

# PROPOSAL

FOR

TAS 26-15A    D215083

REHABILITATION OF THE WASTEWATER TREATMENT PLANT  
AT THE CHITTENANGO SERVICE AREA  
I-90, MILEPOST 266.3 WESTBOUND

## BOOK 1 OF 1

THIS BOOK CONTAINS SPECIFICATIONS AND  
BID PROPOSAL WORKSHEETS

SUBMITTED IN ACCORDANCE WITH THE NEW YORK STATE  
DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS  
OFFICIALLY ADOPTED JANUARY 1, 2026 EXCEPT AS MODIFIED  
IN THE PLANS AND/OR PROPOSAL AND ANY CHANGES WITH  
ARTICLE 2, TITLE 9 OF THE PUBLIC AUTHORITIES LAW.

LETTING OF  
**FEBRUARY 18, 2026**

BIDS DUE: 10:30 A.M.  
BIDS OPEN: 11:00 A.M.



**Thruway  
Authority**

200 Southern Blvd., Albany, NY 12209

# **NOTICE** **TO** **BIDDERS**

**In addition to the bid deposit requirement, this Proposal shall be accompanied by a Statement of Surety's Consent on the form furnished by the Authority. (See last page).**

**BIDDERS ARE SUBJECT TO LOSS OF BID DEPOSIT FOR FAILURE TO OBTAIN PROPER BONDING.**

# **Thruway Authority Designated Contacts**

Pursuant to NYS Finance Law Sections 139-j and 139-k, the following people are the designated contacts for this procurement process:

For all technical or engineering related questions:

- Alfred Yalaju, RA  
Project Designer  
[Alfred.Yalaju@thruway.ny.gov](mailto:Alfred.Yalaju@thruway.ny.gov)

Or

- Dan Livermore, PE  
Director, Structures Design Bureau  
[Dan.Livermore@thruway.ny.gov](mailto:Dan.Livermore@thruway.ny.gov)

Or

- Albert Mastroianni, PE  
Director, Office of Design  
[Albert.Mastroianni@thruway.ny.gov](mailto:Albert.Mastroianni@thruway.ny.gov)

For all procurement contract process related questions:

- Kelly Galvin  
Office of Procurement Services  
[Kelly.Galvin@thruway.ny.gov](mailto:Kelly.Galvin@thruway.ny.gov)

Or

Jonathan Hill  
Deputy Director of Capital and Contracts Management  
Office of Procurement Services  
[Jonathan.Hill@thruway.ny.gov](mailto:Jonathan.Hill@thruway.ny.gov)

For more information about NYS Finance Law Sections 139-j and 139-k, please see the New York State Thruway Authority Guidelines for Lobbying included in this Proposal.

# NEW YORK STATE THRUWAY AUTHORITY

## NOTICE TO BIDDERS

The Thruway Authority conducts public bid openings. Visitors who choose to hand deliver a bid and/or witness the bid opening are limited to one person. The Thruway Authority also uses  YouTube to broadcast its live bid openings. The link to live streams are available from the Thruway website here: <https://www.thruway.ny.gov/news/meetings/bid-openings.html>

or directly from  YouTube at:

<https://www.youtube.com/@nysthruwayauthority6263/streams>

Sealed bids must be hand delivered, or delivered by first class mail, USPS Express or Priority Mail, or overnight delivery service (e.g., FedEx, UPS) to the New York State Thruway Authority Headquarters Building, at the following address only: New York State Thruway Authority, 200 Southern Boulevard Albany, NY 12209.

Sealed bids should not be sent or delivered to any other address or location, and the Authority is not responsible for any late deliveries or misdirected bids.

Regardless of the delivery method selected, all sealed bids, whether paper or electronic form, must be delivered by 10:30 A.M. on Wednesday, February 18, 2026, where they will be opened publicly and read aloud at 11:00 A.M. Any bids sent or delivered to an address or location other than the one specified above, or received after this time, will not be accepted.

Contract TAS 26-15A / D215083 Rehabilitation of the Wastewater Treatment Plant  
at the Chittenango Service Area at I-90, Milepost 266.3 Westbound in Madison  
County in accordance with the Plans and Specifications.

**Your bid must be secured with either a Bid Bond or a Bid Deposit.** A Bid Bond must be in the amount of 5% of the total bid and must be on the Authority's Bid Bond Form (TA-44117) which is included in the Proposal. A Bid Deposit must be a certified check or cashier's check made payable to the New York State Thruway Authority in the amount of **\$40,000.00.**

Plans, proposals, and information on how to download Contract Bid Data are available on the Authority's Website at [www.thruway.ny.gov](http://www.thruway.ny.gov).

### **SPECIAL NOTE**

**The New York State Thruway Authority has discontinued the practice of reproducing and furnishing full-size and half-size plans to Contractors after contract award. Contractors shall be responsible for their own hard copies of plans and proposals at no additional cost to the Authority.**



## **New York State Can Help You Secure Surety Bonding**

The NYS Surety Bond Assistance Program (NYSBAP) provides technical and financial assistance to help contractors secure surety bonding. Contractors may be eligible to receive a guarantee of up to 30% to secure a surety bond line, bid bond or a performance and payment bond on State projects. Training is also available to contractors requiring technical support on how to become bond-ready. For more information and to fill out a NYSBAP application, visit <http://esd.ny.gov/BusinessPrograms/BondingAssistance.html> or contact Ms. Huey-Min Chuang at Empire State Development at 212-803-3238 or [BAP@esd.ny.gov](mailto:BAP@esd.ny.gov).

**SPECIAL NOTE**  
**REQUEST FOR INFORMATION (RFI)**

A **request for information (RFI)** is a written process used to clarify a detail, specification, or note in the contract documents, provide notification of a possible error or omission, or request a minor modification due to possible unforeseen issues that may occur during construction.

However, during the period between project advertisement and award of contract, the prospective Bidder/Contractor shall submit all RFIs to the appropriate “Designated Contact” via e-mail, as listed elsewhere in the Proposal. The prospective Bidder’s/Contractor’s RFI shall be forwarded to the designated contact. The Bidder Request for Information, Thruway Authority form TA-W44137, can now be found on the Authority’s website at:

<http://www.thruway.ny.gov/business/contractors/documents/ta-w44137.pdf>

This form should be filled out as completely and accurately as possible, numbered sequentially, as may be necessary, and saved in pdf format. Any supporting information that may help describe the issue more clearly, as well as any suggestions or recommendations for possible resolution, should also be provided. The form once complete shall be forwarded to the designated contact as instructed in the form.

Responses by the Authority to RFI’s will be documented as Questions and Answers and posted for all bidders’ reference, under each respective project, on the Thruway Authority’s website at:

<http://www.thruway.ny.gov/business/contractors/documents/index.shtml>

Questions and Answers posted to the Authorities internet page may not be memorialized as amendments. Thus, prospective bidders are advised to check the Thruway Authority’s website regularly before letting (or proposals are due), for Questions and Answers updates. Please be advised that RFI’s submitted the week of the letting may not be answered.

Any changes to the Contract documents that result from an RFI will be addressed via an amendment.

# New York State Thruway Authority

## Contract No. TAS 26-15A

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# **PROJECT INFORMATION**

**NEW YORK STATE THRUWAY AUTHORITY**  
**DEPARTMENT OF ENGINEERING**  
**PROPOSAL ESTIMATE FOR**  
**REHABILITATION OF THE WASTEWATER TREATMENT PLANT**  
**AT THE CHITTENANGO SERVICE AREA ON I-90**  
**AT**  
**MILEPOST 266.3 WESTBOUND**  
**IN THE**  
**SYRACUSE DIVISION**  
**OF THE**  
**NEW YORK STATE THRUWAY**  
**IN**  
**MADISON COUNTY**

| TYPE                                                  | LIMITS                                                                             |
|-------------------------------------------------------|------------------------------------------------------------------------------------|
| Rehabilitation of Wastewater Treatment Plant Facility | Chittenango Service Area<br>I-90, Milepost 266.3 Westbound<br>Plus Advance Signing |

**DEPOSIT REQUIRED**           \$40,000.00          

**COMPLETION DATE**           May 31, 2027

### **PRE-AWARD NOTICE**

A Pre-Award Meeting has not been scheduled for this project. If a Pre-Award Meeting is deemed necessary, notice of the date and time will be provided.

To assist the Authority in its award process, the successful low bidder must furnish the following items upon request:

1. A current New York State Uniform Contracting Questionnaire (NYSUCQ) CCA-2 form must be on file;
2. A list of current contracts giving the firm or agency for which they are being performed, the name and phone number of someone therein familiar with the contractor's work, the contract amount, and percent of completion;
3. Pre-Award Project Schedule;
4. Documentation of the actions taken to comply with the Minority/Women's Business Enterprise Utilization goals (Non-Federal), or Disadvantaged Business Enterprise goals (Federal) as defined in the Proposal;
5. A "Schedule of Participation of Minority/Women's Business Enterprise" (Form TA-1022), or Disadvantaged Business Enterprise" (Form TA-1022F);
6. AAPHC-89 Approval to Subcontract.

Contract Documents will be supplied with the Authority's notice to the successful low bidder and must be executed and returned to the Authority within ten (10) days of receipt.

If a Pre-Award Meeting is held, it is requested that the Project Superintendent be present. The Contractor should be prepared to provide, upon request by the Authority, information regarding, among other things, the following:

1. Use of subcontractors, including who they will be and what items of work they will perform;
2. Suppliers and manufacturers;
3. Traffic control and safety;
4. Any anticipated problems that could affect the progression of the project.

### **CONTRACT AWARD**

The award process cannot begin until the executed Contract Documents have been returned to the Authority and the successful Low Bidder has provided acceptable documentation with regard to his actions taken to comply with the M/WBE goals of this Contract or DBE Goals for Federally Aided Contracts.

**ALL BIDDERS****PRE-BID INSPECTION**

The prospective bidder must have in its possession the Contract Plans/Proposal and a Work Permit for identification purposes when conducting a pre-bid inspection of the Thruway facility.

The prospective bidder shall inform the appropriate Division Point of Contact (listed below) prior to visiting the site and shall strictly comply with all instructions and requirements.

- **The New York State Thruway Authority Permit Application (TA-W5124)** and information on required insurance documentation is available at <http://www.thruway.ny.gov/business/realproperty/permits.html>. The application along with insurance documentation shall be submitted to the appropriate Thruway Authority Division Permit Coordinator as indicated on page 2 of the application. The fee is waived for this Pre-Bid Inspection.

| <b><u>Division</u></b> | <b><u>Point of Contact</u></b> | <b><u>Phone</u></b> |
|------------------------|--------------------------------|---------------------|
| New York               | Timothy Mathew                 | (845) 918-2510      |
| Albany                 | Michael Beaudet                | (518) 471-5940      |
| Syracuse               | Jerrin George                  | (315) 438-2391      |
| Buffalo                | Nicholas Przybylski            | (716) 635-6253      |

Provisions of Section 107-05, Equipment Safety Procedures, contained in the Contract Proposal shall apply to all Pre-Bid Inspectors and shall be strictly adhered to while performing the pre-bid inspection.

**PRECONSTRUCTION MEETING**

A Pre-Construction Meeting will be held prior to the start of construction. The time, date and location will be coordinated by the Division Construction Engineer who will provide this information to the successful low bidder as soon as it is available.

**WITHDRAWAL OF BID**

A Contractor may at any time, upon at least fifteen (15) days written notice, withdraw its bid on a date sixty (60) days after bid opening or thirty (30) days after the properly executed contract documents have all been received by the Authority, whichever is later. The bid bond, bid deposit, and/or performance bond shall remain in effect until such period of written notice has expired provided the contract has not been approved by the Office of the State Comptroller in the interim.

The Contractor and the Authority may agree in writing to extend the date upon which the bid may be withdrawn if the contract has not been approved by the Office of the State Comptroller.



**WORK TO BE DONE**

The following is a general description of the work to be done under this Contract. This list is intended to give the Contractor a general description of the work involved in this Contract and is not a complete listing of all work to be done. All work shall be done in accordance with the Contract Documents even though not specifically mentioned in this list.

1. Provide basic work zone traffic control according to the contract documents and as ordered by the Engineer.
2. Perform the work as identified in the plans and special specifications.
3. Restore disturbed areas and clean-up as directed by the Engineer.

## SCHEDULE AND SUSPENSION OF WORK

The New York State Thruway is a limited access, high-speed, high-volume highway. Traffic shall be maintained in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)*, the *Work Zone Traffic Control Plans*, the *Standard Specifications* Section 619 and the following provisions:

### **A. WORK ZONE TRAFFIC CONTROL**

1. Lane closures on the Thruway shall only be allowed in accordance with the traffic management table(s), available on the Thruway Authority website at <http://www.thruway.ny.gov/business/contractors/standard-sheets/index.shtml>, unless indicated otherwise in the contract documents. If more than one table is applicable to a work zone location, the most restrictive requirements shall be used. Traffic management tables do not guarantee lane closure availability; the requirements of Section B. *Work Restrictions* shall supersede these tables, when applicable.
2. Lane closures on the Thruway will be permitted for work site access, delivery of materials and equipment, and work operations. Personal vehicles will **NOT** be allowed to park along the Thruway or within lane closures on the Thruway at any time. During non-working hours, all equipment and materials shall be stored at least 30 feet from the edge of pavement (both mainline and ramps) or be protected by a physical barrier approved by the Engineer.
3. Lane closures will **NOT** be permitted during holiday periods or when unforeseen circumstances arise, as described in Section B. *Work Restrictions*, unless indicated otherwise in the contract documents.
4. Lane closures will **NOT** be permitted for the sole convenience of the Contractor. Lane closures will be permitted in order to protect traffic from an actual hazard, as determined by the Engineer.
5. Permanent lane closures will **NOT** be permitted for the duration of the contract.
6. Simultaneous closure of right and left shoulders will **NOT** be permitted unless indicated otherwise in the contract documents. Either right or left shoulder must remain clear and available through all work zones. The open shoulder shall not be used for the storage of vehicles, equipment, supplies or any other obstructions, or for any work activity.
7. Ramp closures will **NOT** be permitted, unless indicated otherwise in the contract documents. Access to interchanges, service areas and parking areas shall be maintained at all times.
8. Traffic will **NOT** be permitted to drive on milled pavement, unless indicated otherwise in the contract documents.

### **B. WORK RESTRICTIONS**

1. **HOLIDAY PERIODS.** Lane closures will **NOT** be permitted during holiday periods, unless indicated otherwise in the contract documents. The Authority may permit work on Thruway facilities only if operations do not inhibit or distract traffic. Access to work sites from state and local roads will be permitted provided the municipality having jurisdiction for the road gives written permission. Holiday periods for this project shall be as follows:

**SCHEDULE AND SUSPENSION OF WORK**

\*\*\*SYRACUSE DIVISION\*\*\*

| <b>2026</b>                            |             |            |             |             |            |             |
|----------------------------------------|-------------|------------|-------------|-------------|------------|-------------|
| <b>HOLIDAY</b>                         | <b>FROM</b> |            |             | <b>TO</b>   |            |             |
|                                        | <b>TIME</b> | <b>DAY</b> | <b>DATE</b> | <b>TIME</b> | <b>DAY</b> | <b>DATE</b> |
| Dr. Martin Luther King, Jr. Day        | Noon        | Friday     | 01/16/2026  | 8:00 p.m.   | Monday     | 01/19/2026  |
| Presidents' Day                        | Noon        | Friday     | 02/13/2026  | 8:00 p.m.   | Monday     | 02/16/2026  |
| Easter                                 | Noon        | Thursday   | 04/02/2026  | 8:00 p.m.   | Monday     | 04/06/2026  |
| Memorial Day                           | Noon        | Thursday   | 05/21/2026  | Noon        | Tuesday    | 05/26/2026  |
| Juneteenth                             | Noon        | Thursday   | 06/18/2026  | Noon        | Monday     | 06/22/2026  |
| Canada Day/Independence Day            | Noon        | Tuesday    | 06/30/2026  | Noon        | Monday     | 07/06/2026  |
| State Fair/Labor Day                   | 6:00 a.m.   | Wednesday  | 08/26/2026  | Noon        | Tuesday    | 09/08/2026  |
| Columbus Day/<br>Thanksgiving (Canada) | 6:00 a.m.   | Friday     | 10/09/2026  | Noon        | Tuesday    | 10/13/2026  |
| Thanksgiving                           | Noon        | Tuesday    | 11/24/2026  | Noon        | Monday     | 11/30/2026  |
| Christmas/New Year's Day               | Noon        | Thursday   | 12/24/2026  | 6:00 a.m.   | Monday     | 01/04/2027  |

| <b>2027</b>                            |             |            |             |             |            |             |
|----------------------------------------|-------------|------------|-------------|-------------|------------|-------------|
| <b>HOLIDAY</b>                         | <b>FROM</b> |            |             | <b>TO</b>   |            |             |
|                                        | <b>TIME</b> | <b>DAY</b> | <b>DATE</b> | <b>TIME</b> | <b>DAY</b> | <b>DATE</b> |
| Dr. Martin Luther King, Jr. Day        | Noon        | Friday     | 01/15/27    | 8:00PM      | Monday     | 01/18/27    |
| Presidents' Day                        | Noon        | Friday     | 02/12/27    | 8:00PM      | Monday     | 02/15/27    |
| Easter                                 | Noon        | Thursday   | 03/25/27    | 8:00PM      | Monday     | 03/29/27    |
| Memorial Day                           | Noon        | Thursday   | 05/27/27    | Noon        | Tuesday    | 06/01/27    |
| Juneteenth                             | Noon        | Thursday   | 06/17/27    | Noon        | Monday     | 06/21/27    |
| Canada Day/Independence Day            | Noon        | Wednesday  | 06/30/27    | Noon        | Tuesday    | 07/06/27    |
| State Fair/Labor Day                   | 6:00AM      | Wednesday  | 08/25/27    | Noon        | Tuesday    | 09/07/27    |
| Columbus Day/<br>Thanksgiving (Canada) | 6:00AM      | Friday     | 10/08/27    | Noon        | Tuesday    | 10/12/27    |
| Thanksgiving                           | Noon        | Tuesday    | 11/23/27    | Noon        | Monday     | 11/29/27    |
| Christmas/New Year's Day               | Noon        | Thursday   | 12/23/27    | 6:00AM      | Monday     | 01/03/28    |

- Proposed lane closure schedules shall be submitted to the Engineer for review and approval at least one week in advance of the earliest closure.
- The Contractor shall **NOT** be allowed to establish any lane closures during periods of inclement weather, wet or icy pavement, reduced visibility, traffic accident, emergency, or if the lane closure is causing excessive delay to the public. The Authority reserves the right to alter any lane closure and/or direct the Contractor to immediately remove a lane closure during such circumstances. The Authority shall be the sole judge of when conditions warrant these lane closure restrictions, and such restrictions will not entitle the Contractor to file a claim for additional compensation.
- SYRACUSE STATE FAIR 2026:** Lane closures will **NOT** be permitted from 7:30 a.m. Wednesday, August 26, 2026, through 6:30 a.m. Tuesday, September 8, 2026.

## SCHEDULE AND SUSPENSION OF WORK

5. **WINTER SHUTDOWN.** A winter shutdown shall be in effect from 3:00 p.m. **November 15** to 6:00 a.m. **April 1**. During this period, the Contractor shall **NOT** be permitted to have lane closures. All temporary tape lines shall be removed, temporary concrete barrier shall be set in its winter shutdown location, and all traffic shall be re-established to its pre-construction configuration on permanent alignment. Mobilization for the following construction season may begin prior to **April 1** with permission from the Authority.
6. The Contractor shall submit a Plan of Operations to the Engineer prior to working on any full-depth repair area shown in the contract documents. The Plan of Operations shall list all full-depth repair areas and the estimated duration to complete each location. The Contractor shall also identify any full-depth repair area that may not be completed within the timeframes allowed by the traffic management table(s). For such location(s), the Contractor may request a waiver of restrictions to complete the repair(s). The Authority will review the request and determine whether or not a waiver will be granted. The Authority has the right to divide repair areas into smaller sections in lieu of granting a waiver.
7. The Contractor shall have 45 calendar days to replace the Milled in Audible Roadway Delineators (MIARDs; Formerly referred to as Shoulder Treatment for Accident Reduction (STAR) groove pattern) where more than 1,500 contiguous feet have been removed by other contract work. The Contractor shall also ensure that MIARDs are installed prior to the official shutdown period, regardless of the 45 calendar day requirement or the length removed. Exceptions to this requirement are shoulders protected by temporary traffic control devices installed as part of a work zone traffic control plan developed in the contract documents or areas directly adjacent to detour pavement that will be used in subsequent phase(s) of the project.

The Contractor shall consider these requirements when preparing bids and scheduling/sequencing the work for this contract. Failure to comply with the time frames specified will be considered a substantial deficiency in work zone traffic control and result in the non-payment for the Basic Work Zone Traffic Control Item for each calendar day during which MIARDs (formerly referred to as STARs) remain incomplete. Liquidated Damages will also be assessed at rates shown in Table 108-1 of the NYSDOT Standard Specifications.

8. Work restrictions may be modified if:
  - a. The Contractor has received permission through the Engineer, from the Division Director or designee, to progress construction operations contained entirely behind temporary concrete barrier. There shall be no hauling of materials in or out of the work site during restricted periods, and open lane availability requirements shall not be violated or compromised.
  - b. The Contractor has received permission through the Engineer, from the Division Director or designee, for temporary modification of the lane availability restrictions for performance of specific construction operations for a specific time period.

**NOTE:** Such requests must be based on current traffic volumes which would permit the requested temporary modification with little probability of causing disruption or delay to the public.

The Contractor shall include full explanation of the benefits to the Public and to the Authority, which would accrue in granting a temporary waiver for performance of the specific operations including calculations for any credit that may be offered. A contingency plan for action to be taken, should an unexpected traffic backup occur, shall accompany this presentation and will be one prime consideration in evaluating the request.

**SCHEDULE AND SUSPENSION OF WORK**

- c. The Contractor has received written authorization from the Division Director or designee to perform specific construction operations, violating the lane availability restrictions or other work restrictions during a specifically prohibited time period.

**NOTE:** The Contractor shall submit a written request to the Authority's Division Director, with copy to the Engineer, for permission to perform specific construction operations at specific locations and times, including a detailed explanation of why the work cannot be performed in conformance with the contract. Such requests must be received at the Division Office at least one full week before the date of the requested variance, and at least two full weeks should granting the waiver require making notice to the public regarding potential disruptions and delays.

If written authorization to work is granted by the Authority, the Contractor shall be strictly limited to those operations approved in the authorization. In making application for a waiver, the Contractor agrees that any waiver of restrictions granted by the Authority is exclusively for the Authority's benefit and purposes, and as such is subject to revocation without requirement for advance notice. Also, the disapproval of requests for waiver of contract requirements is not subject to administrative review or appeal under the contract.

**C. GENERAL CONDITIONS**

The Contract is to be completed on or before the specified completion date. If, for any reason, the Contractor fails to fulfill this obligation and requests an extension of time and the request is granted, the Authority, as a condition for extending the time of completion, shall retain the right to limit the Contractor's hours and/or days of work and/or impose conditions under which the work shall be performed in order that the traffic may not be unduly inconvenienced.

All the required liability and property damage insurance with the limits stated in this Proposal shall be effective and shall be continued in force throughout the life of this Contract including the stated periods of the suspension of the work.

The Contractor shall consider the foregoing requirement when preparing its "Schedule of Operations".

### **ADDITIONAL INSURED PARTIES**

The following is a list of additional insured parties:

Village of Canastota, NY  
 Village of Chittenango, NY  
 Town of Lenox, NY  
 Madison County NY  
 Empire State Thruway Partners LLC  
 New York State Department of Environmental Conservation

### **NON-REVENUE CONTRACTOR TRAVEL**

NYS Thruway has converted to Cashless Tolling, Non-revenue pass plates will no longer be furnished to the Contractor.

Contractors and Consultants must have a properly mounted E-Z Pass transponder and must submit their EZ-Pass information to the Thruway to avoid charges for contract related business on the Thruway. The Project Engineer will provide the form used to record and submit EZ Pass information. Initial information shall be submitted to the Project Engineer prior to the start of work on the project. The initial form and any changes shall be submitted 5 working days prior to intended travel.

Non-Revenue travel will be provided within the limits of I-90, Mainline Thruway from Interchange **34** to Interchange **34A**. Travel originating or ending outside of these limits will be subject to toll charges for the entire trip.

The Contractor shall be responsible for any and all tolls charged to contractor owned vehicles with (or without) E-ZPass Transponders not registered with the Authority.

### **OTHER CONTRACTS**

The Contractor will be required to coordinate work with other Contractors and NYSTA Maintenance Forces. The following contracts have been let and may have work in progress during the duration of this contract:

| <b><u>CONTRACT NO.</u></b> | <b><u>DESCRIPTION</u></b>                                                             | <b><u>COMPLETION DATE</u></b> |
|----------------------------|---------------------------------------------------------------------------------------|-------------------------------|
| TAS 25-12 / D215024        | 1R Mill and Inlay, Safety Improvements and miscellaneous work from MP 261.7 to MP 268 | November 23, 2026             |
| TAA 25-33 / D215043        | Albany/Syracuse Division Pavement Safety Striping                                     | August 28, 2026               |
| TAS 25-26 / D215050        | Syracuse Division On Demand Repairs to Thruway Infrastructure                         | December 24, 2027             |

The following contracts are anticipated to be let and may have work in progress during the duration of this contract:

| <b><u>DESCRIPTION</u></b> | <b><u>COMPLETION DATE</u></b> |
|---------------------------|-------------------------------|
| None                      |                               |

**ENGINEER'S OFFICE AND CONTRACTOR'S FIELD OFFICE**

The location of the Engineer's Office and Contractor's Field Office will be determined during the Pre-Construction Meeting. The site will be approved by the Engineer prior to placing the offices and the area shall be kept in a neat, clean condition at all times. The area shall not be used as a staging, storage, equipment or employee parking area.

**U-TURNS/CROSSOVERS**

The Contractor will not be permitted to make U-turns or crossovers at any location on the Thruway system. All vehicles must exit the Thruway system and re-enter for all direction changes. All applicable traffic laws must be followed.

**SPOIL AREA**

There is no identified spoil area within the Thruway Authority's right-of-way for this contract. Therefore, the Contractor shall remove all surplus material and waste from Thruway Authority (Authority) property. The Contractor shall bid accordingly for this condition.

The Contractor shall provide the Authority a copy of all easements and/or access agreement letters received from landowner(s) of off-site disposal area(s) prior to disposal of any material. The easements and/or access agreement letters must include a statement by the Contractor and the landowner that the disposal of the material is in compliance with all applicable federal, state and local laws and regulations.

Should a mutually approved spoil use area within the Authority's right-of-way be identified for Contractor use after the project letting, a credit in the amount of 50% of the unclassified excavation unit bid price will be deducted for each cubic yard spoiled within the Authority right-of-way. If the contract does not contain an unclassified excavation item, the credit will be determined using either 50% of the item generating the spoil or 50% of the Division/Regional weighted average bid price for unclassified excavation, whichever is less. This credit may be waived, either wholly or in part, by the Division Director in writing if it is determined that permitting spoil on Authority right-of-way is in the best interest of the Authority (ie: slope flattening resulting in elimination of guide rail).

**OVERHEAD GANTRY****SIGNING**

Signs shall be installed within the project limits when any component of equipment will be operating above 14'-6" in elevation and within 100 linear feet of an overhead gantry. Overhead gantries may have electric powered wires and special equipment, therefore, vehicle and equipment operations must be planned and proposed equipment safety procedures included in a Project Safety and Health Plan.

As mentioned in the Thruway Addendum to the Standard Specifications (TA), specifically in **Section 107-05 SAFETY AND HEALTH REQUIREMENTS, O. Equipment Safety Procedures. 6. Work Operations. d.** Dump truck boxes may be raised only under the control of a spotter, unless the vehicle is in an area clearly marked to be free of overhead wires and safe for dumping.

Refer to Thruway Standard Sheet **TA 619-27** for additional information and signing requirements.

**OVERHEAD GANTRY****TRAFFIC SHIFT RESTRICTIONS**

The Contractor shall not shift traffic at any toll gantry such that vehicles are traveling between lanes or between lanes/shoulders when passing under the gantry centerline (treadle). Traffic shifts, for purposes of staging work, shall be done prior to or after the gantries, such that vehicles are traveling within a complete lane or shoulder when passing under the gantry centerline (treadle). All work zone traffic control shall be provided in accordance with the 619 Standard Specifications and the Thruway Addendum to the 619 Standard Specifications, the National Manual on Uniform Traffic Control Devices and NYS Supplement, any provisions contained within the contract documents, and as ordered by the Engineer.

**OVERHEAD GANTRY****PARKING RESTRICTIONS**

The Contractor shall not park any vehicle or construction equipment directly beneath overhead gantries, within a complete lane or between a lane/shoulder, unless it is required to perform project specific related work, as directed by the Engineer in Charge and after coordination with the Authority's Intelligent Transportation System Management unit.



**SPECIAL NOTE****Section 108-05 Self Perform Work and Second Tier Subcontractor Requirements**

Under this contract, Standard Specification Section 108-05 requirements are modified to require the Contractor to perform, with its own organization, contract work amounting to not less than 30 percent of the total contract bid price. The amount for any items designated as "Specialty Items" will be deducted from the original total contract bid price before computing the amount of work required to be performed by the Contractor with its own organization.

Under this contract, Standard Specification Section 108-05 requirements are modified to permit individual Subcontractors to assign work to lower tier subcontractors. All lower tier Subcontractors must obtain the same approvals from the Authority as required by first tier Subcontractors prior to beginning work. Work by a non-approved Subcontractor or Trucker will be suspended by the Engineer and payment for work by a non-approved Subcontractor or Trucking Firm may be withheld.

**SUPPLEMENTAL INFORMATION FOR BIDDERS**

Supplemental information is available to bidders. As indicated below, information is either available on the Thruway Authority's website with the contract plans and proposal or available in electronic format from the Thruway Authority upon request prior to or after the letting date.

