlements, notices and related documents.

1.20 Submittals - Shop Drawings, Product Data, and Samples:

1. Work Included:

- a. Submit to Architect/Engineer, all Shop Drawings, Product Data, and samples as required by the Specifications.
- b. Designate Construction Progress Schedule dates for submission and dates that Shop Drawings reviews, Product Data and Samples will be needed for each product.
- c. Contractor must stamp all Submittals with "approval stamp" before submitting to the Architect/Engineer.

2. Shop Drawings:

- a. Original Drawings prepared by Contractor, Subcontractor, Supplier or distributor, which show some portion of the Work, showing fabrication, layout, setting, or erection of details.
- b. Prepared by qualified details.
- c. Identify details by reference.
- d. Reproduction of Submittals to be opaque diazo prints or blueprints.

3. Product Data:

- a. Manufacturer's Standard Schematic Drawings:
 - i. Modify Drawings to delete information which is not applicable to the Project.
 - ii. Supplement standard information to provide additional information applicable to Project.
- b. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - i. Clearly mark each copy to identify pertinent materials, products or models.
 - ii. Mark each item with the appropriate Specification reference.
 - iii. Show dimensions and clearances required.
 - iv. Show performance characteristics and capacities.
 - v. Show wiring diagrams and controls.
 - vi. Indicate any deviations for characteristics specified clearly.

4. Samples:

- a. Where called for in Specifications or required by Architect/Engineer provide physical examples to illustrate materials, equipment or workmanship and to establish standards by which completed Work is judged.

- b. Provide Samples of sufficient size and quantity to clearly illustrate:
 - i. Functional characteristics of products or material with integrally related parts and attachment devices.
 - ii. Full range of color Samples.
 - iii. After review Samples may be used in construction of the Project.
- c. Clearly identify each Sample with appropriate Specification reference and clearly indicate any deviation from Specification.

5. Contractor's Responsibilities:

- a. Review Shop Drawings, Product Data, and Samples prior to submission, make certain that items conform to Specifications and requirements of Work, and so certify when submitting items for approval.
- b. Verify:
 - i. Field measurements;
 - ii. Field construction criteria;
 - iii. Catalog numbers and similar data.
- c. Coordinate each Submittal with requirements of Work and of Contract Documents.
- d. Contractor's responsibility for errors and omissions in Submittals is not relieved by Architect/Engineer's review of the Submittals.
- e. Contractor's responsibility for deviations in Submittals from requirements of Contract Documents is not relieved by Architect/Engineer's review of Submittals, unless Architect/Engineer deviations are identified by Contract at time of submission.
- f. Notify Architect/Engineer, in writing, at the time of submissions or deviations in Submittals from requirements of Contract Documents.
- g. No Work, which requires Submittals, shall begin until return of Submittals with Architect/Engineer's stamp and initials or signature indicating review and approval.
- h. After Architect/Engineer's review, distribute copies as needed.

6. Submission Requirements:

- a. Submittal schedule for Shop Drawings, Product Data, and Samples shown:
 - i. Date of Contractor's Submittals;
 - ii. Date of Contractor's Resubmittals;

- iii. Date of approval;
 - iv. Date of release of Work Order or Purchase Order.
- b. Schedule submissions at least Ten (10) Days before dates reviewed Submittals will be needed.
- c. Submit number of copies of Shop Drawings and Product Data Samples which Contractor requires for distribution and manuals, Three (3) copies which will be retained by Architect/Engineer and Two (2) copies for Owner.
- d. Submit number of Samples specified in each of the Specification Sections.
- e. Accompany Submittals with transmittal letter in duplicate, containing:
 - i. Date;
 - ii. Project title and number, and Contract number;
 - iii. Contractor's name and address;
 - iv. Number of each Shop Drawing, Product Data, and Sample; and quantity of Drawings submitted;
 - v. Notification of deviations from Contract Documents;
 - vi. Other pertinent data.
- f. Submittals shall include:
 - i. Data and revision dates;
 - ii. Project title and number;
 - iii. The names of:
 - A. Architect/Engineer
 - B. Contractor
 - C. Subcontractor
 - D. Supplier
 - E. Manufacturer
 - F. Separate details, when pertinent.
 - iv. Identification of product or material;

- v. Relation to adjacent structure or materials;
- vi. Field dimensions, clearly identified as such;
- vii. Specification Section numbers;
- viii. Applicable standards, such as ASTM number or Federal Specification;
- ix. Identification of deviation from Contract Documents;
- x. Contractor's stamp, initialed or signed, certifying to review of Submittal; verification of field measurements and compliance with Contract Documents.

7. Architect/Engineer's Review: Not Used. See Section 01 01340.

8. Resubmission Requirements: Not Used. See Section 01 01340.

9. Distribution of Submittals After Review:

a. Distribute copies of Shop Drawings and Product Data, which carry Architect/Engineer's stamp to:

- i. Contractor's File;
- ii. Job Site File;
- iii. Record Document File;
- iv. Subcontractors;
- v. Supplier;
- vi. Fabricator.

b. Distribute Samples as directed; remove from Site if so placed or incorporated in finished Work when permitted by Architect/Engineer.

1.21 Schedule of Values:

1. Work Included:

- a. Submit to Architect/Engineer the Schedule of Values, within Ten (10) Days after issuance of Notice to Proceed.
- b. Upon request of Architect/Engineer, support values given with data that will substantiate their correctness.
- c. List quantities of materials specified under Unit Price allowances.

d. Payment for materials stored on Site will be limited to those materials listed in Schedule of Values.

e. Use Schedule of Values only as basis for Contractor's Application for Payment.

2. Submittals:

Form and Content:

a. Submit typewritten Schedule of Values on AIA G703 (Continuation Sheet to G702).

b. Use Table of Contents of this Specification as basis for format of listing costs of Work for Sections under Divisions applicable to Contract.

c. Identify each line item with Section number and title, as listed in Table of Contents of these Specifications.

3. Preparation:

a. Itemize separate line item cost for each of the following general cost items:

i. Insurance, performance, and payment bonds;

ii. Field supervision and layout;

iii. Temporary Facilities and Controls;

iv. Mobilization;

v. Performance testing (not less than 10% of value of equipment/system being tested);

vi. Allowances.

b. Payment for field supervision, layout, and Temporary Facilities, and Controls will be made monthly as a percentage of Project completion corresponding directly to the percent of total dollar value of the Work owed (does not include retainage).

c. Contractor shall submit applications for payment by the Tenth (10th) Day of each month for the previous month's Work.

d. Itemize separate line item cost for Work required by each Section of the Specifications.

e. Provide line item for each major component of Work for which Contractor will require Partial Payment or where so requested by the Architect/Engineer.

4. Review and Submittal:

a. After review by Architect/Engineer and Owner, revise and resubmit Schedule of Values, as required.

- b. Schedule of Value(s) which are "front-loaded" will be rejected.

1.22 Project Coordination:

In addition to the requirements of Division 01 Section 01 01201 – Preconstruction Conference Contractor shall:

1. Have the responsibility for being the supervisor, manager, overseer, coordinator, and expeditor of all its Subcontractors, of every tier, and Suppliers and of the total construction process and all of its parts, in accordance with the Contract. In executing the duties assumed by these responsibilities, the Contractor shall provide sufficient executive and supervisory staff in the field to accomplish efficient and expeditious handling of these matters. There shall be at least one (1) full-time Project Manager assigned by the Contractor, as well as the field staff referred to above. The Project Manager shall attend each Progress Meeting at the Site.
2. Afford the Owner and others reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their Work. Contractor shall coordinate its Work with other contractors, consultants or suppliers of Owner, so that no portion of the Work is delayed or not properly undertaken due to such lack or failure of cooperation.
3. Lay out and install its Work at such time or times, and in such manner, as to facilitate the general progress of the Project.
4. Coordinate all Work with the Owner. Working hours shall be scheduled during the hours of 7:00 a.m. and 3:30 p.m. during normal Working Days, Monday through Friday.
5. Not interfere with the operation of existing essential services during all normal operating hours and periods of Owner and tenants. All Work requiring temporary interruption of essential services shall be done only with the specific approval of the Architect/Engineer and Owner. The Contractor shall provide, for approval by the Owner and the Architect/Engineer, notice of any Work affecting existing services.
6. Provide Twenty-Four (24) hours' advance notice to the Architect/Engineer and Owner for those areas where access would be required the next Working Day.
7. Be responsible for all overtime costs of Owner employees resulting from and/or as requested by the Contractor(s) which shall be chargeable to the Contractor.
8. Provide separate access to the construction area, as required, while construction is on-going. The Contractor will provide, as required, temporary stairs, scaffolding, doors, etc. to provide separate access for all trades to the construction areas.

1.23 Openings, Channels, Cutting and Patching:

1. Contractor shall be responsible for furnishing and setting of sleeves, built-in items, anchors, inserts, etc. for its Work and for all cutting, fitting, closing in, patching, finishing, or adjusting of its Work in new and/or existing construction, as required for the complete installation. Where applicable, the Contractor shall build these items into the construction.

2. The Contractor shall build recesses, channels, chases, openings, flues, and ducts, or any other feature of the heating and ventilating Work.
3. The Contractor shall provide openings for all louvers.
4. Openings in masonry walls shall be lintels provided and installed by the Contractor.
5. All Subcontractors, of every tier, requiring recesses, channels, chases, openings, etc. shall furnish to the Contractor, through the Architect/Engineer, complete detailed Drawings for all chases, openings required in connection with some Work in ample time to allow the Work to proceed without interruption or delay. At least Three (3) copies shall be furnished to the Architect/Engineer.
6. The Contractor shall close, build in, and furnish around or over all openings, chases, channels, pockets, etc. after installation has been completed.
7. Approval in writing must first be obtained by the Contractor from the Architect/Engineer before cutting or boring through a floor beam, floor construction or members.
8. Repair of Finished Surfaces: The Contractor accepts sole responsibility for repair of uncontrolled dislodgment, cracking, delamination, rusting, and peeling of finished surfaces such as stainless steel, concrete, precast concrete, cast and natural stone, masonry, millwork, plaster, glass and applied finishes such as paint, and special coatings, within the Contract scope and the limits of specified Guarantee and Warranty periods, regardless of the cause.
9. The Contractor shall be responsible for replacement of all broken glass installed as required for completion of its Work, after same has been installed, no matter by whom or what cause, and shall replace all broken, scratched, or otherwise damaged glass before the completion and acceptance of the Work. Contractor shall wash all glass on both sides at completion, or when directed, removing all paint spots, stains, plaster, etc.
10. Nothing herein is intended to limit the right of the Contractor to seek payment from the party who is responsible for damages.

1.24 Construction Progress Schedule:

1. The Contract shall be completed within the specified number of Days from the date a Notice to Proceed is issued as indicated in Table 1-1 of the executed Contract.
2. The Contractor shall be responsible for preparing and furnishing to the Architect/Engineer for approval (which must be approved before submission of the first monthly Application for Payment, a coordinated combined Construction Progress Schedule which incorporates the Construction Progress Schedules of the Contractor, all Subcontractors and all Suppliers engaged in completion of the Work. The Construction Progress Schedule shall be in the form of an arrow network diagram, bar chart, or other graphic Construction Progress Schedule in sufficient detail to satisfy the Architect/Engineer.
3. Monthly payment applications will not be processed by the Owner until and unless a single coordinated Construction Progress Schedule shall have been submitted by Contractor and approved by Architect/Engineer and Owner.

4. The Construction Progress Schedule based upon the Contractor's logic and time estimates shall indicate in suitable detail for display, all significant features of the Work of each Subcontractor and Suppliers, including the placing of materials orders and anticipated delivery dates for long lead items, submissions and approvals of Shop Drawings, all Work activities to be performed by each Subcontractor, and the beginning and time durations thereof and the dates of Substantial and Final Completion of the various branches of the Work.

5. Immediately upon receipt of Architect/Engineer's approval, the Contractor shall distribute Six (6) copies of the approved Construction Progress Schedule to the Architect/Engineer plus One (1) copy to each Subcontractor. In the event a new Subcontractor, of any tier, is added to the job, the Contractor shall furnish a revised Construction Progress Schedule immediately with copies as indicated. The final coordinated Construction Progress Schedule shall be signed and dated by the Contractor and all Subcontractors.

6. Contractor (using Subcontractors as required) shall furnish sufficient labor, supervision, material and equipment to insure the prosecution of the Work in accordance with the approved Construction Progress Schedule. If the latest completion time for any significant portion of the Work doesn't come within the time allowed by the Construction Progress Schedule, the sequence of the jobs and/or the time for performance of the jobs shall be revised by the Contractor through concurrent operations, additional manpower, additional shifts, overtime, etc., until it is assured that the Contract Completion Date will be met. No additional costs to the Owner will be allowed by the Contractor for overtime, additional manpower, equipment, additional shifts, etc. (except as may be provided elsewhere in the Contract) if such expediting procedures or measures are necessary to meet the agreed Substantial and Final Completion dates.

7. Contractor agrees that it will make no claim for, and have no right to, additional payment or extension of time for completion of the Work, or any other concession because of any interpretation or misunderstanding on Contractor's or Subcontractors' part of the Construction Progress Schedule and the manner in which it will be used on the Project or because of any other Subcontractor's failure properly to participate in the development of a Construction Progress Schedule or to perform its Contract in accordance with the Construction Progress Schedule.

1.25 Protection of Work and Property:

1. Safety Precautions and Programs:

a. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

b. Contractor shall designate a responsible member of its organization at the Site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent, unless otherwise designated by the Contractor in writing to the Architect/Engineer and Owner.

2. Safety of Persons and Property: Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

a. All employees and Subcontractors, of every tier, on the Work, occupants, tenants, invitees, visitors, guests and all other persons who may be affected thereby;

- b. All the Work and all the materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody or control of the Contractor or any of its Subcontractors; and
 - c. Other property at the Site or adjacent thereto, including, but not limited to: trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.
3. The Contractor shall give all notices in writing, and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of all authorities having jurisdiction bearing on the safety of persons or property of their protection for damage, injury or loss.
4. The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including rails, night-lights, the posting of danger signs, and other warnings against hazards, promulgating safety regulations, notifying Owners and users of adjacent utilities and other means of protection against accidental injury or damage to persons or property.
5. When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution for the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.
6. No Contractor shall load or permit any part of the Work to be loaded to create a safety hazard.
7. The Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Contractor, any Subcontractors, of any tier, or anyone directly or indirectly employed by any of them, or by anyone whose acts any of them may be liable and for which the Contractor is responsible. The foregoing obligations of the Contractor are in addition to its other obligations as stated elsewhere in the Contract Documents.

1.26 Emergencies:

1. In any emergency affecting the safety of persons or property, the Contractor shall act with diligence, at its discretion, to prevent threatening injury, damage, or loss. In such case, Contractor shall immediately notify the Owner and Architect/Engineer of the action taken and shall prepare and submit a detailed and documented written report to the Owner and Architect/Engineer within 24 hours of the incident.
2. Wherever the Contractor has taken no action but has notified the Owner and the Architect/Engineer, or wherever the Owner and Architect/Engineer has otherwise been made aware of any emergency threatening injury to persons, or loss or damage to the Work, or to adjacent property, the Contractor shall act only as instructed or authorized by the Owner or Architect/Engineer.

1.27 Temporary Controls:

In addition to responsibilities under Division 01 Section 01 01500 – Temporary Facilities and Controls, Contractor shall be responsible for the following:

1. Dust Control: The Contractor, at its expense, shall provide and maintain necessary temporary dustproof partitions around areas of Work in any existing building or in new building areas as directed by the Architect/Engineer.

2. Haul Routes:

a. The Contractor shall be responsible for providing and maintaining unobstructed traffic lanes on the designated Construction Access Routes either shown on the Drawings or reasonably required to perform the Work and shall provide and maintain all reasonable required safety devices. Contractor shall provide the addition of material, with grading and compaction and the removal of snow, ice, and debris, to provide and maintain the general serviceable condition of the access roadbed, as well as pedestrian ways.

b. The Contractor shall obtain permission, in writing, from the Architect/Engineer before using any existing driveway or parking areas not specifically designated for such use in the Contract Documents for construction purposes. Contractor shall maintain such driveways and areas in good condition during the construction period, and upon completion of the Project, shall leave them in the same condition as the start of the Work. Conditions before use should be carefully photographed or documented by the Contractor.

1.28 Changes in the Work:

1. General:

a. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or a Field Order for a minor change in the Work, subject to the limitations stated in this §1.41 and elsewhere in the Contract Documents.

b. A Change Order shall be based upon agreement among the Owner, Architect/Engineer and Contractor. A Construction Change Directive requires agreement by the Owner and Architect/Engineer and may or may not be agreed to by the Contractor. A Field Order for a minor change in the Work may be issued by the Architect/Engineer alone.

c. Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or Field Order for a minor change in the Work.

d. All Change Orders shall be paid at Orange County prevailing wage rates and any supplement applicable to the Project at the time such Work is performed. Rates must be approved by the Architect/Engineer and Owner in accordance with the Contract Documents.

2. Change Orders:

a. Process.

i. First, a Proposed Change Order (PCO) must be submitted to the Architect/Engineer or issued by the Architect/Engineer and signed for approval by both the Contractor and Architect/Engineer.

- ii. Second, a Change Order Request (COR) must be issued by the Architect/Engineer and signed for approval by the Architect/Engineer.
 - A. A COR shall only be issued if the corresponding PCO has been approved.
 - B. Approval of a COR does not imply or guarantee that a CO shall be approved.
- iii. Third, a Change Order (CO) must be issued by the Architect/Engineer and signed for approval by the Architect/Engineer, Contractor, and Owner.
 - A. A CO shall only be issued if the corresponding COR has been approved.
 - B. The CO must also be processed through the Owner's contract approval system and executed by the County Executive.
 - C. An approved CO is required for i) Work to be paid for out of available Contingencies, ii) Work to be paid for by an increase or decrease in the Contract Sum.
- iv. Forms for PCOs, CORs and COs shall be provided by the Architect/Engineer.
- v. Final drafts of CORs and COs shall be prepared by the Architect/Engineer for the required approvals.
- vi. Change Orders will not include any time for Contractor's supervision i.e.: Project Manager, Assistant Project Manager, Superintendent, Foreman, General Foreman or assistant Superintendent.
- b. Proposed Changed Orders (PCOs).
 - i. The purpose of a PCO is to:
 - A. determine cause of the request; and
 - B. determine if it represents a potential change in the scope of Work as described in the Contract Documents.
 - ii. For a PCO to be approved, it must be signed by both the Contractor and Architect/Engineer.
 - iii. Architect/Engineer Initiated PCOs
 - A. The Architect/Engineer may initiate changes by submitting a PCO to Contractor. Request will include:
 - 1. Detailed description of the change, products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.

3. The projected time span for making the change and a specific statement as to whether overtime Work is, or is not, authorized.

4. A specific period of time during which the requested price will be considered valid.

B. Such request is for information only and is not an instruction to execute the changes, nor to stop Work in progress.

C. If Contractor does not respond to a PCO request from the Architect/Engineer within the 48-Hour time frame, the Architect/Engineer may solicit quotes from others and back charge Contractor for all expenses associated with preparation of those quotes.

D. Any costs and delays attributed to lack of response by Contractor shall be back-charged to Contractor.

iv. Contractor Initiated PCOs

A. Contractor may initiate changes by submitting a PCO to the Architect/Engineer containing:

1. Description of the proposed changes.

2. Statement of the reason for making the changes.

3. Statement of the effect on the Contract Sum and the Contract Time.

4. A detailed estimate which shall include:

a. Labor with Pre-Approved Labor Rates;

b. itemized material requirements with supporting documentation from the supplier(s);

c. itemized equipment with supporting documentation from the rental company;

d. itemized breakdown from any subcontractors;

e. statement of the effect on the Work of separate Contractors, including an explanation of how this PCO impacts the most recent Construction Progress Schedule, if at all. If no indication of schedule impact is provided, the Architect/Engineer shall reasonably understand the PCO does not impact the Construction Progress Schedule or require a change to the Contract Time.

f. a specific period of time during which the requested price will be considered valid; and

g. documentation supporting any change in Contract Sum or Contract Time, as appropriate.

B. The Contractor must submit a PCO within Forty-Eight (48) hours of recognition of a potential change in scope for it to be valid. Failure to notify the Architect/Engineer within this time period shall provide basis for non-approval.

C. Failure of the Construction Manager to respond within the Forty-Eight-(48-) hour period shall be deemed non-approval of the PCO, unless the Architect/Engineer has requested additional time for review.

D. All PCOs must be responded to within 48-hours of issuance unless noted otherwise; however, additional time for review may be requested within that 48-hour period.

E. No PCOs shall be approved where a related Notice of Non-Compliance is unresolved.

c. Change Order Requests (CORs).

i. Following approval of a PCO and issuance of a COR by the Architect/Engineer, the Architect/Engineer shall review the COR to determine (a) if it represents a compensable change to the Contractor's Scope of Work as described in the Contract Documents and, (b) if the cost is reasonable and accurate in its allocation.

ii. For a COR, the Contractor shall provide additional and sufficient substantiating data to allow the Architect/Engineer to evaluate the quotation.

iii. On request, provide additional data to support time and cost computations, including, but not limited to:

A. support for each quotation for a Lump Sum proposal and for each Unit Price which has not previously been established;

B. equipment required;

C. products required;

D. recommended source of purchase and unit cost;

E. quantities required;

F. taxes, insurance and bonds;(only if it exceeds total contract sum)

G. credit for Work deleted from Contract, similarly documented

H. overhead and profit; and

- I. justification for any change in Contract Time.
 - iv. Support each claim for additional costs and for Work done on a time-and-material/force account basis, with documentation as required for a Lump Sum proposal, plus additional information; including, but not limited to:
 - A. name of the Owner's authorized agent who ordered the Work and date of the order;
 - B. dates and times Work was performed and by whom;
 - C. Time record, summary of hours worked and hourly rates paid
 - v. Provide receipts and invoices for:
 - A. equipment used, listing dates and times of use;
 - B. products used, listing quantities;
 - C. subcontracts; and
 - D. document requests for substitutions for products.
 - vi. Methods used in determining adjustments to the Contract Sum may include those listed in §1.41(3)(c).
- d. Change Orders (COs).
- i. Approved COs are required for any additional Work to be paid for out of a Contingency and any additional Work that shall equitably adjust the Contract Time and/or the Contract Sum by amounts as set forth in approved CORs.
 - A. COs describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
 - B. COs provide an accounting of the adjustment in the Contract Sum and in the Contract Time.
 - ii. In order for a CO to be approved, both a PCO and a COR and must have been previously signed by the Contractor, Architect/Engineer and Owner for approval.
 - iii. Upon approval of a CO, the Contractor shall:
 - A. Proceed with the Work within Five (5) Days unless otherwise noted on the CO.
 - B. Revise Applications for Payment to record each change as a separate item of Work, and to record the adjusted Contract Sum.

- C. Revise the Construction Progress Schedule to reflect each change in Contract Time.
 - D. Revise sub-schedules to show changes for other items of Work affected by the changes.
 - E. Enter pertinent changes in Project Record Documents.
- e. Unit Price Based Change Orders.

When quantities of each of the items affected cannot be determined prior to start of the Work:

- i. The Contractor shall establish a not-to-exceed budget amount and a PCO shall be approved for this amount.
 - ii. The Architect/Engineer shall issue a Construction Change Directive directing Contractor to proceed with the change on the basis of Unit Prices and will cite the applicable Unit Prices.
 - iii. At completion of the Work, Contractor will calculate the cost of such based on the Unit Prices and quantities used and provide such documentation to the Architect/Engineer.
 - iv. A corresponding COR shall be issued to indicate the final amounts.
- f. Allowable Markups.
 - i. For Contingency based Work, costs of overhead and profit and related administration, bond, coordination, insurance and superintendence shall be included in the Lump Sum(s) indicated on this Bid Form. Markups and costs for such items shall not be allowed or included in calculating Change Orders funded out of the Contingency.
 - ii. Equipment in COR's: Equipment rental rates shall be billed at 80% of the Blue Book Rental Rate with no markup.
 - iii. Other mark-ups allowed for COR's, as follows:
 - A. Self-Performance of CO work by Contractor
 - 1. Labor Markup: 5%
 - 2. Material Markup: 5%
 - B. Performance of CO work by Subcontractors: Contractor's Markup on Subcontractor: 5% of first tier Subcontractor's labor and materials totals prior to any lower tier Subcontractor markups (Subcontractors' labor and material totals may include lower tier Subcontractor labor and materials without any markup)

C. Wages in all Change Orders shall be at Orange County Prevailing Wage Rates and any supplement applicable to the Project at the time such Work is performed.

3. Construction Change Directives

a. A Construction Change Directive (CCD) is a written order to the Contractor, signed by Owner and Architect, which amends the Contract Documents as described and authorizes the Contractor to proceed with additional Work in the absence of a total agreement in terms of a PCO, COR and/or CO. The Owner, without invalidating the Contract, may, by a CCD issued through the Architect/Engineer, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly. The Contractor agrees that they are required to perform the Work of a CCD with reasonable and timely means and methods without the issuance of a COR and/or CO.

b. Procedure for CCD.

i. The CCD will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Sum and any change in Contract Time.

ii. Owner and Architect/Engineer will sign and date the CCD as authorization for the Contractor to proceed with the changes.

iii. Contractor may sign and date the CCD to indicate agreement with the terms therein.

iv. The Architect/Engineer agrees to approve a PCO within Ten (10) Days of issuance of the CCD.

v. Resolution of a CCD into a CO shall follow the process outlined under 'Change Order Procedures' as described in these Supplemental Conditions.

vi. A CCD form shall be provided by the Architect/Engineer.

c. If the CCD provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

i. mutual acceptance of a Lump Sum properly itemized and supported by sufficient substantiating data to permit evaluation;

ii. Unit Prices stated in the Contract Documents or subsequently agreed upon; or

iii. as provided in §1.41(3)(f).

d. Upon receipt of a CCD, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect/Engineer of the Contractor's agreement or

disagreement with the method, if any, provided in the CCD for determining the proposed adjustment in the Contract Sum or Contract Time.

e. A CCD signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be processed as a Change Order.

f. If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Architect/Engineer on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable amount for overhead and profit. In such case, and also under §1.41(3)(c)(iii), the Contractor shall keep and present, in such form as the Architect/Engineer may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this §1.41(3)(f) shall be limited to the following all as related and necessary to the performance of the Work:

i. reasonable and customary costs of labor, including social security, disability, workers' compensation and unemployment insurance and fringe benefits required by agreement or custom;

ii. reasonable and customary costs of materials, supplies and equipment, whether incorporated or consumed, and including cost of transportation;

iii. reasonable and customary rental costs of machinery and equipment, exclusive of hand tools, whether rented by the Contractor or Subcontractors;

iv. reasonable and customary costs of premiums for all bonds and insurance, permit fees and sales, use or similar taxes related and applicable to the Work; and

v. reasonable and customary additional costs of supervision and field office personnel directly attributable to the change.

g. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect/Engineer. When both additions and credits covering related Work or substitutions are involved in a change, the mark-up for overhead and profit shall be figured on the basis of net increase in Contract Sum, if any, with respect to that change.

h. If the Owner and Contractor do not agree with the adjustment in Contract Time or the method for determining it, the adjustment or the method shall be referred to the Architect/Engineer for determination.

i. When the Owner and Contractor agree with the determination made by the Architect/Engineer concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

4. Field Orders

- a. The Architect/Engineer will have authority, after consulting with the Owner, to memorialize trade-off agreements and/or order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be affected by a written Field Order on forms provided by and issued through the Architect/Engineer and signed by the Architect/Engineer, Owner, and Contractor.
- b. Field Orders shall be binding on the Owner and Contractor.
- c. The Contractor shall carry out Field Orders promptly.

5. Omitted Work

- a. If any 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 Owner, the Contract Sum, subject to audit, shall be reduced by a pro rata portion of the Lump Sum Bid amount based upon the percent of Work omitted subject to §1.41(5)(d). For the purpose of determining the pro rata portion of the Lump Sum Bid amount, the Schedule of Values shall be considered, but shall not be the determining factor.
- b. If the whole of a Lump Sum item or Units of any other item is omitted by the Owner in a Unit Price, Lump Sum, or percentage-bid Contract, then no payment will be made therefore except as provided in §1.41(5)(d).
- c. 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 §1.41(5)(d).
- d. In the event the Contractor, with respect to any omitted Work, has purchased after execution of this Agreement and in accordance with the Construction Progress Schedule if such purchase is specified therein, any non-cancelable material, equipment, or both 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 the material or equipment. Such payment is contingent upon the Contractor's delivery of the material or equipment in acceptable condition to a location designated by the Owner.
- e. The Contractor agrees to make no claim for damages or for loss of overhead and profit with regard to any omitted Work.

6. **CHANGE ORDERS DUE TO INCREASED PREVAILING WAGE RATES SHALL NOT BE PERMITTED.**

1.29 **Application for Payment:**

- 1. Work Included: Submit Applications for Payment to Architect/Engineer, in accordance with the Schedule of Values established by §1.29 of these General Conditions.

2. Format and Data Required: Submit applications typed on AIA documents (G702 and G703). Where “Architect” or “Engineer” is referred to on the AIA documents, it shall also mean “Architect/Engineer” as defined in this document.

3. Preparation of Application:

a. Application Form:

- i. Fill in required information, including Change Orders executed prior to the date of submittal of Application;
- ii. Fill in summary dollar values to agree with respective totals indicated on continuation sheets;
- iii. Execute certification with signature of a responsible officer of Contractor’s firm. Signature shall be notarized.

b. Continuation Sheets:

- i. Fill in total list of all scheduled component items of Work, with item number, and scheduled dollar value for each item;
- ii. Fill in dollar value in each column for each scheduled line item when Work has been performed or products stored. Round off values to nearest dollar or as specified in the Schedule of Values.
- iii. List each Change Order executed prior to date of submission at the end of the continuation sheets. Round off values to nearest dollar or as specified for Change Order executed prior to date of submission, at end of continuation sheets.
- iv. List by an original component item of Work.
- v. Submit revised Construction Progress Schedule with each Application for Payment.

4. Substantiating Data: When Architect/Engineer requires substantiating data, Contractor shall submit suitable information with a cover letter identifying the following:

- a. Project;
- b. Application number and date;
- c. Detailed list of enclosures;
- d. For stored products:
 - i. Item number and identification, as shown on application;
 - ii. Description of specific material.

- e. Submit one (1) copy of data and cover letter for each application.
5. Preparation of Final Application: Fill in Application form as specified for Progress Payments. All documentation, as called for in the Specifications (including, but not limited to, Sections on Photographic Documentation, Closeout Procedures, Operations and Maintenance Data, and Project Record Documents) shall have been submitted and found acceptable by the Owner before Application for Final Payment is made.
6. Submittal Procedure: Submit Five (5) copies of each Application for Payment to Architect/Engineer at times stipulated in the agreement. When Architect/Engineer finds the Application properly completed and correct, it will transmit Three (3) Certificates for Payment to Owner and return One (1) copy to Contractor. A certified payroll showing prevailing wage rates and supplemental benefits were paid must be included with each Application for Payment.
7. Back Charges: The Owner reserves the right to back charge a Contractor, through a deductive Change Order, for the cost of total and complete remedy due to the failure of Contractor to comply with any provision(s) of the Contract Documents.
8. Right to Cure:
- a. If the Contractor refuses or fails to supply enough properly skilled workers; proper materials; maintain the Construction Progress Schedule, as amended by the Architect/Engineer from time to time; make Prompt Payment for its workers, Subcontractors or Suppliers; comply with laws, ordinances, rules, regulations or orders of any authority having jurisdiction; or otherwise fails to comply with any provision of the Contract Documents, and fails to commence and maintain satisfactory correction of such default with diligence and promptness, within Three (3) Working Days after receipt of written notice from the Architect/Engineer, then the Owner, without prejudice to any other rights or remedies, shall have the right to any or all of the following remedies:
 - i. Supply such number of workers and quantity of materials, equipment and other facilities as the Architect/Engineer deems necessary for the completion of the Contractor's Work, or any part thereof, which the Contractor has failed to complete or perform after the aforesaid notice, and charge the cost thereof to the Contractor, who shall be liable for the payment of same including reasonable markup as allowed by this Agreement.
 - ii. Contract with one or more additional Contractors or use its own forces to perform such part of the Contractor's Work as the Architect/Engineer shall determine will provide the most expeditious completion of the total Work and charge the costs thereof to the Contractor
 - iii. Withhold payment of any moneys due the Contractor, pending corrective action to the extent required by and to the satisfaction of the Architect/Engineer and the Owner.
 - iv. Charge the Contractor for all costs incurred by the Owner due to its failure to comply, delay or breach, including but not limited to, markup as allowed by the Contract

Documents, litigation and attorney's fees and additional actual expenses incurred for supervision, equipment rental, and the like.

b. In the event of any emergency affecting the health or safety of persons or property, the Architect/Engineer may proceed as above without notice.

1.30 Contract Closeout:

1. Work Included: Provide an orderly and efficient transfer of the completed Work to the Owner. In addition to the responsibilities under Division 01 Section 01 01701 – Contract Closeout, Contractor shall be responsible for the requirements under this §1.44.

2. Quality Assurance: Prior to requesting inspection by Architect/Engineer, use adequate means to assure that Work is completed, in accordance with specified requirements, and is ready for the requested inspection.

3. Procedures:

a. Substantial Completion:

i. Contract shall prepare and submit items required by applicable provisions of Division 01 Section 01 01701 – Contract Closeout;

ii. Contractor shall provide Consent of Surety to reduction in retainage;

iii. Within reasonable time after receipt of Punch List, Architect/Engineer will inspect to determine status of Substantial Completion;

iv. Should Architect/Engineer determine Work is not Substantially Complete:

A. Architect/Engineer promptly will so notify Contractor, in writing, giving the reasons;

B. Contractor shall remedy deficiencies and notify Architect/Engineer when ready for reinspection;

C. Architect/Engineer will reinspect Work.

v. When Architect/Engineer concurs that Work is Substantially Complete:

A. Architect/Engineer will prepare "Certificate of Substantial Completion" accompanied by Contractor's list of items to be completed or corrected, as verified by the Architect/Engineer;

B. Architect/Engineer will submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate.

b. Final Completion:

- i. Contractor shall prepare and submit the items required by this §1.44(4)(b) and applicable provisions of Division 01 Section 01 01701 – Contract Closeout;
 - ii. Contractor shall verify the Work is complete including, but not necessarily limited to, items mentioned in the General Conditions;
 - iii. Contractor shall certify the following:
 - A. Contract Documents have been reviewed;
 - B. Work has been inspected for compliance with Contract Documents;
 - C. Work has been completed, in accordance with Contract Documents;
 - D. Equipment and system have been tested as required, and are operational;
 - E. Work is completed and ready for final inspection;
 - F. Work meets requirements of and has been inspected by all authorities having jurisdiction;
 - G. Work has been installed, in accordance with the requirements of all manufacturers used on Project, and that no warranties or bonds have been voided.
 - iv. Architect/Engineer will make an inspection to verify status of completion;
 - v. Should Architect/Engineer determine that Work is incomplete or defective:
 - A. Architect/Engineer shall promptly notify Contractor, in writing, listing incomplete or defective Work;
 - B. Contractor shall remedy deficiencies promptly and notify the Architect/Engineer when ready for reinspection.
 - vi. Once Architect/Engineer determines that Work is acceptable under the Contract documents, it will request Contractor to make Closeout Submittals.
- c. Closeout Submittals include, but are not necessarily limited to, the following:
- i. Project Record Documents, including record Drawings, operation, and maintenance manuals.
 - ii. Operation and maintenance data for items so listed in pertinent other Sections of these Specifications and for other items when so directed by the Architect/Engineer.
 - iii. Guarantees, warranties and bonds (including Maintenance Bond).
 - iv. Keys and keying schedule.

- v. Spare parts and extra stock of materials.
 - vi. Evidence of compliance with requirements of authorities having jurisdiction including, but not necessarily limited to the following:
 - A. Certificate of Inspection and acceptance from Fire Marshall;
 - B. Certificate of Inspection and acceptance from Electrical Department or UL;
 - C. Certificate of Occupancy.
 - vii. Certificate of Insurance for products and completed operations.
 - viii. Evidence of payment and release of liens from all Subcontractors and Suppliers.
 - ix. List of Subcontractors, service organizations, and principal vendors, including names, addresses and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
 - x. Consent of Surety to Final Payment (G707).
 - xi. Contractor's Affidavit of Release of Liens (G706A)
 - xii. Contractor's Affidavit of Payment of Debts and Claims (G706)
 - xiii. Certificate of Substantial Completion (G704).
 - xiv. Any other items identified in the Specifications as Closeout Submittals or as due prior to Substantial or Final Completion or Closeout.
- d. Final Adjustment of Accounts:
- i. Submit a final statement of accounting to Architect/Engineer, showing all adjustments to the Contract Sum;
 - ii. If so required, Architect/Engineer will prepare a final Change Order showing adjustments to Contract Sum which were not made previously by Change Orders.

4. Instruction:

- a. Complete instruction of Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work;
- b. Minimum of Twenty-Four (24) hours instruction shall be provided to Owner's personnel at such time, as requested by Owner.

1.31 Cleaning:

In addition to Final Cleaning responsibilities detailed in Division 01 Section 01 01701 – Contract Closeout and any cleaning requirements in other Sections of the Specifications, Contractor shall be responsible for the following:

1. Work Included:

- a. Provide necessary cleaning during construction to maintain Project Site and adjacent impacted areas free from accumulation of waste, debris, and rubbish caused by operations;
- b. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials; clean all sight-exposed surfaces, whether worked on or not; and leave Project clean and ready for occupancy;
- c. If Contractor fails to perform clean up during progress and Final Clean Up upon completion of Work, Owner may do so and charge the cost to the Contractor.

2. Requirements of Regulatory Agencies:

- a. Fire Protection:
 - i. Store volatile, flammable materials, and waste in covered protective metal containers and remove from premises daily; storage and handling of such materials shall meet requirements of the Fire Code and Fire Marshall;
 - ii. Provide fire extinguishers, fire protective devices, firefighting clothing, equipment and materials in quantities and location, as required by the Fire Marshall;
 - iii. Designate key person to be responsible for fire protection and firefighting.
- b. Pollution Control:
 - i. Conduct cleanup and disposal operations to comply with local ordinances and pollution laws:
 - A. Burning or burying of rubbish and waste materials on Project Site is prohibited;
 - B. Dispose of volatile fluid wastes; such as mineral spirits, oil or paint thinner; into storm and/or sanitary sewer systems, streams, and/or waterways is prohibited.
- c. Whether or not specifically cited in the Contract Documents, Contractor shall comply with all other applicable federal, New York State and local laws, regulations, ordinances, permits and fees related to cleanup activities.

3. Quality Assurance:

- a. Use adequate number of skilled technicians who are thoroughly trained and experienced in the necessary crafts and are completely familiar with the specified requirements and methods needed for proper performance of the Work in this §1.45;
- b. Use experienced laborers or professional cleaners for the Final Cleaning.

4. Cleaning Materials:

- a. Use only cleaning materials recommended by manufacturer of surface to be cleaned;
- b. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

5. During Construction:

- a. Contractor shall oversee cleaning of its Work operations and shall ensure that building and grounds at the Site are maintained free from accumulations of waste materials and rubbish;
- b. Contractor shall sprinkle dusty debris with water before removal;
- c. At One (1) week intervals, maximum, during progress of the Work, Contractor shall cleanup Site and dispose of waste materials, rubbish, and debris;
- d. Contractor to provide dump containers and locate on Site for collection of waste materials, rubbish, and debris and provide removal service at Contractor's expense;
- e. Contractor shall not allow its waste materials, rubbish, and debris to accumulate and become unsightly or hazardous condition;
- f. Contractor shall vacuum or otherwise clean interior of Project areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until Project is ready for acceptance or occupancy;
- g. Contractor shall lower waste materials in a controlled manner, with as few handlings as possible, and not drop or throw materials from heights;
- h. Contractor shall schedule cleaning operations so dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces, or on equipment.

6. Final Cleaning: Prior to Substantial Completion and turnover of the Project to the Owner, Contractor shall clean all areas of the Project and Site, whether worked on or not, if affected by Contractor's operations in accordance with this §1.45 and Final Cleaning requirements under Division 01 Section 01 01701 – Contract Closeout

1.32 Project Record Documents:

The Contractor shall have the following responsibilities:

1. Work Included:

- a. Contractor shall provide maintenance of Project Record Documents, as follows:
 - i. Maintain at job Site One (1) copy of the following:
 - A. Contract Drawings;

- B. Specifications;
- C. Addenda;
- D. Approved Shop Drawings;
- E. Approved catalog cuts;
- F. Change Orders;
- G. Other modifications to the Contract;
- H. Field test reports;
- I. Working set of Project Record Drawings.

- ii. Store Project Record Documents in temporary field office, apart from other documents used for construction;
- iii. Provide necessary files and racks for storage of Project Record Documents;
- iv. Do not use Project Record Documents for construction purposes;
- v. Make Project Record Documents available at all times for inspection by Architect / Engineer and Owner.

2. Recording: Information shall be recorded by the Contractor to permit accurate record Drawings to be made by Architect/Engineer:

- a. Label each document file, "PROJECT RECORD", in two inch (2") high printed letters;
- b. Keep Project Record Documents current;
- c. Do not allow any Work to be permanently sealed until required information has been recorded;

3. Subcontractors and Suppliers List: Provide a complete list of names, addresses, and telephone numbers of all Contractors, Subcontractors, and Suppliers employed on the Project.

4. Submittals:

- a. At completion of Project, deliver Project Record Documents to Architect/Engineer;
- b. Provide Two (2) copies of each Project Record Document with a Submittal letter also in duplicate, containing the following:
 - i. Date;
 - ii. Project title and number;

- iii. Contractor's name and address;
- iv. Title and number of each Project Record Document;
- v. Certification in writing that each Project Record Document, as submitted, is complete and accurate and reflects the actual condition at the building Site;
- vi. Signature of Contractor or authorized representative.

1.33 Operation & Maintenance Data:

1. Contractor, as well as Subcontractors and Suppliers, shall provide maintenance information and operation instructions for equipment and systems in addition to the requirements of Division 01 Section 01701 – Contract Closeout.
2. Contractor shall coordinate efforts of its Subcontractors and Suppliers with respect to provision of Operation and Maintenance Data and shall integrate their efforts with Contractor's.

1.34 Contractor Assumption of Liability:

1. Any approval given by the Owner or Architect/Engineer shall not release the Contractor from its full responsibility for the accurate and complete performance of the Work in accordance with the Contract or from any duty, obligation, or liability imposed upon it by the Contract or from responsibility for injuries to persons or damage to property.
2. Any approval given by the Owner or Architect/Engineer pursuant to any provision of the Contract shall be construed merely to mean that at the time the approval is given, the Owner or Architect/Engineer had no reason for objecting. Such approval does not release the Contractor from its full responsibility for the accurate and complete performance of the Work and any guarantees or warranties in accordance with the Contract or any duty, obligation, or liability imposed upon it by the Contract or from responsibility for injuries to persons or damage to property.

1.35 Lien Interest in Materials and Supplies:

No materials or supplies, for the Work shall be purchased by the Contractor or by Subcontractors or Suppliers, subject to any lien interest (other than pursuant to New York State Lien Law §5) or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that it has good title to all materials and supplies used in the Work. Supporting documentation in Payment Applications from Subcontractors or Suppliers containing language purporting such interests shall be rejected for revision and resubmission.

END OF SECTION

TABLE 1-1**COMPLETION DATES & LIQUIDATED DAMAGES**

Number of days from notice to proceed to provide submittals – 45 calendar days

Number of days from submittal approval to order materials – 30 calendar days

Number of days from contractor receiving material to begin construction – 30 calendar days

Number of days from construction start to substantial completion – 90 calendar days

Number of days from substantial completion to final completion – 45 calendar days

Total Period of Performance – 240 calendar days (not including period between order and receipt of materials)

Liquidated Damages Per Calendar Day – \$500.00 (see §5.0 of Contract)

SECTION 00 8100

PREVAILING WAGE SCHEDULE

PART 1 GENERAL

1.1 GENERAL

Wage rates shall apply as shown in the Prevailing Wage Schedule with PRC# 2022008248 prepared by the New York State Department of Labor, a copy of which is available at:

<https://applications.labor.ny.gov/wpp/showFindProject.do?method=showIt#>

and updates may be found at:

<https://applications.labor.ny.gov/wpp/publicViewPWChanges.do?method=showIt#>

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION



DEPARTMENT OF HEALTH

Dr. Irina Gelman, DPM, MPH, PhD

Commissioner of Health

124 Main Street
Goshen, New York 10924

Environmental Health

Phone: (845) 291-2331

Fax: (845) 291-4078

www.orangecountygov.com

Steven M. Neuhaus

County Executive

December 20, 2021

The Valley View Center
2 Glenmere Cove Road
Goshen NY 10924

Re:

Approval of Updated Specs for:

Valley View Center (TTHM Removal)

CWS – ID#3510449

Town of Goshen

CGN#9727

Dear Applicant:

We have this day approved the updated specifications submitted by Lanc & Tully Engineering & Surveying, P.C., dated April 22, 2019, last revised December 2021, for the above-mentioned project.

The approval of the project plans dated January 19, 2021 remains valid. The specifications noted above supersede the previous version of the specifications revised on October 12, 2020.

A copy of the approved specs is being retained in our files and the remaining sets are being returned to your engineer.

Very truly yours,

Steven Gagnon, M.P.H., P.E.
Principal Public Health Engineer

cc: Engineer ✓
File - Enc.

TECHNICAL SPECIFICATIONS
VALLEY VIEW
WATER
TREATMENT PLANT IMPROVEMENT PROJECT

TOWN OF GOSHEN
ORANGE COUNTY, NEW YORK



Prepared by:
Lanc & Tully
Engineering and Surveying, P.C.
P.O. Box 687
Goshen, NY 10924

OC file # (cgn) 9727 Date December 20 2021

ORANGE COUNTY DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

WATER APPROVAL

*These plans are for Valley View Center
(Tully Remodel) and 15# 35 10469
Town of Goshen*

are hereby approved pursuant to Part 5 of the New York State
Sanitary Code, subject to the provisions of the certificate of
approval (DOH-1017) issued this date.

PRINT Lee Bergus SIGN Lee Bergus P.E.

November 2020

Revised: December 2021

RECEIVED

DEC 20 2021

ORANGE COUNTY
DEPARTMENT OF HEALTH

TECHNICAL SPECIFICATIONS - TABLE OF CONTENTS

Valley View Water Treatment Plant Improvements Town of Goshen, Orange County, New York

DIVISION 1 - GENERAL REQUIREMENT

| SECTION | TITLE | # OF PAGES |
|---------|--|------------|
| 01011 | Work Under This Contract..... | 1 |
| 01013 | Work By Others | 1 |
| 01035 | Prohibited Construction Procedures | 2 |
| 01047 | Utilities – Notification and mark Out..... | 1 |
| 01068 | Waste Materials Disposal | 2 |
| 01070 | Abbreviations and Symbols | 6 |
| 01150 | Measurements and Payment..... | 1 |
| 01153 | Change Order Procedure..... | 1 |
| 01201 | Pre-Construction Conference..... | 2 |
| 01340 | Shop Drawings and Samples | 4 |
| 01341 | Review of Contractor's Construction Procedures | 1 |
| 01420 | Final Inspection..... | 1 |
| 01500 | Temporary Facilities and Controls..... | 3 |
| 01516 | Temporary Sanitary Facilities | 1 |
| 01546 | Protection of Existing Property | 3 |
| 01620 | Product Delivery, Storage and Handling..... | 2 |
| 01701 | Contract Closeout..... | 1 |
| 01710 | Cleaning | 2 |
| 01732 | Selective Demolition..... | 2 |

DIVISION 2 - SITEWORK

| SECTION | TITLE | # OF PAGES |
|---------|--|------------|
| 02201 | Existing Utilities and Structures..... | 3 |

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DEC 20 2021

ORANGE COUNTY
DEPARTMENT OF HEALTH

TECHNICAL SPECIFICATIONS - TABLE OF CONTENTS

Valley View Water Treatment Plant Improvements Town of Goshen, Orange County, New York

Division 13 – Special Construction

| | | |
|-------|---|---|
| 13205 | Fiberglass Reinforced Plastic Tanks | 9 |
|-------|---|---|

Division 15 - Mechanical

| | | |
|-------|--|----|
| 15052 | Stainless Steel Pipe..... | 8 |
| 15060 | Hangers and Supports..... | 16 |
| 15095 | Pipe Sleeves | 3 |
| 15112 | Valves Smaller than 4-Inch | 26 |
| 15210 | Ductile Iron Pipe..... | 3 |
| 15290 | Polyvinyl Chloride (PVC) Pipe and Fittings | 3 |

Division 16 - Electrical

| | | |
|-------|---------------------------------|---|
| 16000 | Electrical Work..... | 8 |
| 16111 | Conduits and Boxes..... | 5 |
| 16120 | Wires and Cables | 3 |
| 16134 | Panelboards..... | 2 |
| 16170 | Disconnects/Breakers/Trips..... | 2 |
| 16450 | Grounding..... | 2 |

Division 17 – Mechanical

| | | |
|-------|---|---|
| 17425 | Differential Pressure Transmitters..... | 2 |
|-------|---|---|

PART 1 GENERAL

1.1. SECTION INCLUDES

1.1.1 Summary of ~~work~~Work under this Contract.

1.2. SYSTEM DESCRIPTION

1.2.1. The Valley View Water Trihalomethane Removal project consists of the removal and disposal of two (2) existing water softening tanks and their replacement with two (2) new high pressure fiberglass reinforced plastic tanks, the charging of those tanks with new, vapor phase granular activated carbon, the fabrication of a schedule 80 PVC valve tree system complete with manually and electrically actuated valves, and the connection of this new valve tree system to the existing water supply piping from the village of Florida, the connection of the new valve tree system to the new fiberglass reinforced plastic carbon tanks, the connection of the new valve tree system to the existing exterior discharge manhole for the discharge of carbon backflush water, and the connection of the new valve tree system to the existing clearwell inside the building for the discharge of the processed water after treatment by the vapor phase activated carbon to remove the trihalomethanes.

1.2.2. The Contractor will be responsible for providing all labor, materials, supplies, tools, electric power, construction equipment, and all other facilities, services and permits necessary for the proper execution and construction of ~~work~~Work. -Included in this ~~work~~Work shall be acquiring all ~~work~~Work permits from local, state or federal agencies, having underground utilities located and marked, excavation, backfill, installation of all water supply and discharge piping, valves, actuators, controls and sensors, electrical and instrumentation wiring, all required and necessary testing and disinfection of installed equipment and piping, and restoration of all disturbed areas as called for in these Specifications. Prior to beginning of ~~work~~Work, Contractor shall contact the County Architect / Engineer to verify limits of ~~work~~Work.

1.2.3 All potable water lines and appurtenances, as appropriate, shall comply with the 'No Lead Law'.

1.2.42 Substantial Completion for aAll ~~work~~Work under this contractContract shall be completed by January 31, 2021 with Final Completion by _____.

** END OF SECTION **

PART 1 GENERAL

1.1. WORK INCLUDED

- 1.1.1. Requirements describing the ~~work~~Work to be done by others.

1.2. SYSTEM DESCRIPTION

- 1.2.1. —Prior to the commencement of construction, the Contractor shall meet with all known public and private utility companies occupying the ~~work~~Work ~~site~~Site, and the ~~Architect / County~~ Architect / Engineer. The Contractor, at this meeting(s), shall inform the ~~County~~Architect / Engineer and the utility companies of ~~Contractor's~~ Contractor's schedule of operations and coordinate ~~its~~his ~~work~~Work with the ~~County~~Architect / Engineer and these companies. The Contractor shall keep minutes of the meeting(s) and shall submit them to the ~~Architect /~~ Architect / Engineer.
- 1.2.2. —————The Contractors attention is called to the fact that the water system ~~he~~it is to ~~work~~Work on under this Contract is currently operating to furnish clean drinking water to the Valley View Nursing Home complex and that this existing water supply system must be kept in continuous and uninterrupted operation for the duration of the construction under this Contract, and until the new activated carbon system has been completed installed, disinfected, and successfully started up and placed into operation.
- 1.2.3. The Contractor specifically agrees that ~~it~~he has included in ~~its~~his unit prices and lump sum prices, bid for various items of the Contract, any additional cost of doing the ~~work~~Work under this Contract because of the fact that ~~it~~he may not have a clear ~~site~~Site for the ~~work~~Work, because of interference of facility use by the utilities, and the necessity or desirability of operating the existing water supply system during the entire time the construction of the new facilities is underway.
- 1.2.24. —Work on certain existing utilities may be required to be done by the utility forces. Maintenance work by ~~County~~Owner employees will be necessary to keep the existing water supply in operation during construction— of the new water processing facilities. The Contractor shall coordinate ~~his~~his ~~work~~Work with the utility authority having jurisdiction, and with the ~~County~~Architect / Engineer, and schedule all such ~~work~~Work.

** END OF SECTION **

SECTION 01035
PROHIBITED CONSTRUCTION PROCEDURES

PART 1 GENERAL

1.1. SECTION INCLUDES

1.1.1. Requirements for prohibiting the following construction procedures.

1.2. SYSTEM DESCRIPTION

1.2.1. Prohibited construction procedures for all parts of the ~~work~~Work include, but are not limited to, the following:

- 1.2.1.1. Dumping of spoil material into any stream corridor, any wetlands, any surface waters, or at unspecified locations.
- 1.2.1.2. Indiscriminate, arbitrary or capricious operation of equipment in any stream corridors, any wetlands, or any surface waters.
- 1.2.1.3. Pumping of silt-laden water from trenches or other excavations into any surface waters, any stream corridors, or any wetlands.
- 1.2.1.4. Damaging vegetation adjacent to or outside of the access road or right- of-way.
- 1.2.1.5. Disposal of trees, brush, and other debris in any stream corridors, any wetlands, any surface waters, or at unspecified locations.
- 1.2.1.6. Permanent or unspecified alteration of the flow line of the stream.
- 1.2.1.7. Open burning of debris.
- 1.2.1.8. Applying any pesticides, including defoliants, desiccants, and plant regulators, in any wetlands.
- 1.2.1.9. Applying pesticides whose residues and metabolic products persist in the environment over extended periods of time.
- 1.2.1.10. Locating storage, stockpile, staging and de-watering controls in environmentally sensitive areas.
- 1.2.1.11. Disposal of excess excavation material in wetlands, stream corridors and flood plains.

- 1.2.2. Permission or other arrangements with a land owner or others shall not relieve the Contractor of compliance with the requirements of this section.
- 1.2.3. Any violation of the requirements of this section by the Contractor or any person employed by it ~~him~~ will be brought to the immediate attention of the responsible regulatory agencies with a request that appropriate action be taken against the offending parties. Further, the Contractor will be required to remedy any violation at its ~~his~~ own expense.

**** END OF SECTION ****

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for notifying utility owners and marking out existing utilities on the ~~site~~Site.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Contractor shall be responsible for protection of underground facilities in accordance with 16 NYCRR Part 753.
- 1.2.2. Prior to construction, Contractor shall call the Dig Safely New York~~UPPO~~, and notify in writing owners of utilities and structures within the vicinity of the proposed ~~work~~Work. Copies of written notification to utility owners shall be submitted to the Architect / E~~ngineer~~.
- 1.2.3. Contractor shall provide the Architect / e~~ngineer~~ with a list of all owners of utilities and structures contacted, including the time and date of contact and the names of responsible individuals contacted.
- 1.2.4. Contractor shall be responsible for full mark out of existing utilities and structures sufficiently in advance of the ~~work~~Work to allow for a field evaluation of the routing of the ~~work~~Work. Contractor shall not proceed with ~~work~~Work where utilities have not been located and marked by utility companies or others.
- 1.2.5. The Contractor shall maintain the mark out of existing utilities and structures until the ~~work~~Work in the vicinity of the marked-out utilities and structures has progressed sufficiently in advance thereof that their location is no longer required.