The bidder's signature on this proposal certifies that they have made themselves aware of the availability of the information indicated below prior to the letting date.

| <b>INFORMATION</b>                                                   | <b>NOT<br/>AVAILABLE</b> | <b>AVAILABLE<br/>ON<br/>THRUWAY<br/>AUTHORITY<br/>WEBSITE</b> |
|----------------------------------------------------------------------|--------------------------|---------------------------------------------------------------|
| Engineer Estimate Quantity Workups                                   | X                        |                                                               |
| Utility Estimate Sheets with Names of Utility Officials              | X                        |                                                               |
| Earthwork Cross Section Sheets                                       | X                        |                                                               |
| Earthwork Sheets                                                     | X                        |                                                               |
| Drainage Estimate Sheets                                             | X                        |                                                               |
| Sign Face Layouts                                                    | X                        |                                                               |
| Subsurface Exploration Logs                                          | X                        |                                                               |
| Rock Core Evaluation Logs and Photographs                            | X                        |                                                               |
| Compression Test Data from Rock Samples                              | X                        |                                                               |
| Pavement Core Logs and Photographs                                   | X                        |                                                               |
| Logs Showing Laboratory Description of Soil Samples                  | X                        |                                                               |
| Laboratory Test Data from Soil Samples                               | X                        |                                                               |
| Rock Outcrop Maps                                                    | X                        |                                                               |
| Record Plans                                                         | X                        |                                                               |
| Applicable Asbestos Blanket Variances                                | X                        |                                                               |
| Storm Water Pollution Prevention Plan                                | X                        |                                                               |
| Shop Drawings                                                        | X                        |                                                               |
| CADD Files of Contract Plans<br>(Unofficial - Not signed or stamped) | X                        |                                                               |
| Special Reports or Other Information                                 |                          | X                                                             |

Hard copies of the supplemental information indicated above are not available. Contractors shall be responsible for their own hard copies of this information at no additional cost to the Authority.

**REVISIONS TO  
NYSDOT  
STANDARD  
SPECIFICATIONS**

## **NEW YORK STATE THRUWAY AUTHORITY ADDENDUM TO THE STANDARD SPECIFICATIONS**

The Standard Specifications published by the New York State Department of Transportation shall form a part of the agreement. The dated edition that applies to this contract is provided on the front cover of the Proposal. All work contemplated under this contract is to be covered by, and be in conformance with, the Standard Specifications as modified by The New York State Thruway Authority Addendum (TA) to the Standard Specification Books.

The officially adopted Thruway Authority Addendum (TA) to the NYSDOT Standard Specification Books is available on the Thruway Authority website at:

<http://www.thruway.ny.gov/business/addendum/index.html>

The most recent version of the TA, prior to the project Letting Date, shall apply to this agreement.

All special notes bound in this proposal shall be incorporated. If a conflict exists between the special specifications and/or provisions set forth in this proposal and the specifications and/or provisions set forth in the New York State Department of Transportation's Standard Specifications, those in the Proposal shall govern.

# **SPECIAL SPECIFICATIONS**

**SPECIAL NOTE**  
**SPECIAL SPECIFICATION PAY ITEM NUMBERS**

The Contractor's attention is directed to the special specification pay item formats used in this contract. Special specification pay items may be presented in two (2) different formats:

Format 1: Pay items for a special specification will have three (3) digits to the left of the decimal point and up to eight (8) digits to the right of the decimal. Spaces may appear in the third to sixth places after the decimal. The 7<sup>th</sup> and 8<sup>th</sup> digits to the right of the decimal will represent the origin of the specification.

Format 2: Pay items for a special specification will have three (3) digits to the left of the decimal point and up to eight (8) digits to the right of the decimal. Dashes may appear in the third to sixth places after the decimal. The 7<sup>th</sup> and 8<sup>th</sup> digits to the right of the decimal will represent the origin of the specification.

Where items in this contract appear in multiple formats, the formats shall be equated to each other as illustrated below:

**FORMAT 1**

XXX.XX    XX  
 XXX.XXXX    XX  
 XXX.XXXXXXXX

**FORMAT 2**

XXX.XX-----XX  
 XXX.XXXX---XX  
 XXX.XXXXXXXX

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| 01 52 00 | MAINTENANCE OF PLANT OPERATION DURING CONSTRUCTION |

**DIVISION 02 – EXISTING CONDITIONS**

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**DIVISION 03 – CONCRETE**

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**DIVISION 06 – WOOD, PLATICS, AND COMPOSITES**

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| 26 05 26 | GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS                 |
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| 26 05 53 | IDENTIFICATION FOR ELECTRICAL SYSTEMS                        |
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## Rehabilitation of the Wastewater Treatment Plant at the Chittenango Service Area at Milepost 266.3

**SECTION 00 03 00****INFORMATION AVAILABLE TO BIDDERS****PART 1 - GENERAL****1.1 EXISTING REPORTS AND SURVEYS**

- A. Prior to bidding, Bidders may at their expense make their own investigations to satisfy themselves as to site conditions, but such investigations will be performed only under time schedules and arrangements approved in advance by the Authority. Proposed site visits must be approved by the Authority.
- B. Information described below is exclusively for use on this specific Project.

**1.2 TOPOGRAPHIC SURVEY**

- A. A topographic survey with respect to the project site was provided for the Authority by Colliers Engineering and Design.
- B. This survey identifies grade elevations prepared primarily for the use of the Authority and Architect/Engineer in establishing new grades and establishing site improvements shown on the Contract Documents. The Contractor is responsible for field verification of all survey information provided.

**1.3 HAZARDOUS MATERIALS SURVEY**

- A. A limited hazardous materials survey was conducted by Beardsley Architects and Engineers on May 19, 2016. It is available for review in the supplemental information zip file.

**1.4 GEOTECHNICAL INVESTIGATION**

- A. A subsurface investigation was conducted by Atlantic Testing Laboratories on March 20, 2025. It is available for review in the supplemental information zip file.

**1.5 DAILY MONITORING REPORT**

- A. Daily monitoring reports, including flow and loading information for reference when reviewing hauling requirements, are available for review at the project site.

**END OF INFORMATION AVAILABLE TO BIDDERS**

**ITEM 627.0001 25****GENERAL REQUIREMENTS****1. DESCRIPTION:**

1.01 Furnish all labor, materials, equipment and services necessary to complete the work as indicated on the Contract Plans and the Specification Sections listed below

1.04 All work shall conform to the requirements specified in Part 1 – General, of the Sections listed.

**2. MATERIALS:**

2.01 The materials shall be as specified in Part 2 – Products, of the Sections listed.

**3. CONSTRUCTION DETAILS:**

3.01 The construction details shall be as specified on Part 3 – Execution, Of the Sections listed.

**4. METHOD OF MEASUREMENT:**

4.01 This item shall be measured for payment on a lump sum basis for the work completed in accordance with the Contract Documents and as directed by the Engineer.

**5. BASIS OF PAYMENT:**

5.01 Payment for this item shall be made at the lump sum bid price bid. The lump sum price bid shall include cost of furnishing all labor, material, equipment and appliances necessary to complete the work as indicated on the Contract Plans and as specified herein in the Sections listed.

5.02 Detailed Estimate:

A. Before the first certificate of payment is issued for the work under this item, submit a detailed estimate of quantities and prices for all materials, labor, and other items included under this item, which shall aggregate the contract lump sum price bid for this item. Prepare the detailed estimate in the same sequence as the Sections listed.

B. The detailed estimate shall be supported by such evidence, including certified copies of subcontracts, as the Engineer may require.

C. The detailed estimate must be approved by the Engineer who may revise it as, in his/her reasonable judgment, is necessary to make the various item conform to their true values. The value of each certificate of payment will be based on the approved detailed estimate.

5.03 Monthly payments will be made for this item in proportion to the total amount of work completed.

**ITEM 627.0001 25****GENERAL REQUIREMENTS****6. SPECIFICATION SUMMARY**

6.01 This Item includes the following specifications:

- A. Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS
- B. Section 01 52 00 MAINTENANCE OF PLANT OPERATION DURING CONSTRUCTION
- C. Section 02 41 00 DEMOLITION
- D. Section 03 30 00 CONCRETE FOR UTILITIES
- E. Section 06 50 00 GLASS FIBER REINFORCED PLASTIC TANK COVERS
- F. Section 09 67 23 RESINOUS FLOORING
- G. Section 09 90 00 PAINTING
- H. Section 26 05 19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
- I. Section 26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
- J. Section 26 05 33 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
- K. Section 26 05 43 UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
- L. Section 26 05 44 SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
- M. Section 26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS
- N. Section 26 27 26 WIRING DEVICES
- O. Section 26 29 13 ENCLOSED CONTROLLERS

**7. SUMMARY OF WORK**

7.01 This item shall include, but not be limited to, the following:

- A. Demolition and abandonment of the headworks structure, site piping and valves, the effluent pipe, existing manholes, and driveway.
- B. Site work including cut and fill, grading, topsoil and seeding and pavement.
- C. Clean the sludge holding tank including any existing sludge build-up and dispose at an approved facility.
  - a. Include cost to haul and dispose of this waste at a licensed facility.
- D. Sewage Hauling:
  - a. Temporarily pump and store wastewater within existing sludge holding tank while the wastewater treatment plant processes are offline (maximum of 120 days).
  - b. Wastewater shall be hauled off by a licensed hauler to another licensed wastewater treatment plant.
  - c. Contractor assumes all cost for storage, transfer, hauling, and disposal of the wastewater.
  - d. Cost shall be \$/gal value with an expected maximum of 925,000 gal.
- E. Installation of pre-cast concrete reactor tank with all equipment and related appurtenances
- F. Installation of concrete curbs around existing circular tanks and FRP tank covers.
- G. Installation of related pumps and piping in the EQ tank and Clearwell including new controls
- H. Demolition of existing pumps and piping in the basement of the control building

**ITEM 627.0001 25****GENERAL REQUIREMENTS**

- I. Installation of blowers, alkalinity feed system, and Amphidrome controls
- J. Demolition of the sludge holding tank, trickling filter building, and wet wells
- K. Demolition of one sand filter bed. Related piping to be capped at connection points
- L. Modify sand filter pump station

**ITEM 627.0033 25****UTILITIES / EFFLUENT PIPE****1. DESCRIPTION:**

1.01 Furnish all labor, materials, equipment and services necessary to complete the work as indicated on the Contract Plans and the Specification Sections listed below

1.04 All work shall conform to the requirements specified in Part 1 – General, of the Sections listed.

**2. MATERIALS:**

2.01 The materials shall be as specified in Part 2 – Products, of the Sections listed.

**3. CONSTRUCTION DETAILS:**

3.01 The construction details shall be as specified on Part 3 – Execution, if the Sections listed.

**4. METHOD OF MEASUREMENT:**

4.01 This item shall be measured for payment on a lump sum basis for the work completed in accordance with the Contract Documents and as directed by the Engineer.

**5. BASIS OF PAYMENT:**

5.01 Payment for this item shall be made at the unit price bid. The unit price bid shall include cost of furnishing all labor, material, equipment and appliances necessary to complete the work as indicated on the Contract Plans and as specified herein in the Sections listed.

5.02 Detailed Estimate:

A. Before the first certificate of payment is issued for the work under this item, submit a detailed estimate of quantities and prices for all materials, labor, and other items included under this item, which shall aggregate the contract lump sum price bid for this item. Prepare the detailed estimate in the same sequence as the Sections listed.

B. The detailed estimate shall be supported by such evidence, including certified copies of subcontracts, as the Engineer may require.

C. The detailed estimate must be approved by the Engineer who may revise it as, in his/her reasonable judgment, is necessary to make the various item conform to their true values. The value of each certificate of payment will be based on the approved detailed estimate.

5.03 Monthly payments will be made for this item for the amount of units completed.

**ITEM 627.0033 25****UTILITIES / EFFLUENT PIPE****6.****SPECIFICATION SUMMARY**

6.01

This Item includes the following specifications:

- A. Section 31 20 00 EARTH MOVING
- B. Section 31 23 16 EXCAVATION FOR UTILITIES
- C. Section 31 25 00 EROSION AND SEDIMENTATION CONTROL
- D. Section 31 50 00 EXCAVATION SUPPORT AND PROTECTION
- E. Section 32 92 00 TURF AND GRASSES
- F. Section 33 01 30 SEWER FLOW CONTROL
- G. Section 33 05 05 SANITARY SEWER TESTING
- H. Section 33 05 61 CONCRETE MANHOLES
- I. Section 33 31 11 GRAVITY SEWER PIPE
- J. Section 33 31 26 SEWER FORCE MAIN PIPING
- K. Section 46 07 00 WASTEWATER PROCESS EQUIPMENT
- L. Section 46 66 00 ULTRAVIOLET EQUIPMENT

**7.****SUMMARY OF WORK**

7.01

This item shall include, but not be limited to, the following:

- A. Site work needed for the construction of the sewer pipe, including earthwork and preparation
- B. Flow control to re-route flow from plant during demolition of existing effluent pipe and construction of new effluent pipe
- C. Demolition of existing pipe
- D. Construction of new effluent pipe and manholes
- E. Remove and replace existing UV system in kind

**SECTION 01 10 00****SUMMARY****PART 1 – GENERAL****1.1 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Project Identification:
1. PROJECT LOCATION: Wastewater Treatment Plant (WWTP) located at the Chittenango Travel Plaza. Chittenango Travel Plaza on the westbound lane of I-90 between Exit 34 (Chittenango) and Exit 35 (Dewitt) in the Town of Chittenango, Madison County. It is located at milepost 266.3 on the westbound lane of the New York State Thruway (Interstate 90).
  2. OWNER: New York State Thruway Authority (AUTHORITY).
- B. Engineer Identification: The Contract Documents dated January 2026 were prepared for Project by Colliers Engineering & Design Architecture, Landscape Architecture, Surveying CT, P.C. (CED).
- C. The work includes all labor, materials, equipment, and coordination necessary to construct wastewater treatment plant improvements while maintaining continuous plant operation and compliance with the NYSDEC SPDES Permit. This includes the following:
1. All construction activities, temporary bypasses, operational adjustments, and sequencing shall be coordinated with the New York State Thruway Authority. The Contractor shall work closely with Thruway Authority operations staff to ensure uninterrupted treatment and compliance with all permit conditions, including effluent limits. Any costs, penalties, or violations of the SPDES permit resulting from contractor actions shall be the sole responsibility of the Contractor. During periods when treatment processes are offline, the Contractor shall provide influent wastewater storage, transfer, hauling, and off-site disposal at a regulated wastewater treatment facility.
  2. Work includes demolition and abandonment of existing headworks, process equipment, piping, valves, site features, and selected treatment units; installation of new influent and effluent piping, manholes, and site improvements; earthwork, grading, pavement, and restoration; and heat tracing and insulation of shallow-buried piping.
  3. The project includes cleaning, temporary use, and final abandonment of the existing sludge holding tank; removal and replacement of primary and secondary clarifier equipment; conversion of structures to an anoxic/equalization tank and clearwell; installation of a new amphidrome reactor and controls; modifications to the sand filter pump station; abandonment of one sand filter bed; replacement of the UV disinfection system in kind; and complete electrical and control system upgrades, including new power, controls, hazardous area sealing, and heat trace systems..

**1.2 CONTRACT**

- A. Project will be constructed under a General Construction Contract and an Electrical Contract.

### 1.3 WORK SEQUENCE

- A. The following Work is recommended to be conducted in the subsequent order:
  1. Phase 1 – Pre-Construction & Regulatory Coordination
    - a. Conduct pre-construction meeting with the Thruway Authority, plant operations staff, and Engineer.
    - b. Review SPDES permit requirements, effluent limits, operational constraints, and emergency response protocols.
    - c. Submit detailed sequencing, bypass, influent hauling, and contingency plans for approval.
    - d. Establish communication protocols and notification procedures for operational changes.
  2. Phase 2 – Temporary Operations & Influent Management
    - a. Drain and clean the existing sludge holding tank; remove and dispose of all residuals and wash water off-site.
    - b. Install temporary gravity piping from the influent manhole to the cleaned sludge holding tank.
    - c. Initiate controlled influent storage and continuous off-site hauling to a regulated wastewater treatment facility, maintaining no more than 10,000 gallons of on-site storage at any time.
    - d. Verify influent handling procedures meet SPDES compliance requirements prior to taking any treatment processes offline.
  3. Phase 3 – Demolition & Site Preparation
    - a. Demolish and abandon the existing headworks structure, selected site piping, valves, and driveway.
    - b. Perform initial site earthwork, excavation, and grading to support new process units and piping.
    - c. Remove and replace effluent piping and manholes via cut-and-cover methods, maintaining system integrity.
    - d. Install new influent piping from the existing influent manhole to the proposed anoxic/equalization tank.
    - e. Install heat tracing and insulation on all shallow-buried piping (less than 5 feet of cover).
  4. Phase 4 – Process Structure Modifications
    - a. Remove existing primary clarifier equipment, bridges, rails, weirs, controls, and appurtenances; plug wall penetrations.
    - b. Construct and outfit the anoxic/equalization tank, including concrete fill, FRP cover, pumps, piping, and controls.
    - c. Remove existing secondary clarifier equipment and appurtenances; plug penetrations.



- d. Construct and equip the proposed clearwell with new FRP cover, pumps, piping, and controls.
  - e. Modify the sand filter pump station and connect new piping.
  - f. Demolish and abandon one sand filter bed; remove and cap associated piping; backfill and restore the area. Retain the remaining two beds.
5. Phase 5 – Amphidrome Reactor Installation
- a. Install the new amphidrome reactor, reactor control panel, and all associated equipment and appurtenances.
  - b. Construct the new asphalt access drive serving the reactor system.
  - c. Integrate the reactor with upstream and downstream process piping.
6. Phase 6 – Electrical, Controls, and Disinfection
- a. Remove existing pumps, electrical controls, and appurtenances from the electrical/control building.
  - b. Install new electrical systems, buried branch circuits, and control panels supporting the amphidrome process.
  - c. Re-wire the sand filter pump station power and controls through the amphidrome control panel.
  - d. Install hazardous area conduit seals where required.
  - e. Install heat trace controllers and connect heat tracing to designated process piping.
  - f. Remove the existing UV disinfection system and replace in kind.
7. Phase 7 – Commissioning, Transition & Final Abandonment
- a. Commission and performance test all new treatment processes, controls, and alarms.
  - b. Transition influent flow from temporary storage/hauling to the new treatment system under controlled conditions.
  - c. Clean the sludge holding tank, remove all remaining wastewater for off-site disposal, and abandon the tank by coring the base slab, demolishing the structure to 3 feet below grade, and backfilling with stone, filter fabric, common fill, and topsoil.
  - d. Complete final grading, seeding, pavement restoration, and site cleanup.

**B. USE OF PREMISES**

- 1. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by OWNER's right to perform work or to retain other contractors on portions of Project.

**1.4 OWNER-FURNISHED PRODUCTS**

Not Used

## 1.5 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 48- division format and CSI/CSC's "MasterFormat" numbering system.
  - 1. Section Identification: The Specifications use section numbers and titles to help cross- referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

## 1.6 MISCELLANEOUS PROVISIONS

### PART 2 – PRODUCTS

Not Used

### PART 3 – EXECUTION

Not Used

**END OF SECTION**

**SECTION 01 50 00****TEMPORARY FACILITIES AND CONTROLS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.
  - 2. Section 31 23 19 "Dewatering" for disposal of ground water at Project site.
  - 3. Section 32 12 16 "Asphalt Paving" for construction and maintenance of asphalt pavement for temporary roads and paved areas.
  - 4. Section 32 13 13 "Concrete Paving" for construction and maintenance of cement concrete pavement for temporary roads and paved areas.

**1.3 USE CHARGES**

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Owner will pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Owner will pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations. Backflow Prevention device(s) shall be required at all connection locations to Owner's water system.
- F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

**1.5 QUALITY ASSURANCE**

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

**1.6 PROJECT CONDITIONS**

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, Construction Manager, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
  - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
  - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack and marker boards.
  - 3. Drinking water and private toilet.
  - 4. Coffee machine and supplies.

5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
  6. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
1. Store combustible materials apart from building.

## **2.2 EQUIPMENT**

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
1. Locate facilities to limit site disturbance as specified in Section 01 10 00 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Install temporary service or connect to existing service.
1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
  - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
    - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
  - 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
  - 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- H. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
  - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- I. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
  - 1. Connect temporary service to Owner's existing power source, as directed by Owner.
- J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  2. Install lighting for Project identification sign.
- K. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install **one** telephone line(s) for each field office.
1. Provide additional telephone lines for the following:
    - a. Provide a dedicated telephone line for each facsimile machine in each field office.
  2. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Contractor's emergency after-hours telephone number.
    - e. Architect's office.
    - f. Engineers' offices.
    - g. Owner's office.
    - h. Principal subcontractors' field and home offices.
  3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
  2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas **as indicated** on Drawings.
1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
  2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Section 31 20 00 "Earth Moving."
  3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
  4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Section 32 12 16 "Asphalt Paving."
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
  2. Remove snow and ice as required to minimize accumulations.
- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
  2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
    - a. Provide temporary, directional signs for construction personnel and visitors.
  3. Maintain and touchup signs so they are legible at all times.
- H. Waste Disposal Facilities: Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."
- I. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."
- J. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.



**3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 31 10 00 "Site Clearing."
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- J. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

- K. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
  - 1. Prohibit smoking in construction areas.
  - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### 3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
  - 1. Protect porous materials from water damage.
  - 2. Protect stored and installed material from flowing or standing water.
  - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
  - 4. Remove standing water from decks.
  - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
  - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
  - 2. Keep interior spaces reasonably clean and protected from water damage.
  - 3. Periodically collect and remove waste containing cellulose or other organic matter.
  - 4. Discard or replace water-damaged material.
  - 5. Do not install material that is wet.
  - 6. Discard, replace, or clean stored or installed material that begins to grow mold.
  - 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
  - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
  - 2. Use permanent HVAC system to control humidity.

3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
  - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
  - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
  - c. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

### **3.6 OPERATION, TERMINATION, AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
  2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
  3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

**END OF SECTION 01 50 00**

**SECTION 01 52 00****MAINTENANCE OF PLANT OPERATIONS DURING CONSTRUCTION****PART 1 – GENERAL****1.01 SECTION INCLUDES**

- A. Responsibilities.
- B. General Constraints.
- C. Maintenance of Existing Processes, Buildings and Plant Utilities.
- D. Plant Access.

**1.02 RELATED SECTIONS**

Contractor shall be responsible for coordination of all equipment, work, etc. specified within this section to all related within the contract documents.

**1.03 RESPONSIBILITIES**

- A. The Wastewater Treatment Plant (WWTP) operates under a New York Pollutant Discharge Elimination System (NYPDES) permit from the New York Department of Environmental Conservation (NYDEC). Flow and processes of the WWTP must be maintained at all times during construction. If, as a result of disruptions due to the Contractor's operations, the WWTP fails to meet permit requirements, the Contractor shall be liable for all fines or other expenses incurred. Except as noted otherwise, sewage flow and plant processes cannot be restricted or limited during the period of construction without permission of the Engineer and the Licensed Plant Operator. To this end, the Contractor shall schedule his operations to prevent undue disturbance to WWTP operations.
- B. The Contractor must submit a schedule of operations, which shall include all proposed measures for maintaining plant flow and processes during the course of construction. This proposed schedule must be approved by the Engineer and the Plant Operator prior to commencement of work at the site. The Contractor shall give the Engineer and the Operator seven (7) days written notice prior to any operation, which involves shutdown, partial shutdown, or bypassing of any flow or operation at the WWTP.
- C. The Contractor shall perform all necessary preparation work to keep any shutdowns of operations to a minimum. The exact length of time permitted for any specific proposed interruption of service shall be approved by the Engineer and the Operator.
- D. The Contractor shall provide all labor, equipment and materials necessary for any bypass pumping, temporary control schemes, or other measures necessary to install the proposed work with a minimum of interruption to WWTP operations. If necessary, construction involving temporary diversion of flow or other interruption of services shall

be scheduled during night hours when plant flow is at a minimum. The Owner may require that the Contractor provide manning of by-passing, or other measures, on a seven (7) day per week 24-hour basis, if in the opinion of the Owner such attendance is necessary to ensure proper plant operation or reliability of the bypass, temporary control scheme, or other measures.

- E. Electrical power must be maintained throughout construction. Phasing of shutdowns must be approved by the Engineer and the Operator and seven (7) days written notice shall be given prior to any power shutdown.
- F. The Contractor shall not interfere with the employees of the WWTP in performance of any work necessary in order to maintain the facility flow and operation. Where construction operations obstruct or otherwise hinder access to areas necessary for plant operations, the Contractor shall provide safe access for Operator personnel. This shall include, but not be limited to, the construction of ladders, walkways, handrails, or other means of access. All such areas shall be adequately lighted for safe nighttime access.
- G. The CONTRACTOR shall be responsible for ensuring that the Work is performed in such a manner and order to prevent interruption or degradation of the treatment processes occurring at the WWTP.
- H. All Work indicated in the CONTRACTOR'S detailed shutdown plan shall remain the responsibility of the CONTRACTOR to complete within the stated allowable shutdown period for shutdowns listed herein, if any, and as agreed to with the OWNER.
- I. Work under this Contract shall be scheduled and conducted by the CONTRACTOR so as not to impede any treatment process, reduce the quality of plant effluent or cause odor or other nuisance. In performing the Work indicated and specified, the CONTRACTOR shall plan and schedule his Work to meet the plant operating requirements, and to comply with the constraints and construction requirements as outlined in this section. No discharge of raw or inadequately treated wastewater shall be allowed.
- J. The CONTRACTOR shall be responsible for coordinating the general construction and electrical, mechanical, structural, roofing, HVAC, instrumentation and plumbing construction schedules to ensure that temporary requirements for maintaining the operation of all facilities that are required to be online at any given time are met.
- K. CONTRACTOR shall install all work to be completed without plant shutdown.

#### **1.04 GENERAL CONSTRAINTS**

- A. The CONTRACTOR shall schedule and execute all Work so that the plant processes and all plant systems are maintained in continuous operation, unless scheduled herein.
- B. The OWNER shall have the authority to order Work stopped or prohibited that would, in his opinion, unreasonably result in interrupting the necessary functions of the plant operations.

- C. If the CONTRACTOR impairs the performance or operation of the plant as a result of not complying with specified provisions for maintaining plant operations, then the CONTRACTOR shall immediately make all repairs or replacements and do all Work necessary to restore the plant operation to the satisfaction of the OWNER. Such Work shall progress continuously to completion on a 24 hours per day, seven-day per week basis.
- D. The CONTRACTOR shall provide the services of emergency repair crews on call 24 hours per day.
- E. CONTRACTOR shall plan for leaking valves, sluice gates and slide gates and continuous dewatering at all excavations, work areas and connection points.

#### **1.05 VEHICULAR AND PERSONNEL ACCESS**

- A. An unobstructed traffic route through all access gates shall be maintained at all times for the OWNER'S operations personnel and maintenance equipment unless otherwise shown.
- B. Any areas disturbed inside and outside of the plant shall be repaired, graded, seeded, etc. as necessary to match pre-construction conditions. If the CONTRACTOR fails to identify existing damaged or disturbed areas prior to the work, the Contractor shall be responsible for repairs to these areas.
- C. Plant personnel shall have access to all areas that remain in operation throughout the construction period. The CONTRACTOR shall locate stored material, dispose of construction debris and trash, provide temporary walkways, provide temporary lighting, and other such Work to maintain personnel access to areas in operation. Access and adequate parking areas for plant personnel must be maintained throughout construction.
- D. Where portions of plant roads, driveways, parking areas, or other paved areas must be disturbed to install piping, conduits or other buried utilities, CONTRACTOR shall include provisions for maintaining vehicle access including, but not limited to, plant vehicles, hauling operations, and chemical deliveries. Steel plates or other protective device shall be provided if required.

#### **1.06 MAINTENANCE OF EXISTING BUILDINGS AND PLANT UTILITIES**

- A. Building heating and ventilating for the existing plant structures shall be maintained in service for the entire construction period. Temporary heating and ventilation shall be provided to maintain adequate heating and/or ventilation of facilities where Work is being performed that interrupts existing systems. Temperatures to be maintained in any areas occupied by plant operating personnel shall be at least 65°F and no higher than 85°F. The temperature in all other interior plant areas whether new, existing or temporary shall be maintained at a minimum temperature of 45°F.
- B. Electric power, lighting service, process control, fire alarm, gas detection and communications systems shall be maintained in uninterrupted operation in all areas. Individual units may be disconnected as required for replacement, but service shall be

available at all times including periods when certain plant utilities are out of service. The CONTRACTOR shall coordinate shutdowns required to minimize the total number of shutdowns necessary to complete construction.

- C. Potable water service shall be maintained in continuous service at all times during construction except for short-term shutdowns required for tie-ins and connections. Shutdown of the potable water system shall be fully planned and coordinated through the OWNER and shall be limited to not more than 2 hours, except where otherwise indicated. Existing fire hydrants within the plant site shall be operational at all times.
- D. The existing non-potable water services shall be maintained in continuous operation during construction except for short-term tie-ins of new or temporary facilities to existing facilities. The CONTRACTOR shall provide temporary support or relocation or demolition of existing non-potable water facilities to complete the Work indicated. Shutdowns of the non-potable water system shall be fully coordinated with the OWNER and shall be staged so that they do not affect plant operations.
- E. All existing sumps and sump pumps shall be maintained in an operable condition with either existing pumps or temporary pumps. Interim piping, power and controls shall be provided as necessary to comply with this requirement.
- F. Supply of service and seal water and the necessary connections to existing equipment shall be maintained during construction. Interim piping and seal water supply shall be provided as necessary to comply with this requirement.

#### **1.07 MAINTENANCE OF EXISTING PROCESS**

- A. Plant processes shall be maintained in service for the entire construction period unless a short term shut down is specified herein. Provide submittals for approval detailing how Contractor operations will affect the Plant Operations and how necessary operations and monitoring will be maintained.
- B. Temporary impacts to the Facility will be mitigated as discussed herein.
  - 1. Removal of the existing systems and installation, startup and testing of the new will necessitate the shutdown the Facility.
    - a. The time allowed for the Facility to be out of service is limited to a single one hundred and twenty (120) consecutive calendar day window.
    - b. During the one hundred and twenty (120) day window, sewage shall be routed to the existing sludge holding tank for temporary storage in accordance with 33-01-30 Sewer Flow Control.
    - c. The Contractor shall haul and dispose of raw sewage from the facility to an approved off-site facility as needed, minimum weekly. Contractor shall be reimbursed for all work necessary to haul and dispose of the sewage at the



price per gallon bid. The number of gallons removed shall be measured at the approved facility. The volume of the tank utilized to remove the liquid shall be recorded. Tanks shall be verified empty prior to filling. The amount paid shall equal the actual metered number of gallons removed times the unit price per gallon bid. The price bid per gallon of sewage removed shall include all labor, material, equipment, hauling and disposal costs to remove and dispose of the sewage at a licensed facility. Filling of tankers shall take place Monday-Friday, 7:00 AM to 3:30 PM.

- d. Should the Contractor fail to complete the work necessary to resume operations in the 120-day window, Contractor shall be responsible to haul and dispose of the sewage at its own cost.
- e. Maintain access for the Plant personnel to all existing facilities during the work.

2. Electrical connections to existing panels/MCCs will not interrupt existing facilities.

- C. Under no circumstances shall sewage be allowed to flow into any trench and mix with the groundwater or be diverted to drainage systems. Hoses for the pumping operation shall be of sufficient quality and strength to withstand vehicular traffic passing over them. Hose couplings shall be tight and free from leaks. Any hose that leaks shall be removed and replaced by a watertight hose.
- D. By-pass pumping will be permitted only during normal working hours, unless otherwise approved by the Engineer.
- E. At the end of each day's work, the Contractor shall temporarily reconnect all pipes disconnected during the course of the work so that there is a continuous pipeline similar to the existing line, which was removed. Temporary piping shall be equal in diameter to the existing pipe, and the newly constructed line may be used. All temporary connections shall be watertight.

#### **1.08 COORDINATION**

- A. The CONTRACTOR shall coordinate the requirements of this section with those listed elsewhere in the Contract Documents.

#### **1.09 DRAINING, WASH DOWN, CLEANING AND TURNOVER OF FACILITIES**

- A. Isolation, draining and wash down of tanks, channels or other process equipment is to be performed by the CONTRACTOR. The CONTRACTOR shall submit for the OWNERS approval a plan for the isolation, draining and wash down of tanks, channels or other process equipment.
- B. Following draining and hose down of all areas in which the CONTRACTOR or its Subcontractors are working, the CONTRACTOR shall be responsible for cleaning the facilities

to the extent necessary to perform the required Work and to protect the health and safety of the CONTRACTOR'S personnel. This requirement includes removal and disposal of any residue, solids, debris or other material.

- C. The CONTRACTOR shall submit for the OWNER'S approval the design, furnish, install and maintain stop logs, bulkheads and similar flow isolation devices prior to proceeding with the Work. The CONTRACTOR will submit with its request all Shop Drawings and design calculations. The installation and removal of any flow isolation device shall be done only after receiving the OWNER'S written approval of the design and permission to proceed.

#### **1.10 SUBMITTALS**

- A. This Section includes General requirements and constraints for maintenance of plant operations during construction. Prior to the commencement of the Work the CONTRACTOR shall submit to the OWNER, for written approval, a detailed overall Work plan detailing the CONTRACTOR'S plan for performing the Work in conjunction with the operation of the Plant.
- B. The CONTRACTOR shall incorporate into the schedule, all constraints identified in this section. Any proposed deviations or modifications to the constraints shall be submitted for approval prior to implementation.
- C. The CONTRACTOR is free to propose modifications to existing or proposed structures to accommodate construction or to facilitate with equipment installation. Where structural modification of an existing or proposed facility is requested, the request shall be accompanied by calculations, Contract Drawings, etc., sealed by a New York registered Professional Engineer specializing in structural design. The OWNER may deny or approve the request at his discretion.

### **PART 2 – PRODUCTS**

#### **2.01 GENERAL**

- A. The CONTRACTOR shall provide all labor, materials, equipment and incidentals to perform the Work required and specified in this Specification. Work shall be arranged and performed by personnel that are fully qualified and equipped to provide the services. Standby/redundant equipment/pumps shall be provided wherever utilized or required. Repair crews shall be available on a 24 hours per day, seven (7) days per week basis.

### **PART 3 – EXECUTION**

- 3.01 Execution shall be performed in accordance with the approved Construction Schedule and Work Plan.

**END OF SECTION**

**SECTION 02 41 00****DEMOLITION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

**1.2 SUMMARY**

- A. Section Includes
  - 1. Demolition
- B. Related Sections
  - 1. Section 31 25 00 – Erosion and Sediment Controls

**1.3 DEFINITIONS**

- A. ACM – Asbestos-containing material.
- B. Demolition – Dismantling, razing, destroying, or wrecking of any fixed building or structure or any part thereof.
- C. Modify – Provide all necessary material and labor to modify an existing item to the condition indicated or specified.
- D. Relocate – Remove, protect, clean and reinstall equipment, including electrical, instrumentation, and all ancillary components require to make the equipment fully functional, to the new location identified on the Drawings.
- E. Renovation – Altering a facility or one or more facility components in any way.
- F. Salvage/Salvageable – Remove and deliver, to the specified location(s), the equipment, building materials, or other items so identified to be saved from destruction, damage, or waste; such property is to remain that of the Owner. Unless otherwise specified, title to items identified for demolition shall revert to the Contractor.
- G. Universal Waste Thermostat – A temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury-containing ampules that have been removed from these temperature control devices in compliance with the requirements of 40 CFR 273.

**1.4 REGULATORY AND SAFETY REQUIREMENTS**

- A. Comply with federal, state, and local hauling and disposal regulations. In addition to any applicable requirements, Contractor's safety requirements shall conform to ANSI A10.6.

**1.5 USE OF EXPLOSIVES**

- A. Use of explosives for demolition is not permitted.

**1.6 ENVIRONMENTAL PROTECTION**

- A. Prior to beginning demolition, the Contractor shall establish temporary erosion and

sediment control in accordance with Section 31 25 00 – Temporary Erosion and Sediment Control.

## **PART 2 - PRODUCTS**

Not Used

## **PART 3 - EXECUTION**

### **3.1 EXISTING FACILITIES TO BE DEMOLISHED OR RENOVATED**

#### **A. Facilities:**

1. Buildings and adjacent designated areas scheduled for complete demolition are as shown on the Drawings.
2. Portions of buildings and other areas scheduled for selective demolition, partial demolition, and renovation are as shown on the Drawings.

#### **B. Utilities and Related Equipment:**

1. Notify Owner or appropriate utilities to turn off affected services at least 48 hours before starting demolition or renovation activities.
2. Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approve by the Owner.
3. When utility lines are encountered that are not indicated on the Drawings, notify the Owner prior to further work in that area.
4. Remove meters and related equipment and deliver to a location as determined by the Owner.
5. Excavate and remove utility lines serving buildings to be demolished to a distance of 10 feet beyond the outside perimeter of the demolition.
6. Provide a permanent leak-proof closure for water and gas lines.
7. For lines less than 8 inches in diameter, plug sewer lines with concrete to a minimum plug length of 2 feet to prevent groundwater infiltration. For lines 8 inches and larger, or for all pipes abandoned under a roadway, completely fill the abandoned line with flowable fill in accordance with Section 31 23 16– Excavation for Utilities.

#### **C. Paving and Slabs - Provide neat saw cuts at limits of pavement removal as indicated.**

#### **D. Masonry – Saw cut and remove masonry so as to prevent damage to surfaces to remain and to facilitate the installation of new Work. Where new masonry adjoins existing, the new Work shall abut or tie into the existing construction as indicated.**

#### **E. Concrete – Saw concrete along straight lines to a depth of not less than 2 inches. Make each cut in wall perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished Work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete. Where new concrete adjoins existing, the new Work shall abut or tie into the existing construction as indicated.**

## F. Patching:

1. Where removals leave holes and damaged surfaces exposed in the finished Work, patch and repair to match adjacent finished surfaces as to texture and finish.
2. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new Work.
3. Fill holes and depressions left as a result of removals in existing surfaces with an approved patching material, applied in accordance with the manufacturer's printed instructions.

## G. Electrical:

1. Cut off concealed or embedded conduit, boxes, or other materials a minimum of 3/4 inch below final finished surface.
2. When removing designated equipment, conduit and wiring may require rework to maintain service to other equipment.
3. Rework existing circuits, or provide temporary circuits as necessary during renovation to maintain service to existing lighting and equipment not scheduled to be renovated. Existing equipment and circuiting shown are based upon limited field surveys. Verify existing conditions, make all necessary adjustments, and record the Work on the Record Drawings. This shall include, but is not limited to, swapping and other adjustments to branch circuits and relocation of branch circuit breakers with panelboards as required to accomplish the finished Work.
4. Reuse of existing luminaires, devices, conduits, boxes, or equipment will be permitted only where specifically indicated.
5. Raceways and Cabling:
  - a. Scheduled for retirement:
    - 1) Inaccessibly Concealed: Cut off and abandon in place.
    - 2) Exposed or Accessible: Remove.
  - b. Scheduled for future use:
    - 1) Cap/seal and tag
  - c. Schedule for relocation:
    - 1) Extend existing wiring or run new wiring from the source.
  - d. Where the existing raceway is concealed, the outlet box shall be cleaned, and a blank cover plate installed.
  - e. Where concealed raceway is uncovered, remove raceway or extend to new location as appropriate.
6. Provide new typewritten panelboard circuit directory cards.

## 3.2 PROTECTION

## A. Dust and Debris Control:

1. Prevent the spread of dust and debris to occupied portions of the building and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.
  2. Vacuum and dust interior Work areas daily.
  3. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.
- B. Traffic Control Signs – Where pedestrian and driver safety are endangered in the area of removal Work, use traffic barricades with flashing lights.
- C. Existing Work:
1. Survey the site and examine the Drawings and Specifications to determine the extent of the Work before beginning any demolition or renovation.
  2. Take necessary precautions to avoid damage to existing items scheduled to remain in place, to be reused, or to remain the property of the Owner. Any Contractor-damaged items shall be repaired or replaced as directed by the Owner.
  3. Provide temporary weather protection during intervals between removal of existing exterior surfaces and installation of new to ensure that no water leakage or damage occurs to the structure or interior areas of existing buildings.
  4. Ensure that structural elements are not overloaded as a result of or during performance of the Work. Responsibility for additional structural elements or increasing the strength of existing structural elements as may be required as a result of any Work performed shall be that of the Contractor. Repairs, reinforcement, or structural replacement must have Owner approval.
  5. Do not overload pavements to remain.
- D. Weather Protection – For portions of the building scheduled to remain, protect the building interior, materials, and equipment at all times. Where removal of existing roofing is necessary to accomplish the Work, have materials and workmen ready to provide adequate and temporary covering of exposed areas so as to ensure effectiveness and to prevent loss.
- E. Trees – Protect trees within the Site that might be damaged during demolition and are indicated to be left in place using a 6-foot-high fence. The fence shall be securely erected a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the Work shall be replaced in kind, as approved by the Owner.
- F. Facilities:
1. Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.
  2. Floors, roofs, walls, columns, pilasters, and other structural elements that are designed and constructed to stand without lateral support or shoring, and are

determined by the Contractor to be in stable condition, shall remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the Owner.

3. Protect all facility elements not scheduled for demolition.
4. Provide interior shoring, bracing, or support to prevent movement, settlement, or collapse of structures or elements to be demolished and adjacent facilities.

G. Protection of Personnel:

1. During demolition, continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.
2. Provide temporary barricades and other forms of protection to protect Owner's personnel and the general public from injury due to demolition Work.
3. Provide protective measures as required to provide free and safe passage of Owner's personnel and the general public to occupied portions of the structure.

### 3.3 BURNING

- A. The use of burning at the Site for the disposal of refuse and debris will not be permitted.

### 3.4 RELOCATIONS

- A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Clean all items to be relocated prior to reinstallation, to the satisfaction of the Owner. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by the Owner.

### 3.5 BACKFILL

- A. Demolition debris shall not be used as backfill material.

### 3.6 TITLE TO MATERIALS

- A. All equipment will be discarded, or may be salvaged, by the Contractor unless specifically identified to remain the property of the Owner in the contract documents.

### 3.7 DISPOSITION OF MATERIAL

- A. Do not remove equipment and materials without the approval of the Owner.
- B. Remove materials and equipment that are indicated and specified to be removed by Contractor and deliver to a location to be determined by the Owner.
- C. Remove salvaged items in a manner to prevent damage, and pack or crate to protect the items from damage while in storage or during shipment. Properly identify containers as to contents.
- D. Repair or replace, at the discretion of the Owner, items damaged during removal or storage.
- E. The Owner will not be responsible for the condition or loss of, or damage to, property scheduled to become the Contractor's property after Owner's authorization to begin demolition. Materials and equipment shall not be viewed by prospective purchasers or sold on the Site.

- F. Owner will not be responsible for the condition or loss of, or damage to, such property after Owner's authorization to begin demolition.
- G. Store salvaged items as approved by the Owner or Inspector and remove them from Owner's property before completion of the Contract.

### **3.8 REUSE OF MATERIALS AND EQUIPMENT**

- A. Remove and store materials and equipment listed to be reused or relocated to prevent damage, and reinstall as the Work progresses.
- B. Properly store and maintain equipment and materials in the same condition as when removed.
- C. Store equipment and material designated to be reused in a location designated by the Owner.
- D. Equipment and material designated to be reused shall be cleaned, serviced and checked for proper operability before being put back into service.
- E. The Owner shall determine condition of equipment and materials prior to removal.

### **3.9 UNSALVAGEABLE MATERIAL**

- A. Concrete, masonry, and other noncombustible materials, except concrete permitted to remain in place, shall be disposed of by the Contractor at a facility permitted to receive the waste by the appropriate state, federal, or local authority.
- B. Combustible material shall be disposed of off of the Site.

### **3.10 CLEANUP**

- A. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.
- B. All materials removed from the sewer lines during cleaning operations shall be trapped and removed from the system at the downstream manhole of the section being cleaned. All materials shall be disposed of in compliance with all applicable laws and regulations and in a manner approved by Owner.
- C. Under no circumstances shall sewage or solids removed in the cleaning process be dumped onto streets or into ditches, catch basins, storm drains, sanitary sewer manholes, cleanouts, or dumps.

**END OF SECTION**



**SECTION 03 30 00****CONCRETE FOR UTILITIES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  1. Formwork for cast-in-place concrete.
  2. Reinforcing bars.
  3. Welded wire fabric.
  4. Reinforcement accessories.
  5. Cast-in-Place Concrete

**1.3 REFERENCE STANDARDS**

- A. American Concrete Institute
  1. ACI 211 – Guide for Selecting Proportions for Concrete.
  2. ACI 301 – Specifications for Structural Concrete.
  3. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
  4. ACI 305 – Guide to Hot Weather Concreting.
  5. ACI 306 – Guide to Cold Weather Concreting.
  6. ACI 308 – Guide for External Curing of Concrete.
  7. ACI 309 – Guide for Consolidation of Concrete.
  8. ACI 318 – Code Requirements for Reinforced Concrete.
  9. ACI 347 – Guide to Formwork Concrete.
  10. ACI 350 – Code Requirements for Environmental Engineering (Water & Wastewater) Concrete Structures.
- B. ASTM
  1. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
  2. ASTM A1064 - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
  3. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
  4. ASTM C33 - Standard Specification for Concrete Aggregates.
  5. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
  6. ASTM C150 - Standard Specification for Portland Cement.
  7. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

**1.4 SUBMITTALS**

- A. Concrete-Mix designs.
- B. Reinforcing steel.

- C. Concrete placement drawings.
- D. Curing compounds and methods.

### 1.5 TESTING

- A. Perform and submit materials testing to demonstrate conformance with the specifications.
- B. Samples and tests shall be performed in accordance with ASTM standards.

## PART 2 - PRODUCTS

### 2.1 FORMS

- A. Forms for Exposed Finish Concrete: Unless otherwise specified or shown on the drawings, construct formwork for exposed concrete surfaces with plywood, or other panel type materials in order to provide exposed surfaces that are continuous, straight, and smooth. Furnish panels in the largest practicable sizes. Provide form material that is thick enough to withstand pressure of newly placed concrete without bowing or deflection.
- B. Forms for Unexposed Finish Concrete: For surfaces that will be unexposed in the finished structure, for concrete with plywood, lumber, metal, or other acceptable material. If lumber is used, it shall be dressed on at least two edges and one side for a tight fit.

### 2.2 FORM COATINGS

- A. Provide commercial formulation form coating compounds that will not bond with, stain, or adversely affect the concrete surface and that will not impair subsequent treatments of concrete surfaces to be cured with water or curing compound.

### 2.3 REINFORCEMENT

- A. Reinforcing bars shall be Grade 60 and in accordance with ASTM A615.
- B. Welded plain and deformed steel wire fabric shall be in accordance with ASTM A1064.
- C. Provide supports for reinforcement, including bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Unless otherwise indicated on the drawings, use wire type bar supports. Wood and other materials will not be accepted as bar supports.

### 2.4 CONCRETE MATERIALS

- A. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- B. Cast-in-place concrete shall be:
  1. Class A 4,000 psi mix design unless otherwise noted.
  2. Class B 3,000 psi mix design may be used for non-structural and non-load bearing applications.
- C. Minimum Requirements:

1. Portland Cement: ASTM C150, Type I or II, low-alkali.
2. Aggregate, general:
  - a. ASTM C33, uniformly graded and clean.
  - b. Do not use aggregate known to cause excessive shrinkage.
3. Aggregate, Coarse: Maximum 3/4-inch crushed rock or washed gravel.

## 2.5 ACCESSORIES AND OTHER MATERIALS

- A. Curing Materials: Contractor selected method and materials shall be in conformance with the requirements of ACI 301.
- B. Provide other materials, not specifically described but required for a complete and proper installation as selected by the Contractor

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, support, brace, and maintain formwork to support any vertical and lateral loads that may be applied until such loads can be supported by the concrete structure. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation, and position.
- B. Construct forms complying with ACI 347 to the sizes, shapes, lines, and dimensions shown on the Construction Drawings so that in the finished structures the work will be level and plumb and have accurate alignment, location, and grade. Provide for openings, offsets, sinkage, keyways, recesses, moldings, rustication, reglets, chambers, blocking, screeds, bulkheads, anchorages, inserts, wall pipes, and other features that the work requires. Use selected materials to obtain the required finishes. But joints solidly, and provide backup at joint to prevent leakage of cement paste.
- C. Fabricate forms so that they can be easily removed without hammering or prying against the concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where the slope is too steep for the concrete to be placed with the bottom forms only. To form keyways, reglets, recesses, and the like, kerf wood inserts to prevent swelling and to permit easy removal.
- D. Clean thoroughly forms and adjacent surfaces that are to receive concrete. Remove chips, wood, sawdust, dirt, and any other debris just before the concrete is placed. After concrete placement, retighten the forms as necessary to eliminate mortar leaks.

### 3.2 EARTH FORMS

- A. Trench earth forms neatly, accurately, and at least 2 inches wider than footing widths indicated on the Drawings.
- B. Construct wood edge strips at the top of each side of the trench to secure reinforcing and to prevent trench from sloughing.

- C. Tamp earth forms firm and clear them of debris and loose material before depositing concrete.

### 3.3 REINFORCEMENT

- A. Reinforcement shall be free of loose rust and mill scale, earth, ice, and other materials that reduce or destroy the bond with concrete.
- B. Place reinforcement to obtain at least the minimum coverage for concrete protection as required by ACI 318. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so that ends are directed into the concrete, not toward exposed concrete surfaces.

### 3.4 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and items to be embedded or cast in.
- B. Mix concrete in accordance with ASTM C94.
- C. Place concrete in accordance with ACI 304.
- D. Deposit concrete either continuously or in layers thick enough to prevent its being placed on concrete that has hardened enough to cause the formation of seams or planes of weakness within the section. Deposit concrete as close to its final location as practicable in order to avoid segregation due to rehandling or flowing.
- E. Deposit concrete in forms in horizontal layers no deeper than 24 inches. Avoid cold joints by placing each layer while the preceding one is still plastic.
- F. Use mechanical vibrating equipment supplemented by hand spading, ridding, or tamping to consolidate placed concrete. The equipment and procedures used to consolidate the concrete shall comply with the recommended practices of ACI 309 and suit both the type of concrete and project conditions. Provide standby mechanical vibrating equipment at all concrete placements.
- G. Consolidate concrete during placing operations so that it is thoroughly worked around reinforcement and other embedded items and into corners.
- H. Maintain reinforcement in the proper position during placement operations.

### 3.5 COLD WEATHER PLACEMENT

- A. Comply with ACI 306 and the requirements herein specified to protect concrete work from physical damage or reduced strength due to frost, freezing, or low temperatures.
- B. When the air temperature has fallen or is expected to fall below 40° F, heat all water and aggregates uniformly before mixing so that the concrete, at point of placement, will have a temperature of not less than 50° F nor more than 80° F.

- C. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade containing frozen subgrade or on subgrade containing frozen materials.
- D. Accelerators and additives shall be approved during the submittal process

### **3.6 HOT WEATHER PLACEMENT**

- A. When the weather is hot enough to impair seriously the concrete's quality and strength, place the concrete as specified herein and in ACI 305.
- B. Cool ingredients before mixing so that when the concrete is placed, its temperature is below 90°
  - F. Mixing water may be chilled, or else a portion of the water may be in the form of chopped ice.
- C. If reinforcing steel becomes hotter than the ambient air temperature, cool it with water-soaked burlap so that its temperature will not exceed the ambient air temperature.

### **3.7 CONCRETE FINISHING**

- A. Unless otherwise indicated, provide the following finishes:
  - 1. Trowel Finish: Apply to monolithic slab surfaces that are to be exposed to view, unless otherwise shown.

**END OF SECTION**

**SECTION 06 50 00****GLASS FIBER REINFORCED PLASTIC TANK COVERS****PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Glass fiber reinforced plastic (FRP/GRP) tank cover deck panels.
- B. Glass fiber reinforced plastic (FRP/GRP) structural supports.
- C. Flashing and trim.
- D. Fasteners and anchors.
- E. Gaskets.
- F. Accessories and appurtenances.
- G. Covers for these tanks, channels, and other areas:
  - 1. Anoxic Tank
  - 2. Clearwell

**1.2 RELATED SECTIONS**

- A. 03 30 00 – CONCRETE FOR UTILITIES

**1.3 REFERENCES**

- A. ASTM D638, Standard Test Method for Tensile Properties of Plastics
- B. ASTM D790, Standard Test Method for Flexural Properties of Plastics
- C. ASTM D695, Standard Test Method for Compressive Strength of Plastics
- D. ASTM E84, Standard Test Method for Surface Burning Characteristics of Plastics

**1.4 SUBMITTALS**

- A. Product Data: Manufacturer's data sheets on each product to be used including:
  - 1. Calculations, design data, and test reports as applicable indicating compliance with requirements.
  - 2. Storage and handling instructions.
  - 3. Installation instructions.
- B. Drawings including layouts, product description, connection and framing details, fastener types and spacing.
- C. Miscellaneous certifications.

**1.5 QUALITY ASSURANCE**

- A. Tank cover supplier shall manufacture and fabricate all FRP components in its own facility, which must be ISO 9001 certified.
- B. Tank cover manufacturer shall have completed minimum of ten (10) projects of similar type as required in this scope within the last five years.
- C. Contractor shall verify all field dimensions for development of manufacturer's drawings.
- D. Contractor shall review and confirm in writing approval of manufacturer's drawings.

**1.6 PRODUCT SUBSTITUTIONS**

- A. Substitutions shall be considered if Engineer has received written request at least two weeks prior to bid date. If substitutions are acceptable, bidders shall be notified by addendum.

- B. Requests for substitutions shall include technical information, including but not limited to air leakage test report and structural performance data.

### 1.7 Performance Testing

- A. Materials shall comply with Federal and Local laws or ordinances, applicable codes, standards, regulations, and/or regulatory agency requirements.
- B. Structural framing and deck panels shall meet performance and design criteria listed herein for span conditions indicated on drawings. Individual units shall demonstrate compliance with design criteria by large-scale testing.
  - 1. FRP Deck Panels: Uniform Load and Deflection Test
  - 2. FRP Structural Components: 3 Point Load Bending Test
- C. Air Leakage
  - 1. Air leakage shall not exceed .2 CFM/SF at negative pressure of .2 inches of water column for 5-minute duration per air Leakage Test in accordance with Procedural Standards for Adjusting, Balancing, of Environmental Systems.
  - 2. Testing shall be conducted by independent test agency certified by Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB).

### 1.8 Design Criteria

- A. Design Loads shall comply with local codes with combined loads determined by Allowable Stress Method.
  - 1. Snow: 50 psf    2. Wind Uplift: 13.9 psf    3. Concentrated Load: 300 pounds
    - a. Deck panels: Individual unit weight plus other materials attached to and supported by panels.
    - b. Cover structure: Individual unit weight plus other materials attached to and supported by cover structure.
- B. Design Limits
  - 1. Dead + Live or Snow Load: Limit = 50 psf (min); Factor of Safety = 2.5
  - 2. Wind Uplift less Dead Load: Deflection Limit =  $L/180$ ; Factor of Safety = 2.5
  - 3. Personnel Load: Cover shall be capable of supporting 300 lb. concentrated load over 30"x30" area located at panel midspan with  $L/180$  deflection limit or deflection not exceeding 5/8".
- C. Cover Panel Removability:
  - 1. Each cover panel shall be removable without having to remove any adjacent cover panel.
  - 2. Each cover panel shall be removable vertically and without cutting of a cover component.
- D. Slip Resistance of Cover System
  - 1. Cover panels, end-to-end joint flashing and side-joint, locking channel shall utilize TreadMAX™ integral, non-skid surface technology or meet the following criteria:
    - a. The cover shall have a slip-resistant walking surface designed for operator foot traffic.
    - b. Non-skid surface shall be an integral (embedded) part of the cover panel and not achieved by use of coatings/paint, adhesive tapes, or other applied product after the manufacturing process.

2. Slip resistance tread shall be at minimum bi-directional. Minimum average Dynamic Coefficient of Friction (DCOF) shall be 0.50 per ANSI A137.1/A326.3 Dynamic Coefficient of Friction Test.
3. Minimum wet Pendulum Test Value (PTV) shall be 45, with Four S (96) hard rubber slider, per AS HB198:2014 (AS/NZS 4586) Pendulum Test.

## **PART 2 – PRODUCTS**

### **2.1 Manufacturer(s)**

The standard for design, characteristics, and performance shall be AXS-NS (XL3) Cover System as manufactured by Enduro Composites, Inc., Houston, TX or approved equal.

### **2.2 Materials**

Fiberglass reinforced plastic (FRP) structural components including cover panels, beams, and framing shall be manufactured by pultrusion process. Contact molded or hand-laid up fiberglass materials shall not be acceptable as structural components.

#### **A. Tank Cover Panels**

1. Resin type for FRP tank cover decking shall be UV stabilized, Isophthalic Polyester or Vinyl Ester. Orthothalic polyester (general purpose) is not acceptable.
2. Glass fiber reinforcements shall be 50% (min) of the material weight.
3. Materials shall be fire retardant and have flame spread rating of 25 or less per ASTM E84.
4. Materials shall exhibit these Physical Properties (at a minimum):
 

|                       |               |            |
|-----------------------|---------------|------------|
| Tensile Strength      | 30,000 psi    | ASTM D 638 |
| Flexural Strength     | 30,000 psi    | ASTM D 790 |
| Flexural Modulus      | 2,270,000 psi | ASTM D 790 |
| Compressive Strength  | 30,000 psi    | ASTM D 695 |
| Izod Impact (Notched) | 20            | ASTM D 256 |
| Water Absorption      | .20% max      | ASTM D 570 |
5. Cover panels shall be sealed at side-laps with EPDM gasket. Side-lap gaskets shall be factory installed and oriented vertically so they are compressed when the locking channel is placed into position.
6. Cover panels shall utilize TreadMAX™ non-skid surface technology or approved equal.
7. Color of deck panels shall be standard gray.

#### **B. Access Hatches (as shown and detailed on plan drawings)**

1. Access hatches shall be raised or flat with one-leaf hatch door and fabricated from pultruded fiberglass components.
2. Access hatches and framing shall fit inside a single deck panel so individual deck panels with hatches can be removed without affecting adjacent panels.
3. Underside of raised hatch lids shall be sealed with factory installed, 3/8" diameter neoprene bulb gasket. Perimeter hatch curb shall be sealed to decking surface with adhesive sealant.
4. Underside of Flat hatch lids shall be sealed with factory installed, 1/4" EPDM Flat gasket. Perimeter hatch curb shall be sealed to decking surface with adhesive sealant.
5. Access Hatches shall have a stainless steel, gas piston hold open device. Gas Piston shall be designed to aid in opening and to hold open the hatch once locked in place.



6. Hatch lids shall have factory applied non-skid, UV resistant surface with plastic or stainless steel lift handles.
- C. FRP Structural Framing (as shown and detailed on plan drawings)
1. Resin type for FRP beams and framing members shall be vinyl ester.
  2. Glass fiber reinforcements shall be 50% (min) of the material weight.
  3. Structural components shall be fire retardant with flame spread rating of 25 or less per ASTM E84.
  4. If cover is flush mounted, ledger angles shall be FRP or 316 stainless steel.
  5. All connections for attachment to FRP beams or fastening connections shall be 316 stainless steel angles or plates. Use of FRP for connections shall not be allowed.
- D. Trusses (if indicated by manufacturer or drawings) Trusses shall be designed and provided by tank cover manufacturer and conform to these specifications:
1. Truss components not exposed to inside of tank shall be galvanized steel.
  2. Truss components exposed to inside of tank shall be stainless steel.
  3. Trusses shall have minimum 6'6" of headspace from top of tank cover to bottom of top chord.
  4. Trusses shall be provided in sections (30 ft. max length) to be bolted together by the contractor.
- E. Flashing and Trim
1. FRP flashing shall be isophthalic polyester with dimensions, and profile as shown on the drawings.
  2. Non-radius end flashing shall be factory attached to individual deck panels.
  3. Flashing with a radius or at the perimeter of a circular tank shall be a separate part and field attached by the installing contractor.
  4. Slide gate flashings (if indicated on drawings) shall be aluminum brush type.
- F. Air Vents and Connections (if indicated on drawings)
1. FRP gooseneck ventilation piping (if indicated on drawings) with bird screen shall be provided by cover manufacturer.
  2. FRP stub-vent connections with a blind flange (if indicated on drawings) shall be provided by cover manufacturer.
  3. Connections shall extend at least 6 inches from top of tank cover deck.
- G. Pipe Penetrations
1. Existing or new pipe penetrations shall be retrofitted by contractor to penetrate cover at 90-degree angle.
  2. Pipe penetrations shall be flashed in the field with a Sealtite retrofit, zipper type, pipe flashing or equal as provided by cover manufacturer.
- H. Hardware
1. Fasteners, anchorage, hinges, and other structural accessories located on underside of cover shall be: 316 Stainless Steel
  2. Perimeter flashing anchors, concrete anchors, or other hardware not exposed to the inside environment of tank shall be 304 Stainless Steel.
  3. Fasteners to attach tank cover decking to structural supports shall be: 316 Stainless Steel
- I. Gaskets and Sealants
1. All panel side laps and perimeter conditions shall have gaskets.
  2. Gaskets under flashing with radius and at perimeter of circular tanks shall be installed by the contractor.

3. Adhesive sealant shall be applied by contractor at various locations as required by manufacturer for odor containment.

### **PART 3 – EXECUTION**

#### **3.1 Material Handling**

- A. At time of delivery, all materials shall be inspected for shipping damage. Freight company and manufacturer shall be notified immediately of any damage or quantity shortages.
- B. Contractor shall protect FRP materials from cuts, scratches, gouges, abrasions, and impacts. When lifting FRP materials: spreader bars shall be used (not wire slings unless materials are fully protected). FRP components shall not be dragged across one another unless separated by a non-scratching spacer.