1.3. SITE CONDITIONS

- 1.3.1. The locations of all utilities and structures as shown on the Drawings are based on the best information available, but neither the Owner nor the Architect / E~~ngineer~~ guarantee the accuracy or completeness of the data.
- 1.3.2. Other utilities and structures may exist within the construction ~~site~~Site in addition to those shown on the drawings.
- 1.3.3. House service utility lines may or may not be not shown on the drawings. The Contractor shall be responsible for checking these services as to actual locations and possible interferences.

** END OF SECTION **

SECTION 01068
WASTE MATERIALS DISPOSAL

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for collecting and disposing waste materials encountered in or resulting from the ~~work~~Work.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Waste material common to construction shall include but not be limited to the following:
- 1.2.1.1. Solid waste: Equipment and materials resulting from demolition or restoration ~~work~~Work, large pieces of asphalt or concrete, trees, stumps, bricks, wire, fences, drums, rubbish and construction debris generated by construction activities and rubble and excess excavated material.
 - 1.2.1.2. Liquid or semi-liquid waste: Cleanings from settling tanks, digesters, lagoons, basins, manholes, sewer mains, and channels including grit, sludge, scum and miscellaneous debris.
- 1.2.2. Contractor shall collect and promptly dispose of all waste materials in the project ~~site~~Site. Clean-up shall be done and maintained on a daily basis.
- 1.2.3. All materials and equipment which are not designated as re-usable or salvageable by the Owner shall become the property of the Contractor. However, all materials and equipment designated as re-usable or salvageable by the Owner shall be carefully removed so as to cause minimum damages and safely stored by the Contractor until accepted by the owner.
- 1.2.4. Waste materials shall not be burned or buried on the ~~work~~Work ~~site~~Site.
- 1.2.5. On contained ~~work~~Work ~~site~~Sites such as treatment plants or pumping stations, containers suitable for the collection and disposal of waste shall be provided by the Contractor. On transport piping contracts, collection and disposal shall be a continuous function. The Contractor shall remove all waste materials before moving to other sections of the ~~work~~Work.
- 1.2.6. Waste materials shall be disposed of at ~~site~~Sites, approved by the NYSDEC Office of Solid Waste Management, which are compatible with the nature of materials being disposed.

- 1.2.7. Waste materials shall be transported by vehicles properly licensed to transport waste by the New York State Department of Environmental Conservation.
- 1.2.8. Disposal of waste materials shall also conform to the applicable requirements of the Sections "Prohibited Construction Procedures".

** END OF SECTION **

PART 1 GENERAL

1.1. SYSTEM DESCRIPTION

- 1.1.1. Where any of the following abbreviations of standards, associations, specifications or publications are used in the Contract Documents, they shall have the meaning set forth opposite each and shall be the latest revision thereof at the time of bidding.

| | | |
|--------|---|---|
| AA | - | Aluminum Association |
| AAA | - | Aluminum Alloy Association |
| AABC | - | Associated Air Balance Council |
| AAMA | - | Architectural Aluminum |
| AAN | - | American Association of Nurserymen |
| AASHTO | - | American Association of State Highway and Transportation Officials |
| ACGIH | - | American Conference of Governmental Industrial Hygienists |
| ACI | - | American Concrete Institute |
| ACPA | - | American Concrete Pipe Association |
| AFBMA | - | Anti Friction Bearing Manufacturers Association |
| AGA | - | American Gas Association |
| AGC | - | Associated General Contractors of America |
| AGMA | - | American Gear Manufacturers Association |
| AGWA | - | American Gear Works Association |
| AHA | - | American Hardboard Association |
| AI | - | Asphalt Institute |
| AIA | - | American Institute of Architects |
| AIEE | - | American Institute of Electrical Engineers |
| AISC | - | American Institute of Steel Construction |
| AISI | - | American Iron and Steel Institute |
| AITC | - | American Institute of Timber Construction |
| AMCA | - | Air Moving and Conditioning Association |
| ANSI | - | American National Standards Institute (Synonymous with USASI-ASA) |
| APA | - | American Plywood Association |
| API | - | American Petroleum Institute |
| ARA | - | American Railroad Association |
| ARI | - | Air Conditioning and Refrigeration Institute |
| AREA | - | American Railway Engineering Association |
| ASCE | - | American Society of Civil Engineers |
| ASHRAE | - | American Society of Heating, Refrigeration and Air Conditioning Engineers |
| ASLA | - | American Society of Landscape Architects |
| ASME | - | American Society of Mechanical Engineers |
| ASTM | - | American Society for Testing and Materials |
| AWG | - | American (or Brown and Sharpe) Wire Gauge |

| | |
|--------|---|
| AWI | - Architectural Woodwork Institute |
| AWPA | - American Wood Preservers Association |
| AWPB | - American Wood Preservers Bureau |
| AWPI | - American Wood Preservers Institute |
| AWS | - American Welding Society |
| AWWA | - American Water Works Association |
| BIA | - Brick Institute of America |
| BOCA | - Building Officials and Code Administrators International |
| CEMA | - Conveyor Equipment Manufacturers Association |
| CGA | - Compressed Gas Association |
| CISPI | - Cast Iron Soil Pipe Institute |
| CSPC | - Consumer Product Safety Commission |
| CRSI | - Concrete Reinforcing Steel Institute |
| CSA | - Canadian Standards Association |
| CTC | - Concrete Technology Corporation |
| DEC | - New York State Department of Environmental Conservation |
| DOC | - United States Department of Commerce |
| DOD | - United States Department of Defense |
| DOT | - New York State Department of Transportation |
| EEI | - Edison Electrical Institute |
| EJMA | - Expansion Joint Manufacturers Association |
| EPA | - United States Department of Environmental Protection |
| FHWA | - Federal Highway Administration, U.S. Dept. of Transportation |
| FM | - Factory Mutual Engineering Corporation |
| FSS | - Federal Specifications and Standards (General Services Administration -- Federal Supply Service) GA-Gypsum Association |
| HPMA | - Hardwood Plywood Manufacturers Association |
| IBR | - Institute of Boiler and Radiator Manufacturers |
| ICBO | - International Congress of Building Officials |
| IEEE | - Institute of Electrical and Electronic Engineers |
| IES | - Illuminating Engineering Society |
| IMIAWC | - International Masonry Industry All Weather Council |
| IMSA | - International Municipal Signal Association |
| IPCEA | - Insulated Power Cable Engineers Association |
| ITE | - Institute of Traffic Engineers |
| MBMA | - Metal Building Manufacturers Association |
| MMA | - Monorail Manufacturers Association |
| MSS | - Manufacturers Standardization Society |
| MUTCD | - Manual on Uniform Traffic Control Devices |
| NBFU | - National Board of Fire Underwriters |
| NBS | - National Bureau of Standards |
| NCMA | - National Concrete Masonry Association |
| NEBB | - National Environmental Balancing Bureau |
| NEC | - National Electrical Code |
| NELA | - National Electric Light Association |
| NEMA | - National Electrical Manufacturers Association |

| | | |
|--------|---|--|
| NESC | - | National Electrical Safety Code |
| NFPA | - | National Fire Protection Association |
| NFOPA | - | National Forest Products Association |
| NIOSH | - | National Institute for Occupational Safety and Health |
| NRMCA | - | National Ready Mix Concrete Association |
| NSF | - | National Sanitation Foundation |
| NWMA | - | National Woodwork Manufacturers Association |
| NYSDEC | - | New York State Department of Environmental Conservation |
| NYSDOT | - | New York State Department of Transportation |
| OSHA | - | Occupational Safety and Health Act |
| PCA | - | Portland Cement Association |
| PCI | - | Prestressed Concrete Institute |
| PDI | - | Plumbing and Draining Institute |
| PEI | - | Porcelain Enamel Institute Incorporated |
| PPI | - | Plastics Pipe Institute |
| PRA | - | Public Roads Alphabet |
| RMA | - | Rubber Manufacturers Association |
| SAE | - | Society of Automotive Engineers |
| SDI | - | Steel Door Institute |
| SJI | - | Steel Joist Institute |
| SMACNA | - | Sheet Metal and Air Conditioning Contractors National Association |
| SSPC | - | Steel Structures Painting Council |
| TPI | - | Truss Plate Institute, Inc. |
| UL | - | Underwriters Laboratories, Inc. |
| USSG | - | United States Standard Gauge (for uncoated sheets and thin plates) |
| USSWG | - | United States Steel Wire Gauge |

1.1.2. Where any of the following abbreviations or symbols are used in the Contract Documents, they shall have the meaning set forth opposite each.

1.1.2.1. UNITS OF LINEAR MEASURE

cm. -- Centimeters

in. or " -- Inches

LF, Ft. or ' -- Linear Feet or Feet

Yds. -- Yards

1.1.2.2. UNITS OF SQUARE MEASURE

Sq. cm. -- Square Centimeters

Sq. in. -- Square Inches

Sq. Ft./SF -- Square Feet

SY -- Square Yards

Ac. -- Acres

- 1.1.2.3. UNITS OF CUBIC MEASURE
Cu. in. -- Cubic Inches
Cu. Ft./CF -- Cubic Feet
CY -- Cubic Yards
- 1.1.2.4. UNITS OF LIQUID MEASURE
Pt. -- Pint
Qt. -- Quart
Gal. -- Gallon
Bbl -- Barrel
L -- Liter
- 1.1.2.5. UNITS OF WEIGHT
Oz. -- Ounces
Lb. or # -- Pounds
Cwt -- Hundredweight or 100 pounds
Kip -- 1000 pounds
gm -- Gram
mg -- Milligram
Kg -- Kilogram
- 1.1.2.6. UNITS OF TEMPERATURE
°F -- Degrees Fahrenheit
°C -- Degrees Centigrade
- 1.1.2.7. UNITS OF FORCE OR PRESSURE
psi -- Pounds per Square Inch
psia -- Pounds per Square Inch Absolute
psig -- Pounds per Square Inch Gauge
psf -- Pounds per Square Foot
ksi -- Kips per Square Inch
ksf -- Kips per Square Foot
tsf -- Tons per Square Foot
- 1.1.2.8. UNITS OF VELOCITY/FLOW
ips -- Inches per Second
fpm -- Feet per Minute
mph -- Miles per Hour
rev -- Revolutions
rpm -- Revolutions per Minute
cfs -- Cubic Feet per Second
cfm -- Cubic Feet per Minute
gpm -- Gallons per Minute
mgd -- Million Gallons per Day

- 1.1.2.9 UNITS OF TIME
Sec. -- Seconds
Min. -- Minutes
Hrs. -- Hours
- 1.1.2.10. UNITS OF ANGULAR MEASUREMENT
Sec. or " -- Seconds
Min. or ' -- Minutes
Deg. or ° -- Degrees
- 1.1.2.11. UNITS OF CONCENTRATION
ppm -- Parts per Million
Kg/l -- Kilograms per Liter
mg/l -- Milligrams per Liter
- 1.1.2.12. UNITS OF POWER
hp -- Horsepower
bhp -- Brake Horsepower
- 1.1.2.13. MATERIALS
ABS -- Acrylonitrile Butadine Styrene
ACCMCP -- Asphalt Coated Corrugated Metal Pipe
ACP -- Asbestos Cement Pipe
BIT -- Bituminous
CIP -- Cast Iron Pipe
CISP -- Cast Iron Soil Pipe
CONC -- Concrete
CPVC -- Chlorinated Polyvinyl Chloride
DIP -- Ductile Iron Pipe
CLDIP -- Cement Lined Ductile Iron Pipe
GLDIP -- Glass Lined Ductile Iron Pipe
HDPE -- High Density Polyethylene
PCCP -- Prestressed Concrete Cylinder Pipe
PE -- Polyethylene
PVC -- Polyvinyl Chloride
RCP -- Reinforced Concrete Pipe
SST -- Stainless Steel
CU -- Copper
TCP -- Terra Cotta Pipe
VCP -- Vitrified Clay Pipe

- 1.1.2.14. MISCELLANEOUS
B&B -- Balled and Burlapped
BR -- Bare Root
CPM -- Critical Path Method
CTS -- Copper Tube Size
Div. -- Division
ID or OD -- Inside Diameter or Outside Diameter
IPS -- Iron Pipe Size
NPT -- National Pipe Thread
ODS -- Oven Dried Solids
pH -- Measure of Acidity or Alkalinity
- 1.1.2.15. ELECTRICAL
A -- Amperes
AC -- Alternating Current
DC -- Direct Current
V -- Volts
Hz -- Hertz
KvA -- Kilovolt Amperes
KW -- Kilowatts
MA -- Milliamps
- 1.1.2.16. MECHANICAL
NPSH -- Net Positive Suction Head
TDH -- Total Dynamic Head
BTU -- British Thermal Units
K -- Thermal Conductivity -- BTU/(hr) (FT²) (Degree F/Ft) (°F/Ft)
C -- Thermal Conductance -- BTU/(hr) (FT²) (Degree F) (°F)
U -- Coefficient of Heat Transmission -- BTU/(hr) (FT²) (Degree F) (°F)
R -- Thermal Resistance -- (hr) (FT²) (Degree F)/BTU (°F)/BTU

** END OF SECTION **

SECTION 01150
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- 1.1.1. Requirements for determining measurement and payment of ~~work~~Work in place and for determining measurement and payment of materials and equipment delivered but not incorporated in the ~~work~~Work.

1.2 SYSTEM DESCRIPTION

- 1.2.1. The requirements in this section are supplementary to the General Conditions, including but not limited to Section 1.29 Application for Payment.

1.2.2. Unit Price Items and Unit Price Contracts.

- 1.2.2.1. Measurement of units of ~~work~~Work for which payment will be made by unit prices will be defined in Part Four of the respective Sections for only those items of ~~work~~Work which appear in the Bid ~~f~~Form.

- 1.2.2.2. Payment for the units of ~~work~~Work will be determined by multiplying the unit prices stated within the ~~b~~Bid, times the quantity of the unit of ~~work~~Work as determined by the measurement provisions of Part Four of the respective Sections. Payment for the units of ~~work~~Work shall fully compensate the ~~contract~~Contractor for furnishing all materials, labor, equipment, services, tools and all else incidental and necessary to complete the ~~work~~Work.

1.2.3. Lump Sum Items and Lump Sum Contracts.

- 1.2.3.1. Measurement of quantities of ~~work~~Work will be as indicated on the accepted ~~s~~Schedule of ~~v~~Values.

- 1.2.3.2. Payment for the quantities of ~~work~~Work indicated in the accepted ~~s~~Schedule of ~~v~~Values will be at the prices stated in the accepted ~~s~~Schedule of ~~v~~Values, not to exceed the lump sum stated within the ~~b~~Bid. Payment for the ~~work~~Work to be performed under the lump sum shall fully compensate the ~~contract~~Contractor for furnishing all material, labor, equipment, services, tools and all else incidental and necessary to complete the ~~work~~Work.

- 1.2.4. No specific measurement and payment will be made for units of ~~work~~Work described in Sections not including a Part Four, or for those items which include a Part Four but are not contained in the ~~b~~Bid ~~f~~Form, but the costs thereof shall be included in the prices bid for the various other items in the ~~b~~Bid.

** END OF SECTION **

SECTION 01153
CHANGE ORDER PROCEDURE

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for preparing and submitting of required information for Change Orders.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Requirements of this Section are supplemental to General Conditions.
- 1.2.2. Contractor shall provide such information as the Architect / Engineer may require for preparation of the change order including but not limited to the following:
- 1.2.2.1. Itemized description of the addition, deletion or revision in the ~~work~~Work.
- 1.2.2.2. Itemized description of the change in the Contract Price including documentation.
- 1.2.2.3. Description of the change in the Contract Time. Time extensions shall be allowed only when conditions causing the delay are beyond the control of the Contractor. Any change in the Contract Time will only be effected when demonstrated that the approved project schedule has been implemented.
- 1.2.3. Change Orders shall be in the form as indicated within ~~the Contract Documents~~
General Conditions Section 1.28 Changes in the Work.

** END OF SECTION **

SECTION 01201
PRECONSTRUCTION CONFERENCE

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for Contractor to attend a preconstruction conference.

1.2. SYSTEM DESCRIPTION

- 1.2.1. This Section is supplemental to the General Conditions section "Preliminary Matters."

- 1.2.2. A preconstruction conference will be held at a time and location set by the Architect / Engineer to establish various procedures that will be followed for the duration of the construction period and to review the Contractor's construction schedule and schedule of sShop dDrawing and sSample submissions.

- 1.2.3. The Architect / Engineer will preside at the preconstruction conference and will prepare for distribution minutes that describe the major topics of discussion.

- 1.2.4. In addition to the items that will be reviewed in accordance with Ggeneral eConditions, the preconstruction conference agenda will include but not be limited to:

- 1.2.4.1. Designation of Contractor's responsible personnel and phone numbers to be used in event of an emergency during non-working hours.

- 1.2.4.2. Designation of Contractor's competent safety person that will be on the job as required by OSHA.

- 1.2.4.3. Disclosure of Contractor's intended suppliers, vendors, fabricators and major subcontractors.

- 1.2.4.4. Contractor shall supply preliminary construction schedule.

- 1.2.4.5. Contractor shall supply schedule of values for lump sum items.

- 1.2.4.6. Procedures for the implementation of field orders and change orders.

- 1.2.4.7. Contractor's insurance.

- 1.2.4.8. Procedures for contacting and requirements for providing access for local fire and first aid companies, police, bus companies and local traffic.

- 1.2.4.9. Site security.
 - 1.2.4.10. Housekeeping.
 - 1.2.4.11. Field offices.
 - 1.2.4.12. Record drawings.
 - 1.2.4.13. Job site Site coordination.
 - 1.2.4.14. Protection of utilities.
 - 1.2.4.15. Other topics pertinent to the ~~work~~ Work that may be presented by conference attendants.
- 1.2.5. Preconstruction conference attendants will be as follows:
- 1.2.5.1. Owner.
 - 1.2.5.2. Architect / Engineer.
 - 1.2.5.3. Contractor and major subcontractors.
 - 1.2.5.4. Governmental agency representatives, utility owner representatives and other parties who may have control of, or may be affected by the ~~work~~ Work.

** END OF SECTION **

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for preparing and submitting shop drawings and samples to Architect / Engineer for review.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Requirements of this Section are supplemental to General and Special Conditions, including but not limited to Section 1.11 Equivalents/Substitutions and 1.20 Submittals - Shop Drawings, Product Data, and Samples.
- 1.2.2. Contractor shall submit to the Architect / Engineer ~~s~~Shop ~~d~~Drawings, certified tests, and manufacturer's specifications for equipment and material being supplied under this Contract. Shop ~~d~~Drawings shall also be submitted for piping, miscellaneous metal, structural steel, reinforcing steel, tools and furnishings, and all fabricated items. Samples of materials furnished by the Contractor to be incorporated in the ~~work~~Work shall also be submitted. The Contractor shall submit this data with such promptness as to avoid delay in the ~~work~~Work, allowing reasonable time for the Architect / Engineer's review and approval.
- 1.2.3. Details on ~~s~~Shop ~~d~~Drawings submitted for review shall clearly show the relation of the various parts and, where the ~~work~~Work depends upon field measurement, such measurements shall be obtained by the Contractor and noted on ~~s~~Shop ~~d~~Drawings before being submitted for review.
- 1.2.4. Drawings submitted by Subcontractors or manufacturers shall be sent directly to the Contractor for approval. -The Contractor shall be responsible for their submission to the Architect / Engineer. -The Contractor shall thoroughly check all subcontractors' or manufacturers' ~~s~~Shop ~~d~~Drawings regarding measurements, sizes of members, materials and details to verify that they conform to the Drawings and Specifications and acknowledge same by so stamping and signing the drawings. Drawings found to be inaccurate or otherwise in error shall be returned by the Contractor for correction before submitting to the Architect / Engineer. Shop ~~d~~Drawings not stamped and signed by the Contractor shall be returned for Contractor's stamp and signature prior to review by Architect / Engineer.
- 1.2.5. The Contractor shall coordinate reviewed equipment ~~s~~Shop ~~d~~Drawings with ~~s~~Shop ~~d~~Drawings of related new and altered structures, including but not limited to connecting details, supports, piping, electrical and mechanical ~~work~~Work to insure proper accommodation of the furnished equipment.

- 1.2.6. Submissions shall be properly referenced to indicate clearly the specification section, drawing number, location, service and function of each particular item. All submissions for one item or group of related items shall be complete. Where manufacturer's publications in the form of catalogs, pamphlets or other data sheets are submitted instead of prepared ~~s~~Shop ~~d~~Drawings, such submissions shall specifically indicate the item for which review is required. Identification of items shall be made in ink and submissions showing only general information are not acceptable.
- 1.2.7. All materials furnished by the Contractor to be incorporated in the ~~work~~Work shall be subject to the review and inspection of the Architect / Engineer. No material shall be processed or fabricated for, or delivered to, or used for the ~~work~~Work without prior review and approval by the Architect / Engineer.
- 1.2.8. Prior to beginning and during the progress of the ~~work~~Work as required, the Contractor shall submit ~~s~~Samples of materials for such specific tests as may be necessary to demonstrate that the materials conform to the Specifications. Samples shall be furnished, taken, stored, packed and shipped where directed, at the expense of the Contractor.
- 1.2.9. Samples shall be packed so as to reach their destination in good condition, and shall be so labeled as to indicate the materials represented, the name of the facility or ~~work~~Work and location for which the material is intended, and the name of the supplier submitting the sample. To ensure consideration of ~~s~~Samples, the Contractor shall notify the Architect / Engineer by letter that the ~~s~~Samples have been shipped, and shall properly describe the ~~s~~Samples in the letter. In no case shall the letter of notification be enclosed with the ~~s~~Samples.
- 1.2.10. The Contractor shall submit to the Architect / Engineer notarized certifications of compliance with the Contract Documents from all material suppliers.
- 1.2.11. The Architect / Engineer's review will be confined to general arrangement and compliance with the Contract Documents only and will not be for the purpose of checking dimensions, weights, clearances, fittings, tolerances, interferences or coordination of trades.
- 1.2.12. The Contractor is advised that color selections when required for items such as, but not limited to special coatings, glazed masonry block, resinous flooring, ceramic tile and the like will only be made by the Architect / Engineer when all ~~s~~Samples and color chips for all such items are received. Contractor shall schedule ~~its~~his submission of these items to coincide as much as practical to allow the Architect / Engineer to coordinate the color selections.

1.3. SUBMITTALS

- 1.3.1. Submittals shall be a minimum of 8½" x 11" and a maximum size of 24" x 36".
- 1.3.2. For submittals up to and including 11" x 17", the Contractor shall submit four copies.
- 1.3.3. For submittals larger than 11" x 17", the Contractor shall submit the original tracings or reproducible reproductions or the tracings and four sets of prints. Reproducible reproductions shall be submitted with a matte finish working surface.
- 1.3.4. Submittals with inadequate information to allow evaluation or review will be returned for resubmission. Resubmission with additional data does not guarantee approval.
- 1.3.5. The Architect / Engineer will return two copies of sShop dDrawings to the Contractor, bearing a stamp with the following language and marked appropriately:

☐ NO EXCEPTION TAKEN ☐ REVISE AND RESUBMIT

☐ FURNISH AS CORRECTED ☐ REJECTED SEE REMARKS

Corrections or comments made on the shop drawings during this review do not relieve ~~contract~~ Contractor from compliance with requirements of the Drawings and Specifications and does not authorize any changes involving additional cost. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his workWork with that of all other trades; and performing his workWork in a safe and satisfactory manner.

LANC & TULLY ENGINEERING AND SURVEYING, P.C.

Date _____

By _____

- 1.3.6. Copies returned marked "Approved" or "Furnish As Corrected" shall be for the Contractor's use and no additional copies need be submitted. Copies returned marked "Revise and Resubmit" shall be corrected by the Contractor and resubmitted in the same manner and number of copies as the original submission. Copies returned marked "Rejected See Remarks" do not conform to the design

concept of the project or comply with the information given in the Contract Documents and shall not be resubmitted. New submittals shall be required.

- 1.3.7. Should the Contractor propose a revision to a previously submitted and reviewed ~~s~~Shop ~~d~~Drawing, the same shall be submitted in the manner and number of copies as the original submission. The resubmission shall clearly indicate, in a revision block, the date, description and location of the revision. The letter of transmittal shall state the reasons for the revision.

**** END OF SECTION ****

SECTION 01341

REVIEW OF CONTRACTOR'S CONSTRUCTION PROCEDURES

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for submitting Contractor's construction procedures for review.

1.2. SYSTEM DESCRIPTION

- 1.2.1. When submittal of any means, methods, sequences and procedures of construction is requested in the Contract Documents or by the Architect / Engineer, it will be for the purpose of informing the Architect / Engineer and the Owner of the intended procedures of construction and will be in the context of the responsibilities of the Contractor, Owner and Architect / Engineer stated in the General Conditions.
- 1.2.2. The Architect / Engineer shall not be responsible to respond to the submittal of any means, methods, sequences and procedures of construction.
- 1.2.3. Submittals shall be made sufficiently in advance of the ~~work~~Work to allow for Architect / Engineer's review.

1.3. SUBMITTALS

- 1.3.1. Contractor shall submit three (3) copies of intended procedures of construction.

** END OF SECTION **

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. ~~1.1.1.~~ Work covered by the Section includes the requirements for meeting satisfactory conditions for final inspection of the Work.
- 1.1.2 Requirements of this Section are supplemental to General Conditions, including but not limited to Section 1.30 Contract Closeout and Section 1.31 Cleaning.

1.2. QUALITY ASSURANCE

- 1.2.1. The Contractor shall turn the Work over to the Owner in good operating condition. Make such adjustments in the Work, additional tests, and all else as may be necessary, in the opinion of the Architect / Engineer, in order that all parts of the Project covered by such Contract will operate together, properly, in accordance with the intent of the Contract Documents.
- 1.2.2 —Upon completion of the Work and just prior to final inspection, remove from the premises all plant, machinery, equipment, surplus rock, lumber, forms, debris and all other materials. The entire job-site Site and Work shall be in a clean and finished state.

1.3. FINAL INSPECTION

- 1.3.1. Upon receipt of written notice from the Contractor that the Work on the Contract is complete and all tests and adjustments in the Work made, the Architect / Engineer will make a final inspection and will notify the Contractor of all instances in which the Work fails to comply with the Drawings and Specifications, as well as any defects which he ~~it~~ may discover. The Contractor shall thereupon immediately rebuild, alter or restore the Work so that it will comply with Drawings and Specifications and remedy all defects at ~~it~~ his own costs and expense and to satisfaction of the Architect / Engineer.
- 1.3.2. —All machinery, equipment, controls, systems and sub-systems shall be in properly lubricated and cleaned and adjusted in operating conditions.

Upon satisfactory completion of all Work, repairs, or other Work as directed by the Architect / Engineer, the Final Certificate will be issued.

**** END OF SECTION ****

SECTION 01500
TEMPORARY FACILITIES & CONTROLS

PART 1 GENERAL

1.1. SECTION INCLUDES

1.1.1. Work covered by this Section includes the provision of temporary facilities.

1.2. CARE AND REPLACEMENT

1.2.1. Use all means to maintain temporary facilities and controls in proper and safe condition.

1.2.2. In the event of loss or damage, immediately make all repairs and replacements.

1.3. COSTS

1.3.1. All costs in connection with the ~~work~~Work of this Section, including Operation & Maintenance, shall be borne by the General Contractor.

PART 2 PRODUCTS

2.1. GENERAL

2.1.1. It is agreed that all temporary power lines, roadways or other facilities which the Contractors furnishes, installs, maintains and removes at the completion of the Work, may be used during the period of construction by the Owner or any of its agents and contractors at such reasonable time or times as may be directed by the Architect / Engineer.

2.2. MAINTENANCE OF TRAFFIC

2.2.1. Provide and maintain strong, suitable and safe temporary ~~work~~Work area and detours around the Work Area as necessary to restrict access to mainly pedestrian traffic and also vehicular traffic. The responsibility for maintaining safe conditions throughout the Contract area rests solely with the Contractor.