#### **3.2 Installation**

- A. Before placing and attaching components, erector must confirm alignment and location of bearing plates, surfaces, brackets, saddles, etc. All bearing surfaces must be clean and free of debris.
- B. Before placing secondary framing members or deck, erector must check the alignment and location of supports.
- C. Erection shall proceed according to sequence shown on the approved drawings.
- D. If applicable, contractor shall install structural members, beam seats, or ledger angles in locations shown on the approved drawings. Contractor shall assemble trusses as required.
- E. Position FRP tank cover beams (if applicable) in locations, as shown on the manufacturer's drawings. Field modifications (cuts, copes, holes, etc.) other than work shown on the drawings are not allowed without manufacturer's written consent.
- F. Anchor FRP beams and adjust tank cover components into final position with proper bearing and alignment at joints, laps, and supports before fastening. Refer to manufacturer's installation instructions for proper fastener selection, fastener location, driving techniques, and pertinent information for fastening equipment.
- G. Starting at end shown on the manufacturer's drawings, position and place cover deck panels in locations as shown. Field modifications (cuts, copes, holes, etc.) other than work shown on the drawings are not allowed without manufacturer's written consent.
- H. Fasten or anchor FRP cover deck panels into location as shown on the drawings.
- I. Place and attach flashing as shown on the drawings.

#### **3.3 Warranty**

- A. The cover manufacturer shall warrant that the work described herein shall be free from defects, workmanship and material. The flat cover manufacturer shall replace, or repair only faulty workmanship or defective material furnished by it that is reported to it within one (1) year from the date of shipment

**END OF SECTION**

**SECTION 09 67 23****RESINOUS FLOORING****PART 1 – GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This section includes the following:
  - 1. Resinous flooring system as shown on the drawings and in schedules.
- B. Related sections include the following:
  - 1. Concrete for Utilities, section 03 30 00

**1.3 SYSTEM DESCRIPTION**

- A. The work shall consist of preparation of the substrate, the furnishing and application of a cementitious urethane based self-leveling seamless flooring system with Flintshot quartz aggregate broadcast with epoxy grout coat and urethane topcoat.
- B. The system shall have the color and texture as specified by the Owner with a nominal thickness of 3/16 inch. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.
- C. Cove base (if required) to be applied where noted on plans and per manufacturers standard details unless otherwise noted

**1.4 SUBMITTALS**

- A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
- B. Manufacturer's Safety Data Sheet (SDS) for each product being used.
- C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.
- D. Mock-up: provide 4'x4' to be approved in writing by owner.

**1.5 QUALITY ASSURANCE**

- A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.
- B. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.
- C. No requests for substitutions shall be considered that would change the generic type of the specified System.

- D. System shall be in compliance with requirements of local Health Department.
- E. System shall be in compliance with the Indoor Air Quality requirements
- F. A pre-installation conference shall be held between Applicator, General Contractor and the Owner for review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production schedule.

## **1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING**

- A. Packing and Shipping
  - 1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.
- B. Storage and Protection
  - 1. The Applicator shall be provided with a dry storage area for all components. The area shall be between 60 F and 85 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.
  - 2. Copies of Safety Data Sheets (SDS) for all components shall be kept on site for review by the Engineer or other personnel.
- C. Waste Disposal
  - 1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.

## **1.7 PROJECT CONDITIONS**

- C. Site Requirements
  - 1. Application may proceed while air, material and substrate temperatures are between 60 F and 85 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
  - 2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.
  - 3. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.
- D. Conditions of new concrete to be coated with cementitious urethane material.
  - 1. Concrete shall be moisture cured for a minimum of 7 days and have fully cured a minimum of 14 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests.
  - 2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable).
  - 3. Sealers and curing agents should not to be used.
  - 4. Concrete surfaces on grade shall have been constructed with a vapor barrier to protect against the effects of vapor transmission and possible delamination of the system.
  - 5.
- E. Safety Requirements
  - 1. The Owner shall be responsible for the removal of foodstuffs from the work area.
  - 2. Non-related personnel in the work area shall be kept to a minimum.

## **1.8 WARRANTY**

- A. The manufacturer shall warrant that material shipped to buyers at the time of shipment be substantially free from material defects and will perform substantially to manufacturer published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.
- B. Manufacturer liability with respect to this warranty is strictly limited to the value of the material purchase. One-year standard material warranty.

## PART 2 – PRODUCTS

### 2.1 FLOORING

- A. Sherwin-Williams Poly-Crete SLB (self leveling broadcast quartz), seamless flooring system,
  - 1. System Materials:
    - a. Topping: Sherwin-Williams Poly-Crete SL resin, hardener and SL aggregate.
    - b. The aggregate shall be Sherwin-Williams Flintshot quartz aggregate.
    - c. Grout coat: Sherwin-Williams Resuflor Glaze resin and hardener.
    - d. Topcoat: Sherwin-Williams Resutile AT resin and hardener and colorant
  - 2. Patch Materials:
    - a. Shallow Fill and Patching: Use Sherwin-Williams Poly-Crete MD (up to ¼ inch).
    - b. Deep Fill and Sloping Material (over ¼ inch): Use Sherwin-Williams Cemlack UM.
- B. Or approved equal

### 2.2 MANUFACTURER

- A. The Sherwin-Williams High Performance Flooring, 866-540-1299 [swflooring@sherwin.com](mailto:swflooring@sherwin.com) Website: <https://industrial.sherwin-williams.com/na/us/en/resin-flooring.html>
- B. Or approved equal

### 2.3 PRODUCT REQUIREMENTS

- A. Topping: Poly-Crete SL
 

|                                                                                      |                            |
|--------------------------------------------------------------------------------------|----------------------------|
| 1. Percent Reactive                                                                  | 100 %                      |
| 2. VOC                                                                               | 0 g/L                      |
| 3. Bond Strength to Concrete ASTM D 4541                                             | >400 psi, substrates fails |
| 4. Compressive Strength, ASTM C 579                                                  | 9,000 psi                  |
| 5. Tensile Strength, ASTM D 638                                                      | 2,175 psi                  |
| 6. Flexural Strength, ASTM D 790                                                     | 5,076 psi                  |
| 7. Impact Resistance @ 125 mils, MIL D-3134, Pass no visible damage or deterioration |                            |
- B. Grout Coat: Resuflor Glaze
 

|                                               |                       |
|-----------------------------------------------|-----------------------|
| 1. VOC                                        | 8 g/L                 |
| 2. Compressive Strength, ASTM D 695           | 17,500 psi            |
| 3. Tensile Strength, ASTM D 638               | 4,000 psi             |
| 4. Flexural Strength, ASTM D 790              | 6,250 psi             |
| 5. Flexural Modulus of Elasticity, ASTM D 790 | 6.2 x 10 <sup>5</sup> |
| 6. Abrasion Resistance, ASTM D 4060           |                       |
| CS17 Wheel, 1,000 gm load, 1,000 cycles       | 24 mg loss            |
| 7. Flame Spread/NFPA-101, ASTM E 84           | Class A               |
| 8. Flammability, ASTM D 635                   | Self Extinguishing    |
| 9. Indentation, MIL D-3134                    | 0.025 Max             |
| 10. Impact Resistance MIL D-3134              | Pass                  |
| 11. Water Absorption. MIL D-24613             | 0.04%                 |
- C. Topcoat: Resutile AT

|                                         |                                 |
|-----------------------------------------|---------------------------------|
| 1. Percent Solids                       | 95 %                            |
| 2. VOC                                  | 0 g/L                           |
| 3. Tensile Strength, ASTM D 2370        | 7,000 psi                       |
| 4. Adhesion, ASTM 4541                  | Substrate Failure               |
| 5. Hardness, ASTM D 3363                | >4H                             |
| 6. 60° Gloss ASTM D 523                 | Satin: 50 +/-10 Gloss: 75 +/-10 |
| 7. Abrasion Resistance, ASTM D4060      | Gloss Satin                     |
| CS 17 wheel (1,000 g load) 1,000 cycles | 4 8 mg loss with grit           |
|                                         | 10 12 mg loss without grit      |
| 8. Pot Life, 70 F, 50% RH               | 45 Minutes                      |
| 9. Full Chemical Resistance             | 7 days                          |

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.
- B. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.

### 3.2 PREPARATION

- A. General
  1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.
  2. Moisture Testing: Perform tests recommended by manufacturer and as follows.
    - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
    - b. If the relative humidity exceeds 99% then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
  3. Mechanical surface preparation
    - a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 4-5 as described by the International Concrete Repair Institute.
    - b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
    - c. Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 3/16 inch deep and 1/4 inch wide key cut shall be made to properly seat the system, providing a smooth transition between areas. The detail cut shall also apply to drain perimeters and expansion joint edges.
    - d. Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations.

- e. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufactures recommendations.

### 3.3 APPLICATION

#### A. General

1. The system shall be applied in four distinct steps as listed below:
  - a. Substrate preparation
  - b. Topping/overlay application with quartz aggregate broadcast.
  - c. Grout coat application.
  - d. Topcoat application
2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
3. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.

#### B. Topping

1. The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch.
2. The topping shall be comprised of three components, a resin, hardener and filler as supplied by the Manufacturer.
3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. SL Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.
4. The topping shall be applied over horizontal surfaces using ½ inch "v" notched squeegee, trowels or other systems approved by the Manufacturer.
5. Immediately upon placing, the topping shall be degassed with a loop roller.
6. Quartz aggregate shall be broadcast to excess into the wet material at the rate of 1 lbs/sf.
7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.

#### C. Grout Coat

1. The topcoat shall be squeegee applied and back rolled with a coverage rate of 80-90 sf/gal.
2. The topcoat shall be comprised of a liquid resin and a liquid hardener that is mixed in the ratio of 1 part hardener to 2 parts resin and installed per the manufacturer's recommendations.

#### D. Topcoat

1. The topcoat shall be roller applied with dip and roll method at 3 mils.
2. The topcoat shall be comprised of a liquid resin, hardener and colorant mixed per the manufacturer's instructions.
3. The finish floor will have a nominal thickness of 3/16 inch.

### 3.4 FIELD QUALITY CONTROL

#### A. Tests, Inspection

1. The following tests shall be conducted by the Applicator:
  - a. Temperature
    1. Air, substrate temperatures and, if applicable, dew point.

b. Coverage Rates

1. Rates for all layers shall be monitored by checking quantity of material used against the area covered.

**3.5 CLEANING AND PROTECTION**

- A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.
- B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

**END OF SECTION**



**SECTION 09 90 00****PAINTING****PART 1 – GENERAL****1.01 WORK INCLUDED**

- A. The Contractor shall provide all labor, materials and equipment necessary to prepare and paint the following surfaces:
  - 1. Control building interior walls and ceilings
  - 2. Pipe supports, new and existing conduit and pipe
  - 3. All piping shall be color coded.
- B. Surface preparation and shop painting of the miscellaneous metal items, wood, concrete, masonry, PVC/DI and other piping, pipe insulation and other miscellaneous materials are included under this Section.
- C. Existing signage shall be removed and cleaned prior to painting and replaced after painting.
- D. Wherever possible, all shop and field coatings shall be made with paints of the same manufacturer. Where this is not possible, the manufacturer, paint material and mil thickness of shop prime coatings used shall be submitted to the Engineer for approval. All shop prime coatings shall be made with paints equivalent to those specified herein. In instances where another paint manufacturer's prime coat is used, modifications to these specifications concerning preparation and painting may be necessary at no additional cost to the Owner.
- E. It is the intent of this Specification to provide a completely painted or coated system for the items mentioned, but the absence of any item or coating from the said schedules shall not relieve the Contractor from painting such item completely as if it had been mentioned.

**1.02 WORK NOT INCLUDED**

- A. The following items are not required to be painted, except as noted in this Specification or on the Contract Drawings: existing and new hand or form finished concrete surfaces, concealed copper and brass piping; galvanized surfaces; acoustic tile ceilings; non-slip stair nosing; aluminum work, stair and platform gratings, railings, louvers, and windows; curtain wall members; stainless steel; and items furnished with a factory finish equivalent to those specified herein.

**1.03 INSPECTIONS AND CERTIFICATIONS**

- A. At the time the Contractor furnishes the name of the paint manufacturer to the Engineer for approval, he shall also submit the manufacturer's detailed program of technical and inspection services incorporating the requirements specified herein.
- B. There shall be a minimum of two (2) inspections held at the job site. The Contractor shall be responsible for arranging all of these and shall notify in advance of each meeting/inspection, his painting subcontractor or painting foreman, the manufacturer's expert technical representative,

and the Engineer, each of whom shall be present at each meeting/inspection.

- C. At the first inspection, all conditions pertinent to surface preparation and painting shall be discussed with the Contractor. At this time an inspection of all surfaces to be painted shall be made and recommendations concerning preparation and painting shall be made by the manufacturer's representative.
- D. The final inspection shall be held at the completion of all of the painting work. This inspection shall incorporate the checking and inspection of all coated surfaces. The Contractor shall correct all deficiencies found at this time in accordance with the paint manufacturer's recommendations and the Specifications in this section all work to meet the Engineer's approval.
- E. At the conclusion of all the painting work as approved by the Engineer, the Contractor shall furnish a written manufacturer's certificate stating that the materials applied were found to meet the dry mil thicknesses and other requirements of this Specification.

#### **1.04 REFERENCES**

- A. Society for Protective Coatings (SSPC) Specifications:
  - B. SSPC-PA 1: Shop, Field, and Maintenance Painting of Steel.
  - C. SSPC-PA-2: Measurement of Dry Coating Thickness with Magnetic Gages.
  - D. SSPC-SP 1: Solvent Cleaning.
  - E. SSPC-SP 3: Power Tool Cleaning.
  - F. SSPC-SP 6: Commercial Blast Cleaning.
  - G. SSPC-SP10: Near-White Blast Cleaning.
- H. American National Standards Institute (ANSI):
  - 1. A13.1: Scheme for the Identification of Piping Systems, Designation.
- I. National Sanitation Foundation (NSF)

#### **1.05 QUALITY ASSURANCE**

- A. Use products of one manufacturer in any one paint coating system with compatible coating materials. Provide same coating product for touch-up as for original coating.
- B. Do not use or retain contaminated, outdated, or diluted materials for painting. Do not use materials from previously opened containers.
- C. Provide paint products having a minimum of five (5) years of service, with no peeling, flaking, chipping, blistering, or fading, under similar service conditions.
- D. Apply paints and coatings using painters continuously employed in the painting profession for no less than five (5) years. Contractor's general labor or other trade personnel shall not generally be considered to meet this criterion. If a coating system manufacturer has an

applicator/contractor certification or training program applicable to a coating system to be provided, all painters utilized shall be certified or trained in accordance therewith.

- E. In the event the Contract Documents, as a whole, require differing or conflicting coatings for a particular substrate, the Engineer shall determine the most applicable coating system of those specified for such substrate. In the event similar or identical coating systems are specified in differing specifications or drawings but the number of coats is in conflict, the specified system with the highest number of coats shall be provided. In all such events, the Contractor shall have based his Bid upon the most stringent surface preparation requirements specified as applicable to the provision and installation of the coating system of the highest performance specified with the highest number of coats specified.
- F. All aspects of surface preparation and coating application shall be in strict accordance with the coating manufacturer's written directions and recommendations. Written recommendations shall be deemed as being requirements.

#### **1.06 SUBMITTALS**

- A. Submit the following:
  - 1. List of coating products (Paint Schedule) with brand, type and manufacturer including dry film thickness and volatile organic compound (V.O.C.) regulations conforming to these specifications.
  - 2. Manufacturer's current printed recommendations and data sheets for each product including performance criteria, surface preparation, application instructions.
  - 3. Product data and pertinent information including results of test patch data indicating compatibility of field applied coatings with shop applied primers including a schedule listing each primer with field applied coatings to be applied over the primer.
  - 4. Color samples of manufacturer's full range of colors for initial selection by Engineer.
  - 5. Submit manufacturer's published data showing service record.
  - 6. Submit letter(s) signed by paint manufacturer certifying that submitted products are suitable for application on the surfaces to be coated and for the service conditions.
  - 7. Product data for mil thickness testing equipment including operating instructions.

#### **Field Submittals:**

- 1. Submit letter(s), signed by Contractor, stating that existing and new surfaces to be coated are ready for preparation as specified.
- 2. Submit letter(s) signed by Painting Subcontractor, certifying that existing and new surfaces to be coated have been prepared in accordance with paint manufacturer's printed instructions and are ready for field paint application.
- 3. Approved mil thickness test results, including location, and surface or item for identification.

4. Provide samples of existing paint coatings to paint manufacturer for identification of existing coatings. Submit to Engineer final recommendations of the paint manufacturer for the proper type of coatings that can be applied to existing surfaces. If the specified paint coating for existing surfaces is not acceptable to paint manufacturer, then the painting subcontractor and paint manufacturer shall submit the recommended coating at no additional cost.

#### **1.07 PAINT STORAGE AND MIXING AREAS, AND WASTE DISPOSAL**

- A. Store paints and painter's materials in area or areas designated by the Engineer solely for this purpose. Confine mixing, thinning, clean-up and associated operations, and storage of painting debris, to these areas before authorized disposal.
- B. Do not use plumbing fixtures, piping or mechanical equipment for mixing or disposal of paint materials.
  1. Transport water to paint area by temporary hose or piping.
  2. Store waste temporarily in closed, nonflammable containers until final disposal. Keep no rubbish in painter's area longer than 24 hours. Dispose any hazardous materials in accordance with applicable regulations and place all non-hazardous waste in the central trash trailer area.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. General Contractor will provide storage and protection as specified.
- B. Deliver materials to painter's area in original, unbroken, containers with name and analysis of product, manufacturer's name, and shelf-life date. Do not use or retain contaminated, outdated, prematurely opened, or diluted materials.
- C. Store coated items and protect coating from damage and foreign matter, by not allowing contact with soil or pavement, exposure to wind-blown particles, or other harmful contacts which necessitate special cleaning. Use blocking during storage.
- D. Protect coated items, whether prime or finish, from damage due to shipping and handling.

#### **1.09 JOB CONDITIONS**

- A. Environmental Requirements:
  1. Comply with manufacturer's printed recommendations as to environmental conditions under which coatings and coating systems can be applied.
  2. Do not apply coatings when dust is being generated.
- B. Protection:
  1. Cover or otherwise protect finish work of other trades and surfaces not being painted concurrently or not to be painted.
  2. Do not paint over nameplates, tagging or other identification devices.
  3. Employ all appropriate measures to protect completed coating work during re-coat times and during cure times in accordance with manufacturer's printed instructions and

recommendations.

## **PART 2 – PRODUCTS**

### **2.01 GENERAL**

- A. All paint and accompanying materials shall be delivered in original unopened containers bearing the manufacturer's label and all special markings and directions thereon. All paint and accompanying materials shall be used strictly in accordance with the manufacturer's recommendations, except as directed and approved in writing by the Owner or his representative.
- B. Materials specified are those that have been evaluated for the specific service on this project. Products of the Tnemec Company, Inc. are listed to establish a standard of quality. Equivalent materials of other manufacturers may be submitted for approval of the Engineer.

### **2.02 PAINTING SCHEDULE**

- A. The schedule which follows includes the various items and surfaces required to be painted, the associated Finish Numbers, the types of painting materials to be used for prime, intermediate and finish coats and minimum dry film mil thickness required per coat. In general, the first material mentioned in any given painting system is a prime coat, which for prefabricated and shop-fabricated items should be applied at the shop. The remaining materials are normally field applied finish coats.
- B. The intent of the Schedule is to provide a completely painted or coated system for all of the work as shown on the Drawings and specified herein, but the absence of any item or surface from the Schedule shall not relieve the Contractor from the responsibility for preparing and painting such item or surface as if it had been so included in the Schedule.
- C. The Painting Schedule is divided into three sub-schedules: Painting for Buildings; and Painting for Equipment and Piping. The Painting Schedule is a general or standard schedule, and all items presented may not be applicable.

**PAINTING SCHEDULE****PAINTING FOR BUILDINGS**

|    |                                                                                                                | DFT       |
|----|----------------------------------------------------------------------------------------------------------------|-----------|
| A. | Exterior Exposed Non-Submerged Ferrous Metals,                                                                 |           |
| 1. | First Coat Tnemec Series 1 Omnithane                                                                           | 2.5-3.5   |
| 2. | Second Coat Tnemec Series N69 Hi Build Epoxoline II                                                            | 3.0-4.0   |
| 3. | Finish Coat Tnemec Series 750 UVX                                                                              | 2.5-5.0   |
| 4. | Total System DFT                                                                                               | 8.0 -12.5 |
| B. | Interior Exposed Concrete Block                                                                                |           |
| 1. | First Coat Tnemec 130 Envirofill applied at 60-80 sq. ft. / gal                                                |           |
| 2. | Second Coat Tnemec Series N69 Hi-Build Epoxoline II                                                            | 4.0-6.0   |
| 3. | Finish Coat Tnemec Series N69 Hi-Build Epoxoline II                                                            | 4.0-6.0   |
| 4. | Total System DFT                                                                                               | 8.0-12.0  |
| C. | Interior Exposed Plaster or Gypsum Wallboard                                                                   |           |
| 1. | First Coat Tnemec Series 6 Tneme-Cryl                                                                          | 2.0-3.0   |
| 2. | Second Coat Tnemec Series 6 Tneme-Cryl                                                                         | 2.0-3.0   |
| 3. | Total System DFT                                                                                               | 4.0-6.0   |
| D. | Exposed Interior Structural Steel, Misc. Ferrous Metals                                                        |           |
| 1. | First Coat Tnemec Series 1 Omnithane                                                                           | 2.5-3.5   |
| 2. | Second Coat Tnemec Seires N69 Hi Build Epoxoline II                                                            | 3.0-4.0   |
| 3. | Finish Coat Tnemec Series 73 EnduraShield                                                                      | 2.0-3.0   |
| 4. | Total System DFT                                                                                               | 7.5 -10.5 |
| E. | Interior Metal Doors and Frames (including interior of exterior doorways – not garage doors) and Window Frames |           |
| 1. | First Coat Tnemec Series 1 Omnithane                                                                           | 2.5-3.5   |
| 2. | Second Coat Tnemec Series 1028 Enduratone                                                                      | 2.0-3.0   |
| 3. | Third Coat Tnemec Series 1028 Enduratone                                                                       | 2.0-3.0   |
| 4. | Total System DFT                                                                                               | 6.5-9.5   |
| F. | Exposed Interior Miscellaneous Sheet Metal                                                                     |           |
| 1. | First Coat Tnemec Series 115 UniBond DF                                                                        | 2.0-4.0   |
| 2. | Second Coat Tnemec Series 115 UniBond DF                                                                       | 2.0-4.0   |
| 3. | Total System DFT                                                                                               | 4.0-8.0   |
| G. | Aluminum Imbedded in Concrete and Masonry                                                                      |           |
| 1. | First Coat Tnemec Series N69 Hi-Build Epoxoline II                                                             | 3.0-5.0   |
| 2. | Second Coat Tnemec Series 46H-413                                                                              | 8.0-10.0  |
| 3. | Third Coat Tnemec Series 46H-413                                                                               | 8.0-10.0  |
| 4. | Total System DFT                                                                                               | 19.0-25.0 |

**PAINTING FOR EQUIPMENT AND PIPING**

|                                                                                                                                  |                                         | DFT      |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------|
| <b>A. Exposed Plastic Pipe, Valves and Special Fittings</b>                                                                      |                                         |          |
| 1. First Coat                                                                                                                    | Tnemec Series N69 Hi-Build Epoxoline II | 3.0-5.0  |
| 2. Second Coat                                                                                                                   | Tnemec Series N69 Hi-Build Epoxoline II | 3.0-5.0  |
| 3. Total System DFT                                                                                                              |                                         | 6.0-10.0 |
| <b>B. Exposed Pipe Insulation</b>                                                                                                |                                         |          |
| 1. First Coat                                                                                                                    | Tnemec Series 6 Tneme-Cryl              | 2.0-3.0  |
| 2. Second Coat                                                                                                                   | Tnemec Series 6 Tneme-Cryl              | 2.0-3.0  |
| 3. Total System DFT                                                                                                              |                                         | 4.0-6.0  |
| <b>C. Valve and Gate Stand</b>                                                                                                   |                                         |          |
| 1. First Coat                                                                                                                    | Tnemec Series 1 Omnithane               | 2.5-3.5  |
| 2. Second Coat                                                                                                                   | Tnemec Series N69 Hi-Build Epoxoline II | 4.0-6.0  |
| 3. Third Coat                                                                                                                    | Tnemec Series N69 Hi-Build Epoxoline II | 4.0-6.0  |
| 4. Third Coat *                                                                                                                  | Tnemec Series 73 EnduraShield           | 2.0-3.0  |
| 5. Total System DFT                                                                                                              |                                         | 6.5-9.5  |
| <b>D. Electric Switchgear, Control Centers etc. not provided with a factory finish</b>                                           |                                         |          |
| 1. First Coat                                                                                                                    | Tnemec Series 1 Omnithane               | 2.5-3.5  |
| 2. Second Coat                                                                                                                   | Tnemec Series 1028 Enduratone           | 2.0-3.0  |
| 3. Third Coat                                                                                                                    | Tnemec Series 1028 Enduratone           | 2.0-3.0  |
| 4. Total System DFT                                                                                                              |                                         | 6.5-9.5  |
| <b>E. Heating and Ventilating Equipment.</b>                                                                                     |                                         |          |
| 1. First Coat                                                                                                                    | Tnemec Series 10                        | 2.5-3.5  |
| 2. Second Coat                                                                                                                   | Tnemec Series 82 Versatone              | 1.5-2.5  |
| 3. Third Coat                                                                                                                    | Tnemec Series 82 Versatone              | 1.5-2.5  |
| 4. Total System DFT                                                                                                              |                                         | 5.5-8.5  |
| <b>F. Non-Submerged Ferrous Metal Subject to Moisture and Condensation - Especially on surfaces which will be constantly wet</b> |                                         |          |
| 1. First Coat                                                                                                                    | Tnemec Series 1 Omnithane               | 2.5-3.5  |
| 2. Second Coat                                                                                                                   | Tnemec Series N69 Hi-Build Epoxoline II | 4.0-6.0  |
| 3. Third Coat                                                                                                                    | Tnemec Series N69 Hi-Build Epoxoline II | 4.0-6.0  |
| 4. Total System DFT                                                                                                              |                                         | 6.5-9.5  |

NOTE: All components that are shipped primed with a manufacturers primer that is different from what is specified above must undergo adhesion testing in accordance to ASTM 3359 Standard Test Method for Measuring Adhesion by Tape Test. All coats in the specified system must be applied to the test patch in order to conduct the overcoat analysis.

**2.02 PIPE, VALVE/EQUIPMENT IDENTIFICATION AND COLOR CODING:**

- A. Provide identification of existing and new pipes, valves, pumps, tanks and similar vessels and items in accordance with Owner's Identification System which prescribes specific background colors, text colors, directional arrow colors, banding, and other unique identifiers. Colors required by Owner to match Owner's Identification System shall be provided at no additional cost, regardless of whether or not a color may be considered "custom" by the paint manufacturer.
  - 1. For existing and new pipe systems, use stenciled letters and arrows or self-adhesive labels or tapes located at intervals no greater than 20 ft. apart on straight runs except that stainless steel piping at intervals shall be no greater than 15 ft. apart on straight runs. Mark each valve, branch, wye change in direction and each side of floor and wall penetrations.
    - a. Labels or tapes shall be moisture and U.V. resistant.
- B. Provide legend of size, character and location conforming to ANSI A13.1 for stenciled letters or labels.

**PART 3 – GENERAL****3.01 WORKMANSHIP, SAFETY AND CLEAN-UP**

- A. All work shall be done in a workmanlike manner so that the finished surfaces will be free from runs, drops, ridges, waves, laps, and unnecessary brush marks. All coats shall be applied in such a manner as to produce an even film of uniform thickness completely coating all corners and crevices. All painting shall be done by thoroughly experienced workmen in full conformance with the manufacturer's recommendations.
- B. Succeeding coats of the same type and/or color of paint shall vary sufficiently from the color of the preceding coat to permit ready identification. Primers and intermediate coats shall be retouched before applying the succeeding coat.
- C. The application of paint or surface drainage coating to any surface shall signify the acceptance by the Contractor of the surfaces to be finished, and any defects in the finished painting work due to defects in the surface to be painted or finished shall be corrected by the Contractor at no additional expense to the Owner.
- D. The Contractor shall use particular care in preparing and painting those surfaces of metals which are subject to submergence or intermittent submergence, but which are not easily accessible or visible after erection or placement.
- E. Proper safety precautions shall be taken at all times in enclosed areas as well as open areas. Masks for painters may be necessary and forced ventilation inside tanks and enclosed areas must be provided, not only to protect the painters from prolonged breathing of the volatile solvents but also to facilitate the proper setting and hardening of the paint coatings. All safety precautions necessary, including those required by law, shall be included under this Section and are the responsibility of the Contractor.



- F. After the painting work is completed and dry, the Contractor shall go over all doors and sash and loosen any that may have become stuck, leaving same and all other work free from any defects caused by the painting. All paint spots, daubs, etc., shall be removed from glass, hardware, piping equipment, etc., which may have become spotted as a result of the painting work. Upon completion of the painting and finishing work, all surplus materials, empty packages, debris and the like, shall be removed from the building and the premises.
- G. To provide contrast between successive coats, lightly tint each coat to distinguish it from preceding coats.
- H. Unless otherwise indicated for finish paint, use gloss or semi-gloss on metal, and satin finish on masonry and concrete.

### **3.02 RATES OF APPLICATION**

- A. On metal surfaces, the painter shall apply each coat of paint at the rate specified by the manufacturer to achieve the minimum dry mil thickness required. If material has thickened or must be diluted for application by spray gun, the coating shall be built up to the same film thickness achieved with undiluted material. In other words, one gallon of paint as originally furnished by the manufacturer must not cover a greater square foot area when applied by spray gun than when applied untinned by brush. Deficiencies in film thickness and/or the continuity of the coatings shall be corrected by application of an additional coat(s) of paint.
- B. On masonry, application rates will vary according to surface texture, however, in no case shall the manufacturer's stated coverage rate be exceeded. On porous surfaces, it shall be the painter's responsibility to achieve a protective and decorative finish either by decreasing the coverage rate or by applying additional coats of paint.
- C. All thicknesses referred to in the painting schedule are dry mil measurements. Mil thickness shall, in all cases, take precedence over number of coats to obtain proper coverage.

### **3.03 PAINTING RESTRICTIONS DURING BAD WEATHER, LOW TEMPERATURE AND OTHER ATMOSPHERIC CONDITIONS**

- A. No paint shall be applied when the surrounding air temperature, as measured in the shade, is below 40°F (50°F for two-component epoxies including coal tar epoxies; for emulsions, follow manufacturer's instructions on containers). Paint shall not be applied in rain, snow, fog or mist, or when the relative humidity exceeds 85%. No paint shall be applied when it is expected that the relative humidity will exceed 85% or that the air temperature will drop below 40°F within 18 hours after the application of the paint. Dew or moisture condensation should be anticipated, and if such conditions are prevalent, painting shall be delayed until midmorning to be certain that the surfaces are dry. Further, the day's painting should be completed well in advance of the probable time of day when condensation will occur, in order to provide an appreciable drying time prior to formation of moisture.

### **3.04 DRYING TIMES**

- A. Drying time shall be construed to mean "under normal conditions." Where conditions are other than normal because of the weather or because painting must be done in confined spaces, longer drying times will be necessary.
- B. Additional coats of paint shall not be applied, nor shall units be handled, moved, or put into service

until paints are thoroughly dry.

### **3.05 STORING AND MIXING**

- A. All materials used in paint application shall be stored and mixed in a single well-ventilated place and in a manner to prevent spontaneous combustion and contamination by extraneous materials. No plumbing fixture or pipe shall be used for mixing or for disposal of any waste paint, solvents, or other refuse material. Waste rags, etc., shall be removed daily. All materials shall be stored, mixed and used at the temperatures recommended by the paint manufacturer. Paint and solvent containers shall be kept tightly closed when not being actually used and shall remain unopened until required for use. Paint which was livered, gelled, or otherwise deteriorated during storage shall not be used. All containers of paint shall be clearly labeled to show paint identification, date of manufacture, batch number, order number and special instructions, all legible at the time of use.

### **3.06 SURFACE PREPARATION - GENERAL**

- A. All surfaces to be painted shall be thoroughly cleaned by removing dirt, rust scale, rust, loose mill scale, welding flux and slag, oil, tar asphalt, grease, laitance, loose paint and other detrimental matter which may interfere with the proper adhesion of the coating to be applied all per the manufacturer's recommendations.
- B. For existing interior coatings the surface needs to be prepared in accordance to SSPC-SP 1 and SSPC-SP 2 or SSPC-SP 3. Tightly adhered rust, mill scale or previous coating can remain provided it cannot be removed by lifting with a dull putty knife using moderate pressure. This applies to all existing painted surfaces to be recoated under this contract.
- C. Rust on existing exterior ferrous surfaces in the Exterior Sludge Dumpster Area shall be removed by first chemical cleaning the area and then by power tool cleaning/wire brushing per SSPC-SP3 standards and the area reprimed.
- D. All surfaces shall be free from wetness, dampness, frost and ice before any coating is applied. Surfaces shall be thoroughly dry before painting. No painting shall be done until the surface to which paint is applied has been approved by the Engineer.
- E. Hardware, accessories, equipment, piping, machine surfaces, plates, lighting fixtures, and similar items in place prior to cleaning and painting, and not intended to be painted, shall be removed or masked during painting operation and repositioned upon completion of each area or shall otherwise be protected.
- F. Cleaning and painting shall be so programmed that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces. The Contractor shall not only protect his work at all times but shall also protect all adjacent work and materials during the progress of his work. Upon completion of work, he shall clean-up all paint spots, oil and stains from floors, glass, hardware, etc.

### **3.08 SURFACE PREPARATION FOR NEW GALVANIZED AND NON-FERROUS METALS**

- A. All non-ferrous metals, whether to be shop or field primed, shall be cleaned with an approved solvent prior to the application of primer. Prepare Surfaces in accordance to SSPC SP 7 Brush-Off Blast Cleaning. Reference ASTM 6386.

**3.09 PVC PIPE**

- A. Sand all surfaces with 60-80 grit paper to provide profile to adhere coatings.

**3.10 PROTECTION**

- A. All finished work and equipment, machinery and apparatus shall be properly protected from damage or defacement, and all damage or defacement thereto shall be made good by the Contractor in an approved manner, at no additional expense to the Owner. Floors, equipment, machinery, apparatus and similar items shall be covered with heavy building paper or cloth properly secured in place. The various rooms and spaces of the building where painting and finishing is going on shall be protected against dust, as far as practicable, until the freshly painted surfaces have thoroughly dried. At the time of acceptance of the buildings and facilities the painting and finishing work must be in a neat and undamaged condition.

**END OF SECTION**

**SECTION 26 05 19****LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES****PART 1 - GENERAL**

Not Used

**PART 2 - PRODUCTS****2.1 CONDUCTORS AND CABLES**

- A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.
- B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2, Type XHHW-2, and Type SO.
- C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for Type SO with ground wire.
- D. Self Regulating Heat Trace Cable: Comply with NEC Article 427, IEEE 515/515.1. Comply with IEEE 60079-30 for hazardous locations. Must be UL listed.
  - 1. Basis of Design is Chromolox Self Regulating Heating Cable and Chromolox attachment and termination devices and Chromolox ITC2 control panel.

**2.2 CONNECTORS AND SPLICES**

- A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
- B. Listed power connection boxes, splice boxes, tee sections, end seals, and aluminum tape for use with heat trace cable.

**2.3 SYSTEM DESCRIPTION**

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

**PART 3 - EXECUTION****3.1 CONDUCTOR MATERIAL APPLICATIONS**

- A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

### **3.2 CONDUCTOR INSULATION, MULTICONDUCTOR CABLE APPLICATIONS, AND WIRING METHODS**

- A. Feeders: Type THHN-2-THWN-2 or XHHW-2, single conductors in raceway. Use Type THHN-2-THWN-2 for feeders smaller than No. 2 AWG, use Type XHHW-2 for feeders No. 2 AWG and larger.
- B. Branch Circuits: Type THHN-2-THWN-2, single conductors in raceway.

### **3.3 INSTALLATION OF CONDUCTORS AND CABLES**

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. The use of NM cable is prohibited.
- C. Complete raceway installation between conductor and cable termination points according to Section 26 05 33 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- D. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- E. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- F. Install exposed cables parallel and perpendicular to surfaces of exposed structural members and follow surface contours where possible.
- G. Heat trace cable must be installed according to manufacturer's instructions.
- H. Heat trace cable must be installed in conduit when not installed on the pipe that it is intended to heat.
- I. Additional feet of heat trace cable are required at flanges, valves, pipe supports, hangers, etc.
- J. Heat trace cable must not overlap itself or other heat trace cables.

### **3.4 CONNECTIONS**

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

- D. Power connection boxes, Chomolox Model #UPC, shall be installed as close to the pipe to be heat traced as possible. They shall not be installed underground or exposed to the outside environment. Provide rated electrical boxes for mounting power connection boxes for pipes located underground or exposed to the environment.
- E. Each section of pipe to be heat traced requires an end seal termination device to be located underneath the pipe insulation.

### **3.5 IDENTIFICATION**

- A. Identify and color-code conductors and cables according to Section 26 05 53 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor and identify as spare conductor.
- C. Provide caution labels on pipe insulation noting the presence of heat trace.

### **3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS**

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### **3.7 FIELD QUALITY CONTROL**

- A. Perform the following tests and inspections:
  - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

**END OF SECTION**

**SECTION 26 05 26****GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 QUALITY ASSURANCE**

- A. Comply with UL 467 for grounding and bonding materials and equipment.

**PART 2 - PRODUCTS****2.1 CONDUCTORS**

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors: Size conductors per NFPA 70, unless noted otherwise.
  - 1. Solid Conductors: ASTM B 3.
  - 2. Stranded Conductors: ASTM B 8.
  - 3. Tinned Conductors: ASTM B 33.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

**2.2 CONNECTORS**

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression -type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

**PART 3 - EXECUTION****3.1 APPLICATIONS**

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.
  - 1. Bury at least 24 inches below grade.
  - 2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.

### **3.2 EQUIPMENT GROUNDING**

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

### **3.3 INSTALLATION**

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
  - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

### **END OF SECTION**



**SECTION 26 05 33****RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 DEFINITIONS**

- A. GRC: Galvanized rigid steel conduit.
- LFMC: Liquid-tight flexible metal conduit
- RGS: Rigid Galvanized Steel
- PVC Coated RMC: Polyvinyl chloride (PVC) coated rigid metal conduit
- EMT: Electrical metallic tubing

**PART 2 - PRODUCTS****2.1 METALLIC AND NON-METALLIC CONDUITS, TUBING, AND FITTINGS**

- A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. GRC: Comply with ANSI C80.1 and UL 6.
- C. EMT: Comply with ANSI C80.3 and UL 797.
- D. PVC Schedule 40 and 80: Comply with TBD
- E. PVC coated RMC: Comply with TBD
- F. FMC: Comply with UL 1; zinc-coated steel.
- G. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- H. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
  - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
  - 2. Fittings for EMT:
    - a. Material: Steel.
    - b. Type: Setscrew or compression.
  - 3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

- I. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

## **2.2 METAL WIREWAYS AND AUXILIARY GUTTERS**

- A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise indicated, and sized according to NFPA 70.
  1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- C. Wireway Covers: Hinged type unless otherwise indicated.
- D. Finish: Manufacturer's standard enamel finish.

## **2.3 NONMETALLIC WIREWAYS AND AUXILIARY GUTTERS**

- A. Listing and Labeling: Nonmetallic wireways and auxiliary gutters shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Description: Fiberglass polyester, extruded and fabricated to required size and shape, without holes or knockouts. Cover shall be gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections shall be flanged and have stainless-steel screws and oil-resistant gaskets.
- C. Fittings and Accessories: Couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings shall match and mate with wireways as required for complete system.

## **2.4 BOXES, ENCLOSURES, AND CABINETS**

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- E. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.
- H. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- I. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep.
- J. Gangable boxes are allowed.
- K. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.
  - 1. Nonmetallic Enclosures: Plastic.
  - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- L. Cabinets:
  - 1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
  - 2. Hinged door in front cover with flush latch and concealed hinge.
  - 3. Key latch to match panelboards.
  - 4. Metal barriers to separate wiring of different systems and voltage.
  - 5. Accessory feet where required for freestanding equipment.
  - 6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

### **PART 3 - EXECUTION**

#### **3.1 RACEWAY APPLICATION**

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
  - 1. Exposed Conduit: GRC.
  - 2. Concealed Conduit, Aboveground: GRC.
  - 3. Underground Conduit: Refer to Specification Section 26 05 43 – “Underground Ducts And Raceways For Electrical Systems”
  - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
  - 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 4X.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
  - 1. Exposed, Not Subject to Physical Damage: EMT.
  - 2. Exposed and Subject to Physical Damage: GRC. Raceway locations include the following:
    - a. Mechanical rooms and utility rooms.
  - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.

4. Damp or Wet Locations: GRC .
  5. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4X nonmetallic in kitchens and damp or wet locations.
- C. Minimum Raceway Size: 1/2-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. GRC: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  2. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
  3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.

### 3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines. Do not install EMT in grout.
- G. Support conduit within 12 inches of enclosures to which attached.
- H. Exposed conduit in finished areas is not permitted.
- I. Raceways Embedded in Slabs:
1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
  2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.

3. Arrange raceways to keep a minimum of 1-inch of concrete cover in all directions.
  4. Do not embed threadless fittings in concrete unless specifically approved by the Authority's Representative for each specific location.
- 
- J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
  - K. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
  - L. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
  - M. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
  - N. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
  - O. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
  - P. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
  - Q. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
  - R. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
    1. Where conduits pass from warm to cold locations, such as boundaries of heated spaces.
    2. Where an underground service raceway enters a building or structure.
    3. Where otherwise required by NFPA 70.
  - S. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
  - T. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
    1. Use LFMC in damp or wet locations subject to severe physical damage.

2. Use LFMC in damp or wet locations not subject to severe physical damage.

- U. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to top of box unless otherwise indicated.
- V. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- W. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- X. Locate boxes so that cover or plate will not span different building finishes.
- Y. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- Z. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

### **3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS**

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### **3.4 PROTECTION**

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

**END OF SECTION**

**SECTION 26 05 43****UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 DEFINITIONS**

- A. Trafficways: Locations where vehicle or pedestrian traffic is a normal course of events.

**1.2 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
- B. Shop Drawings:
  - 1. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:
    - a. Include dimensioned plans, elevations, and fabrication and installation details.
    - b. Include duct entry provisions, including locations and duct sizes.
    - c. Include cover design.

**1.3 FIELD CONDITIONS**

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by the Authority or others unless permitted under the following conditions, and then only after arranging to provide temporary electrical service according to requirements indicated:
  - 1. Notify the Authority no fewer than two days in advance of proposed interruption of electrical service.
  - 2. Do not proceed with interruption of electrical service without the Authority written permission.
- B. Ground Water: Assume ground-water level is 36 inches below ground surface unless a higher water table is noted on Drawings.

**PART 2 - PRODUCTS****2.1 GENERAL REQUIREMENTS FOR DUCTS AND RACEWAYS**

- A. Comply with ANSI C2.

**2.2 CONDUIT**

- A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.
- B. RNC: NEMA TC 2, Type EPC-40-PVC and Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Coordinate layout and installation of conduits with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify the Authority's Representative if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.
- B. Coordinate elevations of conduits and boxes with final locations and profiles of ducts, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct runs drain to handholes, and as approved by the Authority's Representative.

**3.2 UNDERGROUND CONDUIT APPLICATION**

- A. Conduit for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-40-PVC.
- B. Conduit for Electrical Branch Circuits: RNC, NEMA Type EPC-40-PVC.
- C. Underground Conduit Crossing Paved Paths, Walks, Driveways, and Roadways: Rigid metallic conduit.

**3.3 EARTHWORK**

- A. Excavation and Backfill: Comply with Section 31 20 00 "Earth Moving" (Building & Utility Site Work) but do not use heavy-duty, hydraulic-operated, compaction equipment.
- B. Restore surface features at areas disturbed by excavation, and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- C. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching. Comply with landscape drawings and Specification Sections.
- D. Cut and patch existing pavement in the path of underground ducts and utility structures.

**3.4 CONDUIT INSTALLATION**

- A. Install conduit according to NEMA TCB 2.
- B. Slope: Pitch conduit a minimum slope of 1:300 down toward handholes and away from buildings and equipment. Slope conduit from a high point in runs between two handholes, to drain in both directions.
- C. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches 12.5-feet, both horizontally and vertically, at other locations unless otherwise indicated.



- D. Joints: Use solvent-cemented joints in conduit and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent conduit do not lie in same plane.
- E. Building Wall Penetrations: Make a transition from underground PVC conduit to rigid steel conduit at least 5-feet outside the building wall, without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."
- F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.
- G. Pulling Cord: Install 100-lbf-test nylon cord in empty ducts.
- H. Direct-Buried Conduit Banks:
  - 1. Excavate trench bottom to provide firm and uniform support for conduit bank. Comply with requirements in Section 31 20 00 "Earth Moving" (Building & Utility Site Work) for preparation of trench bottoms for pipes less than 6 inches in nominal diameter.
  - 2. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
  - 3. Space separators close enough to prevent sagging and deforming of conduit, with not less than four spacers per 20-feet of conduit. Secure separators to earth and to conduit to prevent displacement during backfill and yet permit linear conduit movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.
  - 4. Depth: Install top of duct bank at least 24 inches below finished grade unless otherwise indicated.
  - 5. Install conduit with a minimum of 3 inches between conduit for like services and 6 inches between power and signal conduit.
  - 6. Elbows: Install manufactured conduit elbows for stub-ups at poles and equipment, at building entrances through floor, and at changes of direction in duct run unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
  - 7. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment, at building entrances through floor, and at changes of direction in conduit run.
    - a. Couple steel conduits to conduit with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    - b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
  - 8. After installing conduit, backfill and compact. Start at tie-in point and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Hand place backfill to 4 inches over conduit and hand tamp. Firmly tamp backfill around conduit to provide maximum

supporting strength. Use hand tamper only. After placing controlled backfill, make final conduit connections at end of run and complete backfilling with normal compaction. Comply with requirements in Section 31 20 00 "Earth Moving" (Building & Utility Site Work) for installation of backfill materials.

- a. Place minimum 3 inches of sand as a bed for conduit bank. Place sand to a minimum of 6 inches above top level of duct bank.
- I. Warning Planks: Bury warning planks approximately 12 inches above direct-buried conduit, placing them 24 inches o.c. Align planks along the width and along the centerline of conduit bank. Provide an additional plank for each 12-inch increment of conduit-bank width over a nominal 18 inches. Space additional planks 12 inches apart, horizontally.
- J. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased conduit and conduit banks. Align tape parallel to and within 3 inches of centerline of conduit bank. Provide an additional warning tape for each 12-inch increment of conduit-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

### **3.5 CLEANING**

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.
- B. Clean internal surfaces of handholes and transformer vaults. Remove foreign material.

### **END OF SECTION**

**SECTION 26 05 44****SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING****PART 1 - GENERAL (Not Used)****PART 2 - PRODUCTS****2.1 SLEEVES**

- A. Wall Sleeves:
  - 1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
- B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.
- C. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.
- D. Sleeves for Rectangular Openings:
  - 1. Material: Galvanized sheet steel.
  - 2. Minimum Metal Thickness:
    - a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052-inch.
    - b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138-inch.
- E. Link-seal Modular Seal Rubber Links:
  - 1. Shall be modular, mechanical type, consisting of inter-locking synthetic rubber links shaped to continuously fill the annular space between the pipe and the wall opening. The elastomeric element shall be sized and selected per manufacturer's sizing procedure and have the following properties as designated by ASTM. Coloration shall be throughout elastomer for positive field inspection. Each link shall have a permanent identification of the size and manufacturer's name molded into it.
  - 2. For Standard Service Applications = Model C -40 to +250°F (-40 to +121°C) EPDM = ATSM D2000 M3 BA510 Color = Black

**2.2 SLEEVE-SEAL SYSTEMS**

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
  - 1. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
  - 2. Pressure Plates: Plastic.

3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

### **2.3 SLEEVE-SEAL FITTINGS**

- A. Description: Manufactured plastic, sleeve-type, water-stop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber water-stop collar with center opening to match piping OD.

### **2.4 GROUT**

- A. Description: Non-shrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5,000-psi, 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

### **2.5 SILICONE SEALANTS**

- A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.
  1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
- B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.

## **PART 3 - EXECUTION**

### **3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS**

- A. Comply with NECA 1.
- B. Comply with NEMA VE 2 for cable tray and cable penetrations.
- C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:
  1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
    - a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
    - b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.
  2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
  4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
  5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.
- D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:
1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
  2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.
- E. Aboveground, Exterior-Wall Penetrations: Seal penetrations using cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- F. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

### **3.2 SLEEVE-SEAL-SYSTEM INSTALLATION**

- A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.
- B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

### **3.3 SLEEVE-SEAL-FITTING INSTALLATION**

- A. Install sleeve-seal fittings in new walls and slabs as they are constructed.
- B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.
- C. Secure nailing flanges to concrete forms.
- D. Using grout, seal the space around outside of sleeve-seal fittings.

**END OF SECTION**

**SECTION 26 05 53****IDENTIFICATION FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 QUALITY ASSURANCE**

- A. Comply with ANSI A13.1.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

**1.2 COORDINATION**

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

**PART 2 - PRODUCTS****2.1 CONDUCTOR IDENTIFICATION MATERIALS**

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

## **2.2 UNDERGROUND-LINE WARNING TAPE**

- A. Tape:
  - 1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
  - 2. Printing on tape shall be permanent and shall not be damaged by burial operations.
  - 3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
  - 4. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core, bright-colored, compounded for direct-burial service.
  - 5. Overall Thickness: 5 mils.
  - 6. Foil Core Thickness: 0.35 mil.
  - 7. Weight: 28 lb/1000 sq. ft.
  - 8. 3-Inch Tensile According to ASTM D 882: 70 lbf, and 4600 psi.
- B. Color and Printing:
  - 1. Comply with ANSI Z535.1 through ANSI Z535.5.
  - 2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
  - 3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE.

## **2.3 EQUIPMENT IDENTIFICATION LABELS**

- A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.
- B. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1-inch.

## **2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS**

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- F. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.
- G. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

### 3.2 IDENTIFICATION SCHEDULE

- A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
  - 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.
    - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
    - b. Colors for 120/208V Three Phase Circuits:
      - 1) Phase A: Black
      - 2) Phase B: Red
      - 3) Phase C: Blue
      - 4) Neutral: White
    - c. Colors for 120/240 V single phase circuits:
      - 1) Line 1: Black
      - 2) Line 2: Red
      - 3) Neutral: White
    - d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- B. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source.
- C. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
- D. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual, unless equipment is provided with its own identification.
  - 1. Labeling Instructions:



Rehabilitation of the Wastewater Treatment Plant at the Chittenango Service Area at Milepost 266.3

- a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high label; where two lines of text are required, use labels 2 inches high.
- b. Outdoor Equipment: Engraved, laminated acrylic or melamine label or Stenciled legend 4 inches high.
- c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
- d. Fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

**END OF SECTION**

**SECTION 262726****WIRING DEVICES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  - 1. GFCI receptacles, 125 V, 20 A.
  - 2. Wall plates.

**1.3 DEFINITIONS**

- A. AFCI: Arc-fault circuit interrupter.
- B. BAS: Building automation system.
- C. EMI: Electromagnetic interference.
- D. GFCI: Ground-fault circuit interrupter.
- E. Pigtail: Short lead used to connect a device to a branch-circuit conductor.
- F. RFI: Radio-frequency interference.
- G. SPD: Surge protective device.

**1.4 SUBMITTALS**

- A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
- B. Manufacturer's installation instructions shall be provided along with product data.
- C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
- D. Product Data: For each type of product.
- E. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

- F. Samples: One for each type of device and wall plate specified, in each color specified.
- G. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
- H. Field quality-control reports.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. SPD Receptacles: One for every 10 of each type installed, but no fewer than two of each type.

### PART 2 - PRODUCTS

#### 2.1 GENERAL WIRING-DEVICE REQUIREMENTS

- A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Comply with NFPA 70.
- C. RoHS compliant.
- D. Comply with NEMA WD 1.
- E. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
  - 1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
  - 2. Devices shall comply with requirements in this Section.
- F. Devices for Director's Representative-Furnished Equipment:
  - 1. Receptacles: Match plug configurations.
  - 2. Cord and Plug Sets: Match equipment requirements.
- G. Device Color:

1. Wiring Devices Connected to Normal Power System: Black unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Essential Electrical System: Red.
3. SPD Devices: Blue.
4. Isolated-Ground Receptacles: Orange.

H. Wall Plate Color: For plastic covers, match device color.

I. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

## 2.2 GFCI RECEPTACLES, 125 V, 20 A

### A. Duplex GFCI Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - a. Leviton Manufacturing Co., Inc.
  - b. Pass & Seymour; Legrand North America, LLC.
  - c. Wiring Device-Kellems; Hubbell Incorporated, Commercial and Industrial.
  - d. Or equal.
2. Description: Integral GFCI with "Test" and "Reset" buttons and LED indicator light. Two pole, three wire, and self-grounding.
3. Configuration: NEMA WD 6, Configuration 5-20R.
4. Type: Feed through.
5. Standards: Comply with UL 498, UL 943 Class A, and FS W-C-596.
6. Provide while in use cover for wet locations to comply with NEC 406.9.

### B. Tamper- and Weather-Resistant, GFCI Duplex Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - a. Leviton Manufacturing Co., Inc.
  - b. Pass & Seymour; Legrand North America, LLC.
  - c. Wiring Device-Kellems; Hubbell Incorporated, Commercial and Industrial.
  - d. Or equal.
2. Description: Integral GFCI with "Test" and "Reset" buttons and LED indicator light. Two pole, three wire, and self-grounding. Integral shutters that operate only when a plug is inserted in the receptacle. Square face.
3. Configuration: NEMA WD 6, Configuration 5-15R.
4. Type: Feed through.
5. Standards: Comply with UL 498 and UL 943 Class A.

6. Marking: Listed and labeled as complying with NFPA 70, "Tamper-Resistant Receptacles" and "Receptacles in Damp or Wet Locations" articles.
7. Provide while in use cover for wet locations to comply with NEC 406.9.

## 2.3 WALL PLATES

- A. Single Source: Obtain wall plates from same manufacturer of wiring devices.
- B. Single and combination types shall match corresponding wiring devices.
  1. Plate-Securing Screws: Metal with head color to match plate finish.
  2. Material for Finished Spaces: 0.035-inch- thick, satin-finished, Type 302 stainless steel.
  3. Material for Unfinished Spaces: Galvanized steel.
  4. Material for Damp Locations: Thermoplastic with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.
  5. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum while in use lockable cover to comply with NEC 406.9.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.
- B. Coordination with Other Trades:
  1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes, and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
  2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
  3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
  4. Install wiring devices after all wall preparation, including painting, is complete.
- C. Conductors:
  1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
  2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
  3. The length of free conductors at outlets for devices shall comply with NFPA 70, Article 300, without pigtails.
  4. Existing Conductors:

- a. Cut back and pigtail, or replace all damaged conductors.
- b. Straighten conductors that remain and remove corrosion and foreign matter.
- c. Pigtailling existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the left.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

### 3.2 GFCI RECEPTACLES

- A. Install non-feed-through GFCI receptacles where protection of downstream receptacles is not required.

### 3.3 SPECIFIC PURPOSE OUTLET BOXES

- A. As fabricated by manufacturers for mounting their equipment.

### 3.4 IDENTIFICATION

- A. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.
- B. Essential Electrical System: Mark receptacles supplied from the essential electrical system to allow easy identification using a self-adhesive label.

### 3.5 FIELD QUALITY CONTROL

- A. Test Instruments: Use instruments that comply with UL 1436.
- B. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.
- C. Perform the following tests and inspections:
  - 1. In healthcare facilities, prepare reports that comply with NFPA 99.
  - 2. Test Instruments: Use instruments that comply with UL 1436.
  - 3. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.
- D. Tests for Receptacles:
  - 1. Line Voltage: Acceptable range is 105 to 132 V.
  - 2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
  - 3. Ground Impedance: Values of up to 2 ohms are acceptable.
  - 4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
  - 5. Using the test plug, verify that the device and its outlet box are securely mounted.
  - 6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault-current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.
- E. Wiring device will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.

**END OF SECTION**

**SECTION 26 28 16****ENCLOSED SWITCHES AND CIRCUIT BREAKERS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Fusible switches.
  - 2. Nonfusible switches.
  - 3. Receptacle switches.
  - 4. Molded-case circuit breakers (MCCBs).
  - 5. Molded-case switches.
  - 6. Enclosures.

**1.3 DEFINITIONS**

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

**1.4 SUBMITTALS**

- A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
- B. Manufacturer's installation instructions shall be provided along with product data.
- C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
- D. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
  - 1. Enclosure types and details for types other than NEMA 250, Type 1.



2. Current and voltage ratings.
  3. Short-circuit current ratings (interrupting and withstand, as appropriate).
  4. Include evidence of a nationally recognized testing laboratory (NRTL) listing for series rating of installed devices.
  5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
  6. Include time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in electronic format.
- E. Shop Drawings: For enclosed switches and circuit breakers.
1. Include plans, elevations, sections, details, and attachments to other work.
  2. Include wiring diagrams for power, signal, and control wiring.
- F. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
- G. Qualification Data: For qualified testing agency.
- H. Seismic Qualification Data: Certificates, for enclosed switches and circuit breakers, accessories, and components, from manufacturer.
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
  2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
  3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- I. Field quality-control reports.
- 1.5 CLOSEOUT SUBMITTALS
- A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals.
1. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.
  2. Time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in electronic format.
- 1.6 MAINTENANCE MATERIAL SUBMITTALS
- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
2. Fuse Pullers: Two for each size and type.

#### 1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Accredited by NETA.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

#### 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:

1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
2. Altitude: Not exceeding 6600 feet.

#### 1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: One year(s) from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

#### 2.2 GENERAL REQUIREMENTS

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single manufacturer.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.

- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with NFPA 70.

## 2.3 FUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Eaton.
  - 2. Schneider Electric USA (Square D).
  - 3. Siemens Industry, Inc., Energy Management Division.
  - 4. Or equal.
- B. Type HD, Heavy Duty:
  - 1. Single throw.
  - 2. Three pole.
  - 3. 600-V ac.
  - 4. 1200 A and smaller.
  - 5. UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified fuses.
  - 6. Lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- C. Accessories:
  - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
  - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
  - 3. Isolated Ground Kit: Internally mounted; insulated, labeled for copper and aluminum neutral conductors.
  - 4. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
  - 5. Auxiliary Contact Kit: One NO/NC (Form "C") auxiliary contact(s), arranged to activate before switch blades open. Contact rating - 24-V ac.
  - 6. Hookstick Handle: Allows use of a hookstick to operate the handle.
  - 7. Lugs: Mechanical type, suitable for number, size, and conductor material.
  - 8. Service-Rated Switches: Labeled for use as service equipment.

## 2.4 NONFUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Eaton.
  - 2. Schneider Electric USA (Square D).
  - 3. Siemens Industry, Inc., Energy Management Division.
  - 4. Or equal.

- B. Type GD, General Duty, Three Pole, Single Throw, 240-V ac, 600 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Type HD, Heavy Duty, Three Pole, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- D. Type HD, Heavy Duty, Six Pole, Single Throw, 600-V ac, 200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- E. Type HD, Heavy Duty, Three Pole, Double Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- F. Accessories:
  - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
  - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
  - 3. Isolated Ground Kit: Internally mounted; insulated, labeled for copper and aluminum neutral conductors.
  - 4. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
  - 5. Auxiliary Contact Kit: One NO/NC (Form "C") auxiliary contact(s), arranged to activate before switch blades open. Contact rating - 24-V ac.
  - 6. Hookstick Handle: Allows use of a hookstick to operate the handle.
  - 7. Lugs: Mechanical type, suitable for number, size, and conductor material.
  - 8. Service-Rated Switches: Labeled for use as service equipment.

## 2.5 MOLDED-CASE CIRCUIT BREAKERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Eaton.
  - 2. Schneider Electric USA (Square D).
  - 3. Siemens Industry, Inc., Energy Management Division.
  - 4. Or equal.
- B. Circuit breakers shall be constructed using glass-reinforced insulating material. Current carrying components shall be completely isolated from the handle and the accessory mounting area.
- C. Circuit breakers shall have a toggle operating mechanism with common tripping of all poles, which provides quick-make, quick-break contact action. The circuit-breaker handle shall be over center, be trip free, and reside in a tripped position between on and off to provide local trip indication. Circuit-breaker escutcheon shall be clearly marked on and off in addition to providing

international I/O markings. Equip circuit breaker with a push-to-trip button, located on the face of the circuit breaker to mechanically operate the circuit-breaker tripping mechanism for maintenance and testing purposes.