2.3. ENCLOSURES

2.3.1. Provide and maintain safe and suitable temporary barricades, obstructions, warning signs, tarpaulins and other temporary construction necessary for protection of the Work and the safety of persons and property.

2.5. WARNING SIGNS

- 2.5.1. Provide warning and other types of signs, barricades, fences and other protective devices where required for the safety and protection of the workmen, Architect / Engineer, and visitors to the ~~site~~Site.

2.6. SANITARY FACILITIES

- 2.6.1. Toilet facilities and a potable drinking water supply shall be provided by the Contractor for the personnel of the job and visitors, and be maintained in a strictly sanitary manner. The Contractor shall obey and enforce all state and municipal sanitary regulations around and on all parts of the Work.

2.7. LIGHTING

- 2.7.1. Illuminate barricades, obstructions, and warning and detour signs from sunset to sunrise.

2.8. WATER FOR CONSTRUCTION PURPOSES

- 2.8.1. The Contractor shall abide by all rules and regulations established in connection with the use of water. ContractorHe shall pay for all water used and all facilities required to convey the water to and about the Work Area unless otherwise noted in these Specifications.

2.9. FIRST-AID FACILITIES

- 2.9.1. Provide and maintain adequately equipped first-aid facilities in a location or at locations which are readily accessible to workmen, Architect / Engineer and visitors to the ~~site~~Site.

2.10. ACCESS ROADS

- 2.10.1. Provide and maintain temporary access roads where required to properly install the Work.

2.11. DUST CONTROL

- 2.11.1. Take all necessary measures to control dust resulting from the Work.
- 2.11.2. Sprinkle calcium chloride, apply water, or employ other means to control dust at locations in such quantities and frequencies as required to prevent dust from becoming a nuisance to the surrounding area.

2.12. HEAT

- 2.12.1. Provide all necessary heat to protect the Work and to permit ~~work~~Work to be performed under proper conditions. Operate temporary heating systems, furnishing adequate ventilation and such fuel, labor and supervision as is necessary and be responsible for the system and its operation until final acceptance. Except as otherwise specified or required, a minimum temperature of 50 degrees F., and a maximum temperature of 75 degrees F., shall be maintained during working hours in all enclosed areas occupied by people. At other times, the temperature shall be kept above freezing.

2.13. LIGHT

- 2.13.1. Provide temporary lighting for such periods of time and at such intensity as is necessary or as the Architect / Engineer may require for proper protection and execution of the Work.

2.14. NOISE CONTROL

- 2.14.1. Maintain all mufflers and noise control devices and replace when necessary or when directed by the Architect / Engineer. —While operating construction equipment, make every effort to minimize noise and vibration. Noise equipment will not be permitted to operate between 5:00 PM and 7:00 AM.

2.15. PARKING FACILITIES

- 2.15.1. Provide adequate and safe parking facilities for workmen, Architect / Engineer and visitors to the ~~site~~Site.

2.16. OTHER FACILITIES & CONTROLS

- 2.16.1. Provide all other facilities and controls necessary for the protection of the Work and health, safety and well-being of persons and of public and private property.

PART 3 EXECUTION

3.1. INSTALLATION & REMOVAL

- 3.1.1. Provide and maintain all temporary facilities and controls as long as necessary for the safe and proper completion of the Work.
- 3.1.2. Remove all temporary facilities and controls as rapidly as progress of the Work permits, or when directed by the Architect / Engineer.

****END OF SECTION****

SECTION 01516
TEMPORARY SANITARY FACILITIES

PART 1 GENERAL

1.1. SECTION INCLUDES

1.1.1. Requirements for providing temporary sanitary facilities.

1.2. SYSTEM DESCRIPTION

1.2.1. The Contractor shall provide, maintain and remove when no longer required, an adequate number of temporary, prefabricated, chemical type toilets with proper enclosures for the use of workmen during construction. Toilets shall be cleaned at least twice a week.

1.2.2. Keep toilets clean and supplied with toilet paper at all times. Comply with all Local and State Health Requirements and Sanitary Regulations.

1.3. SEQUENCING/SCHEDULING

1.3.1. Contractor shall provide these facilities as soon as a work force is active at the sSite.

** END OF SECTION **

SECTION 01546
PROTECTION OF EXISTING PROPERTY

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for protecting existing public and private property on or in the vicinity of the ~~work~~Work site~~Site~~ and the handling of claims and complaints arising as a result of the ~~work~~Work.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Requirements of this section are supplemental to General Conditions Section "Contractor's Responsibilities."
- 1.2.2. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to all public and private property not designated for removal, relocation or replacement in the course of construction. –The Contractor shall not damage or disturb existing or future structures adjacent to the construction easement.
- 1.2.3. During construction, if it is necessary to temporarily remove any existing services, they shall be reconnected the same day or temporary services shall be provided. **Affected owners shall be notified 48 hours prior to disruption of service.**
- 1.2.4. Contractor shall protect the natural vegetation and other existing landscape features and surroundings. Where practical, trees shall be protected to the drip-line as shown in the Standards for Soil Erosion and Sediment Control as published by the State Soil Conservation Committee. If damage occurs to a tree's root system within the drip-line, the tree shall be pruned accordingly using accepted tree surgery techniques to compensate for the loss of root system. Damages to tree trunks, limbs, bark and roots shall be repaired using accepted tree surgeon methods.
- 1.2.5. All grass areas beyond the construction limits damaged by the Contractor shall be repaired using seeding methods and materials equal to or better than that which existed prior to construction.
- 1.2.6. Where damage or injury or loss is done to public or private property as a result of the Contractor's execution of the ~~work~~Work, such property shall be restored by the Contractor at ~~his~~its expense to a condition equal to or better than that existing prior to the damage.

1.2.7. Where property has existing damages that cannot be clearly verified by the preconstruction photographs or video tapes previously submitted, the nature and extent of such damages shall be documented and submitted to the Architect / Engineer prior to any construction or construction related activity.

1.2.8. Damages to curbs, sidewalks, driveways, lawns, shrubbery, property, monuments or other property that are not documented as pre-existing and do not show on the preconstruction photographs or video tapes, will be viewed as a result of the Contractor's execution of the ~~work~~Work and shall be repaired in a manner acceptable to the Architect / Engineer. The Contractor shall, at ~~its~~his own expense, take such additional photographs as may be required to document damage which exists prior to construction.

1.3. QUALITY ASSURANCE

1.3.1. Survey markers removed or disturbed by the Contractor's Operations shall be reset by a Licensed Land Surveyor registered in the State of the project. Such surveyor shall certify to the Owner that reset markers are located at the same location and/or elevation as they were prior to their removal or disturbance.

1.3.2. The Contractor shall expeditiously and satisfactorily resolve all claims and complaints arising as a result of ~~work~~Work under this Contract. The Contractor shall provide the services of an authorized representative during normal working hours for the purpose of handling all such claims and complaints. A file shall be maintained to log all claims and complaints and shall include the date and time, person filing the claim or complaint, nature and extent of the claim or complaint, and its resolution. The Contractor must advise the Owner monthly in writing of all such claims and complaints received by ~~it~~him including the status of each and for each claim or complaint that has been secured by ~~its~~his insurance company, proof that such has been done.

1.3.3. The Contractor shall pay for all costs to handle and resolve all claims or complaints. If within thirty (30) days of receipt of a complaint, the Contractor fails to settle or secure any claim or complaint, the Owner may retain such amounts of money from payments that would otherwise be due the Contractor as, in the opinion of the Owner, may be required to settle all claims filed with the Owner.

1.4. SUBMITTALS

1.4.1. The Contractor will submit to the Architect / Engineer lists of damages to property that exist prior to construction or construction related activity. The list shall include the following information:

- Location of damage by station or address
- Nature of damage
- Extent of damage
- Color photographs of damage

1.4.2. Lists shall be submitted sufficiently in advance in order that the Architect / Engineer can verify the damages.

**** END OF SECTION ****

SECTION 01620
PRODUCT DELIVERY, STORAGE AND HANDLING

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for properly delivering, storing and handling products.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Products shall be delivered, stored and handled in a manner that will assure preservation of quality and fitness for incorporation in the workWork.
- 1.2.2. As and if required products shall be protected from the elements during storage by providing sheltered, weather-tight enclosures. Skids or platforms shall be provided for products subject to damage by contact with ground.
- 1.2.3. Packaged materials shall be stored in their original packages or containers with weather resistant tags identifying the package contents, manufacturer's name and Contractor's name.
- 1.2.4. Copies of all delivery tickets, vendor tickets, bills of lading and other records shall be given to the Architect / Engineer or Construction Observer at the time of delivery and shall contain the name of supplier, material delivered, quantity of material, date of delivery and project name.
- 1.2.5. If partial payments have been made for products or equipment suitably stored off-site~~Site~~, the Contractor shall provide certificates of insurance for full replacement value of the products or equipment.
- 1.2.5.1. Unless otherwise specified, the Contractor shall provide insurance to hold harmless the Owner and Architect / Engineer against liability claims and judgements or demands for damages arising from accidents to persons or property occasioned by transportation, handling and storage of products or equipment. A certificate shall be provided prior to shipping.
- 1.2.6. The Contractor shall comply with manufacturer's recommendations concerning periodic maintenance requirements for items stored for extended periods.
- 1.2.7. Equipment or materials shall not be stored on the site~~Site~~ in such a manner as to interfere with the Owner's operation, create obstructions that would endanger the public, or interfere with the workWork. Equipment and material shall not be stored within 100 feet of any intersection, or on any sidewalks.

- 1.2.8. Pipe, manholes, appurtenances, backfill material, stone, select materials, and all other construction materials shall not be stored or stockpiled on public thoroughfares or adjoining rights-of-way more than one day in advance of their intended incorporation into the ~~work~~Work. In no case shall any material be stored or stockpiled outside of the rights-of-way or easements or on private property without the written permission of the property owner. A copy of said written permission shall be supplied to the ~~County~~Owner of Orange.

**** END OF SECTION ****

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for the furnishing of documentation by Contractor that are prerequisites to Contract Closeout.

1.2. SYSTEM DESCRIPTION

- 1.2.1. The information in this section is supplemental to General Conditions for submissions made by the Contractor for Contract closeout and final payment.

1.3. SUBMITTALS

- 1.3.1. Submissions shall include but not be limited to the following:

- 1.3.1.1. Consent of surety attesting to the fact that the surety has examined the Contractor's records and the surety concludes that all payrolls, materials bills, and outstanding indebtedness in connection with the ~~contract~~Contract have been paid.
- 1.3.1.2. Contractor's release waiving all claims against the Owner other than those previously made in writing and still unsettled.
- 1.3.1.3. Maintenance bond, if required.
- 1.3.1.4. Completed operations insurance certificates as required in General Conditions.
- 1.3.1.5. A list from Contractor's insurance company indicating status of claims of damages arising from the ~~work~~Work. List shall include claimant's name, nature of damage and disposition.
- 1.3.1.6. A list indicating the disposition of claims of damages arising from the ~~work~~Work, not designated as insurance claims.
- 1.3.1.7. Evidence satisfactory to the Architect / Engineer that deficiencies, as noted by permitting agencies or any other body having jurisdiction over the ~~work~~Work, have been satisfactorily completed.
- 1.3.1.8. Extended warranties if required in the individual specification sections.

** END OF SECTION **

PART 1 GENERAL

1.1. PART 1

- a. Section Requirements.
- b. Unless ~~o~~Otherwise indicated, demolished materials become Contractor's property. Remove from Project Site.
- c. Items indicated to be removed and salvaged remain Owner's property. Remove, clean and deliver to Owner's designated storage area.
- d. Comply with NYSDEC and EPA regulations and disposal regulations of authorities having jurisdiction.
- e. If materials suspected of containing hazardous materials are encountered during demolition work~~Work~~, do not disturb; immediately notify Architect / Engineer and Owner. A removal plan of all hazardous materials will then be drafted and agreed upon by Architect / Engineer, General Contractor and Owner. This plan will include methods for location and removing all hazardous materials property and the appropriate compensation for such investigation and removal.

2.0 PART 2 - PRODUCTS (NOT APPLICABLE)

3.0 PART 3 - EXECUTION

4.0 DEMOLITION

- a. Maintain and protect existing utilities to remain in service before proceeding with demolition, providing bypass connections to other parts of the building.
- b. Locate, identify, shut off, disconnect, and cap off utility services to be demolished.
- c. Conduct demolition operations and remove debris to prevent injury to people and damage to adjacent buildings and ~~site~~Site improvements.
- d. Provide and maintain shoring, bracing, or structural support to preserve building stability and prevent movement, settlement, or collapse. All shoring methods and locations are to be submitted to Architect / Engineer for approval.
- e. Protect building structure and interior from weather and water leakage and damage.
- f. Protect walls, ceilings, floors and exposed finishes that are to remain. Erect and maintain dust proof partitions. -Cover and protect fixtures, furnishings and equipment that are to remain.
- g. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
- h. Promptly patch and repair holes and damaged surfaces of building caused by demolition. Restore exposed finishes of patched areas and extend finish

restoration into remaining adjoining construction.

- i. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.
- j. When existing boilers are removed provide temporary boilers until permanent heating plant is installed and operational.

**** END OF SECTION ****

SECTION 02201
EXISTING UTILITIES AND STRUCTURES

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Requirements for protecting, removing, relocating and replacing existing utilities and structures.

1.2. SYSTEM DESCRIPTION

- 1.2.1. Protection of existing utilities and structures not designated for removal, relocation or replacement are supplemental to the requirements of the general conditions.

- 1.2.1.1. The Contractor shall strictly comply with the requirements of the owners of existing utilities and structures including but not limited to those related to support, protection, inspection and testing.

- 1.2.1.2. As the excavation approaches utilities or underground structures, digging by machinery shall be discontinued until manual excavation properly locates the extent of the utility or structure.

- 1.2.2. In the event of damage, injury or loss to existing utilities and structures, whether shown on the drawings or not, the Contractor shall make all reasonable efforts to facilitate repairs and to mitigate the impact of such events upon the utility or structure's owner's normal operations. The Contractor shall be responsible for restoring the existing utility or structure to the condition required by the owner of the utility or structure, or at least to a condition found immediately prior to the work. In the event that the utility owner elects to repair, the Contractor shall provide all reasonable access and assistance and will reimburse the utility owner for the cost of the repair. If utility service is interrupted, alternate facilities shall be provided.

- 1.2.2.1. Backfilling around protected utilities and structures shall be in accordance with the Section "Trenching, Backfilling and Compaction," Division 2.

- 1.2.3. Re-routing of the work to avoid existing utilities and structures.

- 1.2.3.1. Where existing utilities and structures appear to be located differently than shown on the drawings as indicated by the mark out described in the Section "Utilities - Notification and Markout," Division 1, test pits as described in the Section "Test Pits for Verification of Utilities and Structures," Division 2, or by field observation, the Contractor shall notify the Engineer so that the work may be re-routed, if possible, to avoid interferences. Re-routing to avoid

interferences shall be treated as a Minor Change thereby not involving an adjustment in the Contract Price or Contract Time.

1.2.4. Removal, relocation or replacement of existing utilities and structures.

1.2.4.1. Where shown on the Drawings, the Contractor shall be responsible to remove, relocate or replace existing utilities and structures in accordance with the specific specifications section describing the item of work.

1.2.4.2. If removal, relocation or replacement of existing utilities and structures are required because of interference with the work, or by request of the utility owner, the change shall be in accordance with General Conditions.

1.2.4.3. Backfilling around relocated utilities, facilities, lines and structures shall be in accordance with the section "Trenching, Backfilling and Compaction," Division 2.

1.2.5. Work affecting water distribution systems which will take fire hydrants out of service must be coordinated with the local Water Department and Fire Department. The Contractor shall be prepared for and shall take whatever measures are necessary to restore fire flows in the event of an emergency or provide for temporary fire flow service in accordance with the requirements of the local Fire Department.

1.2.6. DEFINITIONS

1.2.6.1. Interference with the work of utilities that may require re-routing or removal, relocation or replacement is defined as utilities that are either approximately parallel with the new pipeline and within the two vertical planes enclosed by the maximum trench width, as shown on the drawings, plus 6 inches on each side (total of 1 foot added to the maximum trench width) or crossing the pipe at any angle and at the same elevation as the proposed piping so as to be in direct conflict. All other utilities, including all house laterals and services, approximately parallel to the new pipeline but outside of the maximum trench width plus 1 foot, or crossing the pipe trench at any angle and not in direct conflict with the proposed piping are the obligation of the Contractor to remove, relocate or replace at no additional cost to the Owner.

1.2.6.2. Utilities are defined as any pipelines, conduits, wires or other facilities that convey fuel, gas, water, sewage or storm water; transmit electricity, voice communications, television, signals or alarms; and similar related services.

PART 2 PRODUCTS

2.1. MATERIALS

- 2.1.1. All materials used for relocation or replacement of utilities and structures shall be of an equivalent material, type, class grade and construction as that existing, or as approved by the respective owners thereof.

**** END OF SECTION ****

SECTION 13205
FIBERGLASS REINFORCED PLASTIC TANKS

PART 1 GENERAL

1.1. WORK INCLUDED

- 1.1.1. This Specification includes the work to furnish and install new fiberglass reinforced plastic tanks, and the furnishing and charging of those tanks with virgin granular activated carbon. Only shop fabricated, vertical, cylindrical tanks are covered. Tanks covered by this specification are intended for interior above ground and 150 psi pressure service. Unsupported cone bottom tanks are outside the scope of this specification.

1.2. SYSTEM DESCRIPTION

- 1.2.1. The system includes the design, fabrication, testing, furnishing and installation of above ground, pressurized, fiberglass reinforced plastic tanks and their connection to the new small diameter Schedule 80 piping valve tree system, the vacuum/air release valves, pressure release valves, and the pressure sensors/differential pressure transmitters, the existing water supply pipe from the Village of Florida, the discharge to the existing clearwell, and the backwash effluent discharge to the existing six foot diameter reinforced pump pit external to the building. These fiberglass reinforced plastic tanks are to be loaded with virgin liquid phase granulated activated carbon and will serve as the trihalomethane removal carbon columns for the existing water supply at the Valley View Nursing Facility located in the Town of Goshen, NY, as specified herein and as shown on the Contract Drawings.
- 1.2.2. The primary code specification for all materials, resins, and fabrication of the units shall be ASME Boiler and Pressure Vessel Code Section X Fiberglass Reinforced Plastic Pressure Vessels.

1.3 REFERENCES

- | | | | |
|----|-----------|---|---|
| A. | ASTM A153 | - | Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware. |
| B. | ASTM B454 | - | Specification for Mechanically Deposited Coatings/Cadmium/Zinc on Ferrous Metals. |
| C. | ASTM C581 | - | Standard Practice for Determining Chemical Resistance of Thermosetting Resins Used in |

Glass-Fiber-Reinforced Structures Intended
for Liquid Service.

- | | | | |
|----|------------|---|--|
| D. | ASTM D638 | - | Standard Test Method for Tensile Properties of Plastics. |
| E. | ASTM D648 | - | Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position. |
| F. | ASTM D790 | - | Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials. |
| G. | ASTM D2150 | - | Specification for Woven Roving Glass Fabric for Polyester-Glass Laminates. |
| H. | ASTM D2583 | - | Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor. |
| I. | ASTM D2584 | - | Standard Test Method for Ignition loss of Cured Reinforced Resins. |
| J. | ASTM D2990 | - | Test Method for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics. |
| K. | ASTM D3299 | - | Standard Specification for Filament-Wound Glass-Fiber-Reinforced Thermostat Resin Corrosion -Resistant Tanks. |
| L. | ASTM D4097 | - | Standard Specification for Contact-Molded Glass-Fiber-Reinforced Thermostat Resin Chemical Resistant Tanks. |
| M. | ASTM D4357 | - | Standard Specification for Plastic Laminates Made from Woven-Roving and Woven-Yarn Glass Fabrics. |
| M. | ASME | - | Boiler and Pressure Vessel Code Section X Fiberglass Reinforced Plastic Pressure Vessels. |
| N. | SPI | - | Recommended Practice for Acoustic Emission |

Testing of Fiberglass Tanks/Vessels.

- O. ANSI/WSC PST 2000/2016 - Standard for Pressurized Water Storage Tanks.
- P. PIP VESFG001 - Fiberglass Tank and Vessel Specification.
- Q. NSF/ANSI 61 - Drinking Water System Components -- Health Effects.

1.4. MATERIAL

- 1.4.1. Materials shall be selected to provide adequate strength and reasonable service life.
- 1.4.2. The various materials used in the manufacture of the tanks furnished to this Specification shall be described as composite materials. The composite materials shall consist of thermosetting polymer reinforced with glass fibers. Acceptable polymer resins include polyester resins, epoxy resins, or vinyl ester resins.
- 1.4.3. All materials, resins and fabrication techniques and procedures shall comply with the requirements of standard specification ASME Boiler and Pressure Vessel Code Section X Fiberglass Reinforced Pressure Vessels.
- 1.4.4. All materials used in fabrication of the tanks that will come into contact with the potable water which will pass through these tanks for treatment purposes once the tanks are installed shall satisfy the requirements of NSF/ANSI 61-2016.
- 1.4.5. The resin used shall be commercial grade thermosetting polymer and shall not contain fillers and pigments, except when required as follows:
 - a. A thixotropic agent that will not interfere with visual inspection may be added for viscosity control. The thixotropic agent shall not exceed 5 weight percent. Resin paste used to fill crevices before overlay shall not be subject to these limitations.
 - b. Ultraviolet protection shall be provided for the exterior layer for improved resistance to degradation by ultraviolet radiation. After long exposure to ultraviolet radiation, FRP parts will experience surface chalking and discoloration. These effects shall be reduced or eliminated by one of the following:

- 1) Incorporating UV absorber into the resin - these are incorporated in the

external coat at a level of 0.1 to 0.3 weight percent.

2) pigmenting outer resin layers/pigment to opacity.

3) Painting.

4) gelcoating (polyester paint).

c. Antimony compounds or other fire retardant agents provide improved fire resistance. Metal powder, carbon, or other types of conductive compounds provide improved conductivity. Additions of such compounds interfere with visual inspection of laminate quality and physical properties of the laminate. The resulting laminate must meet physical properties of this Specification.

d. Resins used for construction of the tanks must have demonstrated resistance to attack by chlorine residual (2 ppm) and trihalomethanes (82 ppb) which will be present in the potable water by testing in accordance with ASTM C581. Tensile and flexural strength shall be determined at the rated temperature (50°F to 105°F) by testing in accordance with ASTM D2990.

1.4.6. Reinforcing materials shall be commercial grade of E-type glass fiber having a coupling agent chemically compatible with the resin used. The reinforcing material used to fabricate the tank shall be that used to generate corrosion resistance and physical design data required by ASME Boiler and Pressure Vessel Code Section X.

1.4.7. Reinforcing used on the inner surface shall be in compliance with the latest edition of ASTM D3299.

1.4.8. Woven roving used for reinforcement of knuckles, manways, and other appurtenances shall be tested in compliance with the requirements of ASME Boiler and Pressure Vessel Code Section X and ASTM D4357.

1.5. DESIGN REQUIREMENTS

1.5.1. In general, the tank shall be designed for a normal working pressure of 90 psi and maximum working pressure of 150 psi. Design for vacuum pressure shall be 5 psi. Design criteria are dependent on the method of construction but shall satisfy the requirements of ASME Boiler and Pressure Vessel Code Section X. Dimensions shall conform, in general, to those shown on the Contract Drawings.

1.5.2. Tanks shall be furnished with nozzles and/or threaded connection points as shown on the Contract Drawings. The size and location of nozzles/connection points shall be as indicated.

1) Nozzles and connection points shall be FPT.

2) Flange drilling and bolting, where used, shall conform to ANSI B16.5 for

Class 150 flat faced flanges.

3) All nozzles shall be of the glassed-in type.

1.5.3. Cutouts for nozzles, cleanouts, etc., which will bear hydrostatic pressure shall be reinforced on a circular area concentric with the cutout. The thickness of the reinforcement shall be determined in conformance with ASME Boiler and Pressure Vessel Code Section X.

1.5.4. Only NSF/ANSI 61-approved materials shall be used in tank components that will be in contact with potable water once the tank is installed.

1.6. QUALITY ASSURANCE

1.6.1. Tests shall be conducted on the completed tank to confirm that ASME Boiler and Pressure Vessel Code Section X requirements are met. At a minimum, these include thickness, degree of cure, dimensional tolerances, and surface cure.

1.6.2. Vessel thickness shall be measured and recorded at all cutouts to verify required minimum thickness is met or exceeded. Readings shall be taken utilizing a micrometer or calipers at four positions, 90 degrees apart at each cutout.

1.6.3. Degree of cure of the laminate shall be determined to meet the resin manufacturer's standards by measuring Barcol hardness in accordance with ASTM D2583.

1.6.4. Tank dimensions and standard nozzle locations shall be verified on the finished tank.

1.6.5. Surface cure will be verified using an acetone test. To detect surface inhibition on external surfaces and secondary bond surfaces exposed to air during cure (non-mold surfaces). The following procedure shall be used:

- 1) Wipe surface with clean acetone.
- 2) Wait at least 30 seconds for drying, and check for tackiness.
- 3) When tackiness is present, the Barcol hardness test shall be performed to verify incomplete cure.
- 4) Incomplete cure is cause for rejection of the tank.

1.6.6. Each tank shall be Certified/Stamped per ASME Boiler and Pressure Vessel Code Section X. The following information shall be incorporated on a raised metal label and shall be securely attached with bolts and nuts, or with a comparable method, to the tank:

- 1) Name of manufacturer
- 2) Serial number of tank
- 3) Date of manufacture
- 4) Tank nominal diameter
- 5) Tank nominal height
- 6) Tank nominal capacity, in gallons
- 7) Type of resin used in manufacture: isophthallic, vinylster, etc.
- 8) Maximum operating temperature, in degrees Fahrenheit
- 9) Design pressure, in psi
- 10) Design fluid specific gravity
- 11) Design vacuum (inches of WC or psi)

1.7. SUBMITTALS

- 1.7.1. Shop Drawings shall be submitted in accordance with the Section "Shop Drawings and Samples" Division 1.
- 1.7.2. Shop Drawings shall include capacity, material schedule, location, elevations and coating of components.
- 1.7.3. Shop Drawings shall indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
- 1.7.4. Shop Drawings shall include the results of the tests specified herein, and in ASME Boiler and Pressure Vessel Code Section X.

PART 2 PRODUCTS

2.1. FIBERGLASS REINFORCED PLASTIC TANKS

- 2.1.1. Fiberglass reinforced plastic tank units shall be designed for a normal operating pressure of 90 psi and a maximum operating pressure of 150 psi. These tank units shall be constructed of the materials and fabricated in accordance with the ASME Boiler and Pressure Vessel Code Section X Fiberglass Reinforced Plastic Pressure Vessels, with the requirements of this Specification, and as shown on the Contract Drawings.
- 2.1.2. Each fiberglass reinforced plastic tank shall be charged with approximately 740 pounds of liquid phase coconut shell granular activated carbon and capable of treating potable water flows from 18 gpm to 35 gpm on a continuous flow basis for the efficient removal of total trihalomethanes in concentration averaging 82 ppb. See granular activated carbon characteristics specified herein for further carbon requirements.

- 2.1.3. Each fiberglass reinforced plastic tank unit shall have an influent connection with a distribution basket device to ensure even and uniform delivery of influent water for treatment across the upper carbon bed cross-section and down the column profile without short circuiting of flow. During carbon filter backwashing, the influent device shall function to remove the backwash flushing water from the carbon column unit and facilitate the disposal of the backwash flushing water to the exterior pump pit.
- 2.1.4. Each fiberglass reinforced plastic tank unit shall ensure even and uniform collection of the treated effluent water from the activated carbon filter column, without short circuiting of the flow through the carbon column, during and after it has been treated. During backwash of the carbon filter unit to remove particulates from the activated carbon, the backwash water shall flow evenly and uniformly across the full cross-section of the activated carbon column, flowing upward through the carbon column without internal shortcircuiting, then out of the top of the carbon column through what otherwise functions as the carbon filter unit influent connection. Disposal of the backwash water will be to the exterior reinforced concrete pump pit as shown on the Contract Drawings.
- 2.1.5. The fiberglass reinforced plastic tank units shall be the FRP-Series Fiberglass Pressure Adsorber, model FRP-36 x 72, tank units furnished by General Carbon Corp. of Paterson, NJ, or an equal product approved by the Engineer.
- 2.1.6. Granular activated carbon for use in these fiberglass reinforced plastic tank units shall be virgin liquid phase granular activated carbon made from coconut shell. It shall be certified by the NSF as suitable for drinking water and food grade applications.

1) Granular activated carbon shall have the following physical characteristics:

| | |
|--|------------|
| a. Mesh Size: | |
| 12x30, %: | 90 (min) |
| Less than No. 12, %: | 5 (max) |
| Greater than No. 30, %: | 5 (max) |
| b. Iodine No., mg/g (per ASTM D 4607): | 1000 (min) |
| c. Surface Area, m ² /g: | 1050 (min) |
| d. Hardness, %: | 98 (min) |
| e. Ash Total, %: | 1.0 (max) |
| f. Moisture, % (as packaged): | 5 (max) |
| g. Typical Density, lbs./cu.ft: | 29-33 |
| g/cc: | 0.46-0.53 |

| | |
|--|------------------------------|
| h. pH: | 8-11 |
| i. Pressure Drop, $\text{In}_{120}/\text{ft carbon}$: | 3 gpm/ ft^2 @28 gpm |
| j. Bed Expansion (backwash), %: | 12 @ 56 gpm |

- 2) Granular activated carbon shall be coconut shell liquid phase granular activated carbon Type GC 12 x 30 SCI from General Carbon Company of Paterson, NJ, or an equal product approved by the Engineer.

PART 3 EXECUTION

3.1. INSPECTION

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

3.2. PREPARATION

- 3.2.1. Remove and properly dispose of the two existing but abandoned water softening tanks located inside the building.
- 3.2.1. Clean area inside the building where the new FRP carbon column units and piping are to be installed.

3.3. INSTALLATION

- 3.3.1. Install fiberglass reinforced plastic tank units and components plumb and level, accurately fitted, free from distortion or defects. Granular activated carbon shall not be placed into the tank units until after they have been set in-place on the building floor at the location indicated on the Contract Drawings, anchored, tested and disinfected as required.
 1. Fiberglass reinforced plastic tank carbon column units, pipe and fittings shall be installed in accordance with the manufacturer's recommendations and approved Shop Drawings.
 2. Fiberglass reinforced plastic tank carbon column units shall be set on top of a 1/8" thick neoprene blanket/gasket of the same diameter as the fiberglass reinforced plastic tank bottom to ensure that there are no point loads on the tank bottom and that the tank bottom is uniformly supported by the building's existing reinforced concrete floor. If desired, a mat of suitable concrete grout of uniform thickness (level and no greater than 1/4-inch thick) may be placed under the tank units instead of using the neoprene blanket.
- 3.3.2. Reducing Fittings: Ample fittings shall be used for all changes in pipe diameter to facilitate connection of the fiberglass reinforced plastic tank carbon column unit to the influent/effluent pipe system. Bushings shall not

be used.

- 3.3.3. Provide anchors, plates, angles, hangers and struts as required for tank and pipe support.
- 3.3.4. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of pipe and permanent attachments
- 3.3.5. Provide field connections to match adjacent pipe and equipment to the connections of the fiberglass reinforced plastic tank units.
- 3.3.6. Do not use equipment for the support of the tanks or the piping system. All pipe should be supported by appropriately installed pipe hangers. See Specification Section 15060 and the applicable provisions of the Code for Pressure Piping, ASME B31.1, Section 6.
- 3.3.7. All tanks, pipe, fittings and accessories shall be installed and hydrostatically tested in accordance with the latest revision of ANSI/AWWA C600. Only clean water shall be used for the hydrostatic test and no leakage is allowed. If leakage is observed, the causes of the leaks shall be identified and repaired. The hydrostatic test shall then be rerun. This shall be done as often as necessary until the tank units and adjacent new piping pass the leakage test to the satisfaction of the Engineer and the Owner.
- 3.3.8. All pipelines and the new fiberglass reinforced plastic carbon column tank units that are to carry potable water shall be disinfected before they are placed into service as specified in ANSI/AWWA Standard C651, latest edition.
- 3.3.9. The liquid phase granular activated carbon shall not be loaded into the new fiberglass reinforced plastic activated carbon column tank units until these tanks and adjacent new piping have satisfactorily been hydrostatically tested, disinfected and then flushed thoroughly with clean water to remove the chlorine residual from the disinfection process. Once the liquid phase granular activated carbon has been loaded into the column, the column should be filled with clean water and allowed to sit full of water for 8-12 hours for degassing purposes, then backwashed to remove carbon fines before placing the carbon column units into operation. No personnel should be exposed to the interior of the carbon column tanks during the degassing period.

** END OF SECTION **

SECTION 15052
STAINLESS STEEL PIPE

PART 1 GENERAL

1.1. WORK INCLUDED

- 1.1.1. This Specification includes the work to furnish and install new stainless steel pipe and cast, forged and fabricated stainless steel fittings, flanges, unions and couplings for a new liquid phase granular activated carbon trihalomethane removal system.

1.2. SYSTEM DESCRIPTION

- 1.2.1. The system includes the furnishing and assembly of small diameter stainless steel piping and the fabrication of the valve tree system servicing the new liquid phase granulated activated carbon trihalomethane removal columns to be installed in the existing water supply piping at the Valley View Nursing Facility located in the Town of Goshen, NY, as specified herein and as shown on the Contract Drawings.

1.3 REFERENCES

- | | | | |
|----|-----------|---|---|
| A. | AWWA C200 | - | Steel Water pipe 6 In. and Larger. |
| B. | AWWA C203 | - | Coal-tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied. |
| C. | AWWA C205 | - | Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. and Larger - Shop Applied. |
| D. | AWWA C207 | - | Steel Pipe Flanges for Waterworks Service - Size 4 In. Through 144 In. |
| E. | AWWA C208 | - | Dimensions for Fabricated Steel Water Pipe Fittings. |
| F. | AWWA C210 | - | Liquid Epoxy Coating Systems for Interior and Exterior of Steel Water Pipelines. |
| G. | AWWA C214 | - | Tape Coating Systems for the Exterior of Steel Water Pipelines. |
| H. | AWWA M11 | - | Steel Pipe - A Guide for Design and Installation. |
| I. | ASTM A53 | - | Pipe, Steel, Black and Hot-Dipped, Zinc Coated |

Welded and Seamless.

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|----|-----------------|---|--|
| J. | ASTM A105/A105M | - | Forgings, Carbon Steel, for Piping Components. |
| K. | ASTM A126 | - | Gray Iron castings for Valves, Flanges and Pipe Fittings. |
| L. | ASTM A139 | - | Electric-Fusion (ARC)-Welded Steel Pipe (NPS4 and Over). |
| M. | ASTM A193/A193M | - | Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service. |
| N. | ASTM A197 | - | Cupola Malleable Iron. |
| O. | ASTM A240 | - | Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels. |
| P. | ASTM A269 | - | Seamless and Welded Austenitic Stainless Steel Tubing for General Service. |
| Q. | ASTM A276 | - | Stainless and Heat-Resisting Steel Bars and Shapes. |
| R. | ASTM A283/A283M | - | Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars. |
| S. | ASTM A307 | - | Carbon Steel Bolts and Studs, 50,000 psi Tensile. |
| T. | ASTM A312/A312M | - | Seamless and Welded Austenitic Stainless Steel Pipes. |
| U. | ASTM A380 | - | Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems. |
| V. | ASTM A403/A403M | - | Wrought Austenitic Stainless Steel Piping Fittings. |
| W. | ASTM A530 | - | General Requirements for Specialized Carbon and Alloy Steel Pipe. |
| X. | ASTM A536 | - | Ductile Iron Castings |

| | | | |
|-----|--------------|---|---|
| Y. | ASTM A774 | - | As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures. |
| Z. | ASTM A778 | - | Welded, Unannealed Austenitic Stainless Tubular Products. |
| AA. | ASTM B98 | - | Copper Silicon Alloy Rod, Bar, and Shapes |
| BB. | ASTM F491 | - | Specification for Poly (Vinylidene Fluoride) (PVDF) Plastic-Lined Ferrous Metal Pipe and Fittings. |
| CC. | ASTM F492 | - | Specification for Propylene and Polypropylene (PP) Plastic-Lined Ferrous Metal Pipe and Fittings. |
| DD. | ASTM F599 | - | Specification for Poly (Vinylidene Chloride) (PVDC) Plastic-Lined Ferrous Metal Pipe and Fittings. |
| EE. | ASME B1.1 | - | Unified Inch Screw Threads (UN and UNR Thread Form). |
| FF. | ASME B16.1 | - | Cast Iron Flanges and Flanged Fittings, Class 25, 125, 250, 800. |
| GG. | ASME B16.3 | - | Malleable-Iron Screwed Fittings, 125 and 250 lb. |
| HH. | ASME B16.4 | - | Cast Iron Threaded Fittings |
| II. | ASME B16.5 | - | Pipe Flanges and flanged Fittings, with Appendices. |
| JJ. | ASME B16.9 | - | Wrought-Steel Butt Welding Fittings. |
| KK. | ASME B16.11 | - | Forged Steel Fittings, Socket-Welding and Threaded. |
| LL. | ASME B16.21 | - | Non-Metallic Gaskets for Pipe Flanges. |
| MM. | ASME B18.2.1 | - | Square and Hex Bolts and Screws. |
| NN. | ASME B31.1 | - | Power Piping |
| OO. | ASME B36.19M | - | Stainless Steel Pipe. |

PP. National Sanitation Foundation - 61 - Drinking Water

1.4. DESIGN REQUIREMENTS

- 1.4.1. In general, pipes shall conform to the applicable provisions of the Code for Pressure Piping, ASME B31.1 and its Supplements, and specifically to Chapters 2, 4, and 5 of Section 6 – Fabrication Details, except for plumbing and low pressure (15 psig maximum) heating lines.
- 1.4.2. Pipe and fittings shall conform to the New York State Building Code in respect to plumbing and other applications covered by these codes.
- 1.4.3. Only NSF61-approved materials shall be used in potable water lines.

1.5. QUALITY ASSURANCE

- 1.5.1. The pipe and fittings covered by these Specifications shall be provided by the Contractor through qualified manufacturers experienced in the fabrication and manufacture of the pipe materials specified herein. The pipe and fittings shall be designed, fabricated and installed in accordance with the standards specified.
- 1.5.2. Certified welders, having current certificates conforming to the requirements of the ASME code shall be utilized to perform all welding on steel pipes. Welders shall be qualified under the requirements of Section IX Welding Qualifications of the ASME Boiler and Pressure Vessel Code.
- 1.5.3. The manufacturer's name or trademark, the year of manufacture and the ASTM or API specification number shall be rolled or permanently inscribed on the pipe surface at the manufacturer's plant. As an alternate, the manufacturer's name or trademark, year of manufacture and ASTM or API specification number may be stenciled on the pipe surface. Pipe 1-1/2 inches and less in nominal diameter shall be bundled and tagged.
- 1.5.4. Pipe and fittings manufactured outside of the continental United States must meet all the requirements of the latest ASTM standards referred to hereinbefore and, unless waived in writing by the County, shall undergo physical tests and chemical analyses to prove compliance therewith. Such tests and analyses shall be performed by an independent testing laboratory approved by the County. If the testing laboratory is located outside the United States, then the Contractor shall pay all costs for two County personnel to witness such tests. The test samples shall be selected and tested in conformance with ASTM requirements. The County may at its discretion

visit the test facility and witness the tests. The costs of all physical tests and chemical analyses shall be borne by the Contractor.

1.6. SUBMITTALS

- 1.6.1. Shop Drawings shall be submitted in accordance with the Section "Shop Drawings and Samples" Division 1.
- 1.6.2. Shop Drawings shall include capacity, material schedule, location, elevations and coating of components.
- 1.6.3. Shop Drawings shall indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.

PART 2 PRODUCTS

2.1. HEAVY WALL STAINLESS STEEL PIPE AND FITTINGS

- 2.1.1. Heavy wall stainless steel pipe and fittings shall be Type 316L stainless steel fabricated in accordance with ASTM A312/312M for nominal pipe sizes up to twelve (12) inches.
- 2.1.2. Wall thickness shall be Schedule 40S pipe in accordance with ANSI B36.19 and as indicated on the Contract Drawings.
- 2.1.3. Where flanges are shown, specified or required for connection of stainless steel pipe and fittings to pipe equipment, forged stainless steel slip-on flanges conforming to ASME B16.5, 150 pound or 300 pound standards shall be provided, welded at the hub and at the face. Flanges, flanged fittings and flanged joints shall conform to the applicable provisions specified for steel flanges, flanged fittings and flanged joints, except that flanges are to be plain faced and steel bolting shall be cadmium plated to produce a uniform appearance.
 - 1. Slip-on flanges shall be welded to the stainless steel pipe in conformance with the Code for Pressure Piping, ASME B31.1, Section 6.
 - 2. Plain faced blind flanges shall be provided in accordance with ASME B16.5.
 - 3. Flanged joints shall be made with bolts or bolt studs with a nut on each end. Stud bolts shall be used for all bolting sizes 1-3/4 inches and larger.
 - a) Bolts, stud bolts, and nuts shall meet the requirements of ASTM A307 Grade B, except for high temperature service where alloy steel bolts, ASTM A193/A193M, Grade B5, shall be used. Bolts and stud bolts shall conform to the dimensional requirements of ASME B18.2.1 with rolled threads

conforming to ASME B1.1, Coarse Series, Class 2 fit. Bolts and stud bolts and nuts shall be of American Standard heavy unfinished hexagonal type, unless otherwise specified.

4. Bolts shall be provided with a 1/4-inch projection beyond the nut when joint with gasket is assembled.

2.1.4. Fittings:

1. For nominal pipe sizes two (2) inches and smaller shall be of the socket-welding type conforming to the dimensional requirements of ASME B16.11.

2. For nominal pipe sizes 2-1/2 inches and larger shall be the butt-welding type conforming to the dimensional requirements of ASME B16.9.

3. Fittings shall conform to the materials and alloy requirements of ASTM A403/A403M.

2.1.5. All stainless steel pipe and fittings shall be precleaned, pickled and passivated after fabrication in accordance with the applicable sections of ASTM A380, except where otherwise specified.

2.1.6. Rubber gasket joints for stainless steel pressure pipe shall conform to ANSI A21.11. Ring type gaskets shall be provided for pipe larger than 12 inches in diameter, and full face gaskets for pipe 12 inches in diameter and smaller with dimensions in conformity with the requirements of ASME B16.21, unless specified otherwise. Gaskets shall be as thin as the finish and accuracy of the surfaces will permit.

1. For general service, rubber gaskets shall be 1/8-inch thick, and meet the requirements of AWWA C207 as modified and supplemented herein.

2. Gasket material which is provided shall be specifically recommended for the service by the gasket manufacturer and as approved by the Engineer.

PART 3 EXECUTION

3.1. INSPECTION

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

3.2. PREPARATION

3.2.1. Clean area where pipe is to be installed.

- 3.2.2. Supply items required to be cast into concrete and set into the forms prior to placing the concrete.

3.3. INSTALLATION

- 3.3.1. Install components plumb and level, accurately fitted, free from distortion or defects.

1. Pipe and fittings shall be installed in accordance with the manufacturer's recommendations and approved Shop Drawings.
2. Welding of stainless steel butt-weld fittings, stainless steel fabricated fittings and stainless steel pipe shall be in strict conformity with the Code for Pressure Piping, ASME B31.1, Section 6 and its Supplements. Certificates of qualification of current issue, conforming to the requirements of the Code, shall be submitted to the Engineer before proceeding with any pipe welding.
3. Backing rings shall be used for all pipe welding butt joints unless otherwise specified. Backing rings shall be of stainless steel with spacer nubs that strike-off or melt with the weld.

- 3.3.2. Reducing Fittings: Ample fittings shall be used for all changes in pipe size. Bushings shall not be used.

- 3.3.3. All pipelines for liquids shall be provided with adequately sized, approved, air or gas vent valves at all high points in the lines, even though such vent valves may not be shown on the Contract Drawings and/or approved Shop Drawings.

1. Where vent valves are so located that the liquids discharged therefrom would cause damage to structure or equipment, the vent valve shall be piped to the nearest gutter or drain in an approved manner.

- 3.3.4. An approved means for draining low points in all liquid system pipes shall be provided whether or not such drainage systems are shown on the Contract Drawings and/or approved Shop Drawings.

- 3.3.5. Before erection, all uncoated pipes shall be placed on end and hammered to remove scale and loose particles.

- 3.3.6. Provide anchors, plates, angles, hangers and struts as required for pipe support.

- 3.3.7. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of pipe and

permanent attachments

- 3.3.8. Field bolt to match adjacent pipe and equipment.
- 3.3.9. Do not use equipment for the support of the piping system. All pipe should be supported by appropriately installed pipe hangers. See Specification Section 15060 and the applicable provisions of the Code for Pressure Piping, ASME B31.1, Section 6.
- 3.3.10. In the case of buried pipe, provide proper pipe bedding using $\frac{3}{4}$ " to 1 $\frac{1}{2}$ " crushed stone compacted in place up to the crown of the pipe.
- 3.3.11. All pipe, fittings and accessories shall be installed and tested in accordance with the latest revision of ANSI/ AWWA C600.
- 3.3.12. All pipelines that are to carry potable water shall be disinfected before they are placed into service as specified in ANSI/ AWWA Standard C651, latest edition.

**** END OF SECTION ****

SECTION 15060
HANGERS AND SUPPORTS

PART 1 GENERAL

1.1 WORK INCLUDES:

- 1.1.1 Contractor shall provide all hangers, supporting devices and appurtenances shown, specified or required for pipes, fittings, valves and other in line equipment.
- 1.1.2 Included in this classification are rod hangers; clevis hangers, spring hangers; stanchion, roller and pipe pole supports and saddle stands; supports of structural steel; concrete saddles, concrete anchor blocks and bases, and all necessary guides, restraints, fastening devices, anchor bolts, pipe anchors and appurtenances.
- 1.1.3 Contractor shall provide all temporary pipe supports required during construction.
- 1.1.4 Contractor shall design all piping support systems in accordance with the requirements of this Specification unless otherwise shown or specified.

1.2 QUALITY ASSURANCE

- 1.2.1 Items outlined in the work under this specification shall meet the requirements of the following standards, as applicable.
 - 1. The manufacturers Standardization Society of the Valve and Fitting Industry:
 - a. MSS SP-58 - Pipe Hangers and Supports – Materials, Design And Manufacture.
 - b. MSS SP-69 - Pipe Hangers and Supports – Selection and Application.
 - c. MSS SP-89 - Pipe Hangers and Supports – Fabrication and Installation practices.

- d. MSS SP-90 - Guidelines on Terminology for Pipe Hangers and Supports.
2. Federal Specification, FS W-H-171 - Hangers and Support, Pipe.
3. Underwriter's laboratories, Inc., Standard UL-203 - Pipe Hanger Equipment.
4. ASTM A 36 - Standard Specification for Carbon Structural Steel.
5. ASTM A 48 - Standard Specification for Gray Iron Castings.
6. ASTM A 276 - Standard Specification for Stainless and Heat Resisting Steel Bars and Shapes.
7. ASTM A283 - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars.
8. ASTM A778 - Standard Specification for Welded, Un-annealed Austenitic Stainless Steel Tubular Products.
9. ASME - B31.1 - Power Piping.
10. NY Spec 32-P-6 - Pipe, Special Castings, Valve Box Castings: Cast Iron.
11. New York State Building Code.
12. EJMA - Expansion Joint manufacturers Association.
13. NFPA 13 - Installation of Sprinkler Systems.

1.3 DESIGN REQUIREMENTS

- 1.3.1 Contractor shall provide hangers and supports of sufficient strength to maintain the pipelines and appurtenances in proper positions and alignment under all operating conditions.
- 1.3.2 Contractor shall provide the services of a New York State Registered Professional Engineer to design the supports for all pipelines and appurtenances, for all weights, forces and applied pressures. In the design of hangers, supports and anchors, unless otherwise shown or specified, pipe pressures shall be the maximum test pressures specified for pipelines carrying gases and twice the maximum test pressures specified for pipelines carrying liquids. The pipe support designer shall have a minimum of 5 years experience in the design of pipe supports and have completed at least 5 successful pipe support projects of equal complexity as the system specified.

1. Pipe support design shall include load and movement calculations.
2. The following loads shall be included in pipe support design and pipe stress analysis:
 - a. Gravity Force, including weight of pipelines and appurtenances, contents, insulation, etc.
 - b. Thermal Expansion Force developed by the restraint of free end displacement of the piping.
 - c. Hydrostatic Forces developed by internal pressure during operation of the piping system.
 - d. Loading due to expansion joint reaction forces.
 - e. Seismic forces, as required by the New York State Building Code.
3. Supports, guides and anchors for flexible couplings and expansion joints shall be in accordance with the coupling and joint manufacturer's specification and the standards of the Expansion Joints Manufacturers Association.

4. Wherever possible, pipe supports shall be designed using manufacturer's standard catalogue products.
5. Hangers and Supports for piping system subject to thermal expansion and contraction, or to similar movements imposed by other sources, shall be designed to provide flexibility, and pipe stress analysis shall be provided.
6. Where resonance with imposed vibration and/or shock occurs during operation, suitable dampeners, restraints, anchors, etc., shall be added to remove those effects.
7. Occasional load calculations and pipe stress analysis shall be provided where required by the Detailed Specifications, Building Codes or Standards. Occasional loads include:
 - a. Seismic forces.
 - b. Pressure waves produced by sudden changes in fluid momentum, commonly referred to as water hammer.
 - c. Wind snow or ice loads.
 - d. Safety valve thrust loads.
8. Stressers in hangers, rods and brackets shall be in accordance with Table 2 of MSS-SP-58.

1.3.3 All hangers and supports shall conform to the applicable requirements of ASME B31.1, MSS SP-58, SP-59, SP-69 and SP-90, except as modified herein and be of standard manufacturer wherever possible, and best suited for the service required.

1.3.4 Unless otherwise approved, all hangers, supports and concrete inserts shall be listed with Underwriters' Laboratory, Inc.

1.3.5 General Requirements:

1. Pipe and appurtenances connected to equipment shall be supported in a manner to prevent any stress being imposed on the equipment. When manufacturers have indicated requirements that piping loads shall not be transmitted to their equipment, certification shall be submitted stating that requirements have been complied with.

2. Where practicable, piping shall be run in groups and parallel to building walls. A minimum clearance of one inch shall be provided between pipe and other work.
3. Hangers or supports shall be provided at all locations where piping changes direction.
4. Hangers and supports shall be capable of adjustment after placement of piping.
5. Types of hangers and supports shall be kept to a minimum.
6. Suspended or supported ductile iron pipe shall have a hanger or support adjacent to each hub or flanged end.
7. Vertical piping shall be supported at each floor and between floors by stays or braces to prevent rattling and vibration.
8. Hanger rods shall be straight and vertical. Chain, wire, strap or perforated bar hangers shall not be used. Hangers shall not be suspended from piping.
9. Contact between dissimilar metals shall be prevented by use of copper plated, rubber or vinyl coated hangers or supports.
10. Hangers and supports shall provide for expansion and contraction throughout the full operating temperature range.
11. Any required pipe supports, for which the supports called for in this Specification are not applicable, shall be fabricated or constructed from standard stainless steel shapes, concrete and anchor hardware, and shall be subject to the approval of Engineer.
12. Where hanger or support spacing does not correspond with joist or rib spacing, structural steel channels shall be attached to joists or ribs, and the pipes suspended therefrom.
13. All hanger rods shall be double nutted at each hanger or support.
14. All threaded assemblies shall be double nutted or provided with pinned nuts. Alternately, tack welding of bolted assemblies may be acceptable unless provisions for vertical adjustment is required.

15. Except where otherwise shown or required, horizontally valves 6-inches and larger shall be supported on each side of the valve, by pipe hangers or supports.
16. At all flexible couplings, supports shall be placed on each side and as close to the coupling as possible. Supports shall be the guide type which prevent axial movement from resulting in pipe deflection and misalignment.
17. Supports, anchorage and guidance for grooved end pipe shall be in accordance with the applicable sections of these specifications and the recommendations of the manufacturer.

1.4 SUBMITTALS

- 1.4.1 Submittals shall be in accordance with the requirements of the General Conditions.
- 1.4.2 Contractor shall submit the following for approval:
 1. Name and qualifications of the support and hanger engineer.
 2. Detailed Working Drawings showing all hangers and supports for each piping system. Working Drawings shall show location, installation, material, loads, forces, stresses and deflections of all hangers and supports. Reaction forces imparted to structures to which hangers and supports are attached shall be shown.
- 1.4.3 Contractor shall submit the following product information for approval:
 1. Manufacturer's catalogs and engineering data on all hangers and supports.
 2. Load ratings.
 3. Materials
 4. Installation details.

- 1.4.4 Contractor shall submit all drawings and specified or required design calculations, signed and sealed by a New York State registered professional engineer.
- 1.4.5 Contractor shall provide detailed drawings of each pipe support. Each drawing shall contain enough information to verify the pipe support design and to allow the manufacturer of the device. At a minimum, the Contractor shall submit.

1. Scaled details of the device with dimensions.
2. A table of applied forces and moments.
3. A complete bill of materials.
4. Detailed connections to structures.
5. Shop and field welds.

- 1.4.6 Each submittal shall have the following:

1. A unique identification number and revision level.
2. Stamp of a New York State registered professional engineer experienced in pipe support design.

1.5 DELIVERY, STORAGE AND HANDLING

- 1.5.1 Equipment and materials shall be delivered to the site to insure uninterrupted progress of the Work. Pipe hanger inserts which are to be embedded in cast-in-place concrete shall be delivered in ample time not to delay the Work.
- 1.5.2 Equipment and materials shall be stored to permit easy access for inspection and identification, and shall be kept in covered storage off the ground, using pallets, platforms or other supports. They shall be protected from condensation, corrosion and deterioration.

PART 2 PRODUCTS

2.1 MANUFACTURERS

2.1.1 Pipe hangers, supports and appurtenances shall be standard products of the manufacturers, i.e., Grinnel, or approved equal.

2.1.2 Each type of hanger and support shall be the products of a single manufacturer.

2.2. MATERIALS

2.2.1 Materials for hangers and supports of metallic construction shall conform to ASME B31.1 and to the following standards:

1. Structural Steel, ASTM A 36 and A 283.
2. Iron Castings, ASTM A 48 (Class No. 35).
3. Stainless Steel, ASTM A 276.
 - a. Type 316 stainless steel for non-welded items.
 - b. Type 316L stainless steel for welded or fabricated items.
 - c. Tensile Strength 70,000 psi minimum.
 - d. Yield Strength 25,000 psi minimum.
 - e. Elongation in 2 inches 35%.
 - f. Reduction of area 45%.
4. Stainless Steel Pipe and Tube, ASTM A 778, Type 316L stainless steel.

2.2.2 Pipe supports, hangers, brackets, guides, restraints, rods, bolts, nuts and anchors shall be type 316 stainless steel. Concrete inserts shall be of malleable iron with galvanized finish.

2.2.3 Pipe rolls, including stands and bases, shall be of cast iron, hot dipped galvanized conforming to ASTM A123.

2.2.4 Only new materials shall be provided.

2.2.5 Hangers and supports shall conform to MSS-SP-58, Table 2.

- 2.2.6. Expansion anchors for use in existing concrete structure shall be made of Type 316 stainless steel.