- D. The maximum ampere rating and UL, IEC, or other certification standards with applicable voltage systems and corresponding interrupting ratings shall be clearly marked on face of circuit breaker. Circuit breakers shall be 100 percent rated or series rated as indicated on the Drawings. Circuit breaker/circuit breaker combinations for series connected interrupting ratings shall be listed by UL as recognized component combinations. Any series rated combination used shall be marked on the end-use equipment along with the statement "Caution - Series Rated System. \_\_\_\_\_ Amps Available. Identical Replacement Component Required."
- E. MCCBs shall be equipped with a device for locking in the isolated position.
- F. Lugs shall be suitable for 140 deg F rated wire on 125-A circuit breakers and below.
- G. Standard: Comply with UL 489 with interrupting capacity to comply with available fault currents.
- H. Thermal-Magnetic Circuit Breakers: Inverse time-current thermal element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
- I. Adjustable, Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
- J. Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:
  - 1. Instantaneous trip.
  - 2. Long- and short-time pickup levels.
  - 3. Long- and short-time time adjustments.
  - 4. Ground-fault pickup level, time delay, and I-squared t response.
- K. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller, and let-through ratings less than NEMA FU 1, RK-5.
- L. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker and trip activation on fuse opening or on opening of fuse compartment door.
- M. Ground-Fault Circuit-Interrupter (GFCI) Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
- N. Ground-Fault Equipment-Protection (GFEP) Circuit Breakers: With Class B ground-fault protection (30-mA trip).
- O. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Mechanical type, suitable for number, size, trip ratings, and conductor material.
3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.
4. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
5. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.
6. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
7. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.
8. Alarm Switch: One NO contact that operates only when circuit breaker has tripped.
9. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.
10. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.
11. Electrical Operator: Provide remote control for on, off, and reset operations.
12. Accessory Control Power Voltage: Integrally mounted, self-powered; 24-V ac.

## 2.6 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
- B. Enclosure Finish: The enclosure shall be finished with gray baked enamel paint, electrodeposited on cleaned, phosphatized steel (NEMA 250 Type 1).
- C. Conduit Entry: NEMA 250 Types 4, 4X, and 12 enclosures shall contain no knockouts. NEMA 250 Types 7 and 9 enclosures shall be provided with threaded conduit openings in both endwalls.
- D. Operating Mechanism: The circuit-breaker operating handle shall be directly operable through the front cover of the enclosure (NEMA 250 Type 1). The cover interlock mechanism shall have an externally operated override. The override shall not permanently disable the interlock mechanism, which shall return to the locked position once the override is released. The tool used to override the cover interlock mechanism shall not be required to enter the enclosure in order to override the interlock.
- E. Enclosures designated as NEMA 250 Type 4, 4X stainless steel, 12, or 12K shall have a dual cover interlock mechanism to prevent unintentional opening of the enclosure cover when the circuit breaker is ON and to prevent turning the circuit breaker ON when the enclosure cover is open.
- F. NEMA 250 Type 7/9 enclosures shall be furnished with a breather and drain kit to allow their use in outdoor and wet location applications.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
  - 1. Commencement of work shall indicate Installer's acceptance of the areas and conditions as satisfactory.

**3.2 PREPARATION**

- A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Director's Representative or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
  - 1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of electric service.
  - 2. Indicate method of providing temporary electric service.
  - 3. Do not proceed with interruption of electric service without Construction Manager's written permission.
  - 4. Comply with NFPA 70E.

**3.3 ENCLOSURE ENVIRONMENTAL RATING APPLICATIONS**

- A. Enclosed Switches and Circuit Breakers: Provide enclosures at installed locations with the following environmental ratings.
  - 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
  - 2. Outdoor Locations: NEMA 250, Type 3R.
  - 3. Wash-Down Areas: NEMA 250, Type 4X, stainless steel.
  - 4. Other Wet or Damp, Indoor Locations: NEMA 250, Type 4.
  - 5. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.
  - 6. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7.

**3.4 INSTALLATION**

- A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

- C. Temporary Lifting Provisions: Remove temporary lifting of eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- D. Install fuses in fusible devices.
- E. Comply with NFPA 70 and NECA 1.

### 3.5 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
- B. Label each enclosure with engraved metal or laminated-plastic nameplate.

### 3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Director's Representative will engage a qualified testing agency to perform tests and inspections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Manufacturer's Field Service: Engage a Company Service Advisor to test and inspect components, assemblies, and equipment installations, including connections.
- D. Perform tests and inspections.
- E. Tests and Inspections for Switches:
  - 1. Visual and Mechanical Inspection:
    - a. Inspect physical and mechanical condition.
    - b. Inspect anchorage, alignment, grounding, and clearances.
    - c. Verify that the unit is clean.
    - d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
    - e. Verify that fuse sizes and types match the Specifications and Drawings.
    - f. Verify that each fuse has adequate mechanical support and contact integrity.
    - g. Inspect bolted electrical connections for high resistance using one of the two following methods:
      - 1) Use a low-resistance ohmmeter.
        - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.



- 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
    - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
  - h. Verify that operation and sequencing of interlocking systems is as described in the Specifications and shown on the Drawings.
  - i. Verify correct phase barrier installation.
  - j. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.
2. Electrical Tests:
- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
  - b. Measure contact resistance across each switchblade fuseholder. Drop values shall not exceed the high level of the manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
  - c. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with switch closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
  - d. Measure fuse resistance. Investigate fuse-resistance values that deviate from each other by more than 15 percent.
  - e. Perform ground fault test according to NETA ATS 7.14 "Ground Fault Protection Systems, Low-Voltage."

F. Tests and Inspections for Molded Case Circuit Breakers:

1. Visual and Mechanical Inspection:
  - a. Verify that equipment nameplate data are as described in the Specifications and shown on the Drawings.
  - b. Inspect physical and mechanical condition.
  - c. Inspect anchorage, alignment, grounding, and clearances.
  - d. Verify that the unit is clean.
  - e. Operate the circuit breaker to ensure smooth operation.
  - f. Inspect bolted electrical connections for high resistance using one of the two following methods:

- 1) Use a low-resistance ohmmeter.
    - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
  - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
    - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
  - g. Inspect operating mechanism, contacts, and chutes in unsealed units.
  - h. Perform adjustments for final protective device settings in accordance with the coordination study.
2. Electrical Tests:
- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
  - b. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with circuit breaker closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
  - c. Perform a contact/pole resistance test. Drop values shall not exceed the high level of the manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
  - d. Perform insulation resistance tests on all control wiring with respect to ground. Applied potential shall be 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable. Test duration shall be one minute. For units with solid state components, follow manufacturer's recommendation. Insulation resistance values shall be no less than two megohms.
  - e. Determine the following by primary current injection:
    - 1) Long-time pickup and delay. Pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
    - 2) Short-time pickup and delay. Short-time pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.

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- 3) Ground-fault pickup and time delay. Ground-fault pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
  - 4) Instantaneous pickup. Instantaneous pickup values shall be as specified and within manufacturer's published tolerances.
- f. Test functionality of the trip unit by means of primary current injection. Pickup values and trip characteristics shall be as specified and within manufacturer's published tolerances.
  - g. Perform minimum pickup voltage tests on shunt trip and close coils in accordance with manufacturer's published data. Minimum pickup voltage of the shunt trip and close coils shall be as indicated by manufacturer.
  - h. Verify correct operation of auxiliary features such as trip and pickup indicators; zone interlocking; electrical close and trip operation; trip-free, anti-pump function; and trip unit battery condition. Reset all trip logs and indicators. Investigate units that do not function as designed.
  - i. Verify operation of charging mechanism. Investigate units that do not function as designed.
3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
  4. Perform the following infrared scan tests and inspections and prepare reports:
    - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
    - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.
    - c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
  5. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- G. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- H. Prepare test and inspection reports.
1. Test procedures used.
  2. Include identification of each enclosed switch and circuit breaker tested and describe test results.
  3. List deficiencies detected, remedial action taken, and observations after remedial action.

## 3.7 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges to values indicated on the Drawings.

**END OF SECTION 26 28 16**

## SECTION 31 20 00

### EARTH MOVING

#### PART 1 - GENERAL

##### 1.1 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
  - 1. Final Backfill: Backfill placed over bedding course to fill a trench.
- B. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- C. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
  - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by the Authority. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
  - 2. Bulk Excavation: Excavation more than 10-feet in width and more than 30-feet in length.
  - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by the Authority. Unauthorized excavation, as well as remedial work directed by the Authority, shall be without additional compensation.
- E. Fill: Soil materials used to raise existing grades.
- F. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
  - 1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch- wide, maximum, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom; measured according to SAE J-1179.
  - 2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket; measured according to SAE J-732.
- G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

- H. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement, or a cement concrete or hot-mix asphalt walk.
- I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

## 1.2 SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
  - 1. Geotextiles.
  - 2. Controlled low-strength material, including design mixture.
  - 3. Warning tapes.
- B. Qualification Data: For qualified testing agency.
- C. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
  - 1. Classification according to ASTM D 2487.
  - 2. Laboratory compaction curve according to ASTM D 1557.
  - 3. Submit test data with supplier's name, location of source and sieve analysis of material showing conformance with the specifications.
- D. Dewatering Plan
  - 1. Include a written plan for dewatering operations including control procedures to be adopted if dewatering problems arise.
- E. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.

## 1.3 QUALITY ASSURANCE

- A. Codes and Standards
  - 1. Comply with the provisions of the following codes and standards except where more stringent requirements are shown or specified.
    - a. Local Regulations
    - b. New York State Department of Transportation (NYSDOT) Standard Specification dated January 1, 2019 and any subsequent addendums.
  - 2. Excavations, trench depths and widths, sheeting, shoring, bracing, and cutback slopes to be determined by the Contractor and shall comply with standards set by OSHA, NYS Department of Labor, NYS Industrial Code and all other applicable safety standards.
- B. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

**1.4 PROJECT CONDITIONS**

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the Authority and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by the Authority or authorities having jurisdiction.
- B. Utility Locator Service: Notify UDig New York at 811 and local utility agencies for area where Project is located before beginning earth moving operations.
- C. Do not commence earth moving operations until temporary erosion- and sedimentation-control measures, specified in the Contract Documents, are in place.

**PART 2 - PRODUCTS****2.1 SOIL MATERIALS**

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487 , or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 , or a combination of these groups.
  - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Course: Suitable material conforming to NYSDOT Item 304.12, Type 2. Comply with the gradation and material requirements specified below:
- E.

| SIEVE      |              | PERCENT PASSING (%) BY WEIGHT |
|------------|--------------|-------------------------------|
| SIEVE SIZE | SIZE OPENING |                               |
| 2 inch     | 50 mm        | 100                           |
| ¼ inch     | 6.3 mm       | 25 – 60                       |
| No. 40     | 425 µm       | 5 – 40                        |
| No. 200    | 75 µm        | 0 - 10                        |

- 1. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after four test cycles.
- 2. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve will not exceed 5.0.
- 3. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a ½ inch sieve will consist of flat or elongated particles. A flat or elongated particle is defined as one which as its greatest dimension more than three times its least dimension.

- F. Select Granular Fill: Suitable material conforming to NYSDOT Item 203.07. Comply with the gradation and material requirements specified below:

| SIEVE      |              | PERCENT PASSING (%) BY WEIGHT |
|------------|--------------|-------------------------------|
| SIEVE SIZE | SIZE OPENING |                               |
| 4"         | 100 mm       | 100                           |
| No. 40     | 425 $\mu$ m  | 0 - 70                        |
| No. 200    | 75 $\mu$ m   | 0 - 15                        |

1. Magnesium Sulfate Soundness Test: 30 percent maximum loss by weight.
2. RAP shall not be utilized.

- G. Pipe Bedding Material: Suitable material conforming to NYSDOT Designation 733-15, Sand Backfill.

1. Comply with gradation and material requirements specified below:

| SIEVE      |              | PERCENT PASSING (%) BY WEIGHT |
|------------|--------------|-------------------------------|
| SIEVE SIZE | SIZE OPENING |                               |
| 1/2 inch   | 12.7mm       | 100                           |
| 1/4 inch   | 6.3 mm       | 90 -100                       |
| No. 200    | 75 $\mu$ m   | 0 - 5                         |

2. Provide materials substantially free of shale and soft, poor durability particles.

- H. Backfill for utility pipes and structures (non-paved areas): Satisfactory soils consisting of on-site or borrow soil materials.

1. Provide satisfactory soil materials free of any organic or other deleterious materials.

- I. Backfill for utility pipes and structures in paved areas shall meet the requirements of NYSDOT Item 203.07, Select Granular Fill.

- J. Leveling bed for utility structures: Suitable material conforming to NYSDOT Item 304.14, Type 4. Comply with the gradation and material requirements specified below:

| SIEVE      |              | PERCENT PASSING (%) BY WEIGHT |
|------------|--------------|-------------------------------|
| SIEVE SIZE | SIZE OPENING |                               |
| 2 inch     | 50 mm        | 100                           |
| ¼ inch     | 6.3 mm       | 30 – 65                       |
| No. 40     | 425 $\mu$ m  | 5 – 40                        |
| No. 200    | 75 $\mu$ m   | 0 - 10                        |

1. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after four test cycles.
2. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve will not exceed 5.0.



3. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a ½ inch sieve will consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension, more than three times its least dimension.

## 2.2 GEOTEXTILES

- A. Geotextiles shall meet the requirements of NYSDOT Items listed below for each type. Material requirements for each classification will meet the default class of the approved materials list of NYSDOT (<http://nysdot.gov>). The following geotextiles and their classification are as follows:

1. Separation Geotextile: Subbase separation, classification S, NYSDOT Item 207.21

## 2.3 CONTROLLED LOW-STRENGTH MATERIAL

- A. Controlled Low-Strength Material: Self-compacting, flowable concrete material produced from the following:

1. Portland Cement: ASTM C 150, Type I / II.
2. Fly Ash: ASTM C 618, Class C or F.
3. Normal-Weight Aggregate: ASTM C 33, 3/4-inch nominal maximum aggregate size.
4. Foaming Agent: ASTM C 869.
5. Water: ASTM C 94.
6. Air-Entraining Admixture: ASTM C 260.

- B. Produce conventional-weight, controlled low-strength material with 140-psi compressive strength when tested according to ASTM C 495.

## 2.4 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:

1. Red: Electric.
2. Green: Sewer systems.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

### 3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared

subgrades, and from flooding Project site and surrounding area.

- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

### **3.3 EXPLOSIVES**

- A. Explosives: Do not use explosives.

### **3.4 EXCAVATION, GENERAL**

- A. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth. If rock is encountered, do not excavate rock until it has been classified by the Authority.
  - 1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
  - 2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:
    - a. 6 inches beneath pipe in trenches, and 24 inches wider than pipe.

### **3.5 EXCAVATION FOR STRUCTURES**

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1-inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
  - 1. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1-inch. Do not disturb bottom of excavations intended as bearing surfaces.
- B. Report to the Authority, the elevations of ground water where evident during excavation within building areas.
- C. Protect excavated areas which are to support foundations or other work against freezing, by means of insulated blankets, hay or other approved methods. Where bearing areas have been subjected to frost penetration, remove affected material as directed by the Authority and pay for the cost of additional excavation, materials and construction necessary to rectify condition.

### **3.6 EXCAVATION FOR WALKS AND PAVEMENTS**

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

### **3.7 EXCAVATION FOR UTILITY TRENCHES**

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
  - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line, unless otherwise indicated on the Contract Documents.

- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.
  - 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms: Excavate trenches 6 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.
  - 1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

### **3.8 SUBGRADE INSPECTION**

- A. Notify the Authority when excavations have reached required subgrade.
- B. If the Authority determines that unsatisfactory soil is present, continue excavation and replace it with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below pavements with a non-vibratory roller to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
  - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
  - 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by the Authority, and replace with compacted backfill or fill as directed.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Authority, without additional compensation.

### **3.9 UNAUTHORIZED EXCAVATION**

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by the Authority.
  - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by the Authority.

### **3.10 STORAGE OF SOIL MATERIALS**

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### **3.11 BACKFILL**

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, subdrainage, damp proofing, waterproofing, and perimeter insulation.
  - 2. Surveying locations of underground utilities for Record Documents.

3. Testing and inspecting underground utilities.
  4. Removing concrete formwork.
  5. Removing trash and debris.
  6. Removing temporary shoring and bracing, and sheeting.
  7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

### **3.12 FILLING AND BACKFILLING STRUCTURES**

- A. Exterior Structures
1. Provide compacted leveling bed.
  2. Place in layers of not more than 6 inches loose depth compacted with heavy equipment.
  3. Grade smooth and even, free of voids, to required elevation. Provide final grades within a tolerance of ½ inch when tested with a 10-foot straightedge.
- B. Exterior Slabs on Grade
1. Provide subbase course to depths indicated and placed in layers of not more than 6-inch loose depth.
  2. Compact with heavy equipment.

### **3.13 UTILITY TRENCH BACKFILL**

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Trenches under Roadways: Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course. Concrete is specified in Division 03 Section "Cast-in-Place Concrete."
- D. Backfill voids with satisfactory soil while removing shoring and bracing.
- E. Place and compact initial backfill of bedding material to a height of 12 inches over the pipe or conduit.
1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- F. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the pipe or conduit. Coordinate backfilling with utilities testing.
- G. Place and compact final backfill using satisfactory soil (non-paved areas) or select granular fill (paved areas) to final subgrade elevation.
- H. Install warning tape directly above utilities, a maximum of 18 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

**3.14 SOIL FILL**

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  - 1. Under grass and planted areas, use satisfactory soil material.
  - 2. Under walks and pavements, use select granular fill.
  - 3. Under exterior structures, use select granular fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

**3.15 SOIL MOISTURE CONTROL**

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

**3.16 COMPACTION OF SOIL BACKFILLS AND FILLS**

- A. Place backfill and fill soil materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
  - 1. Under structures, slabs and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
  - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
  - 3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
  - 4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

**3.17 GRADING**

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
  1. Turf or Unpaved Areas: Plus or minus 1-inch.
  2. Walks: Plus or minus 1/2-inch.
  3. Pavements: Plus or minus 1/2-inch.
- C. Grading Inside Structure Lines: Finish subgrade to a tolerance of 1/2-inch when tested with a 10-foot straightedge.

### **3.18 SUBBASE COURSE UNDER PAVEMENTS AND WALKS**

- A. Place subbase course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course under pavements and walks as follows:
  1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
  2. Shape subbase course to required crown elevations and cross-slope grades.
  3. Place subbase course 6 inches or less in compacted thickness in a single layer.
  4. Place subbase course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
  5. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

### **3.19 FIELD QUALITY CONTROL**

- A. Special Inspections: Contractor shall engage a qualified special inspector to perform the following special inspections:
  1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
  2. Determine that fill material and maximum lift thickness comply with requirements.
  3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
- B. Testing Agency: Contractor shall engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Structure Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or structure, but in no case fewer than three tests.
  2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150-feet or less of trench length, but no fewer than two tests.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

### **3.20 PROTECTION**

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
1. Scarify or remove and replace soil material to depth as directed by the Authority; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### **3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off the Authority's property.

**END OF SECTION**

**SECTION 31 23 16****EXCAVATION FOR UTILITIES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Preconstruction Site Photos
  - 2. Site Clearing
  - 3. Trenching
  - 4. Rock Removal
  - 5. Dewatering
  - 6. Backfill
  - 7. Warning Tape and Tracer Wire
  - 8. Utility Marker
  - 9. Disposal of Spoils
  - 10. Flowable Fill
- B. Related Sections:
  - 1. Section 31 25 00 – Erosion and Sedimentation Control

**1.3 DEFINITIONS**

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in- place surface soil and is the zone where plant roots grow.
- D. Plant Protection Zone: Area surrounding individual trees and groups of trees to be protected during construction as indicated on the Construction Drawings.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.
- F. Rock removal shall consist of the removal of all sound, solid rock which is in its original position in ledges, bedded deposits, or unstratified masses and which is of such hardness and texture that it cannot be loosened or broken down and removed without drilling, wedging, or blasting.
  - 1. Additionally, any boulders, stones, or pieces of masonry encountered with a



volume of 1/2 cubic yard or more shall be considered rock removal.

2. Hard pan, small boulders with volume of less than 1/2 cubic yard, chert, clay, soft shale, soft and disintegrated rock, and similar material shall not be considered rock removal.

G. Pipe Zone:

1. Bedding (Lower Pipe Zone): The trench area around a buried pipe that begins 6 inches below the pipe bell and extends upwards to the invert of the pipe for the full width of the trench.
2. Upper Pipe Zone: The trench area around a buried pipe that begins at the invert of the pipe and extends upwards to 12 inches above the pipe crown for the full width of the trench.

- H. Paved Area: Shall be the considered any excavation that is under pavement (asphalt, concrete, gravel, etc.) or the edge of the pavement surface is within 3 feet horizontally of the pipe.

- I. Backfill: The trench area that begins at the top of the Pipe Zone and extends upwards to the surface or to the bottom of the first paving layer.

1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain the Owner's property, cleared materials shall become the Contractor's property and shall be removed from the Site.

1.5 SUBMITTALS

A. Preconstruction Site Photos and Videos

1. Take digital photographs along centerline of proposed pipe trench; minimum one photograph for each 50 feet of pipe trench. Take video of the entire project area along each pipe main and service.
2. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing Site features in both right-of-way and private property to the service meter. Record existing settlement or cracking of adjacent structures, pavements, and improvements.
3. Include Project description, date taken, and sequential number in the file name of each photograph.

- B. Traffic control plan in accordance with roadway agency, MUTCD, and OSHA regulations.

C. Site Clearing

1. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
  - a. Use sufficiently detailed photographs or videotape.
  - b. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

2. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

D. Rock Removal

1. Shop Drawings: Indicate proposed method of blasting, delay pattern, explosive types, type of blasting mat or cover, and intended rock removal method.
2. Survey Report: Submit survey report on conditions of buildings near locations of rock removal.

PART 2 - PRODUCTS

2.1 BACKFILL SOILS

- A. Native soil backfill will be allowed above the Pipe Zone provided that the material excavated is free of stones greater than 3 inches, dirt clods, debris, frozen materials, organic matter, roots, or refuse.
- B. Borrow materials previously approved by the Engineer may be used for backfill if suitable material is not available from the excavation.

2.2 TRENCH STABILIZATION MATERIAL

- A. Base Rock: TDOT Mineral Aggregate Base Class A, Aggregate Grading D (a.k.a. "crusher run") as specified in Section 903.05 of the TDOT Standard Specifications for Road and Bridge Construction.

2.3 PIPE ZONE AND CRUSHED STONE BACKFILL MATERIAL

- A. For Pipe Zone and backfill in paved areas, concrete surfaced areas, and gravel surfaced areas, all backfill shall consist of compacted TDOT Mineral Aggregate Base Class A, Aggregate Grading D (a.k.a. "crusher run") as specified in Section 903.05 of the TDOT Standard Specifications for Road and Bridge Construction.
- B. Excavated Backfill Soils as described in Part 2.1 above.

2.4 COMPACTED BACKFILL

- A. For backfill to be compacted during the installation of flexible pipe outside of paved areas, no rocks or foreign objects greater than 3 inches shall be allowed.
- B. For backfill to be compacted during the installation of rigid pipe outside of paved areas, no rocks or foreign material greater than 3 inches shall be allowed. If soil backfill material is unsuitable, crushed stone may be used for backfill to 18 inches over the pipe being installed.

2.5 FLOWABLE FILL

- A. Select and proportion ingredients to obtain compressive strength between 50 psi and 200 psi at 28 days in accordance with ASTM D4832.
- B. Materials:
  1. Cement: ASTM C150, Type I or Type II.
  2. Aggregate: ASTM C33, Size 7.

3. Fly Ash (if used): ASTM C618, Class C.
4. Water: Clean, potable, containing less than 500 ppm of chlorides.

## 2.6 MISCELLANENOUS CRUSHED STONE

- A. Crushed stone, TDOT #57 stone as specified in Section 903.22 of the TDOT Standard Specifications for Road and Bridge Construction.
  1. For use only where specified on the Drawings, Standard Details, or where approved by Owner.

## 2.7 ROCK REMOVAL

- A. Explosives: Type recommended by explosives firm following seismic survey and required by authorities having jurisdiction.
- B. Delay Device: Type recommended by explosives firm.
- C. Blast Mat Materials: Type recommended by explosives firm.

## 2.8 WARNING TAPE AND TRACER WIRE

- A. Detectable Warning Tape:
  1. All pipelines installed via open trench shall be installed with detectable warning tape. Detectable warning tape shall be:
    - a. 6 inches wide, 4 mils thick.
    - b. Inert, bonded layer plastic.
    - c. Metallized foil core.
    - d. Highly resistant to alkalis, acids, or other destructive chemical components likely to be encountered in soils.
    - e. Utility and Tape Color: Gas = Yellow; Sewer = Green; and Water = Blue.
    - f. Continuously marked with "CAUTION ### LINE BURIED BELOW".
      - 1) "###" shall be the utility being installed "GAS", "SEWER", or "WATER".
- B. Tracer Wire:
  1. All pipe lines, including but not limited to ductile and PVC shall be installed with tracing wire.
  2. Material: Minimum 10-gauge solid copper with high-density polyethylene (HDPE) or high-molecular weight polyethylene (HMWWPE) insulation suitable for direct bury.
  3. Splices: Use wire nut or lug suitable for direct bury as recommended by tracer wire manufacturer. Wire splices shall be taped with waterproof tape.
  4. Manufacturers:
    - a. Copperhead Industries, LLC.
    - b. Performance Wire & Cable Inc.

- c. Pro-Line Safety Products Company.

5. Valve Box Access:

- a. Tracer wire shall be looped through valve boxes in order to be accessible for pipe locating.
- b. Wire shall be coiled within valve box so that it may extend 3-foot above grade.
- c. Sleeve wire in 1/2-inch PVC pipe within valve box to avoid conflict accessing nut.
- d. In multiple valve installations, only one wire shall be brought up into each box.

2.9 UTILITY MARKER

- A. Post shall consist of C-shaped thermoplastic extrusion, 3.75-inch wide (minimum), 0.160 typical walls, curved profile with 3-inch radius. Capable of sustaining a minimum of ten direct wheel- over impacts at 60 MPH without damage to post. Constructed of UV-stabilized thermoplastic polycarbonate, without anchor. Shall be made in the U.S.A.
- B. Post shall be 66 inches long (min.) and color shall match utility as noted below, with white decal, and black custom lettering. See Standard Details for custom message.
  - 1. Utility and Post Color: Gas = Yellow; Sewer = Green; and Water = Blue.
- C. Manufacturer and Supply:
  - 1. Post shall be "FG-500 Series" post manufactured by Davidson Traffic Products, or approved equal.
  - 2. Post and decal shall be supplied by G&C Supply Co., Inc. of Atwood, TN, or approved equal.

**PART 3 - EXECUTION**

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Wrap blue vinyl tie tape around each tree at an easily visible height.
- C. Protect existing site improvements to remain from damage during construction.
- D. Contact Tennessee One-Call location services at 811 not less than three working days before performing Work. Request underground utilities to be located and marked within and surrounding construction areas.
  - 1. Keep utility locates up to date until excavation has received final backfill in that area.
- E. Setup and install traffic control around the work zone in accordance with roadway agency, MUTCD, and OSHA regulations.

### 3.2 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
  - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  - 2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
  - 3. Use only hand methods for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

### 3.3 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other waste materials.
- C. Stockpile topsoil away from edge of excavations. Grade and shape stockpiles to drain surface water. Cover to prevent windblow dust and erosion by water.

### 3.4 SITE IMPROVEMENTS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of the off of the Owner's property.

### 3.5 LAYOUT

- A. Establish line and grade of trench prior to any excavation. This may be done by staking of the alignment with cut/fill depths noted on the stake at regular intervals and at points where the alignment changes direction.

### 3.6 EXCAVATION FOR TRENCHES

- A. Open cut excavation for pipelines shall be true to the lines and grades shown on the Construction Drawings or as established by the Owner's representative. Cut the banks of trenches between vertical parallel plans equidistant from the pipe centerline.
- B. Trenches shall be excavated to a depth sufficient to allow a minimum of 36 inches of cover over the installed pipeline.

- C. In areas of rock excavation, the trench shall be excavated such that there is 12 inches of separation between unexcavated stone and the bottom of the pipe and 12 inches of separation between solid stone and either side of the pipe.
- D. The horizontal distance between the vertical planes (or between the inside faces of installed sheeting) shall vary with the size of the pipe to be installed, but shall not be more than the distance standard details.
- E. Excavate bell holes for bell and spigot pipe so that the barrel of the pipe will rest for its entire length upon the bottom of the trench.
- F. Do not excavate pipe trenches more than 200 feet ahead of the pipe laying, and perform all work so as to cause the least possible inconvenience to the public. Construct temporary access and bypass routes as the Owner deems necessary to maintain vehicular or pedestrian traffic.
- G. In all cases where materials are deposited along open trenches, place them so that in the event of rain or surcharge loading from such deposits no damage will result to the work and/or to adjacent property. Comply with all erosion and siltation control criteria during all excavation activities.
- H. Line construction across all stream corridors shall be in accordance with regulatory criteria, any required permits. Comply with criteria regarding erosion and siltation control measures, side cast of excavated materials, trench excavation during stream low flow conditions, etc. The Contractor shall be responsible for paying any fines or penalties resulting from the Contractor's failure to comply with these regulations.

### 3.7 EXCAVATION FOR MANHOLES AND STRUCTURES

- A. Excavation for manholes, inlets, vaults, and other incidental structures shall not be greater in horizontal area than that required to allow a two-foot clearance between the outer surface of the structure and the walls of the adjacent excavation or of the sheeting used to protect it.
- B. The bottom of the excavation shall be true to the required shape and elevation as shown on the Construction Drawings.
- C. No soil backfilling will be permitted under manholes, inlets, vaults or similar structures. Should the Contractor excavate below the elevations shown or specified, they shall, at their own expense, fill the void with either concrete or compacted granular material approved by the Owner.
- D. Excavation for manholes and other structures may be performed with nonvertical banks except beneath pavements or adjoining existing improvements. The bottom of the excavation shall be true to the required shape and elevation shown on the Construction

Drawings.

### 3.8 SHORING

- A. Trench safety and protection are the sole responsibility of the contractor and shall meet OSHA and local regulations.
- B. Shoring shall be designed to withstand the pressures of earth being held back and the loading from nearby structures, roadways, and railways.
- C. When shoring is within the right-of-way or theoretical embankment zone of a railroad track the shoring system shall be designed and stamped by an engineer licensed in the State of Tennessee.

### 3.9 DEWATERING

- A. Furnish dewatering and surface water control systems to permit work to be completed on dry and stable subgrade.
- B. Provide standby equipment in the case of dewatering equipment failure.
  - 1. Standby equipment shall be stored at the Site and ready for immediate use.
  - 2. Provide one spare dewatering pump per dewatering system installed. The spare pump shall have a capacity equal to or greater than the largest pump in the dewatering system.
  - 3. Each pump shall be supplied with its own portable electric generator.
- C. Discharge removed water in accordance with the standard details.

### 3.10 GENERAL BACKFILLING METHODS

- A. Backfilling operations shall be performed so as not to disturb or injure any pipe or structure against which the backfill is being placed. If any pipe or structure is damaged or displaced during backfilling, Contractor shall open up the backfill and make whatever repairs are necessary. This work shall be done at no cost to Owner.
- B. Backfilling and clean-up operations shall closely follow pipe laying. Do not leave more than 50 feet of trench open at end of working day.
- C. Protect open trench to prevent danger to the public.
- D. Place backfill above the Pipe Zone in no more than 6-inch lifts using a jumping jack compactor between lifts.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Consolidating by flooding will not be permitted under or adjacent to paved or unpaved traffic areas. If tests for in-place density consistently fail to meet the requirements, Owner may require Contractor to change his method of compaction.

- G. Backfill trenches to contours and elevations with suitable fill materials described above.
- H. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- I. Required Compaction Density:
  - 1. Crushed Stone: 95% of maximum dry density.
  - 2. Soils: 85% of maximum dry density.
  - 3. Maximum dry density of standard Proctor as determined by ASTM D698.

### 3.11 TRENCH STABILIZATION MATERIAL INSTALLATION

- A. Rebuild trench bottom with imported trench stabilization material when trench excavation exceeds elevation of trench zone as directed by Owner.
- B. Place material over full width of trench in 6-inch lifts to required grade, providing allowance for bedding thickness.
- C. Compact each lift so as to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts. Compaction shall be by a jumping jack compactor between lifts.

### 3.12 PIPE ZONE MATERIAL INSTALLATION

- A. Pipe Zone Bedding shall consist of a minimum of 6 inches of Class, Grade D crushed stone.
- B. Upper Pipe Zone:
  - 1. For flexible pipe materials (PVC, HDPE, etc.) and all pipes under or near paved areas, the Upper Pipe Zone shall consist of Class A, Grade D crushed stone.
  - 2. For rigid pipe materials (DI, Steel, etc.) outside of paved areas, the Upper Pipe Zone shall consist of Backfill Soils.
- C. Hand grade and mechanically compact each lift to provide a firm, unyielding surface.
- D. The bedding material shall be shaped for bell and spigot pipe at proper intervals to provide uniform bearing under the entire length of the pipe.
- E. Thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by "walking in" and slicing material under haunches with a rod to ensure that voids are completely filled before placing each succeeding lift.
- F. After the full depth of the Pipe Zone material has been placed as specified, compact the material by a minimum of three passes with a jumping jack compactor only over the area between the sides of the pipe and the trench walls.
- G. Do not use power-driven impact compactors to compact Pipe Zone material directly over the



pipe.

- H. Pipe zone material shall be compacted to the maximum dry density as specified herein.

### 3.13 FLOWABLE FILL

- A. Where noted on the Construction Drawings or as directed by the Owner's representative, flowable fill will be used for backfill.

### 3.14 DISPOSAL OF MATERIALS

- A. Whenever practicable, all materials removed by excavation that are suitable for backfilling pipe trenches or for other purposes shown on the Drawings or directed by the Owner shall be used for these purposes. Any surplus materials not so used shall be managed by Contractor as either consisting solely of earth, rock, concrete or asphalt paving materials ("Clean Spoil") or, if determined by OWNER to be something other than Clean Spoil, as Waste Materials.
- B. Clean Spoil may be deposited in spoil areas at site locations found by Contractor. For all such areas, the Contractor shall obtain written permission from the property owner and furnish to Owner in advance of depositing any such Clean Spoil on any such site location. Receipt by Owner of the written permission shall not relieve the Contractor of its responsibilities to comply fully with its obligations under the Contract Documents and all Laws and Regulations relating to such Clean Spoil.
- C. Unless otherwise provided in the Contract Documents, Waste Materials shall be properly classified by Contractor and lawfully transported to and disposed of in an appropriate permitted facility approved by Owner. Proof of each such transport and disposal shall be provided to Owner within 24 hours after such disposal.
- D. Once any part of the Work is completed, the Contractor shall properly manage all surplus Clean Spoil and lawfully dispose of all Waste Materials left within the construction's limits of that Work. The Contractor is responsible for the removal, hauling and final management of Clean Spoil and Waste Materials. The Contractor is responsible for locating spoil sites for depositing of Clean Spoil and appropriate landfills for disposal of Waste Materials and for obtaining all related permissions from spoil site owners and landfill operators, as appropriate, and all required permits from all governmental agencies having jurisdiction over the depositing of such Clean Spoil or disposal of such Waste Materials.
- E. The depositing of Clean Spoil and the disposal of Waste Materials in the manner described above shall be considered an integral part of the excavation work, and one for which NO separate payment shall be allowed.

**3.15 CLEAN-UP**

- A. After completing section of excavating, remove all debris and all construction materials from the work zone. Then grade and smooth over the surface on both sides of the trench. Leave the entire area clean and in a condition satisfactory to the Owner.

**3.16 MAINTENANCE**

- A. Contractor shall seed and maintain in good condition all excavated areas, trenches, fills, embankments, and channels until final acceptance by Owner.
- B. Contractor shall maintain trench backfill at the approximate level of the original ground surface by periodically adding backfill material wherever necessary and whenever directed to do so by Owner. Continue such maintenance until final acceptance of the work or until Owner issues a written release.

**END OF SECTION**

**SECTION 31 25 00****EROSION AND SEDIMENTATION CONTROLS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Implementation of temporary and permanent erosion and sedimentation controls.
- B. Related Sections
  - 1. Section 31 23 16 – Excavation for Utilities
  - 2. Section 32 92 00 – Turf and Grasses

**1.3 REFERENCES**

- A. New York State Department of Environment and Conservation (NYSDEC)
  - 1. General NPDES Permit for Discharges of Storm Water Associated with Construction Activities, latest version.
  - 2. NYS Erosion & Sediment Control Handbook, latest edition.
- B. In the event of conflict between these requirements and pollution control laws, rules or regulations, or other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

**1.4 SYSTEM DESCRIPTION**

- A. The work specified in this Section consists of providing, maintaining, and removing temporary erosion and sedimentation control.
- B. The Contractor shall follow the latest edition of the New York State Erosion and Sedimentation Control Handbook.
- C. Temporary erosion controls include, but are not limited to, grassing, mulching, watering and reseeding on-site surfaces and spoil and borrow area surfaces, and providing interceptor ditches at ends of berms and at locations which will ensure that erosion during construction will be either eliminated or maintained in accordance with applicable regulations.
- D. Temporary sedimentation controls include, but are not limited to, silt dams, traps, barriers, filter stone and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained in accordance with applicable regulations.
- E. Temporary Erosion and Sedimentation Control: In general, temporary erosion and sedimentation control procedures shall be directed toward the following:
  - 1. Preventing soil erosion at the source.

2. Preventing silt and sediment from leaving the site if soil erosion cannot be prevented.
3. Preventing silt and sediment from migrating downstream in the event it cannot be prevented from leaving the site.

F. Permanent Erosion Control: Permanent erosion control measure shall be implemented to prevent sedimentation of the waterways and to prevent erosion of the project site.

G. Basic Principles

1. Conduct the earthwork and excavation activities in such a manner to fit the topography, soil type, and condition.
2. Minimize the disturbed area and the duration of exposure to erosion elements.
3. Stabilize disturbed areas immediately.
4. Safely convey run-off from the site to an outlet such that erosion will not be increased off site.
5. Retain sediment on site that was generated on site.
6. Minimize encroachment upon watercourses.

## PART 2 - PRODUCTS

### 2.1 GRASS SEED AND MULCH

- A. Temporary seeding shall be in accordance with NYSDEC Erosion & Sediment Control Handbook.
- B. Permanent seeding shall be in accordance with Section 33 11 00.01 – Surface Restoration.

### 2.2 TEMPORARY SILT FENCE

- A. Geotextile Fence
  1. Equivalent Opening Size per US Standard Sieve: 50-100 (maximum).
  2. Grab Tensile Strength per ASTM D4632: 160 lbs. (minimum).
  3. UV Stability per ASTM D4355: 70% Strength Resistance (minimum).
  4. With 14-gauge steel wire backing with maximum mesh size of 6 inches.
- B. Support Posts:
  1. Materials: Hardwoods, steel, or pressure treated softwoods.
  2. Wood posts shall be 2"x2" (minimum).
- C. Fasteners: Heavy-duty wire staples at least 1-inch long, tie wires, or hog rings as recommended by geotextile manufacturer.

### 2.3 WATTLES

- A. A wattle (a.k.a. sediment logs or tubes) shall be a tubular shaped product specifically manufactured for sediment control. They may be used for slope, perimeter, channel, or inlet sediment control and capture.
- B. Wattles shall be manufactured using interwoven biodegradable plant material such as straw, coir, or wood shavings (i.e. excelsior fibers) in a bio or photodegradable netting that is of sufficient strength to resist damage when handling.
- C. The diameter of and spacing between wattles shall be based on the gradient and length of slope in accordance with following table:

| SLOPE | WATTLE DIAMETER |     |     |     |     |
|-------|-----------------|-----|-----|-----|-----|
|       | 8"              | 12" | 18" | 20" | 24" |

|            |     |      |      |      |      |
|------------|-----|------|------|------|------|
| 2% OR LESS | 70' | 100' | N/A  | N/A  | N/A  |
| 5%         | 30' | 60'  | 100' | 100' | 100' |
| 10%        | 20' | 30'  | 70'  | 85'  | 100' |
| 6:1        | N/A | 20'  | 40'  | 50'  | 55'  |
| 4:1        | N/A | 20'  | 30'  | 30'  | 30'  |
| 3:1        | N/A | N/A  | 20'  | 20'  | 25'  |
| 2:1        | N/A | N/A  | 20'  | 20'  | 20'  |

## 2.4 INLET PROTECTION

- A. Inlet protection for area drain and curb inlets shall be via inlet filters manufactured by Flexstorm Inlet Filters, or approved equal.

## 2.5 STONE RIPRAP

- A. Use sound, tough, durable stones resistant to the actions of air and water. Shaley pieces will not be acceptable. Specific gravity of 2.0 or greater.
- B. Riprap shall have less than 66% wear when tested in accordance with AASHTO T-96.
- C. Riprap sizes shall be in accordance with NYS Department of Transportation Standard Specifications.

## 2.6 STRAW BALES

- A. Clean hay or straw of oats, wheat, barley, or rye free from noxious weed seeds; machine baled using standard baling wire or string.
- B. Posts for straw bales shall be 2"x2" wood or metal posts.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION OF STRUCTURES

- A. Erosion & sediment controls shall be constructed, maintained, and removed in accordance with NYSDEC Erosion & Sediment Control Handbook. Different measures than those stated herein and called for on the Drawings may be required during construction, and may be found in the NYSDEC Handbook.
- B. Temporary pollution control shall include construction activities outside the project area where such work is necessary as a result of construction. These areas include, but not limited to, borrow pits, equipment and material storage sites, and haul roads.
- C. Sequence:
  1. Install erosion and sediment controls prior to construction.
  2. Perform and document an initial inspection of the installed measures with the Owner to review that all measures have been properly installed.
  3. If at any time the Owner deems it necessary or if the Contractor observes problems during site inspections, the Contractor shall provide additional erosion prevention and sedimentation controls and mark changes on the plan or SWPPP. The site shall be provided with maximum protection from erosion and sediment loss at all times.

4. Perform regular inspection of all installed measures and document in accordance with the SWPPP or regulations.
  5. Perform regular maintenance with clean any built up sediment and fix any broken or shifted control elements.
  6. Install permanent controls once construction is complete in an area, and remove temporary controls once permanent controls are established. Depose of temporary measures in accordance with regulations.
  7. With the Owner, complete and submit notice of completion paperwork to responsible agencies.
  8. Maintain permanent controls during the warranty period in accordance with the Contract.
- D. Temporary Silt Fence Installation
1. Not to be installed across areas of concentrated flow such as streams and ditches.
  2. Install along the contour, never up or down a slope.
  3. Maximum drainage area for silt fence with wire backing is 1 acre per 150 feet.
  4. When installed at the base of a slope, install 5 to 7 feet away from the toe of slope.
  5. Height of fence shall be no more than 24 to 26 inches above grade.
  6. Construct from a continuous roll of fabric. When fabric joints are necessary, overlap a minimum of 4 feet.
  7. Excavate a trench approximately 4 inches wide by 6 inches deep.
  8. Place 8 inches of fabric in trench and backfill with compacted soil.
  9. Install posts on downstream side of fabric, no more than 10 feet apart, and at least 16 inches into the ground.
- E. Wattle Installation
1. Install by laying flat on the ground on contour and perpendicular to flow.
  2. Excavate a small trench approximately 2-3 inches in depth, or per manufacturer's instructions.
  3. Overlap ends of adjacent tubes a minimum of 6 inches, or per manufacturer's instructions.
  4. Install wooden stakes at an angle, at 4 -foot intervals, and at least 12 inches deep, or per manufacturer's instructions.
  5. Terminate ends of wattles with a dog leg up slope to prevent channeling of sediment.
- F. Inlet protection filters shall be installed per the manufacturer's instructions.
- G. Check Dams
1. Check dams are barriers composed of riprap, sandbags, wattles, or other non-corrodible material placed across or partially crossing a natural or constructed drainageway.
  2. Check dams shall be constructed, maintained, and removed in accordance with NYSDEC Erosion & Sediment Control Handbook.
    - a. If wattles are used, they may have to be stacked to meet required dimensions of check dams.
- H. Temporary Berms
1. Use temporary berms at the top or base of disturbed slopes to prevent excessive erosion until permanent controls are installed or slopes stabilized.
  2. Berms shall be constructed, maintained, and removed in accordance with NYSDEC Erosion & Sediment Control Handbook.

- I. Temporary Slope Drains
  - 1. A temporary slope drain is a facility consisting of stone, concrete, and/or asphalt gutters, fiber mats, plastic sheets, and drain pipe that may be used to carry runoff down a slope or around an area to reduce erosion on the slope or area avoided until permanent controls are installed and stabilized.
  - 2. Slope drains shall be constructed, maintained, and removed in accordance with NYSDEC Erosion & Sediment Control Handbook.
- J. Temporary Construction Entrance/Exit
  - 1. Construction entrance shall be constructed wherever construction traffic leaves a site and enters a public or private roadway.
  - 2. The entrance/exit shall be at least 50 feet long and at least 10 feet wide for one-way traffic, or at least 20 feet wide for two-way traffic. Shall have turning radii of at least 20 feet at the roadway (may be greater depending on speed of traffic). Install drain culvert as necessary for crossing ditches or streams.
  - 3. Shall be constructed by:
    - a. Undercutting at least 3 inches;
    - b. Install geotextile fabric (TDOT Type III); and
    - c. Install clean washed stone with a gradation of 2 to 4 inches, in a layer at least 8 inches thick.
  - 4. Additional gravel may have to be added periodically to maintain proper function.
  - 5. Remove gravel entrance and replace with new base course prior to construction of permanent new roadway.
- K. Sediment Traps
  - 1. Sediment basins, ponds, traps, and bags are prepared or manufactured storage areas to trap and store sediment from eroded areas in order to protect properties and drainage channels below the construction area from excessive siltation.
  - 2. Sediment traps shall be constructed, maintained, and removed in accordance with NYSDEC Erosion & Sediment Control Handbook.
- L. Straw Bales:
  - 1. Embed minimum of 4 inches in flat bottom trench.
  - 2. Place with ends tightly abutting or overlapped. Corner abutment is not acceptable.
  - 3. Install in order that bale bindings are oriented around the sides and not over the top and bottom of each bale.
  - 4. Use two posts for each bale. Drive posts through bale until top of post is flush with top of bale.
  - 5. Wedge loose straw in gaps between bales.
- M. Soil Stockpiles
  - 1. Protect from erosion with plastic sheeting and anchor from the wind with stakes or concrete blocks. If not active for more than 14 days, apply temporary seeding and mulch.
  - 2. Surround piles with temporary silt fence or wattles within 10 feet of toe of stockpile.
- N. Seeding and Mulching
  - 1. Temporary seeding and soil stabilization shall be in accordance with NYSDEC

Erosion & Sediment Control Handbook.

2. Permanent seeding shall be in accordance with Section 32 92 00 Turf and Grasses.

**3.2 FIELD QUALITY CONTROL**

- A. Conduct regular inspections and document in accordance with the SWPPP and applicable regulations.
- B. Provide inspection documentation, reports, and SWPPP updates with Owner or agency upon request.

**3.3 MAINTENANCE AND CLEANING**

- A. Clean, repair or replace failed or overloaded silt fences, wattles, check dams, or other temporary controls within two days after inspection.
- B. Keeps roads and other paved surfaces swept clean of soil, stone, and debris at all times, and as directed by the Owner.
- C. Install and provide maintenance for soil stabilization seeding at all times. This includes sprinkling with water to encourage and maintain growth of seedlings.
- D. Temporary erosion and sediment controls once removed shall become the property of the Contractor and disposed of properly and in accordance with applicable regulations.
- E. Dress sediment deposits remaining after measure has been removed to conform to existing grade. Prepare and seed graded area.

**END OF SECTION**



**SECTION 31 50 00****EXCAVATION SUPPORT AND PROTECTION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section includes temporary excavation support and protection systems.

**1.3 SUBMITTALS**

- A. Delegated-Design Submittal: For excavation support and protection systems, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- B. Professional Engineer: Experience with providing delegated-design engineering services of the type indicated, including documentation that engineer is licensed in the State in which Project is located.
- C. Architect/Engineer will not be responsible for review shoring design. Furnish record copy for Architect and Structural Engineer.

**1.4 FIELD CONDITIONS**

- A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
  - 1. Notify Owner no fewer than two days in advance of proposed interruption of utility.
  - 2. Do not proceed with interruption of utility without written permission.
- B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
  - 1. Make additional test borings and conduct other exploratory operations necessary for excavation support and protection according to the performance requirements.
- C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

**PART 2 - PRODUCTS****2.1 PERFORMANCE REQUIREMENTS**

- A. Provide, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting earth and hydrostatic pressures and superimposed and construction loads.
  - 1. Contractor Design: Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer.
  - 2. Prevent surface water from entering excavations by grading, dikes, or other means.
  - 3. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.
  - 4. Continuously monitor vibrations, settlements, and movements to ensure stability of excavations and constructed slopes and to ensure that damage to permanent structures is prevented.

**2.2 MATERIALS**

- A. General: Provide materials that are either new or in serviceable condition.
- B. Excavation shoring or underpinning materials shall be designed and provided to resist the influence of any surcharge loads from adjacent existing structures, roadways, etc. shown on the Contract Drawings.
- C. Materials shall be provided with enough size and strength rating as determined by the application.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
  - 1. Shore, support, and protect utilities encountered.
- B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- C. Locate excavation support and protection systems clear of permanent construction so that construction and finishing of other work is not impeded.

### 3.2 SOLDIER PILES AND LAGGING

- A. Install steel soldier piles before starting excavation. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.
- B. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.
- C. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

### 3.3 SHEET PILING

- A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock vertical edges to form a continuous barrier.
- B. Accurately place the piling, using templates and guide frames unless otherwise recommended in writing by the sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches. Accurately align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.
- C. Cut tops of sheet piling to uniform elevation at top of excavation.

### 3.4 TIEBACKS

- A. Drill, install, grout, and tension tiebacks.
- B. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.
  - 1. Have test loading observed by a qualified professional engineer responsible for design of excavation support and protection system.
- C. Maintain tiebacks in place until permanent construction is able to withstand lateral earth and hydrostatic pressures.

### 3.5 BRACING

- A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.
  - 1. Do not place bracing where it will be cast into or included in permanent concrete work unless otherwise approved by Architect.
  - 2. Install internal bracing if required to prevent spreading or distortion of braced frames.
  - 3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

**3.6 FIELD QUALITY CONTROL**

- A. Survey-Work Benchmarks: Resurvey benchmarks regularly during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.
- B. Promptly correct detected bulges, breakage, or other evidence of movement to ensure that excavation support and protection system remains stable.
- C. Promptly repair damages to adjacent facilities caused by installation or faulty performance of excavation support and protection systems.

**3.7 REMOVAL AND REPAIRS**

- A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities.
  - 1. Remove excavation support and protection systems to a minimum depth of 60 inches below overlying construction and abandon remainder.
  - 2. Fill voids immediately with approved backfill compacted to density specified in Section 312000 "Earth Moving."
  - 3. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems.
- B. Leave excavation support and protection systems permanently in place.

**END OF SECTION**

**SECTION 32 12 16****ASPHALT PAVING****PART 1 - GENERAL****1.1 DEFINITION**

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

**1.2 SUBMITTALS**

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
  - 1. Job-Mix Designs: Certification, by New York State Department of Transportation (NYSDOT), of approval of each job mix proposed for the Work.
- B. Material Certificates: For each paving material, from manufacturer.
- C. Material Test Reports: For each paving material.

**1.3 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by NYSDOT.
- B. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.
- C. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of NYSDOT for asphalt paving work.

**1.4 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
  - 1. Tack Coat: Minimum surface temperature of 60 deg F.
  - 2. Asphalt Binder Course: Minimum surface temperature of 40 deg F and rising at time of placement.
  - 3. Asphalt Top Course: Minimum surface temperature of 60 deg F at time of placement.
  - 4. Asphalt Pavement Joint Adhesive: Minimum surface temperature of 40 degrees F.
  - 5. Joint Sealant: Minimum surface temperature of 50 degrees F.

**PART 2 - PRODUCTS****2.1 AGGREGATES**

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.

- B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag.
- C. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.
  - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- D. Mineral Filler: ASTM D 242, rock or slag dust, hydraulic cement, or other inert material.

## **2.2 ASPHALT MATERIALS**

- A. Asphalt Binder: AASHTO M 320 or AASHTO MP 1a, PG 64-22.
- B. Asphalt Cement: ASTM D 3381 for viscosity-graded material.
- C. Tack Coat: ASTM D 977 emulsified asphalt, or cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application. Comply with the requirements of NYSDOT Tack Coat, Section 407, Item Number 407.01M.
- D. Water: Potable.

## **2.3 AUXILIARY MATERIALS**

- A. Asphalt Pavement Joint Adhesive: Joint adhesive shall meet the requirements of NYSDOT Item No. 418.7603, Asphalt Pavement Joint Adhesive.
- B. Joint and Crack Sealant: ASTM D 6690, Type II or III , hot-applied, single-component, polymer-modified bituminous sealant.

## **2.4 MIXES**

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by NYSDOT, designed according to NYSDOT Design and Construction Division "Standard Specifications" dated January 2, 2002 and complying with the following requirements:
  - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
  - 2. Binder Course: Comply with the requirements of NYSDOT, Type 3 Dense Binder, Section 401, Item 403.138902.
  - 3. Top Course: Comply with the requirements of NYSDT, Type 7 Top Course, Section 401, Item 403.198902.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that subbase is dry and in suitable condition to begin paving.
- B. Proof-roll subbase below pavements with heavy pneumatic-tired equipment to identify soft

pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Excavate soft spots, unsatisfactory subbase, and areas of excessive pumping or rutting, as determined by the Authority, and replace with compacted subbase material as directed.

- C. Proceed with paving only after unsatisfactory conditions have been corrected.

### **3.2 PATCHING**

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to depths indicated on the drawings. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate subbase course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
  1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Fill excavated pavements with hot-mix asphalt binder mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

### **3.3 REPAIRS**

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
  1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4-inch.
  1. Clean cracks and joints in existing hot-mix asphalt pavement.
  2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4-inch wide. Fill flush with surface of existing pavement and remove excess.
  3. Use hot-applied joint sealant to seal cracks and joints more than 1/4-inch wide. Fill flush with surface of existing pavement and remove excess.

### **3.4 SURFACE PREPARATION**

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from subbase surfaces. Ensure that prepared subbase is ready to receive paving.
  1. Protect primed substrate from damage until ready to receive paving.
- B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq.

yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

- C. Asphalt Pavement Joint Adhesive: Install in strict conformance with manufacturer's written instructions.

### **3.5 HOT-MIX ASPHALT PLACING**

- A. Place the asphaltic concrete in strict accordance with the provisions of Section 401 through 405 of NYSDOT Standards.
- B. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
1. Place hot-mix asphalt binder course in number of lifts and thicknesses indicated.
  2. Place hot-mix asphalt top course in single lift.
  3. Spread mix at minimum temperature of 250 deg F.
  4. Begin applying mix along high side of one-way slopes unless otherwise indicated.
  5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

### **3.6 JOINTS**

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
1. Clean contact surfaces and apply tack coat to joints.
  2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
  3. Offset transverse joints, in successive courses, a minimum of 24 inches.
  4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
  5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
  6. Compact asphalt at joints to a density within 2 percent of specified course density.

### **3.7 COMPACTION**

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.



- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
  - 1. Average Density: 96 percent of reference laboratory density according to ASTM D 6927, but not less than 94 percent nor greater than 100 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

### **3.8 INSTALLATION TOLERANCES**

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
  - 1. Binder Course: Plus or minus 1/4-inch.
  - 2. Top Course: Plus 1/4-inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
  - 1. Binder Course: 1/4 -inch.
  - 2. Top Course: 1/8-inch.

### **3.9 FIELD QUALITY CONTROL**

- A. Testing Agency: The Authority will engage a qualified testing agency to perform tests and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- D. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
  - 1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
  - 2. In-place density of compacted pavement will be determined by testing core samples

according to ASTM D 1188 or ASTM D 2726.

- a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
  - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- E. Replace and compact hot-mix asphalt where core tests were taken.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

### **3.10 DISPOSAL**

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
- 1. Do not allow milled materials to accumulate on-site.

**END OF SECTION**

**SECTION 32 92 00****TURF AND GRASSES****PART 1 - GENERAL****1.1 DEFINITIONS**

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- D. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- E. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- F. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.
- G. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- H. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

**1.2 SUBMITTALS**

- A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
- B. Product Certificates: For soil amendments and fertilizers, from manufacturer.
- C. Material Test Reports: For imported topsoil existing native surface topsoil.

### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.
  - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
  - 2. Experience: Five years' experience in turf installation.
  - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
  - 4. Pesticide Applicator: State licensed, commercial.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: For existing and imported topsoil proposed for work in this Section, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.
  - 1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
  - 2. Report suitability of tested soil for turf growth.
    - a. Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
    - b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Bulk Materials:
  - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
  - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
  - 3. Accompany each delivery of bulk fertilizers, lime, and soil amendments with appropriate certificates.

**1.5 PROJECT CONDITIONS**

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
  - 1. Spring Planting: April 15<sup>th</sup> to June 15<sup>th</sup>.
  - 2. Fall Planting: August 15<sup>th</sup> to October 15<sup>th</sup>.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

**1.6 MAINTENANCE SERVICE**

- A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established as determined by the Authority, but for not less than the following periods:
  - 1. Seeded Turf: 60 days from date of planting completion.
    - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

**PART 2 - PRODUCTS****2.1 SEED**

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with New York State Consolidated Agriculture and Markets Law – AGM Article 9
- B. General Lawn Seed Mix: NYSDOT 713-04 Seed Mix C
- C. Temporary Cover Seed Mix: NYSDOT 713-04 Seed Mix F

**2.2 INORGANIC SOIL AMENDMENTS**

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent.
  - 1. Provide lime in form of ground dolomitic limestone or calcitic limestone.

**2.3 ORGANIC SOIL AMENDMENTS**

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  - 1. Organic Matter Content: 50 to 60 percent of dry weight.

- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, with a pH range of 3.4 to 4.8.

## **2.4 FERTILIZERS**

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

## **2.5 PLANTING SOILS**

- A. Planting Soil: Imported ASTM D 5268 topsoil, with pH range of 5.5 to 7, a minimum of 4 percent organic material content; free of stones 1-inch or larger in any dimension and other extraneous materials harmful to plant growth. Mix ASTM D 5268 topsoil with soil amendments and fertilizers in amounts recommended in the soil test reports by a qualified soil testing agency.
- B. Planting Soil: Existing, native surface topsoil formed under natural conditions and stockpiled on-site. Verify suitability of native surface topsoil to produce viable planting soil. Clean soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth. Existing topsoil shall be mechanically screened.
  - 1. Supplement with imported ASTM D 5268 topsoil planting soil when quantities are insufficient.
  - 2. Mix existing, native surface topsoil with soil amendments and fertilizers in amounts recommended in the soil test reports by a qualified soil testing agency.

## **2.6 MULCHES**

- A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- B. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

## **2.7 PESTICIDES**

- A. General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
  - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
  - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by the Authority and replace with new planting soil.

#### **3.2 PREPARATION**

- A. Protect structures, utilities, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
  - 1. Protect adjacent and adjoining areas from hydro-seeding and hydro-mulching overspray.
  - 2. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

#### **3.3 TURF AREA PREPARATION**

- A. Limit turf subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off the Authority's property.
  - 1. Thoroughly blend planting soil before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.

- a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
  - b. Mix lime with dry soil before mixing fertilizer.
- 2. Spread planting soil to a depth of 4 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- 3.
- C. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
  - 1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
  - 2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
  - 3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.
  - 4. Legally dispose of waste material, including grass, vegetation, and turf, off the Authority's property.
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus ½-inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
- E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, obtain the Authority's and authorities having jurisdiction acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

### **3.4 SEEDING**

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
  - 2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 4 lb/1,000 sq. ft. or as recommended by the seed supplier.
- C. Rake seed lightly into top 1/8-inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 1:4 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.



**3.5 HYDRO-SEEDING**

- A. Hydro-seeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
  - 1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
  - 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1,500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

**3.6 TURF RENOVATION**

- A. Renovate existing turf.
- B. Renovate existing turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
  - 1. Reestablish turf where settlement or washouts occur or where minor regrading is required.
  - 2. Install new planting soil as required.
- C. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
- D. Remove topsoil containing foreign materials such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
- E. Mow, dethatch, core aerate, and rake existing turf.
- F. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- G. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off the Authority's property.
- H. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
- I. Apply soil amendments and initial fertilizers required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.
- J. Apply seed and protect with straw mulch as required for new turf.
- K. Water newly planted areas and keep moist until new turf is established.

**3.7 TURF MAINTENANCE**

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade,

and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
  2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
  3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
  2. Water turf with fine spray at a minimum rate of 1-inch per week unless rainfall precipitation is adequate.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
1. Mow grass to a height of 2 inches when average height of grass is 3 inches.
- D. Turf Postfertilization: Apply fertilizer after initial mowing and when grass is dry.
1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1,000 sq. ft. to turf area.