2.3 HANGERS AND SUPPORTS

- 2.3.1. Hangers and supports where shown shall be in accordance with the Contract Drawings. Hangers and supports not shown shall comply with MSS SP-58.
- 2.3.2. All hangers and supports shall allow minimum 3-inches of vertical adjustment.
- 2.3.3. Hangers and Supports shall be of the following types:

1. Hangers for Single Pipes

- a. Single pipes shall be supported by hangers suspended by rods from structural steel members, inserts in concrete ceilings and beams, bottom of trapeze hangers and wall mounted steel angle brackets. The strength of the rod shall be based on its root diameter.
- b. Except for piping subject to thermal expansion and contraction or as otherwise specified in the Detailed Specifications, pipe hangers shall be adjustable clevis type MSS SP-58 Type-1.
- c. Piping subject to thermal expansion and contraction shall be supported on rollers.

2. Hangers or Supports for Multiple Pipes:

- a. Multiple pipes, running parallel in the same horizontal plane, and adjacent to each other, shall be suspended by trapeze type hangers or supported on wall brackets. Trapeze hangers shall consist of channel sections supported from threaded rods or attached to concrete walls, columns or structural steel support members.
- b. Except as otherwise specified herein, pipe anchors used for attaching pipe to trapeze or multiple pipe wall brackets shall be anchor or pipe chairs as required.

3. Supports for Single Pipe:

- a. Single pipes located in a horizontal pipe close to the floor shall be supported by one of the methods specified herein or as shown on the Contract Drawings.
 - b. Pipes shall be supported by adjustable stanchions, pipe saddle or roll supports with "U" bolts. Stanchions shall provide at least 4-inches adjustment and be flanged mounted to floor.
 - c. Stanchions and saddle stands shall be of Type 316L stainless steel.
 - d. Pipe pole supports for pipe runs above ground, out of doors and where otherwise required, shall consist of a suitable length of stainless steel pipe set upright in at least four feet of concrete; two stainless steel angles secured to the top of the pipe, at right angle and on each side; a stainless steel plate welded to the top of the angles to serve as a horizontal support for the pipes. Supports shall be provided with attachments in the form of stands, clamps, rolls, rods or similar devices of the screw adjustable type in the vertical direction.
 - e. Where specified or shown, column supports of built-up welded stainless steel shall be provided, as approved by the Engineer.
 - f. Pipe rollers shall be cast ductile iron, unless otherwise shown or specified in the Detailed Specifications. Hardware and appurtenances shall be stainless steel.
4. Wall Supported Pipes: Single or multiple pipes located adjacent to walls, columns or other structural members, and an excessive distance from ceilings or underside of beams, shall be supported using stainless steel wall brackets, MSS SP-58 Type 32 or 33. Where pipes rest on top of bracket pipe supports, attachments shall meet the requirements specified under Paragraph 2.b above.
5. Supports for Base Elbows: Where pipes change direction from Horizontal to vertical through a bend, a welded or cast base anchor support shall be installed at the bend to carry load.
6. Supports for Vertical Pipes: Pipe riser clamps shall be used to support all vertical pipes extending through floor slabs. Riser clamps shall be MSS SP-58 Type 42 or 8. Insulation shall be removed from insulated pipes prior to installing riser clamps.

7. Supports for Copper & Brass Pipes: All copper and brass pipe supports shall be specifically manufactured for use with copper and brass pipe. Hangers shall be provided with a copper finish.
8. Concrete supports:
 - a. Where pipeline or mechanical equipment is shown, specified or required to be supported on concrete supports, supports shall be as specified herein.
 - b. Concrete supports for equipment shall be of a size and mass that will resist all forces, both static and dynamic, which may be developed by the equipment.
 - c. Concrete supports for pipe, fittings, valves and appurtenances shall be designed to carry the weight of the pipeline and appurtenances. Cradles and anchor blocks shall safely withstand all stresses imposed by the pipelines, under all operating conditions. Concrete cradles shall be shaped to fit the contour of the pipe.
 - d. Concrete supports shall be anchored to the floor of main structures by dowling or other approved means. Anchor bolts, extension plates, saddle yokes and other hold down devices in concrete bases shall be placed before pouring of concrete. Expansion bolts shall not be used on new concrete supports except with the specific approval of the Engineer.
 - e. Concrete supports strength shall be not less than as specified in General Specification 03300 - Cast-in-Place Concrete.

2.4 ACCESSORIES

2.4.1 Hanger Rods:

1. Material shall be type 316 stainless steel. Maximum allowable working stress shall be 5,800 psi, calculated based on the root diameter.
2. Rods shall have a square head nut on top and running thread on bottom end.

3. Hanger rods for single pipe hangers shall be sized in accordance with the following schedule:

| Hanger Rod Diameter (Minimum) | | | |
|----------------------------------|------------------------|------------------------|----------------------------------|
| Pipe Size (inches) | Single Rod (inches) | Double Rod (inches) | Maximum Load Per Hanger (lbs) |
| ¾ to 1-1/2, incl | 3/8 | 3/8 | 300 |
| 2 | 3/8 | 3/8 | 325 |
| 2-1/2 | 1/2 | 3/8 | 350 |
| 3 | ½ | 3/8 | 400 |
| 3-1/2 | ½ | 3/8 | 450 |
| 4 | 5/8 | ½ | 850 |
| 5 | 5/8 | ½ | 950 |
| 6 | ¾ | 5/8 | 1075 |
| 8 | *7/8 | 5/8 | 1350 |
| 10 | *7/8 | 5/8 | 1750 |
| 12 | *7/8 | ¾ | 2200 |
| 14 | *1 | 7/8 | 2500 |
| 16 | *1 | 7/8 | 3075 |
| 18 | *1 | 7/8 | 3700 |
| 20 | *1-1/4 | 1 | 4425 |
| 24 | *1-1/4 | 1 | 6050 |

*To be used subject to the Engineer's specific approval

- a. Hanger loads shall be calculated based on the weight of pipe filled with water plus 50 pounds per foot of dead load.

2.4.2 Concrete Inserts, Attachment Plates and Clamps

1. Hanger rods up to 7/8 inch diameter shall be attached to new concrete structures using concrete inserts MSS SP-58, Type 18. Inserts shall be malleable iron with galvanized finish. The use of steel inserts is prohibited. Design of the inserts shall permit the rods to be adjusted laterally in one plane and to lock the rod nut or head to the body. The inserts shall be provided with openings or recesses to receive reinforcing rods. To facilitate installation, slots shall be provided in the exposed flanges of the insert. Inserts shall be rated to

safely carry the maximum load which can be supported by the hanger rod.

2. Hanger rods larger than 7/8 inch diameter shall be attached to new concrete by means of approved hook anchors as shown on the Contract Drawings.
3. Hanger rods shall be attached to existing concrete structures using stainless steel expansion anchors.
4. Steel beam clamps shall be malleable iron and conform to MSS SP-58 Type 28 or 29 for wide flange or I beams, and Type 20 for channel sections or where it is necessary to locate the hanger rod off the beam centerline.
5. Steel U-shape beam attachments welded to the underside of beams and welded steel brackets fastened to structural steel columns, shall be subject to the specific approval of the Structural Steel and Pipe Supports Working Drawings.

2.5 PIPE ANCHORS AND BRACES

- 2.5.1 Anchors and sway braces shall be provided when required to hold the pipelines and equipment in position or alignment. Pipe anchors and braces for rigid fastening to the structures shall be attached to stainless steel anchor plates and anchor bolts set into the forms when placing concrete for new structures. Brackets and braces shall be attached to existing concrete structures with through bolts or expansion anchors.
- 2.5.2 Anchors, guides and restraints shall be provided for the proper operation of pipeline expansion joints.
- 2.5.3 Cast iron anchors shall be provided with stainless steel straps on piping, except where anchors form an integral part of pipe fittings and couplings or where an anchor of special design is required or shown on the Contract Drawings.
- 2.5.4 All pipe anchors, guides and restraints shall be designed to conform to ASME B31.1.

2.6 INSPECTION

- 2.6.1 The Owner may elect to conduct shop inspections. The inspections may include but not be limited to: mechanical and chemical testing, material sampling, material certifications, traceability of parts, blasting and painting, visual and dimensional inspection, and free iron contamination check on stainless steel parts.

PART 3 EXECUTION

3.1 General

- 3.1.1 Hangers, supports and accessories shall be located within maximum span lengths specified to support continuous pipeline runs unaffected by concentrated loadings.
- 3.1.2. Hangers or supports shall be provided at all locations where piping changes direction.
- 3.1.3 Hangers and supports shall be located to prevent vibration or swaying and to provide for expansion and contraction.
- 3.1.4 Hanger rods shall be straight and vertical. Chain, wire, strap or perforated bar hangers shall not be used. Hangers shall not be suspended from piping.
- 3.1.5 Concrete embedded items shall be installed before concrete placement.
- 3.1.6. Embedded items shall be fastened securely to prevent movement during concrete placement.
- 3.1.7. Hanger and support units installation methods shall be in accordance with manufacturer's recommendations.
- 3.1.8. Hangers and supports shall be adjusted and grout placed as specified in General Specification 03600 to bring pipelines to specified elevations.

3.2 SPACING OF HANGERS AND SUPPORTS

- 3.2.1. Supports and Hangers for Horizontal Pipes:
Valley View Water Trihalomethane Removal
County of Orange – Goshen, NY

Hangers and Supports
15060-14

1. Supports and hangers for all piping shall be placed no farther apart than shown bellows, unless otherwise shown or specified.

- a. Ductile Iron, Steel and Stainless Steel Pipe:

- 1) Maximum spacing in accordance with Table 3 of MSS-SP-69. The designer should check the capacity of the steel or building structure to which the hanger or support is attached, and adjust the maximum spacing accordingly.
- 2) In addition, ductile iron pipe shall have a minimum of two supports per length and shall have a hanger or support adjacent to each end.

- b. Tubing less than 1 inch diameter: In accordance with the best piping practice and ASME B31.1, and as approved by the Engineer.

2. Additional supports shall be placed immediately adjacent to any change in piping direction, at equipment, and on both sides of valves, expansion joints and couplings.

3.2.2. Supports for Vertical Piping:

1. Riser clamp shall be placed under hub, fitting or coupling with approved solid bearing on steel sleeve.
2. Vertical piping shall be supported at each floor and between floors by stays or braces to prevent rattling and vibration. Maximum spacing shall not exceed 25 feet.
3. Base elbows or welded equivalent shall be provided at vertical piping bases.
4. Top support shall have a horizontal connection, and provide for pipe expansion.

3.2.3. Pipelines installed under plumbing work shall be spaced in conformity with the requirements of the New York State Building Code or as specified by local codes.

3.3 PAINTING AND COATING

- 3.3.1. Surfaces of hangers and supports in contact with aluminum, brass, plastic and copper pipelines or pipeline equipment shall be protected with an approved plastic coating to prevent abrasion. Touch up shall be provided in the field, as required. Coating shall be applied in accordance with the manufacturer's recommendations, and shall be free from spots and brush marks, to the satisfaction of the Engineer.

3.4 TESTING

- 3.4.1. All pipe support and restraining systems shall be installed and secured prior to the testing or activation of the pipeline on which they are installed.
- 3.4.2. After installation, each pipe support system shall be tested in conjunction with the respective piping pressure tests. Tests shall include cycling the piping system to duplicate operating conditions. If any part of the pipe support system proves to be defective or inadequate, as evidenced by vibration or excessive movement, it shall be repaired or augmented at no additional cost to the Owner.

PART 1 GENERAL

1.1. WORK INCLUDED

- 1.1.1. Requirements for providing steel pipe sleeves or pipe fittings for wall or floor penetrations.

1.2. SYSTEM DESCRIPTION

- 1.2.1. The work specified in this Section includes sleeves or fittings for pipe and conduit penetrations through walls and floors.
- 1.2.2. Unless otherwise indicated, all penetrations shall be made using steel sleeves sealed with modular type seal or lead and oakum.
- 1.2.2.1. Wall pipes shall be used where indicated on the Drawings.
- 1.2.2.2. A WSK thru wall seal may be used for pipes and conduit 3" in diameter and smaller.
- 1.2.2.3. Wall fittings shall be used where required.
- 1.2.3. Conduit penetrations through interior walls or floors separating non-explosive areas need not have sleeves or seals, except to keep floor drainage from dripping to a lower floor.
- 1.2.4. After seal is in place, annular space around the pipe shall be caulked with a 2-part polysulfide caulking compound on both faces of wall or floor.
- 1.2.5. For penetration through block walls, provide steel sleeve without water stop grouted in place.

1.3. REFERENCES

- 1.3.1. ASTM A120- Specifications for pipe, steel, black and hot-dipped zinc coated (galvanized) welded and seamless for ordinary uses.
- 1.3.2. ASTM A 134 - Specifications for electric-fusion (arc)-welded steel plate pipe (sizes 16" and over).
- 1.3.3. ANSI 936.10 - Standard for welded and seamless wrought steel pipe.

- 1.3.4. ASTM C76 - Specification for reinforced concrete culvert, storm drain, and sewer pipe.
- 1.3.5. AWWA C302 - Standard for reinforced concrete pressure pipe, non-cylinder type for water and other liquids.
- 1.3.6. AWWA C301 - Standard for prestressed concrete pressure pipe, non-cylinder type, for water and other liquids.
- 1.3.7. AWWA C151 - Standard for ductile iron pipe, centrifugally cast in metal molds or sand lined molds, for water and other liquids.
- 1.3.8. AWWA C104 - Standard for cement-mortar lining for cast iron and ductile iron pipe and fittings for water.
- 1.3.9. AWWA C110 - Standard for gray-iron and ductile-iron fittings, 3" through 48" for water and other liquids.

1.4. SUBMITTALS

- 1.4.1. Shop Drawings shall be submitted in accordance with the Section "Shop Drawings and Samples" Division 1.
- 1.4.2. Shop Drawings shall include material schedule, location, elevations and coating of sleeves.

PART 2 PRODUCTS

2.1. MATERIAL

- 2.1.1. Steel pipe sleeves, ASTM A 120, ASTM A 134, and ANSI 936.10.
- 2.1.2. Ductile iron wall pipes, AWWA C151, AWWA C104, AWWA C110, AWWA C111 and AWWA C113.
- 2.1.3. Reinforced concrete wall fitting, ASTM C 76 and AWWA C302.
- 2.1.4. Prestressed concrete cylinder wall fittings, AWWA C301.

2.2. FABRICATION

2.2.1. Pipe Sleeves

- 2.2.1.1. Pipe sleeves shall be fabricated of steel pipe with a minimum wall thickness of 1/4" for sizes 16" and smaller and 3/8" for sizes 18" and larger.

- 2.2.1.2. Water stop shall be positioned at the mid-point of the pipe sleeve and be fabricated of 1/4" steel plate. The water stop shall extend a minimum of 3" from the outside of the sleeve.
- 2.2.1.3. Pipe sleeves shall be sized to accommodate the carrier pipe, the modular wall seal, and a sufficient amount of caulking compound.
- 2.2.2. Interior surface of sleeves shall be painted with the same materials specified for the pipe.

2.2.3. MODULAR WALL SEALS

- 2.2.3.1. Seals shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening. Links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide an absolutely water-tight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall, thus reducing chances of cathodic reaction between these two members.

PART 3 EXECUTION

3.1. INSPECTION

- 3.1.1. Pipe sleeves and fittings shall be inspected prior to incorporation in the work. Damaged sleeves or fittings shall be removed from the site.

3.2. INSTALLATION

- 3.2.1. Modular wall seals shall be installed in accordance with the manufacturer's recommendation.

** END OF SECTION **

SECTION 15112
VALVES SMALLER THAN 4-INCHES

PART 1 GENERAL

1.1 WORK INCLUDES:

1. Contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install valves smaller than 4 inches, valve actuators, programmable logic controller, complete with appurtenances and operational.
2. All valves are for liquid service.

1.2 SYSTEM DESCRIPTION

- 1.2.1. All new valves shall meet the requirements of this Specification.

1.3. QUALITY ASSURANCE

1.3.1. Manufacturer's Qualifications:

- 1) Manufacturer shall have a minimum of 5 years of experience in the production of substantially similar valve equipment, and shall show evidence of satisfactory service in at least 5 installations.
- 2) Each type of valve shall be the product of one manufacturer.

- 1.3.2. Valves and their components and accessories furnished and installed under this Specification shall meet the requirement of the standards referenced below, as applicable:

1) American National Standards Institute (ANSI) specifications:

- a. B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
- b. A21.11, Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings.

2) American Society for Testing and Materials (ASTM) Specifications:

- a. A126, Gray Iron Castings for Valves, Flanges and Pipe Fittings.
- b. A193, Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service.
- c. A194, Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service.
- d. A240, Heat Resisting Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels
- e. A276, Stainless Steel Bars and Shapes.
- f. A307, Carbon Steel Externally Threaded Standard Fasteners.
- g. A380, Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems.
- h. A536, Ductile iron Castings.
- i. A743, Castings, Iron Chromium, Iron Chromium Nickel, Corrosion Resistant, for General Application.
- j. B21, Naval Brass, Rod, Bar and Shapes
- k. B61, Steam or Valve Bronze Castings
- l. B62 Composition Bronze or Ounce Metal Castings.
- m. B98, Copper Silicon Alloy Rod, Bar and Shapes

- n. B124, Copper and Copper Alloy Forging Rod, Bar and Shapes
 - o. B138, Manganese Bronze Rod, Bar and Shapes
 - p. B584, Copper Alloy sand castings for General Applications
 - q. D429, Test Methods for Rubber Property - Adhesion to Rigid Substrates
1. American Water Works Association (AWWA) Specifications:
 - a. C5040, Power Actuating Devices for Valves and Sluice Gates
 - b. C550, Protective Epoxy Interior Coatings for Valves and Hydrants

1.4. GENERAL REQUIREMENTS

- 1.4.1 Manually operated valves, with or without extension stems, shall require not more than a 40 pound pull on the manual operator to open or close a valve against the specified criteria. The gear actuator and the valve components shall be able to withstand a minimum pull of 200 pounds on the manual operator and an input torque of 300 foot pounds to an actuator nut. Manual operators include handwheel, chain, crank, lever and a T-handle wrench.
- 1.4.2 All valves shall turn clockwise to close, unless otherwise specified.
- 1.4.3 All valves shall have permanent markings for direction to open.
- 1.4.4 Exposed valves shall have flanged ends conforming to ANSI B16.1, Class 125, for Class 150 Valves; and Class 250 and Class 300 flanges for Class 250 valves, unless otherwise shown or specified.
- 1.4.5 All materials of construction of the valves shall be confirmed suitable for the application by the valve manufacturer.
- 1.4.6 Wetted parts shall be protected from galvanic corrosion due to contact of two different metals.

- 1.4.7. All valves shall have manufacturer's name and rated pressure cast in raised letters on the valve body.
- 1.4.8. Fabricated stainless steel items shall be cleaned and descaled in accordance with ASTM A 380.
- 1.4.9. For all stainless steel bolting, anti-seize compounds, graphite free, shall be used to prevent galling. Strength of bolting shall not be affected by anti-seize compound.
- 1.4.10. All valves shall be suitable for operation at the lower operating pressures without leakage.
- 1.4.11. Where shown on the Drawings and/or specified, the manually operated valves shall be provided with limit switches as specified.

1.5. SUBMITTALS:

- 1.5.1. Contractor shall submit Shop Drawings and material specifications for the approval of the Engineer as specified under Division 1 of the Specifications. The submittals shall include, but not be limited to:

- 1) Product data sheets for make and model
- 2) Complete catalog information, descriptive literature, specifications, and identification of materials of construction.
- 3) Certificates of compliance with AWWA Standards where applicable
- 4) Manufacturer's qualifications
- 5) Confirmation of suitability of the valve materials for the application
- 6) Spare parts list
- 7) Special tools list

- 1.5.2. Certified copies of shop test results and inspection data

- 1.5.3. Operation and Maintenance Data: Submit complete manuals including:

- 1) Copies of all approved Shop Drawings, test reports, maintenance data and schedules, description of operation, and spare parts information.

- 1.5.4 Material test reports representing all major components of valves and operators shall be submitted. All such components shall be traceable to the original heat and/or lot numbers unless otherwise approved.

1.6. SPARE PARTS

- 1.6.1. The following quantities of spare parts sets shall be furnished for each type and each size of valve installed.

| Number of Valves Installed | Sets of Spare Valves and Actuators Required |
|----------------------------|---|
| 1- 5 | 1 |
| 6 - 10 | 2 |
| 11 - 15 | 3 |
| 16 - 30 | 5 |
| | |

1.7. DELIVERY, STORAGE AND HANDLING

- 1.7.1. Protection of materials and Equipment shall be as specified in Division 1 of the Specification.
- 1.7.2. Valves and appurtenances shall be handled carefully. Valves or actuators which are dropped, dented, cracked or otherwise damaged will not be acceptable.
- 1.7.3. Provide full face protectors of waterproof material fastened to each side of the valve body to protect joints and the valve interior.

PART 2 PRODUCTS

2.1. MANUFACTURERS

- 2.1.1. The following manufacturers are acceptable. Equivalent products of other manufacturers may be submitted for approval.

1) Ball Valves:

- a. Valworx
- b. Stockham Valves and Fitting Company
- c. Lunkenheimer Company

2.1.2 The following manufacturers of electric motor actuators are acceptable. Equivalent products of other manufacturers may be submitted for approval.

- a. Valworx
- b. Rotork
- c. EIM

2.2. MATERIALS – GENERAL

2.2.1. Non-Ferrous Materials:

- 1) Non-ferrous materials are all materials consisting of mixtures of copper, tin, zinc, lead, or other metals in which iron does not predominate.
- 2) Non-ferrous materials shall be provided with standard composition and physical properties conforming to ASTM standards except as otherwise indicated.
- 3) All non-ferrous materials shall be made from new metals of purest commercial quality. Scrap can be used only when it is the result of the processes of manufacture of articles of similar composition.
- 4) Bronze items shall have the following compositions:
 - a. Composition "A" Conforming to ASTM B 61 (Alloy UNS No. C92200) or B 62 (Alloy UNS No. C83600).
 - b. Composition "B" conforming to ASTM B 61 (Alloy UNS No. C92200) or an approved standard composition having good wear and corrosion resisting qualities and sufficiently ductile for peening into dove tail grooves.

- c. Composition "C" conforming to ASTM B 584, Copper Alloy UNS No. C86500 or C86400; or ASTM B 21, Copper Alloy UNS No. C46400; or ASTM B 124, Copper Alloy UNS No. 37700.
- d. Composition "D" conforming to ASTM B 584, Copper Alloy UNS No. C86200 or C86700; or B 21, Copper Alloy UNS No. C46400.

2.2.2. Ferrous Materials:

- 1) Cast iron of the valves, unless specified otherwise, shall conform to ASTM A 126, Class B.

2.2.3. Substitute materials: Materials which are standard with the valve manufacturer but differ from the foregoing requirements and have similar or superior characteristics and are equally suitable for the purpose intended can be considered. Substitutions may be made only upon the written approval of the Engineer.

2.2.4. Castings:

- 1) Castings shall be true to pattern, sound, smooth, and without injurious cold shuts, swells, lump scabs, scoria, sand holes or other defects and imperfections.
- 2) Weld repair will not be allowed without the written permission of the Engineer. Map all defects over $\frac{1}{4}$ inch wide or $\frac{1}{4}$ inch deep. If such defects add up to ten percent or more of the total open surface area, then the casting will be rejected unless waived by the Engineer. Map defects smaller than $\frac{1}{4}$ inch if they are densely concentrated, and report to the Engineer for approval or repair. Conduct repairs permitted by the Engineer per approved procedures. Any acceptable casting defect that affects the paint integrity shall be plugged or filled using approved methods and only with the consent of the Engineer.
- 3) All castings shall be thoroughly, inside and outside, free from sand and dust. Use wire brushes, scrapers or other approved mechanical

appliances for this purpose. Do not use acid or other corrosive liquids in cleaning castings.

- 4) The thickness of metal in the body of an iron casting having a standard thickness of less than 0.8 inch cannot be more than 0.08 inch less than the standards thickness; and the deficiency in thickness of castings having a standard thickness of 0.8 inch or more cannot exceed the standard thickness by more than 10 percent. The above allowable deficiencies in thickness, however, cannot extend over more than one half of the area of any casting.

2.3. BALL VALVES

2.3.1. General:

- 1) All ball valves shall be 2 inch Type 316 stainless steel body, full-port type with Type 316 stainless steel ball, unless otherwise specified or shown on the Contract Drawings. This Specification is based upon the Electric Actuator Stainless Ball Valves as manufactured by Valworx. Equivalent products by other manufacturers that are approved by the Engineer are also acceptable.
- 2) Design Working Pressures:
 - a. Valves 12-in and smaller: 275 psig.
- 3) Maximum Fluid Temperature: 158 ° F.
- 4) Packing self-compensating and shall be accessible without disassembly of the valve and shall be externally adjustable.
- 5) Valves shall provide bubble tight bi-directional shutoff at the design working pressure, operating pressures and test pressures.

2.3.2. Materials of Construction:

- 1) Body: Type 316 stainless steel.
- 2) Ball: Type 316 stainless steel

- 3) Stem: Type 316 stainless steel.
- 4) Seat, packing, gaskets: RTFE Teflon.
- 5) Stem Seals: Triple design RTFE Teflon, blow out proof.
- 6) Stem Bearing Type 316 stainless steel.
- 7) All internal and external bolting and other hardware including pins, set screws, studs, bolts, nuts and washers: Type 316 stainless steel.

2.3.3.

Shop Testing:

- 1) Performance Tests: To demonstrate that the complete assembly is workable, each valve (with the actuator mounted directly on the valve) shall be shop operated three times from the fully closed to the fully opened position and the reverse under a no flow condition.
- 2) Leakage Tests:
 - a. Each valve shall be shop tested in the closed position.
 - b. Valves shall be given a leakage test at the design working and operating pressures. During the test, the valves shall be drip tight. The test duration shall be at least 5 minutes for valves up to 20 inches and 10 minutes for valves 20 inches and larger. The tests shall be repeated with pressure in the opposite direction.
- 3) Hydrostatic Test: All valve bodies shall be subjected to an internal hydrostatic pressure equivalent to twice the rated pressure. During the hydrostatic test, there shall be no leakage through the metal, end joints or shaft seal, nor shall any part be permanently deformed. The duration of the hydrostatic test shall be sufficient to allow visual examination for leakage. Test duration shall be at least 1 min. for valves 8 in. and smaller, 3 min. for valves 10 in through 20 in., and 10 min. for valves 24 in. and larger.

2.3.4. Gear actuators for manual valves:

- 1) Gear actuators shall be provided on all buried and exposed valves, except 4 inch or smaller valves located less than six feet high above the operating room floor.
- 2) The gear actuators for valves 8 in. and smaller shall be sized for 175 psig differential pressure.
- 3) The gear actuators for valves larger than 8 in. shall be sized for a differential pressure of 100 psig, unless otherwise specified in the Specifications.
- 4) The actuators shall be designed to hold the valve in any intermediate position without creeping or vibrating.
- 5) A valve position indicator shall be provided on each actuator. Stop limiting devices shall be provided for open and closed position.
- 6) An adjustable stop shall be provided to adjust the seating pressure.
- 7) The packing shall be accessible for adjustment without requiring the removal of actuator from the valve.
- 8) The diameter ratio of the handwheel or the chainwheel and the gear sector shall be less than two.
- 9) For buried or submerged valves, the gear actuator shall be grease packed and designed to withstand submersion and be drop tight in water to 20 feet ahead.
- 10) Each actuator shall have all gearing totally enclosed.
- 11) The operator shaft and the gear sector shall be supported on permanently lubricated bronze bearings.
- 12) Metal encased spring loaded seals shall be provided in top and bottom covers of the gear housing.
- 13) Materials of Construction:
 - a. Housing: Cast Iron, ASTM A 126, Class B.
 - b. Gear Sector: Ductile Iron, ASTM A 536

- c. Worm Gear: Steel, AISI 1144, hardened and tempered to an average Rc 40 and within range of Rc 35-45.
- d. All Bearings: Bronze oil impregnated.
- e. All hardware including bolts, nuts, washers, set screws and pins: Type 316 stainless steel.

2.4. APPURTENANCES FOR EXPOSED METALLIC VALVES

2.4.1. General:

- 1) All valves located less than 6 feet high above the operating floor shall be provided with handwheels or levers. All 6 inch and larger valves shall be provided with handwheels and 4 inch quarter turn valves shall be provided with levers, unless otherwise shown or specified.
- 2) All valves located at 6 feet or more above the operating floor shall be provided with chain operators.
- 3) Where indicated, the valves shall be provided with extension stems and floorstands.

2.4.2. Handwheels:

- 1) All handwheels shall conform to the applicable AWWA Standards.
- 2) Material of Construction: Ductile iron or cast aluminum.
- 3) Arrow indicating direction of opening and word "OPEN" shall be cast on the trim of the handwheel.
- 4) Maximum Handwheel diameter: 30 inches.

2.4.3. Electric Motor Actuators: Electric motor actuators shall conform to the requirements of AWWA C540 and shall have the following characteristics. This Specification is based upon the Valworx Electric Actuator by Valworx. Equivalent products by other manufacturers approved by the Engineer are also acceptable.

- 1) Type: Open-Close, modulating, reversing.

- 2) Open-Close Time for Ball Valves: 20 seconds.
- 3) Housing: NEMA 4X with corrosion resistant epoxy coating.
- 4) Power: 120 volt, 60 Hz, single phase.
- 5) EPS - Electric Positioning System with actuator controlled by a 4-20 mA control signal.
- 6) Space heater and thermostat shall be provided in housing.
- 7) Limit switches shall be provided.

- 2.4.3.1. The actuator shall consist of an electric motor, mechanical gear reduction, absolute position encoder with redundancy, solid state motor controller, electronic control, protection, and monitoring package, manual override handwheel, valve interface bushing, and local control switches all contained in an enclosure that is sealed to NEMA 4X.
- 2.4.3.2. The power transmission shall be completely bearing-supported, and consist of a hardened alloy steel worm and alloy worm gear, and spur gear reduction, all immersed in an oil-bath lubricated using a synthetic oil designed specifically for extreme pressure worm and worm gear transmission service.
- 2.4.3.3. The motor shall energize on single phase 120 V/60 Hertz incoming power. The motor must have as a minimum class F insulation and a thermistor embedded within the motor windings to prevent damage due to over-load.
- 2.4.3.4. The control module shall include power and logic circuit boards, control transformer, and primary power protection fuses, all mounted to a steel plate and attached in the control compartment with captive screws.
- 2.4.3.5. Coatings -The actuator shall be coated with a polymer powder coat. The coating system shall be suitable for an ASTM B117 salt spray test of 1500 hours. External fasteners shall be stainless steel or high-strength carbon steel that has been chromate-hexavalent coated, and then top coated with a high-strength, high-endurance polymer. The fasteners shall be suitable for an ASTM B117 salt spray test of 500 hours.

2.4.3.6. A handwheel and declutch lever shall be provided for manual operation. The actuator shall include a removable torque bushing to mate with the valve shaft.

2.4.3.7. Factory testing -Every actuator shall be factory tested to verify: rated output torque, output speed, handwheel operation, local control, control power supply, valve jammed function, all customer inputs and outputs, motor current, motor thermistor, LCD and LED operation, direction of rotation, microprocessor checks, and position-sensor checks. A report confirming successful completion of testing shall be included with the actuator.

2.4.3.8. Certifications

A. Non-hazardous (Weatherproof / Submersion) Certifications

1. IEC 529 protection code IP67, NEMA 4X.

B. European Directives -All actuator designs shall have been tested to demonstrate compatibility with the following European Directives:

1. The actuator shall be tagged with CE mark per compliance with ISO5211 and IP67.

2. CSA: UL 429 and CSA C22.2 No. 139

2.5. PROGRAMMABLE LOGIC CONTROLLER

A programmable logic controller (PLC) shall be furnished, installed, and programmed to monitor and operate the valve actuators in sequence to allow operation of one carbon column, and the backwash and standby operation of the other carbon column. The PLC upon which this Specification is based is the Allen-Bradley/Rockwell Automation model Micro850 Programmable Logic Controller, or an equal product approved by the Engineer. It shall be enclosed in a NEMA 3A cabinet and include a power transformer properly sized and suitable to power all components of the actuator system, the differential pressure sensors and transmitters, and including itself. Furnish and install the required I/O modules (Spectrum Controls) to provide the PLC with adequate capacity to receive signals from the differential pressure transmitters and to operate the motorized valves in accordance with the sequencing set forth below.

- 2.5.1. The PLC shall receive the 4-20mA signal from each of the differential pressure transmitters which monitor pressure loss through each respective carbon column while it is operating in filtration mode. The PLC shall convert the 4-20mA signal to inches of water column for a differential pressure reading. When the differential pressure reading exceeds the specified amount (18-inches H₂O), the PLC shall send a 4-20 mA signal to specific valve actuators to close or open the water valves for the operating carbon column and operate the valve actuators for the standby column to bring it online. Each 4-20mA signal from the PLC to an actuator shall be calibrated and programmed to open or close each respective valve by a designated amount.

As those operations are accomplished, the PLC will send 4-20 mA signals to the respective water valve actuators on the formerly operating carbon column to open or close to allow backwashing of the formerly operating (now standby) carbon column. Typically, the valves shall be ¼ open during normal operation of a carbon column to process water to remove trihalomethanes, and ½ open for the backflushing of a column. Based upon actual flows occurring during system startup, the degree of valve opening can be determined to develop the desired flow through the system and the PLC programmed accordingly.

- 2.5.2. The PLC shall be programmed to operate the respective valve actuators in the following sequences (valves designated with an * are manual operation only) :

When Carbon Filter #1 is operating:

- Valve #1 and Valve #5 will be closed
- Valve #2, Valve #3, Valve #4* and Valve #7* will be open
- Valves #6, #8, #9 and #10 will be closed

When Carbon Filter #2 is operating:

- Valve #8 and Valve #9 will be closed
- Valve 4*, Valve #6, Valve #7* and Valve #10 will be open
- Valves #1, #2, #3, #5 will be closed

When Differential Pressure Transmitter DPT #1 detects excessive pressure loss through Carbon Filter #1 a backwash cycle will be initiated (5 minutes):

- Valve #2 and Valve #3 will be closed
- Valve #1, Valve #4*, Valve #5, Valve #6, Valve #7* and Valve #10 will be open
- Valve #8 and Valve #9 will be closed

When Differential Pressure Transmitter DPT #2 detects excessive pressure loss through Carbon Filter #2 a backwash cycle will commence (5 minutes):

- Valve #1 and Valve #5 will be closed
- Valve #2, Valve #3, Valve #4*, Valve #7* and Valve #8 will be open
- Valve #6, Valve #9 and Valve #10 will be closed

2.5.3. All necessary power and control wiring for the equipment actually furnished and installed to power the PLC and the valve actuators, and to transmit control signals between the PLC, the valve actuators, and the pressure sensors and the differential pressure transmitter and the PLC, shall be furnished and installed by the Contractor in accordance with the requirements and recommendations of the equipment manufacturers and suppliers, in compliance with all federal, state and local code requirements and regulations, and in accordance with the requirements of these Specifications, for a complete an operating system.

2.6. CHAIN OPERATORS:

- 1) All valves more than 6 feet above the operating floor shall be provided with chain operators.
- 2) Chains shall extend to three feet above the operating floor.
- 3) A ½ inch stainless steel hook bolt shall be provided to keep the chain out of the walking area.
- 4) Materials of Construction:
 - a. Chain: Type 316L stainless steel.
 - b. Chain wheel: Recessed groove type made out of Type 316 Stainless steel.
 - c. Guards and Guides: Type 316L stainless steel.

- 5) Chain Construction: Chain shall be of welded link type with smooth finish. Chain that is crimped and has links type with exposed ends that may cause injury shall not be acceptable.
- 6) Provide geared operators where required to position chain wheels in vertical position.

2.7. CRANK OPERATOR:

- 1) Crank operator shall be removable and fitted with a rotating handle.
- 2) Maximum Radius of Crank: 15 inches.
- 3) Materials:
 - a. Crank: Cast iron or ductile iron.
 - b. Handle: Type 304 stainless steel.
 - c. Hardware: Type 304 stainless steel.

2.8 ANCHOR AND MISCELLANEOUS MOUNTING BOLTS

- 2.8.1 All bolts, nuts and washers furnished for connection of the valve appurtenances to the concrete structure or other structural members shall be furnished by the valve equipment manufacturer, and shall be of ample size and strength for the purpose intended. Anchor bolts shall be hooked or adhesive type. The bolts and washers shall be of Type 316 stainless steel and nuts shall be Nitronic 60.

2.9. INSPECTION AND SHOP TESTS

- 2.9.1. Allow for inspection and testing of valves 20 inches or larger by the Engineer at the place of manufacture, when so stated in the Specifications.
- 2.9.2. The County may elect to conduct shop inspection on any size valves. The inspection may include but not be limited to: quality of the castings and other major components, mechanical and chemical testing, material sampling, material certifications, traceability of parts, blasting and painting and hydrostatic testing of the valves.
- 2.9.3. Where required by the County, shop testing of the valves shall be witnessed. Test valves hydrostatically at twice the rated working pressure and then test them for leakage at the rated working pressure. Apply the

rated working pressure alternately to each side of the close valve, or in the case of parallel seated gate valves, between the discs. For check valves, apply the rated working pressure against the direction of flow.

PART 3 EXECUTION

3.1 INSTALLATION

- 3.1.1. All valves and appurtenances shall be installed in accordance with manufacturer's instructions.
- 3.1.2. All valves shall be installed so that operating handwheels or levers may be conveniently turned from operating floor without interfering with access, and shall be as approved by the Engineer. Chain operators shall be oriented out of the way from the walking areas.
- 3.1.3. All valves shall be installed plumb and level. The valves shall be free from distortion and strain caused by misaligned piping, equipment or other causes.

3.2. FIELD TESTS AND ADJUSTMENTS

- 3.2.1. All parts and components shall be adjusted as required to provide correct operation.
- 3.2.2. A functional field test of each valve shall be conducted in the presence of the Engineer to demonstrate that each part and all components function together correctly.

3.3. MANUFACTURER'S SERVICE

- 3.3.1. Where required by the Engineer, the Contractor shall provide the services of qualified factory trained service technicians to check and approve the installation.

END OF SECTION

SECTION 15210
DUCTILE IRON PIPE

PART 1 GENERAL

1.1. WORK INCLUDED

- 1.1.1. This Specification includes furnishing and installing new ductile iron pipe and fittings in the existing water processing building and adjacent areas.

1.2. SYSTEM DESCRIPTION

- 1.2.1. The work specified in this Section includes the extension of (if necessary) and connection to the existing ductile iron water supply main inside the existing water processing building, using new ductile iron piping and fittings, to place into operation the new stainless steel piping valve tree and fiberglass reinforced plastic carbon columns, as specified herein and as shown on the Contract Drawings.

1.3. QUALITY ASSURANCE

- 1.3.1. Ductile Iron Pipe shall be centrifugally cast of Grade 60-42-10 ductile iron.
- 1.3.2. Pipe shall be manufactured in accordance with ANSI A21.50 and ANSI A21.51.
- 1.3.3. Flanged and mechanical joint fittings shall be manufactured in accordance with ANSI 21.10.
- 1.3.4. Manufacturer of pipe and fittings shall be the same, and shall have installations of like or similar application with a minimum of 20 years service for these product types.

1.4. SUBMITTALS

- 1.4.1. Shop Drawings shall be submitted in accordance with the Section "Shop Drawings and Samples" Division 1.
- 1.4.2. Shop Drawings shall include capacity, material schedule, location, elevations and coating of components.
- 1.4.3. Shop Drawings shall indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.

PART 2 PRODUCTS

2.1. PIPING

Valley View Water Trihalomethane Removal
County of Orange - Goshen, NY

Ductile Iron Pipe
15210-1

- 2.1.1. Underground pipe shall be pressure Class 350 and thickness Class 50 per ANSI A21.50, with mechanical joints per ANSI A 21.10.
- 2.1.2. Exposed pipe shall be pressure Class 350 and thickness Class 53 per ANSI A21.50, with flanged joints per ANSI A21.10.
- 2.1.3. Underground pipe and fittings shall be asphaltic coated per ANSI A21.51 and cement lined per ANSI A21.4.
- 2.1.4. Exposed pipe and fittings shall be primed and coated as per the manufacturer's standard, and cement lined per ANSI A21.4.
- 2.1.5. The manufacture of the pipe shall conform to ANSI A21.51.
- 2.1.6. Fittings shall be grey iron or ductile iron and conform to either ANSI A21.10 or ANSI A21.53.
- 2.1.7. Rubber gasket joints for grey iron and ductile iron pressure pipe shall conform to ANSI A21.11.

PART 3 EXECUTION

3.1. INSPECTION

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

3.2. PREPARATION

- 3.2.1. Clean area where pipe is to be installed.
- 3.2.2. Supply items required to be cast into concrete and set into the forms prior to placing the concrete.

3.3. INSTALLATION

- 3.3.1. Install components plumb and level, accurately fitted, free from distortion or defects.
- 3.3.2. Provide anchors, plates, angles, hangers and struts as required for pipe support.
- 3.3.3. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of pipe and permanent attachments

- 3.3.4. Field bolt to match adjacent pipe and equipment.
- 3.3.5. Do not use equipment for the support of the piping system. All pipe should be supported by appropriately installed pipe hangers.
- 3.3.6. In the case of buried pipe, provide proper pipe bedding using $\frac{3}{4}$ " to 1 $\frac{1}{2}$ " crushed stone compacted in place up to the crown of the pipe.
- 3.3.7. All pipe, fittings and accessories shall be installed and tested in accordance with the latest revision of ANSI/AWWA C600.

** END OF SECTION **

SECTION 15290
POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 GENERAL

1.1. WORK INCLUDED

- 1.1.1. This Specification includes furnishing and installing new polyvinyl chloride (PVC) pipe and fittings in the existing water supply building.

1.2. SYSTEM DESCRIPTION

- 1.2.1. The work specified in this Section includes the installation of new polyvinyl chloride (PVC) piping and fittings in the water supply building for the construction of the new fiberglass reinforced plastic granular activated carbon (GAC) columns, as specified herein and as shown on the Contract Drawings.

1.3. QUALITY ASSURANCE

- 1.3.1. Manufacturer of pipe and fittings shall be the same, and shall have installations of like or similar application with a minimum of 20 years service for these product types.
- 1.3.2. The pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer. The manufacturer's name or logo shall be stamped on the exterior surface of the pipe at regular intervals.

1.4. SUBMITTALS

- 1.4.1. Shop Drawings shall be submitted in accordance with the Section "Shop Drawings and Samples" Division 1.
- 1.4.2. Shop Drawings shall include capacity, material schedule, location, elevations and coating of components.
- 1.4.3. Shop Drawings shall indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.

PART 2 PRODUCTS

2.1. PVC PIPE

- 2.1.1. PVC pipe shall be Schedule 40 or 80, Type I, Grade I (Class 12454-B), conforming to ASTM D 1784 and D 1785, and be for use with potable water per NSF Standard 61. All PVC pipe must also meet the requirements of NSF Standard 14 and CSA

Standard B137.3 rigid PVC pipe for pressure applications, and shall bear the mark of these Listing agencies. Provide PVC pipe with the schedule as shown on the Contract Drawings.

- 2.1.2. Short nipples shall be the same as the PVC pipe.
- 2.1.3. Provide fittings that have the same schedule as the PVC pipe.
 - A. Fittings shall be Schedule 40 conforming to ASTM D 2466 for socket type.
 - B. Fittings shall be Schedule 80 conforming to ASTM D 2454 for threaded type and ASTM D 2467 for socket type.
- 2.1.4. Joints
 - A. Pipe and fittings shall be solvent welded except where threaded joints are required.
 - B. Solvent cement for socket joints shall comply with ASTM D 2564 and F 656.
- 2.1.5. The manufacture of the pipe shall conform to ANSI A21.51.

PART 3 EXECUTION

3.1. GENERAL

- 3.1.1. Verify that field conditions are acceptable and are ready to receive work.
 - A. Do not install PVC pipe when the temperature is below 40 degrees F or above 90 degrees F.
 - B. Store fittings indoors in their original cartons.
 - C. Store solvent cement indoors or, if outdoors, shade from direct sunlight exposure.
 - D. Before installation, check pipe for cuts, scratches, gouges, buckling, kinking, or splitting on pipe ends. Remove any pipe section containing defects by cutting out the damaged section as a complete cylinder.

3.2. PREPARATION

- 3.2.1. Clean area where pipe is to be installed.

3.3. INSTALLATION

3.3.1. Do not drag PVC pipe over the ground, drop it onto the ground, or drop objects on it. Cut pipe ends square and remove all burrs, chips, and filings before joining pipe or fittings. Bevel solvent welded pipe ends as recommended by the pipe manufacturer. Install components plumb and level, accurately fitted, free from distortion or defects.

3.3.2. Solvent Welded Joints

- A. Prior to solvent welding, remove fittings and couplings from their cartons and expose them to the air for at least one hour to the same temperatures as the pipe.
- B. Wipe away loose dirt and moisture from the ID and OD of the pipe end and the ID of the fitting before applying solvent cement. Do not apply solvent cement to wet surfaces.
- C. Make up solvent welded joints per ASTM D 2855.
- D. Allow at least 8 hours of drying time before moving solvent welded joints or subjecting the joints to any internal or external loads or pressures.

3.3.3. Provide anchors, plates, angles, hangers and struts as required for pipe support.

3.3.4. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of pipe and permanent attachments

3.3.5. Do not use equipment for the support of the piping system. All pipe should be supported by appropriately installed pipe hangers.

3.3.6. All pipe, fittings and accessories shall be installed and tested in accordance with the latest revision of ANSI/AWWA C600.

3.3.7. All pipelines that are to carry potable water shall be disinfected before they are placed into service as specified in ANSI/AWWA Standard C651, latest edition.

3.3.8. VOC Testing at the entry point at the conclusion of construction, disinfection and flushing due to the use of solvent welded PVC pipe shall be complete in addition to bacteriological analyses.

**** END OF SECTION ****

[illegible]

SECTION 16000
ELECTRICAL WORK

PART 1 GENERAL

1.1. DESCRIPTION

- 1.1.1. These specifications cover furnishing of all labor and materials to provide a complete and operative electrical and control system. Work in general is shown on electrical drawings and includes, but is not limited to, the following:
- 1.1.3. Furnishing and installation of conduits and wiring to proposed equipment.
- 1.1.4. Installation of control panels and wiring those panels, control devices, equipment motors, etc., as per schematic wiring diagrams furnished by manufacturers and shown on the Contract Drawings.
- 1.1.5. Furnishing and installation of breaker panels, disconnects, transfer switches, and junction boxes and wiring of all panels, disconnects, switches, and boxes.
- 1.1.6. Furnishing and installation of grounding system.

1.2. GENERAL CONDITIONS

- 1.2.1. Safety - The Contractor shall perform all work in accordance with New York State Safety Standards of the Labor Board Rule No. 23; and shall take special precaution during the construction to avoid any exposed live parts. When working on live equipment, the Contractor shall give other trades adequate warning, and provide adequate protection and warning for others. All open trenches shall be barricaded and lighted at all times.
- 1.2.2. National Electrical Code - Entire installation shall be made in accordance with the latest edition of the National Electrical Code. Contractor shall cooperate with N.E.C. inspector on the installation.
- 1.2.3. Tests and Engineering - After the electrical installation is complete, this Contractor shall test all circuits, busses and equipment for freedom from grounds and short circuits before energizing. Equipment shall be energized only after said tests have been conducted, and test results evaluated.
- 1.2.4. Investigation of Conditions - The Electrical Contractor shall visit the site of the work and familiarize himself with all available information concerning the nature of the structural excavation and local conditions bearing on transportation, handling and storage of materials. The Electrical Contractor shall make his own estimate of the facilities needed and difficulties attending the execution of the Contract, including local conditions, availability of labor, uncertainties of weather,

transportation, or other contingencies.

- 1.2.5. Intent - It is the intent of the Plans and Specifications to provide alterations and new construction as indicated on the Drawings and in the Specifications to provide complete systems in every respect, capable of operating as designed. It is not intended that every fitting, minor detail or feature, be shown on Drawings; and the Contractor will be responsible for any detail necessary for completion of these systems in accordance with good practice.

Installation shall be executed so as to contribute to efficiency of operation, minimum maintenance, and accessibility, and sightliness. It shall be also so executed that the installation will conform and accommodate itself to the building structure, its equipment, and its usage.

- 1.2.6. Drawings and Measurements - Contract Drawings for mechanical and electrical work are in part diagrammatic, intended to convey the general design and extent of the systems, and indicate general arrangement of equipment, conduits, piping, and approximate sizes and locations of equipment and outlets.

- 1.2.7. Guarantee - The Contractor shall guarantee all workmanship, materials, performance for a period of one (1) year from the date of the certificate of completion and acceptance of his work. The Contractor shall promptly correct, without cost to the Owner, such defects upon notice from the Owner to do so.

- 1.2.8. Waterproofing - Where any work pierces waterproofing, the installation shall be as approved by the Engineer. Contractor shall furnish all necessary sleeves, caulking, and flashing as required to make the openings absolutely watertight.

- 1.2.9. Excavation and Backfill - Electrical contractor shall perform all excavation and backfill required for his work and shall cleanup, re-sod all disturbed areas and pavement restoration. All excavation and backfill work shall be done in accordance with the requirements of Division 2.

1.3. CODES, PERMITS, APPLICATIONS

- 1.3.1. Applicable Codes - The entire installation shall conform to the rules and regulations of the following parties having jurisdiction:

- 1.3.1.1. National Electrical Code of the National Fire Protection Association, latest edition;
- 1.3.1.2. Local Electrical Code, and other regulations of municipality;
- 1.3.1.3. "Specification for Electrical Installations" issued by supplying electric utility company;
- 1.3.1.5. National Electric Safety Code.

- 1.3.2. Permits - Contractor shall obtain all permits required by local utility company ordinances. Contractor shall cooperate with utility companies on electric and telephone installations. Contractor shall obtain approval of all utilities on service entrances.
- 1.3.3. Electric Utility Company Standards - Entire installation shall conform to all rules and regulations for service as issued by the utility company.
- 1.3.4. Laws, Ordinances, and Fees - This Contractor shall give all necessary notices, obtain all permits, and pay all fees, and other costs in connection with his work; file all necessary plans; prepare all documents; and obtain all necessary approvals of all local, County, and State Departments jurisdiction; obtain all required Certificates of Inspection for his work including Underwriter's certificates, and deliver same to the Engineer before request for acceptance and final payment for the work.

1.4. MATERIALS & WORKMANSHIP

- 1.4.1. Material Standards - All materials shall be new, and comply with the best accepted industry standards, and shall bear the Underwriters' Laboratories (UL) Seal of Approval. All materials shall be of such quality and dimensions specified, and shall be manufactured in accordance with American Standards Association, National Electrical Manufacturers Association, I.E.E.E., and Underwriters' Laboratories. In any conflict, the Engineer shall be the sole judge of whether or not these conditions are met, or whether the "or equal" clause is met.
- 1.4.2. Appearance of Work - All work shall be executed to present a neat mechanical appearance, and leave the installation in proper operating order.
- 1.4.3. Layout, Cutting and Patching - The Electrical Contractor shall layout all conduits, box locations, etc. All wiring and patching by this Contractor.
- 1.4.3.1. Contractor shall cooperate with other contractors on locations of facilities where conflicts of location arise.
- 1.4.3.2. Contractor shall verify all dimensions shown on Plans, and shall be responsible for dimensions and conduit sizes to assure adequate sizing where larger conduits are installed to provide for more than one (1) circuit per conduit.

1.5. SUBMITTALS

- 1.5.1. See Section 01340-Shop Drawings and Samples.
- 1.5.2. See other Division 16 Sections.
- 1.5.3. Catalog cuts and Shop Drawings of all materials and equipment.
- 1.5.4. Installation instructions and operation and maintenance manuals for all equipment.

- 1.5.5. As-built wiring diagrams and circuit directories.

1.6. DELIVERY, STORAGE AND HANDLING

- 1.6.1. Deliver equipment in crates or cartons and do not uncrate until ready for installation.
- 1.6.2. Properly store all materials and equipment in accordance with the manufacturers' recommendations and as required to protect them from damage and corrosion.
- 1.6.3. Temporarily close all openings to prevent obstruction, damage or the intrusion of foreign materials.

1.7. SCHEDULING/SEQUENCING

- 1.7.1. Before ordering or installing electrical work, review the Project with the Electric Utility Co. and verify compliance with all applicable laws, codes and regulations.
- 1.7.2. Notify Engineer at least 48 hours in advance of all testing so that he may witness the tests and testing procedures.

1.8. TEMPORARY ELECTRIC WORK

- 1.8.1. Provide general temporary electrical services required for construction of this project as described herein. Unless otherwise noted, such services shall be removed when accepted permanent systems are fully operational, when and as directed by the Engineer. All work shall conform to the National Electric Code, including ground fault protection circuits, OSHA and Union minimum requirements. The system shall be continuously maintained in good working order.
- 1.8.2. Provide temporary wiring to all construction areas, as required.
- 1.8.3. Provide interior space lighting with combination lamp and plug units on 30 foot centers (separate circuits). Provide additional units for each space or room as needed by construction trades.
- 1.8.4. Provide temporary lighting panels and feeders as required to suit construction. Each panel shall have a main disconnect and branch circuits as needed for construction needs.
- 1.8.5. Provide temporary light and power service on all regular working days of all trades from 7 a.m. to 6 p.m., 5 days per week, or 15 minutes before until 30 minutes after overtime or special working hours.

1.9. CONTROL PANELS FURNISHED BY THE GENERAL CONTRACTOR

- 1.9.1. Control panels furnished by the General Contractor shall be installed and secured in place by the electrical contractor. Any anchoring brace support required for mounting shall be furnished and installed by the electrical contractor.

PART 2 PRODUCTS

2.1. GENERAL

- 2.1.1. All materials and equipment shall be new and of the best quality and shall conform to UL Standards and carry the UL Label in every case where UL Standards have been established for the materials or equipment.

2.2. NAMEPLATES

- 2.2.1. Provide nameplates for all items of equipment on all switch gear, motor control centers, panel boards, controllers, selector switches, starters, safety switches, push button stations, feeder switches, transfer switches, and relay and equipment enclosures.
- 2.2.2. Nameplates shall be black laminated plastic or bakelite, approximately 3/4" x 2H" x 1/16", with four edges neatly beveled. Lettering shall be engraved, white, with a height of approximately 3/16" to 1/4".
- 2.2.3. Provide two holes in nameplate and secure to equipment with non-ferrous screws. If adequate space is not available on item to which nameplate is to be affixed, nameplate may be installed adjacent to and as close to the item as possible, and in a position where it is readily visible.
- 2.2.4. Notations on nameplates shall be exactly the same as the corresponding notations that appear on the Drawings.

2.3. EQUIPMENT SUPPORTS

- 2.3.1. Provide all structural supports required for proper attachment of all equipment. Wall mounted equipment may be directly secured to walls with approved anchors.
- 2.3.2. Maintain at least 1/4" air space between equipment and supporting walls. Groups or arrays of equipment may be mounted on adequately sized steel or aluminum channels, angles or bars. Prefabricated steel channels equal to those manufactured by Unistrut or Kindorf are acceptable.
- 2.3.3. Equipment suspended from ceilings shall be supported by adjustable threaded steel rods of adequate strength. No hangers may be secured to furred or suspended ceilings or attached to or carried through duct work.

PART 3 EXECUTION

3.1. PREPARATION

- 3.1.1. Layout all work at the site by consultation with other trades before installing work to eliminate any conflict between this work and work of other trades.
- 3.1.2. Coordinate electrical work, in advance, with other work. The installation of chases, openings, sleeves, etc., required for panels, boxes, outlets, receptacles, conduit, supports, wireways, etc., shall be done at such time as to minimize the need for subsequent cutting and patching. Prior to the ordering of any equipment, verify the location, type and characteristics of service to be furnished.

3.2. PERFORMANCE

- 3.2.1. Perform all work which is both requisite and essential in completing the intended installation in the proper manner.
- 3.2.2. The drawings indicate the general arrangement of circuits and outlets, locations of switches, panel boards, conduits and other work. Field verification of all dimensions is required. Specifications and Drawings are for assistance and guidance, but exact locations, distances and levels shall be governed by actual field conditions. Conduit runs and grounding are shown diagrammatically only, and the layout does not necessarily show the total number of conduits for the circuit required, nor is the location of indicated runs intended to show the actual routing of conduits. Furnish, install and place in satisfactory condition, ready for operation, all conduits, cables and all other materials needed for the complete lighting, power and other electrical systems as shown or indicated on the Drawings. Install additional conduits and required wiring whenever needed to complete the installation of the specific equipment.

3.3. BALANCING LOADS

- 3.3.1. Circuit numbering on the Drawings is indicated for clarification only. Because substitutions may produce different electrical loads, balance all light, power and heat loads so that a phase-to-phase difference of 5% is not exceeded.

3.4. FIELD PAINTING

- 3.4.1. Unless otherwise specified, touch-up all scratched surfaces due to electrical work in accordance with the requirements set forth in Section 09900.

3.5. FIELD QUALITY CONTROL

- 3.5.1. Check for proper phase sequence and test all parts of the electrical systems before placing them in service.

- 3.5.2. Provide all labor, materials, testing equipment, electricity, fuel, lights, lubricants, equipment, instruments and all other materials required for conducting all tests.
- 3.5.3. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show insulation resistance between phase conductors and ground of not less than that required by NEC, or as specified herein.
- 3.5.4. All systems shall show proper neutral connections.
- 3.5.5. Insulation test of equipment, motors, cables, etc., shall pass the Standard Insulation Test established by the IEEE and shall be made before and after all required high potential tests. All insulation testers shall be of the motor driven, direct reading type, unless otherwise noted.
- 3.5.6. Check nameplate data on each piece of equipment and furnish copy of list to Engineer.
- 3.5.7. Check all motors for proper rotation and speed and all starters for proper overload protective elements.
- 3.5.8. Conduct a ground test on each and every circuit. The test results shall not be less than those required by the NEC or Underwriters Laboratories. Furnish a detailed record of these tests.
- 3.5.9. Test all wiring in accordance with IPCBA Standards test methods.
- 3.5.10. Test all electrical devices for proper control of motors and equipment.
- 3.5.11. Lamp all fixtures with lamps of designated rating, color and pattern and check operation.
- 3.5.12. Check amperage in all circuits and compare to nameplate data.
- 3.5.13. Conduct all other tests required to secure approval of the Work from all agencies having jurisdiction.

3.6. ADJUST AND CLEAN

- 3.6.1. Replace any portion of the Work which does not conform to established standards and requirements.
- 3.6.2. During tests, make all adjustments and changes until the equipment and systems are operating satisfactorily.

- 3.6.3. Should any defects be suspected or found after tests have been completed, make all required adjustments, repairs, and replacements, and retest to the satisfaction of Engineer.
- 3.6.4. Clean all exposed electrical work and remove all unnecessary labels, soil, markings and foreign material. Do not remove labels required by the Specifications, laws, regulations and codes (e.g., UL labels) or special labels warning of hazards, denoting special operating and maintenance procedures or labels with other important or meaningful messages, directions or warnings.

****END OF SECTION****

SECTION 16111
CONDUITS AND BOXES

PART 1 GENERAL

1.1 DESCRIPTION

1.1.1. Work covered by this Section includes the furnishing and installation of conduits and boxes.

1.1.2. Related work specified elsewhere includes:

Other Electrical Work: Division 16

1.2. QUALITY ASSURANCE

1.2.1. All conduits and boxes shall be straight, free from blisters and defects, and shall bear the Underwriters' Label.

1.2.2. Waterproofed Surfaces - Except where absolutely necessary, do not penetrate roofs and waterproofed surfaces. Where required, make penetrations prior to the application of roofing and waterproofing materials and furnish all sleeves, pitch pockets and other approved items.

1.2.3. Hazardous Areas - Seal all conduits and penetrations entering or leaving hazardous areas in accordance with NEC.

PART 2 PRODUCTS

2.1. CONDUIT

2.1.1. Flexible metallic conduit shall be used in all interior ceiling areas except noted on Drawings. Electrical metallic tubing shall be used in all interior wall areas as noted on Drawings.

2.1.2. PVC Schedule 80, nonmetallic conduit shall be used in all areas except as noted on Drawings. Conduits shall be manufactured to NEMA TC-2, Federal specifications and UL 651 specifications.

2.1.2. Conduits shall be placed at right angles or parallel to walls, and securely held by galvanized iron hangers or straps spaced 3 to 5 feet on center. No conduit shall be smaller than 3/4". All conduits shall be secured with backstraps, to structural members.

2.1.3. Provide all necessary hangers, angle iron or channel frames for support of conduit and boxes.

- 2.1.4.. For all sizes of conduit larger than 1" large radius elbows and offsets made for the purpose shall be used. In smaller sizes the Contractor shall be permitted to make bends instead of using the manufactured elbows and offsets.

2.2. LIQUID-TIGHT FLEXIBLE CONDUITS

- 2.2.1. Make terminal connections to motors and equipment with liquid-tight, flexible conduit of the same size as the rigid conduit run.
- 2.2.2. Maximum length of liquid-tight flexible conduit - 18".
- 2.2.3. Conduit shall be single strip, continuous, flexible, interlocked, durable wrapped steel, galvanized inside and outside, and provided with a tough, inert and watertight plastic jacket, conforming to NEC Article 351.
- 2.2.4. Conduits shall be Seal-Tite, type V.A. (American Brass Co.), Flex-Seal, type XI (Columbia Cable & Electric Corporation), or equal.

2.3. OUTLET BOXES

- 2.3.1. The Contractor shall furnish and install at all outlets, a standard one- piece outlet box. Boxes and cover shall be in every instance of such form and dimensions as to be adapted to its specific use and locations, kind of fixtures to be used, and the number, size, and arrangement of conduits connecting thereto. Outlet boxes shall be of the following types.
- 2.3.1.1. Exterior or In Concrete - Non-metallic.
- 2.3.1.3. Interior - Surface Mounted - Non-metallic.
- 2.3.1.4. All Other Locations - Non-metallic.
- 2.3.2. Outlet boxes shall be as manufactured by Carson, or equal.
- 2.3.3. Care shall be taken to open only such holes as are to be used for conduits entering the boxes. Those holes not used shall be closed with snap-in blanks or equivalent.
- 2.3.4. Concealed outlet boxes shall be firmly anchored in place and shall be provided with approved supports where required. Suitable expansion screws, wood screws with lead plugs or approved toggles shall be used in all cases for securing boxes to stone, brick or transite walls and partitions.
- 2.3.5. All boxes for exterior and interior surface mounted work shall be non-metallic, equipped with gaskets and appropriate conduit openings, duct, vaporproof or watertight where required.

PART 3 EXECUTION

3.1. INSPECTIONS - VERIFICATIONS

- 3.1.1. The Drawings indicate the general locations of outlets, fixtures, equipment, wiring and other electrical devices and the general details for the complete electrical and telephone installations.
- 3.1.2. Conduit locations are diagrammatic only and do not necessarily indicate the exact location or routing.
- 3.1.3. Prior to locating and installing conduits and boxes, check the Contract Drawings and the Work to be sure that the locations of all conduits and boxes will not interfere with or be covered by doors, casework, heating and process equipment, or the like, and that conduit stubs for motors and equipment will be placed in the proper locations.

3.2. INSTALLATION OF CONDUITS

- 3.2.1. Conform to NEC requirements.
- 3.2.2. Unless otherwise directed by Engineer or shown on the Drawings, all conduits shall be concealed in floors, walls, ceilings or underground.
- 3.2.3. For exposed work, support conduit every five (5) feet with galvanized malleable iron one-hole straps and "clamp-backs." Secure tightly with screws, bolts or other approved means. Size of bolts shall be commensurate with supported weight.
- 3.2.4. For parallel groups of exposed conduits, provide trapeze hangers or other approved methods of installation.
- 3.2.5. Provide conduit insulating bushings with ground legs on all conduits terminating in or under motor control centers and ground to control center and system ground. Provide insulating bushings at all other locations required by NEC.
- 3.2.6. In fill or slabs, run conduits as straight and direct as possible. Where required, use long radii bends. In structural slabs less than 4" thick, conduits having "D" over 1" are prohibited, where "D" is the maximum outside diameter or dimension of the conduit. In structural slabs 4" and thicker, "D" shall not exceed 1-3/8 inches. Where conduits are permitted in the slab, the center-to-center spacing shall not be closer than 3 "D" and in no case, less than 2 inches clear.
- 3.2.7. Unless otherwise specified or directed by Engineer, the minimum depth of cover over underground conduits shall be 30".
- 3.2.8. Underground conduit runs shall be pitched for drainage, away from the level of entry to buildings or equipment.

3.2.9. Holes through concrete walls, for conduit installation, shall be made with a core drill. Position holes to avoid reinforcing steel. After installation, fill remaining annular space with an approved material. Do not penetrate reinforcing bars.

3.2.10. Avoid bends and offsets where possible. No bends greater than 90D are permitted in any one run of conduit. Provide pull boxes where more bends are necessary.

3.2.11. Plug and cap all conduit until ready to pull wires and make connections.

3.3. INSTALLATION OF BOXES

3.3.1. Boxes shall be supported independently of all conduits and shall be rigidly secured in place.

3.3.2. Surface mounted pull and junction boxes, one foot square or more in area, shall be installed to provide a minimum air space between box and mounted surface of one (1) inch.

3.3.3. Tape all joints in outlet and junction boxes in such manner and thickness that the insulating value of the joints or splice will be at least equal to the insulating value of the conductor to which it is applied. Tape shall be varnished cambric and electrical tape.

3.3.4. Unless otherwise shown on the Drawings or required by the Engineer, the mounting height of all boxes shall be as follows: (from floor to centerline of box)

Local switches: 44 in.

Convenience receptacles: above grade areas - 1 ft. 6 in.
 below grade areas - 4 ft. 4 in.

Safety and Disconnect Switches: 4 ft. 6 in.

Panels: 6 ft. to top breaker

Telephone outlets: 1 ft. 6 in.

3.3.5. Do not install junction boxes in structural slabs.

3.4. ADJUST AND CLEAN

3.4.1. Adjust all work to provide a rigid, neat, and clean conduit system.

3.4.2. Clear conduits of all obstructions and dirt prior to pulling wires or cables. Use ball mandrel, with a diameter equal to approximately 85% of the inside diameter of the conduit, followed by a close fitting wire brush and wad of felt or similar material. This assembly may be pulled together with, but ahead of, the cable being installed.

3.4.3. Clean empty conduits, as specified above.

****END OF SECTION****

SECTION 16120
WIRES AND CABLES

PART 1 GENERAL

1.1. DESCRIPTION

- 1.1.1. Work covered by this Section includes the furnishing and installation of wires and cables and connections to all equipment, motors, lighting fixtures, motor control centers and electrical signal devices.
- 1.1.2. Related work specified elsewhere includes:

Other Electrical Work Division 16
- 1.1.3. Definitions: AWG - American Wire Gauge

1.2. QUALITY ASSURANCE

- 1.2.1. Acceptable manufacturers of wire and cable are Anaconda, General Electric, or an approved equal.
- 1.2.2. Acceptable manufacturers of solderless pressure type terminals and lugs are O.Z. Manufacturing Co., Burndy Manufacturing Co., Thomas & Betts (T&B), or an approved equal.

1.3. SUBMITTALS

- 1.3.1. Samples of wires, cables and connectors proposed for use.
- 1.3.2. Description indicating where each type of wire and cable will be used.
- 1.3.3. Manufacturer's descriptive literature.

PART 2 PRODUCTS

2.1 WIRES AND CABLES

- 2.1.1. Wire and cable shall conform to code and shall be copper, 600 volt with the following insulation types:
 - 2.1.1.1. Feeders to switchboards, motor control centers and panelboards shall have cross-link polyethylene insulation with an THWN rating. Service entrance conductors and wiring runs installed in existing empty conduits shall have a "USE" rated insulation.

2.2. WIRE AND CABLE IDENTIFICATION

2.2.1. Conductors shall be color codes as follows:

| <u>Phase</u> | <u>Color</u> |
|------------------|---------------|
| A | Black |
| B | Red |
| C | Blue |
| Neutral | White or Grey |
| Equipment Ground | |
| Wire | Green |
| High Voltage Leg | Orange |

2.2.2. Tag cables and wires in pull boxes, panelboards, motor control centers, at equipment, and at electrical devices. Tags shall be printed, stamped or engraved to indicate the circuit number, the voltage, the phase and a one-word description of its use or an equipment number designation. (e.g. - For Blower B-1, tag would read "B-1, 240V., 3P -- For lighting, tag would read "LIGHT CKT 18, 120V., 1P"). Tags shall be wrap-around self laminating, adhesive backed tags equal to Brady B-191, or 3/4" diameter phenolic cable marker tags equal to those manufactured by Seton Name Plate Corp. Aluminum cable marker tags equal to Seton S872, or equal may only be used where specifically approved or indicated on the Drawings.

Label high voltage leg "orange" as per NEC Code.

2.3. SOLDERLESS PRESSURE CONNECTORS

2.3.1. No 10AWG and smaller - T&B "Sta-Kon".

2.3.2. No 8 AWG and larger - T&B Series 53200.

2.4. UNDERGROUND MARKERS

2.4.1. All underground wires, cables and conduits, which are not encased on concrete, shall have a plastic ribbon marker installed in the backfill, located directly over the line and approximately 9" below finished grade, unless otherwise noted.

2.4.2. Markers shall be "Terra Tape" as manufactured by Griffolyn Co., Inc., or equivalent by Seton Nameplate Corp., or equal.

2.4.3. Tape shall be imprinted with appropriate warning words similar to "CAUTION - BURIED ELECTRIC LINE BELOW".

PART 3 EXECUTION

3.1. INSPECTION

- 3.1.1. Do not pull wires and cables until conduits have been installed and cleaned and cleared of obstructions.
- 3.1.2. Check all nameplate data of equipment actually furnished to determine wire sizes required.

3.2. INSTALLATION

- 3.2.1. All circuits shall be made up of single conductor wire or cables, unless otherwise noted.
- 3.2.2. If lubrication is necessary, install conductors using powdered soapstone or other UL labeled electrical lubricant. Oils, greases or other compounds are not permitted for use as lubricants.
- 3.2.3. Conductor splices in raceways or fittings are not permitted.
- 3.2.4. Connection of conductors to terminal posts or other conductors shall insure a thorough and tight connection without damaging the conductor. Make connections by means of solderless pressure type terminals or lugs. Connectors shall be for proper cable size and shall have a conductivity not less than that of the wire or cable to which they are attached. Carefully finish and fit to provide a low resistance connection without reducing cable copper.
- 3.2.5. Remove and replace any wire, cable, insulation, connector or other item of work which has been pinched, scraped, broken, impaired or damaged.

****END OF SECTION****

PART 1 GENERAL

1.1. DESCRIPTION

- 1.1.1. Work covered by this Section includes the furnishing and installation of lighting and distribution panelboards, including circuit breakers, contactors and transformers.
- 1.1.2. Related work specified elsewhere includes:
- | | |
|----------------------------|---------------|
| General Requirements | Section 16010 |
| Disconnects/Breakers/Trips | Section 16170 |
| Lighting | Section 16500 |
| Other Electrical | Division 16 |

1.2. ACCEPTABLE MANUFACTURERS

- 1.2.1. Siemens G2020B1100CU or equal.

1.3. SUBMITTALS

- 1.3.1. See Sections 01300, 16010.
- 1.3.2. Manufacturer's catalog cuts and layout drawings, clearly indicating all breaker sizes, contactors, bus-work and other features, sizes and ratings.

PART 2 PRODUCTS

2.1. PANELBOARDS

- 2.1.1. Lighting panels shall be NQOD and distribution panels shall be I-Line or Tye NF as indicated on the drawing by Siemens.
- 2.1.2. Panelboards and cabinets shall conform to the requirements of the Underwriters' Laboratories and shall bear the UL label.
- 2.1.3. Panelboards shall be flush mounting type, when required to be installed in MCC or recessed in walls, otherwise, they shall be surface mounting type.
- 2.1.4. Panelboards shall be AC circuit breakers type with adequately sized solid neutral and copper bus and lugs or circuit breaker in the main, per circuit schedules shown on the Drawings. Subject to Engineer's approval, circuit schedules may be revised to obtain a more convenient grouping or a better balance of the actual connected load. Provide a separate equipment ground bus in all panels.

- 2.1.5. Mark all circuits, as to their utilization, on a typewritten schedule, in a clear plastic covered window frame inside the door.

PART 3 EXECUTION

3.1. INSTALLATION

- 3.1.1. Install panelboards at the locations shown on the Drawings. Whenever heights above finished floor are not shown, install panelboards with uppermost breaker at 6'-0".
- 3.1.2. Install, in panelboards, all breakers, contactors, transformers, and other required equipment and appurtenances.

****END OF SECTION****

SECTION 16170
DISCONNECTS/BREAKERS/TRIPS

PART 1 GENERAL

1.1. DESCRIPTION

- 1.1.1. This Section covers the requirements for disconnect switches, circuit breakers and tripping devices.

1.2. SUBMITTALS

- 1.2.1. See Section 01300.
- 1.2.2. Manufacturer's name, catalog cuts and technical data clearly indicating ratings and characteristics.
- 1.2.3. List of fuse sizes and types.

PART 2 PRODUCTS

2.1. DISCONNECT SWITCHES - GENERAL

- 2.1.1. Switches shall be industrial, heavy duty, quick-make, quick-break type with arc suppressors, fused or unfused with number of poles shown on the Drawings. All current carrying parts shall be silver plated.
- 2.1.2. For switches located in outdoor locations, arrange operating handle for padlocking in the "OPEN" and "CLOSED" positions and in the "OPEN" position for indoor installations. Provide enclosure doors with an interlocking mechanism to prevent opening the door while the switch is in the closed position, except by authorized personnel who may unlock the door with a special key or tool for inspection purposes. Provide an additional interlock which prevents the closing of the switch while the door is open, unless the interlock is manually by-passed by authorized personnel.
- 2.1.3. Switches shall be horsepower rated and capable of interrupting stalled motor current of the connected motor. Plainly and legibly mark each switch with manufacturer's name and symbol, catalog number, voltage, ampere capacity, horsepower rating and type, and with the Underwriters' Label of approval for the intended use.
- 2.1.4. Where required for the running protection of small, single phase motors which are not equipped with magnetic starters, disconnect means shall be manual starting switches with integral overload relays as set forth in Section 16160.

2.2. FUSIBLE DISCONNECT SWITCHES

- 2.2.1. Visible blade type, complete with fusible switch, fuse block, fuse clips and fuses. Switch jaws shall be of the multi-spring type or shall be provided with a type of reinforcing spring which insures positive contact of switch jaw and blade.
- 2.2.2. Where required and where furnished as a part of combination motor starters, fusible switches shall be provided with NEC dual element (time delay) function fuses having the current ratings for the motor horsepower.

2.3. MOLDED CASE THERMAL MAGNETIC CIRCUIT BREAKERS

- 2.3.1. Breakers shall be operated by a toggle type handle and shall have quick- made quick-break over center switching mechanism that is mechanically trip free from the handle so that the contacts cannot be held closed against short circuits. Tripping due to overloads or short circuits shall be clearly indicated by the handle automatically assuming a position midway between the manual ON and OFF positions. All latch surfaces shall be polished and ground. All poles shall be so constructed that they open, close, and trip simultaneously.
- 2.3.2. Breakers shall be completely enclosed in a molded case. Non- interchangeable trip breakers shall have their covers sealed. Interchangeable trip breakers shall have the trip unit sealed to prevent tampering. Ampere ratings shall be clearly visible. Contacts shall be of non-welding silver alloy. Arc extinction must be accomplished by means of arc chutes consisting of metal grids mounted in an insulated support.
- 2.3.3. The minimum interrupting ratings of circuit breakers shall be at least equal to the available short circuit current at the line terminals. Each pole of the breaker shall be provided with inverse time delay overload and instantaneous short circuit protection.

2.4. LIGHTING AND BRANCH CIRCUIT BREAKERS

- 2.4.1. Breakers shall be mechanically and electrically similar to molded circuit breakers and shall have an interrupting rating of 10,000 amperes, or higher if noted, with bolt-on attachment. Main circuit breaker shall have an interrupting rating of 22,000 amperes.
- 2.4.2. Breakers shall be General Electric, Westinghouse, or equal, except when Ground Fault Interrupter circuit breakers are required, then they shall be Square D Co. "Qwik- Gard", General Electric CB3, or equal.
- 2.4.3. Where double or triple pole breakers are required, two or three single pole breakers with operating handles joined by a locking bar are not permitted.

****END OF SECTION****

SECTION 16450
GROUNDING

PART 1 GENERAL

1.1. DESCRIPTION

- 1.1.1. Work covered by this Section includes the furnishing and installation of required electrical grounding systems.

1.2. QUALITY ASSURANCE

- 1.2.1. Except as modified in this Section, grounding shall conform to the requirements of Article 250 of the NEC.

PART 2 PRODUCTS

2.1. MATERIALS

- 2.1.1. General - Unless otherwise shown on the Drawings or required by NEC or Federal, State or Local Codes, provide the following materials and minimum sizes.
- 2.1.2. Grounding Electrodes - Copper, 5/8" diameter, 8 ft. long.
- 2.1.3. Grounding Grid Conductors - Bare tin-plated copper, or less than No. 4/0.
- 2.1.4. Grounding Electrode Conductors - Stranded bare copper, No. 4/0 AWG.
- 2.1.5. Connections - Make all exposed and underground connections by a welding process equal to Cadweld.
- 2.1.6. Equipment Grounding Conductors - Make connections with approved pressure clamps. Provide grounding conductors for each motor/equipment as per NEC.
- 2.1.7. Lightening Arresters - Arresters shall be secondary type with air gap to bleed off excessive voltage, 250/500 voltage class for interior or exterior mounting.

PART 3 EXECUTION

3.1. GENERAL

- 3.1.1. Ground all equipment enclosures, motor and transformer frames, neutral transformer taps, conduit systems, cable armor, exposed structural steel and similar items.
- 3.1.2. Ground all control circuits on the non-fused side of control transformers, when used.

3.2. INSTALLATION

- 3.2.1. Provide a system of ground conductors and driven electrodes, hereinafter called the grounding grid.
- 3.2.2. Drive grounding electrodes into ground, except where rock or hard ground makes driving impracticable, then use 1/4" copper plates, 24" square, in lieu of electrodes.
- 3.2.3. Embed grounding grid conductors in backfill material.
- 3.2.4. Install underground conductors with slack and protect with pipe or other substantial guard where exposed to mechanical injury. If guards are cast iron or other magnetic material, electrically connect conductors to both ends of guard to prevent the inductive choke effect.
- 3.2.5. Install lightening arresters in the lighting panel.

****END OF SECTION****

SECTION 17425
DIFFERENTIAL PRESSURE TRANSMITTERS

PART 1 - GENERAL

1.1. WORK INCLUDED

- 1.1.1. Under this Section, the Contractor shall furnish, test, install and place in satisfactory operation the differential pressure transmitters and associated pressure sensor system, with all spare parts, accessories, and appurtenances as herein specified and as shown on the Contract Drawings.
- 1.1.2. Interconnect the output signal from the differential pressure transmitters to the valve actuator/system controller PLC, for use in opening and closing the valves at predetermined carbon column pressure loss differentials.

1.2. SYSTEM DESCRIPTION

- 1.2.1. It is the intent of this Specification to secure and install the differential pressure transmitters and associated pressure sensors that have been tested during design verification, in production, and at the final job site. The differential pressure transmitters and accessories, including the interconnection cables, shall be industrial designs and shall be complete with all of the necessary accessories for complete installation as specified herein and as shown on the Contract Drawings.
- 1) All differential pressure transmitters, associated sensors and interconnection cables, shall be new and of current production by a national firm that manufactures the differential pressure transmitters, associated pressure sensors and interconnection cables, and assembles them as complete and coordinated systems. For each system, there shall be one source for warranty, parts, and service through a local representative with factory-trained servicemen.
- 2) Acceptable manufacturer for the differential pressure transmitters, associated pressure sensors, and interconnecting cables, is Dwyer.
- 1.2.2. Furnish the services of competent field representatives of the differential pressure transmitter, associated pressure sensors and interconnecting cable system, for start-up.

1.3. SUBMITTALS

- 1.3.1. Prototype test certification.
- 1.3.2. Shop Drawings, catalogue cuts and catalogue numbers for all standard and optional accessories to be supplied.
- 1.3.3. Installation instructions.

- 1.3.4. Schematic wiring diagrams.
- 1.3.5. Interconnection diagrams identifying by terminal number each required interconnection between the differential pressure transmitters, the pressure sensors, and the valve actuator/control panel.
- 1.3.6. Dimension drawings.
- 1.3.7. Operation and maintenance manuals (two (2) sets).
- 1.3.8. Manufacturer's warranty.

PART 2 -- PRODUCTS

2.1. DIFFERENTIAL PRESSURE TRANSMITTER SYSTEMS

- 2.1.1. Each differential pressure transmitter system shall include dual pressure sensors to be mounted on the influent and effluent piping for each respective carbon column which convert pressure drop through the respective carbon column into a standard 4-20mA signal directly proportional to the liquid pressure differential experienced as the liquid passes through the liquid phase granular activated carbon in each respective column.
- 2.1.2. Each differential pressure transmitter/pressure sensor system shall be CE approved.
- 2.1.3. The differential pressure transmitter and pressure sensor and accessories wetted materials shall be type 316L stainless steel.
- 2.1.4. It shall have 2 wire 4-20mA output.
- 2.1.5. Zero and Units: Push buttons inside conduit enclosure.
- 2.1.6. Response Time: 400 msec.
- 2.1.7. Power supply shall be 10 to 35 DC.
- 2.1.8. Loop resistance: Current output shall be 1250 Ω (max). $R_{max} = 50$ (vps-10). Voltage output: minimum load resistance = 5 k Ω .
- 2.1.9. Current consumption: 28 mA(max).
- 2.1.10. Electrical connections: Removable terminal block; 1/2" female NPT conduit.
- 2.1.11. Accuracy: $\pm 0.5\%$ full scale (including linearity, hysteresis and repeatability).
- 2.1.12. Display: 4-1/2 digit LCD field attachable display.

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- 2.1.13. Enclosure Rating: NEMA 4X.
- 2.1.14. Temperature Limits: 0 to 200°F.
- 2.1.15. Compensated Temperature Limits: 0° to 175°F.
- 2.1.16. Pressure Limits: range 100 psid, working pressure 200 psi, overpressure 500.
- 2.1.17. Thermal Effect:: Avg 0.04%/°F (includes 0 and span).
- 2.1.18. The differential pressure transmitter shall be the Wet/Wet Differential Pressure Transmitter, Model 629C-05-R1-P1-E5-S1, with remote sensors and at least 10-feet of shielded cable each as manufactured by Dwyer, or an equal product approved by the Engineer.

PART 3 -- EXECUTION

3.1. INSTALLATION

- 3.1.1. Install equipment in strict accordance with the manufacturer's written recommendations for a complete and operating flow measuring and recording system.
- 3.1.2. Interconnect the Series 629C Wet/Wet Differential Pressure Transmitter 4-20 mA outputs, and the valve actuator, with the valve actuator/system controller so that the valves are automatically opened and closed at the preset pressure loss (see PLC requirements in Specification 15112) through the carbon columns.
- 3.1.3. Refer to the specifications for further requirements.

3.2. ADJUST AND CLEAN

- 3.2.1. Manufacturer's qualified representative shall come to the Site and test, calibrate, adjust and operate the differential pressure transmitter, and the valve actuator/controller system, and accessories to verify their satisfactory operation.

3.3. PROTECTION

- 3.3.1. Protect all equipment, accessories, and supplies from damage.
- 3.3.2. Repair or replace all damaged items.

- END OF SECTION -