### **3.8 SATISFACTORY TURF**

- A. Turf installations shall meet the following criteria as determined by the Authority and the Authority's Representative:
1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
  2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.
- C. Heavy rain events, temperature extremes, and other acts of nature will not exempt the Contractor from the requirement to establish satisfactory turfs and grasses.

**3.9 PESTICIDE APPLICATION**

- A. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Authority's operations and others in proximity to the Work. Notify the Authority before each application is performed.
- B. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

**3.10 CLEANUP AND PROTECTION**

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

**END OF SECTION**

**SECTION 33 01 30****SEWER FLOW CONTROL****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Sewer Flow Control

**1.3 SUBMITTALS**

- A. Sewer Flow Control
  - 1. Sewer Flow Control Plan showing:
    - a. Schedule
    - b. Schematic Drawing
    - c. List of Equipment with:
      - 1) Pump size, capacity, and quantity
      - 2) Pipeline sizes and materials
    - d. Emergency Procedures

**1.4 QUALITY ASSURANCE**

- A. Minimum of 5 years' experience on similar projects with similar pipe lengths and diameters.

**1.5 NOTIFICATIONS**

- A. Notify the Owner a minimum of 5 days before the anticipated beginning of all sewer activities. Notify Owner at least 24 hours prior to implementing any sewer flow control system.

**PART 2 - PRODUCTS****2.1 GENERAL**

- A. The sewer flow control system shall provide adequate capacity and size to handle existing flows plus additional flows that may occur during periods of rain. The peak amount of flow to be bypassed and provide bypass flow capacity is 8,000 gpd.
- B. Piping:
  - 1. Material:
    - a. Small diameter flexible pipe may be used for low pressure and low flow conditions from 8-inch and smaller gravity sewer lines, as approved by the Engineer.
    - b. Pipe material shall have a pressure rating of at least 1.5 times the operating pressure.
    - c. Pipe material may be reused for subsequent flow bypass pumping system placements.
- C. Bypass Pumps shall:
  - 1. Be fully automatic, self-priming units that do not require the use of foot valves or vacuum pumps in the priming system.
  - 2. Have a solids handling design with the ability to pump minimum 3-inch diameter

solids.

3. Be able to run dry for long periods of time to accommodate cyclical nature of flows.
4. Be equipped to minimize noise. Noise levels shall not exceed 86 dBA at a distance of 50 feet from the source and, if more stringent, comply with all local noise ordinances.
5. Have on standby pump of each size used available onsite.

D. Electric Power Generators shall:

1. Be able to simultaneously start and run all electric powered pumps required for the flow to be controlled.
2. Be equipped to minimize noise. Noise levels shall not exceed 86 dBA at a distance of 50 feet from the source and, if more stringent, comply with all local noise ordinances.
3. Include automatic transfer switch if the flow control system is to operate unattended.

### PART 3 - EXECUTION

#### 3.1 SEWER FLOW CONTROL

##### A. Performance Requirements

1. Provide, maintain, and operate temporary facilities such as dams, plugs, pumping equipment, pipes, conduit, and necessary power to intercept sewage flow before it reaches the area of Work.
2. Properly size all equipment, components, and appurtenances to maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers, and that will protect public and private property from discharge or damage.
  - a. The Contractor shall be solely responsible for all cleanup, damages, and resultant fines in the event of a backup or spill. In the event of a backup or spill, the Contractor shall immediately notify the Owner and begin clean-up procedures.
3. All sewage materials removed shall be disposed of in compliance with all applicable laws and regulations and in a manner approved by Owner
  - a. Any discharge of sewage into the construction trench shall not be permitted.

##### B. General

1. Operate and maintain sewer flow control systems 24 hours per day, 7 days per week, including holidays, as required, to control flow.
  - a. Repair crews shall be available on a 24 hours per day, seven days per week basis
2. If flow reaches peak estimated flow that flow control system was designed for, stop all work, utilize standby pumps and piping as needed to prevent sewer backup until flow subsides.
3. After the Work is completed and influent is connected to the plant, remove temporary equipment.

##### C. Proposed Flow Control Schedule

1. Fully empty and clean the sludge holding tank
2. Divert flow from existing influent manhole to the sludge holding tank

3. Fully empty and dispose of remaining material in the plant in accordance
4. Throughout construction, utilize a septic hauling company to empty the sludge holding tank as needed, minimum weekly, and dispose at an owner approved facility in accordance with 01-52-00.

D. Plugging or Blocking

1. Flow control may consist of blocking flow with mechanical or pneumatic plugs if only a small amount of flow needs to be controlled and adequate storage is available. Plugging or blocking of flow must be pre-approved by the Owner.
2. Use primary and secondary plugs for each flow control location.
3. When blocking flow is no longer needed for performance and acceptance of the Work, remove plugs in a manner that permits sewage flow to slowly return to normal without surcharging or causing other major disturbances downstream.
4. Remove temporary plugs at end of each working day and restore normal flow. If downstream work is not or cannot be complete during the workday, provide, operate, and maintain a bypass pumping system.
5. Use bypass pumping if the Work cannot be scheduled at a time when flow is low or completed during a low flow period.

E. Bypass Pumping

1. When blocking flow in upstream sewer is not appropriate or allowed by the Owner, use flow bypass pumping for reducing flow below the maximum depth or completely bypassing flow.
2. Design, furnish, install, and maintain all power, primary, and standby pumps, appurtenances, tanks, tucks, and bypass piping required to maintain existing flows and services.
3. The Contractor shall obtain approval and secure all permits for placement of temporary bypass pumping systems and pipelines within public right-of-way.
4. Site Verification
  - a. Locate existing utilities in the area of bypass pipelines.
  - b. Minimize disturbance of existing utilities
  - c. Confine bypass discharge pipeline within public rights-of-way, temporary construction easement, or permanent easement.
  - d. When bypass pipeline crosses local streets and private driveways, place bypass pipeline in a trench and cover with temporary pavement.
  - e. Installation of bypass pipelines is prohibited in riparian/wetland areas unless approved by the Owner.
5. Flow bypass shall be done in such a manner that will not damage private or public property, or create a nuisance or public menace. Pumped sewage shall be in an enclosed pipe that is adequately protected from traffic, and shall be redirected into an enclosed tank for hauling. Dumping or free flow of sewage on private or public property, gutters, streets, sidewalks, or into storm sewers is prohibited.
6. The Contractor shall equip pump engines with noise suppression devices to keep pump noise to a minimum and comply with applicable noise ordinances.

F. Field Quality Control and Maintenance

1. The Contractor shall perform a leakage pressure test of the bypass pumping discharge piping using clean water prior to actual operation. Prior to operation, test

each section of discharge piping with maximum pressure equal to 1.5 times the maximum operating pressure of the system. The Owner shall be given 24 hours' notice prior to testing.

2. The Contractor shall inspect bypass pumping system every 2 hours to ensure that the system is working correctly.
3. The Contractor shall ensure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.

G. Cleaning

1. Before bypass pumping systems are broken down and moved to the next section or removed at the completion of the Work, discharge sewage remaining in bypass discharge pipeline and pumping equipment to working sewer. Sewage shall not be spilled or discharged to the ground or environment.
2. Upon completion of bypass pumping operations, clean disturbed areas and restore to previous conditions or better, including pavement restoration.

**END OF SECTION**

**SECTION 33 05 05****SANITARY SEWER TESTING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 01 specifications sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Hydrostatic and Leakage Testing for Pressure Sewer Piping.
  - 2. Infiltration and Exfiltration Testing for Gravity Sewer Piping.
  - 3. Vacuum Testing of Manholes.
  - 4. Exfiltration Testing of Manholes.
  - 5. Low Pressure Air Testing of Gravity Sewer Pipe.
  - 6. Mandrel Testing.
- B. Related Requirements:
  - 1. Section 33 01 30 – Sewer Inspection, Cleaning, and Flow Control
  - 2. Section 33 05 61 – Concrete Manholes
  - 3. Section 33 31 11 – Gravity Sewer Pipe
  - 4. Section 33 31 26 – Sewer Force Main Pipe
  - 5. Section 33 31 27 – Low Pressure Sewer

**1.3 SUBMITTALS**

- A. For each test to be performed, submit as applicable:
  - 1. Testing procedures.
  - 2. List of test equipment.
  - 3. Testing sequence schedule.
  - 4. Provisions for disposal of flushing and test water.
  - 5. Certification of test gage calibration.
- B. Qualifications statement for each testing agency engaged by the Contractor.

**1.4 QUALITY ASSURANCE**

- A. No testing shall be performed without the Owner present.



**PART 2 - PRODUCTS****2.1 REQUIRED EQUIPMENT**

- A. Hydrostatic Testing
  - 1. Pressure Pump
  - 2. Pressure Hose
  - 3. Water Meter
  - 4. Test Connections
  - 5. Pressure relief Valve
  - 6. Pressure Gage: Calibrated to 0.1 psi
- B. Infiltration and Exfiltration Testing
  - 1. Plugs
  - 2. Pump
  - 3. Measuring Device
  - 4. Weirs
- C. Vacuum Testing
  - 1. Vacuum Pump
  - 2. Vacuum Line
  - 3. Vacuum Tester Base
  - 4. Shutoff Valve
  - 5. Stopwatch
  - 6. Plugs
  - 7. Vacuum Gage: Calibrated to 0.1 in Hg
- D. Low Pressure Air Testing
  - 1. Air Compressor
  - 2. Air Supply Line
  - 3. Shutoff Valves
  - 4. Pressure Regulator
  - 5. Pressure Relief Valve
  - 6. Stopwatch
  - 7. Plugs
  - 8. Pressure Gage: Calibrated to 0.1 psi
- E. Mandrel Testing
  - 1. Mandrel
    - a. The mandrel is to be 95% of the inside diameter of the section of pipe being tested.
    - b. Inside diameter used for selection of mandrel shall be exact and not nominal.
  - 2. Pull Ropes

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. No testing shall be performed until any component of the sewer system being testing is completely installed and backfilled in accordance with these specifications.
- B. Testing of completed sections of sewer construction prior to the completion of all

construction is acceptable provided that all components associated with the test being performed have been completely installed and backfilled in accordance with these specifications.

- C. Prior to testing any section of gravity pipe, that section of pipe shall be lamped.
  - 1. Lamping shall consist of placing a light at one end of a gravity pipe and observing it from the other end.
  - 2. If the lamp is not visible from the other end or the full circle of the gravity pipe on the other end is not visible, then the gravity pipe is not correctly installed to consistent line and grade.
  - 3. Remove and reinstall sections of gravity pipe not installed to consistent line and grade.

### **3.2 HYDROSTATIC AND LEAKAGE TESTING FOR PRESSURE SEWER PIPING**

- A. Hydrostatic and Leakage Testing shall be performed on all pressure sewer pipe.
- B. Prior to Hydrostatic and Leakage Testing:
  - 1. Ensure that all pipe, valves, and branches have been installed and backfilled.
  - 2. Check all valves for the proper open/close position in the test area prior to testing.
  - 3. Install access points and valves prior to testing.
- C. Hydrostatic and Leakage Testing shall be in compliance with AWWA C600 or C605.
- D. Subject the pipe to a minimum pressure of 150% of design operating pressure being measured at the lowest point of the section of pipe to be tested.
- E. The duration of the hydrostatic test shall be no less than two hours. Observe exposed pipes, valve, and other appurtenances for cracks and defects. If defective materials are found, cease hydrostatic testing and replace the defective materials. Correct visible deficiencies and continue testing at same test pressure for an additional two hours to determine leakage rate.
- F. The testing pressure shall not vary by more than  $\pm 5$  psi for the duration of the test. Test pressure shall be maintained within this tolerance by adding makeup water through the pressure test pump into the pipeline.

- G. The amount of makeup water added shall be accurately measured in gallons by suitable method and shall not exceed the quantities shown in Table 1 below. Correct visible leaks regardless of quantity of leakage.

| Table 1: Allowable Leakage Over Two Hours by Pipe Size |                      |           |                      |
|--------------------------------------------------------|----------------------|-----------|----------------------|
| Pipe Size                                              | Leakage per 1,000 LF | Pipe Size | Leakage per 1,000 LF |
| (Inches)                                               | (Gallons)            | (Inches)  | (Gallons)            |
| 4                                                      | 0.4                  | 21        | 2.1                  |
| 6                                                      | 0.6                  | 30        | 2.8                  |
| 8                                                      | 0.8                  | 36        | 3.3                  |

### 3.3 EXFILTRATION TESTING FOR GRAVITY SEWER PIPE – NOT APPLICABLE

- A. Exfiltration Testing is only permitted for gravity sewer pipes greater than 18-inch, and is not a standard test.

### 3.4 VACUUM TESTING OF MANHOLES

- A. Vacuum Testing shall be performed on all sewer manholes.
- B. Prior to Vacuum Testing, ensure all manhole components have been installed and backfilled as specified, including all required sealant and manhole frame/cover assembly.
- C. Vacuum testing shall be in compliance with ASTM C1244.
- D. Plug all pipe openings in the manhole to be tested and place the vacuum base over the frame and cover of the manhole. Connect to the vacuum pump to the vacuum base outlet port, draw vacuum to 10 in Hg, and close the vacuum base valve.
- E. The duration that the manhole shall be tested depends on the size of the manhole:
1. Manhole diameter of 4 feet: 60 seconds
  2. Manhole diameter of 5 feet: 75 seconds
  3. Manhole diameter of 6 feet: 90 seconds
  4. For manholes greater than 6 feet diameter or non-circular structures, consult Owner for requirements.
- F. Record the drop in vacuum pressure over the test period.
1. If the vacuum drop is greater than 1 in Hg during the test period, the manhole shall be repaired and retested.
  2. If the vacuum drop is less than 1 in Hg during the test period, the manhole is acceptable.
- G. If unsatisfactory testing results are achieved, repair manhole and retest until results meet these specifications.

### 3.5 EXFILTRATION TESTING OF CONCRETE STRUCTURES

- A. This test method is a substitute for vacuum testing concrete structures only when vacuum testing is not feasible, such as pump station wet well structures (including precast, cast-

in-place, or other). This is not a routine test for concrete manholes and vaults, and shall only be performed where specified or where approved by the Owner.

- B. Exfiltration Test shall be performed in accordance with ASTM C969 – “Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines”.

- C. Preparation:

1. Prior to testing, ensure the structure is completely installed and backfilled as specified, including all penetrations installed, influent & effluent pipes connected, anchor bolts and other hardware installed, and coatings have been allowed to dry per manufacturer’s recommendation.
2. Plug all openings in the structure to be tested.
3. Groundwater level shall be monitored and shall be maintained to be at least 3-foot below the water test elevation for the entire test period.

- D. Test Procedure:

1. Fill the structure to the top of the opening with potable water.
2. Allow concrete structures to saturate for a minimum of 4 hours, up to 72 hours. Refill structure with additional water.
3. Replace cover or close hatches to push out any water that may be displaced when the opening is closed. Reopen hatch and mark the water level. Close opening for test.
4. Test period shall be a minimum of 24 hours.
5. Once the test begins the opening shall only be removed in the presence of the Owner.
6. Exfiltration volume will be determined by measuring the amount of water required to raise the water level back to the marked level.

- E. Allowable leakage limit in gallons is (0.1 gallon) (feet of diameter) (feet of head) (hours of test).

1. Example:

- a. For a wet well that is 8-foot diameter, 20-foot deep from rim to floor, and groundwater is 5’ above the lowest point of the wet well.
- b. Leakage Limit = 0.1 gallon x 8’ dia. x (20’-5’) head x 24 hours = 288 gallons

- F. If unsatisfactory testing results are achieved, repair structure and retest until results meet these specifications.

### 3.6 LOW PRESSURE AIR TESTING OF GRAVITY SEWER PIPE

- A. Low Pressure Air Testing shall be performed on all gravity sewer pipe less than 18-inch diameter. For pipes greater than 18-inch diameter, consult and obtain approval from Owner.
- B. Prior to Low Pressure Air Testing ensure that all pipe, service taps, and manholes have been installed and backfilled as specified.

- C. Low Pressure Air Testing shall be in compliance with ASTM F1417.
- D. Plug all pipe connections to manholes, service laterals, cleanouts, or any other pipe connection that will allow air to escape the portion of pipe being tested.
- E. Determine the groundwater elevation above the spring line of piping.
- F. Introduce air pressure slowly to approximately 4 psig. For every foot of groundwater above the spring line of the pipe being tested, increase starting air test pressure by 0.43 psi. Do not increase starting air test pressure to above 10 psig. Allow pressure to stabilize for five minutes.
- G. The duration that the section of pipe shall be tested depends on the size and length of the section of pipe and can be found in Table 3 below.

| Table 3: Low Pressure Air Minimum Testing Duration |                     |
|----------------------------------------------------|---------------------|
| Pipe Size                                          | Duration per 100 ft |
| (Inches)                                           | (Minutes)           |
| 4                                                  | 0.3                 |
| 6                                                  | 0.7                 |
| 8                                                  | 1.2                 |

- H. Record the drop in pressure over the duration of the testing period.
  - 1. If air pressure drops more than 0.5 psi during the testing period, the piping has failed and the pipe section has failed and shall be repaired and retested.
  - 2. If air pressure does not drop more than 0.5 psi during the testing period, the piping is acceptable.
- I. If unsatisfactory testing results are achieved, repair pipe section and retest until results meet these specifications.

### 3.7 MANDREL TESTING

- A. Mandrel Testing shall be performed on all flexible gravity sewer pipe.
- B. Prior to Mandrel Testing, ensure that all pipe, service taps, and manholes have been installed and backfilled as specified. Mandrel Testing shall not be conducted until backfill has been in place for a minimum of 24 hours.
- C. A sized "go/no go" mandrel with a diameter 95% of the inside diameter of the pipe section being tested shall be pulled by hand through the pipe section being tested. Mechanical methods shall not be used to pull the mandrel through the pipe section.

- D. If the mandrel becomes wedged, stuck, or unable to pass any point in the pipe section, then the deflection of that pipe exceeds acceptable deflection and the piping has failed Mandrel Testing.
- E. If the mandrel passes through the pipe section without becoming wedge, stuck, or unable to pass any point in the pipe section, the piping is acceptable.
- F. If unsatisfactory testing results are achieved, repair pipe section and retest until results meet these specifications.

### **3.8 FIELD QUALITY CONTROL**

- A. Testing shall not be performed without the Owner or appointed representative of the Owner present.
- B. Engage a qualified agency or persons to perform tests and inspections.
- C. Test and inspection reports shall be prepared and submitted as a certification of results.

### **END OF SECTION**

**SECTION 33 05 61****CONCRETE MANHOLES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Precast Concrete Manholes
  - 2. Butyl Rubber Sealant
  - 3. Frame/Cover Assembly
  - 4. Precast Concrete Grade Rings
  - 5. Manhole Steps
  - 6. Pipe Connections
  - 7. Drop Connections
  - 8. Manhole Coatings
- B. Related Requirements:
  - 1. Section 31 23 16 – Excavation for Utilities
  - 2. Section 33 31 11 – Gravity Sewer Pipe

**1.3 DEFINITIONS**

- A. Bedding: A type of specialized material placed under manhole prior to installation and subsequent backfill operations.

**1.4 SUBMITTALS**

- A. Product Data:
  - 1. Precast Concrete Manholes
  - 2. Butyl Rubber Sealant
  - 3. Frame/Cover Assembly
  - 4. Precast Concrete Grade Rings
  - 5. Manhole Steps
  - 6. Pipe Connections
  - 7. Drop Connections
  - 8. Manhole Coatings
- B. Shop Drawings:
  - 1. Indicate structure locations and elevations.
  - 2. Indicate sizes, elevations, and orientation of piping and inverts.
  - 3. Signed and sealed by the qualified professional engineer responsible for their preparation, when requested by Owner.

**1.5 QUALITY ASSURANCE**

- A. Obtain precast concrete products from a single source.

- B. Perform structural design according to ACI 350 for water and wastewater structures.
- C. Perform Work according to NPCA Quality Control Manual for Precast and Prestressed Concrete Plants.
- D. Circular manhole sections shall comply with ASTM C478.
- E. Welding:
  - 1. Structural Steel: Comply with AWS D1/1/D1.1M.
  - 2. Reinforcing Steel: Comply with AWS D1.4/D1.4M.
- F. Welders Qualifications: AWS qualified within previous 12 months for employed weld types.
- G. Licensed Professionals Qualifications: Professional engineer experienced in design of specified Work and licensed in State of Tennessee.
- H. Clearly mark inside of each precast concrete vault with ASTM Designation, vault size, date of manufacture, name or trademark of manufacturer. Slabs shall be marked on top and bottom surfaces.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Concrete Products: Do not deliver products until concrete has attained a minimum of 75% of specified 28-day compressive strength.
- B. Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling:
  - 1. Comply with manufacturer instructions for unloading, storing, and moving manhole sections.
  - 2. Lift manhole sections from designated lifting points.
- D. Storage:
  - 1. Store materials according to manufacturer instructions.
  - 2. Store manhole sections to prevent damage to Owner's property or other public or private property.
  - 3. Repair property damaged from materials storage.
- E. Protection:
  - 1. Protect materials in clean location remote from construction operations areas.
  - 2. Provide additional protection according to manufacturer instructions.

## **PART 2 - PRODUCTS**

### **2.1 PRECAST CONCRETE MANHOLES**



- A. Manhole sections shall be reinforced precast concrete in accordance with ASTM C478.
- B. The minimum compressive strength of the concrete in precast section shall be 4,000 psi.
- C. The minimum wall thickness shall be 4-inches or one-twelfth of the inside diameter of the base, riser, or the largest cone diameter. Additionally, the wall thickness shall be sufficient for the proper installation of rubber boots.
- D. Precast manhole top sections shall be eccentric cones with a clear opening of 24 inches.
- E. Each precast section shall have tongue and groove joints and lifting holes to facilitate handling.
- F. Pipe openings shall provide clearance for pipe projecting a minimum of 2 inches inside the manhole. The height of the transition from the pipe opening to the invert trough shall be equal to  $\frac{1}{2}$  of the opening inside diameter minus pipe inside diameter.
- G. Floor shall be 1-inch minimum below lowest pipe opening to provide clearance for grouting of flow channel.
- H. When influent pipes are smaller in diameter than effluent pipes, the elevation of the crown of the influent pipe shall be no lower than the crown of the effluent pipe.
- I. The minimum fall through a manhole shall be 1 inch. The minimum radius of the trough centerline is to be 1.5 times the pipe inside diameter.
- J. Structures shall be designed and constructed by the manufacturer to resist flotation with a safety factor greater than one.
- K. The height of the manhole barrel shall be designed such that a minimum of one and a maximum of four precast concrete grade rings will be required to bring the casting to finished grade.
- L. Minimum interior diameter of manhole based on largest connected pipe:
  - 1. Less than 18-inch: 4 foot
  - 2. 18 – 24-inch: 5-foot,
  - 3. Greater than 24-inch: 6-foot
  - 4. Or as required based on leg spacing.

**2.2 BUTYL RUBBER SEALANT**

- A. Butyl Rubber Gasket
  - 1. A butyl rubber gasket shall be installed between each component of the manhole as indicated in the Standard Details, including precast manhole sections, precast concrete grade rings, and the frame and cover attachment to the manhole.
  - 2. Shall be in accordance with ASTM C990.
  - 3. Butyl rubber gasket shall be one of the following or approved equal:
    - a. CS-102 as manufactured by Conseal.
    - b. Kent-Seal No. 2 as manufactured by Hamilton Kent Manufacturing Company.
- B. Butyl Rubber Joint Tape
  - 1. Butyl rubber joint tape shall cover the joint of all precast concrete manhole components as indicated in the Standard Details, including the base, riser sections, cone/cap, and grade rings.
  - 2. Butyl rubber joint tape shall be the following or approved equal:
    - a. CS-212 as manufactured by Conseal.

**2.3 FRAMES AND COVERS**

- A. Manhole frames and covers shall be cast iron, heavy traffic pattern with solid covers marked with "SANITARY SEWER" with a 24-inch minimum clear opening.
- B. Metal used in the manufacture of castings shall conform to minimum requirements of ASTM A 48 Class 35B for Gray Iron or ASTM A536 Grade 65-45-12 for Ductile Iron.
- C. All bearing surfaces shall be machined.
- D. Total weight of frame and cover shall be at least 365 pounds.
- E. Shall be H-20 Traffic rated, minimum.
- F. Manhole frames and covers shall be JBS 1154 (4-inch height) or JBS 1155 (6-inch height) as manufactured by John Bouchard and Sons, or approved equal.
- G. Anchor bolts and hardware shall be Type 316 stainless steel.

**2.4 PRECAST CONCRETE GRADE RINGS**

- A. Precast concrete grade rings shall be no more than 6 inches in height.
- B. Precast concrete grade rings shall not be used to adjust the height of a manhole by more than 2 feet.
- C. No more than four precast concrete grade rings shall be used to adjust the height of a manhole.

**2.5 MANHOLE STEPS**

- A. Provide steps in precast manholes on 16-inch centers throughout the structure with a minimum width of 13 inches.
- B. Secure steps to the wall via cast-in-place. Steps shall not be vibrated or driven into freshly cast concrete or grouted in place.
- C. Manhole steps shall be copolymer polypropylene coated, textured, and provided with cleats to prevent slippage. Core shall be 1/2-inch, Grade 60 steel reinforced rod.
- D. Manhole steps shall be one of the following or approved equal:
  - 1. No. PS-1 as manufactured by M.A. Industries.
  - 2. No. 81213R as manufactured by Meadow Burke.

## 2.6 PIPE CONNECTIONS

- A. A flexible pipe to manhole connector shall be used in the connection of the sewer pipe to precast manholes. The flexible pipe connector shall be installed in a round hole cast or cored in the manhole wall.
- B. Shall be in accordance with ASTM C923.
- C. The flexible pipe connector shall be secured to the manhole wall with the stainless-steel retainer that presses the connector to the wall and a separate stainless steel band to seal to the pipe.
- D. The flexible pipe connector shall be one of the following or approved equal:
  - 1. Kor-N-Seal as manufactured by Trelleborg.
  - 2. PSX as manufactured by Press-Seal Gasket Corporation.

## 2.7 DROP CONNECTIONS

- A. A drop connection assembly shall be provided for any sewer pipe entering a manhole at an elevation of 24 inches or more above the lowest sewer invert.
- B. Inside Drop Connections
  - 1. Inside drops shall be manufactured and made from impact and chemical resistant polymer materials. Inside drops shall be attached to the inside walls with 316 stainless steel brackets and hardware, as required by the manufacturer.
  - 2. A removable device must be included to allow full diameter access to the influent line where the drop is mounted.
  - 3. Inside drops must not interfere with step ways and use of ladder ways.
  - 4. Inside drops shall be constructed using Reliner drop systems as manufactured by Duran, Inc, or approved equal.
- C. Outside Drop Connections
  - 1. In the event that an inside drop connection is not feasible due to space constraints, an outside drop connection may be used with the approval of the Owner.
  - 2. Outside manhole precast drops shall be integral and monolithically poured with the manhole base and each riser ring used to form the manhole during manufacturing.

3. Outside drop manholes shall be designed and sealed by a structural engineer.
4. When required by depth, the poured slab receiving the manhole base shall be extended to support the drop portion of the manhole in the same manner as a standard manhole.
5. Drop pipe and fittings shall be ductile iron.

## 2.8 MANHOLE COATINGS AND LINERS

### A. Liners for New Manholes:

1. Lined manholes shall be installed on new manholes that will be connected to a sewer force main or low-pressure sewer pipe, where called for on the Drawings, or as required by Owner.
2. HDPE Liner:
  - a. Sheets shall be studded and have a minimum design thickness of 2 mm (0.079 inch).
  - b. Provide minimum of 39 anchoring studs per square foot of liner.
    - 1) Minimum Stud Height: Minimum 9 mm (0.39 inch) with a minimum length of 14 mm (0.55 inch).
    - 2) Capable of resisting continuous hydraulic backpressure, to a minimum of 40 feet of hydraulic head, exerted between interior wall of concrete structure and anchoring stud side of protective liner.
  - c. As manufactured by AGRU or approved equal.
3. PVC Liner, Channel Joints, H-joints and Corner Joints:
  - a. Manufactured from polyvinyl chloride resin.
  - b. White in color to assist in providing a light reflective environment.
  - c. All sheet compounds shall result in a semi-rigid material for thermoforming to the contour of the structure and shall maintain a minimum wall thickness of 1.7mm (0.065 inch).
  - d. Shall be Duraplate 100 Liner System by ALOK, or approved equal.
4. Lined manholes shall have a flat top that is lined with same type of protective liner as manhole.
5. Provide a rubber gasket between structures for a watertight seal. Gasket shall be DURA- Plate-Lok-Sealant MT-320 measuring 0.5 inch by 1.5 inches to be placed on the return, or approved equal. When the two sections are coupled, the butyl-lok will displace over the return on the bell and tongue ends of the liner.
6. Linings shall be installed by certified lining manhole precaster, while constructing the manhole, in strict conformance with the manufacturer's requirements.

### B. Coatings for Existing Manholes:

1. All existing manholes that are connected to a new sewer force main or low pressure sewer pipe shall have interior epoxy coating.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Dewater excavations sufficiently to maintain the ground water level at or below the bottom of the structure foundation prior to and during placement of the base.
- B. Obtain an adequate foundation for all structures by removing and replacing unsuitable material with well-graded granular material per Section 31 23 16 – Excavation for Utilities.
- C. When the foundation subgrade has been prepared and is approved by the Inspector, carefully install the structure to the line and grade required by the Construction Drawings.

**3.2 INSTALLATION OF PRECAST CONCRETE MANHOLES**

- A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface structures or utilities in immediate or adjacent areas.
- B. Excavation:
  - 1. As specified in Section 31 23 16 – Excavation for Utilities and below.
  - 2. Excavate for manholes to the dimensions, shapes, and elevations as indicated and as required by mechanical and/or hand methods. Excavations for manhole bases shall be plumb, level, firm, clean, and free of loose earth, loose rock, vegetation, mud, water, frozen earth, topsoil, and other unsatisfactory materials immediately before concrete placement. The outside dimensions of manhole excavations shall be at least 12 inches greater than the manhole outside dimensions to facilitate manhole construction and backfilling around the structure.
  - 3. If excavation is carried below indicated or authorized elevations or is the subgrade should be spoiled in any way, fill the over-excavated or spoiled areas with 3,000-psi concrete unless otherwise specified or authorized.
  - 4. Unsuitable Subgrade: Where the existing subgrade will not provide a sufficiently firm foundation to support the manhole and superimposed loads, remove the unsuitable material down to the depth required and replace with the specified granular material.
  - 5. Maintaining Drainage: Provide and maintain in proper working order all dewatering equipment required to remove water from the excavations and to keep the excavation bottoms stable until the work has been installed properly and will be unaffected by submersion. Where the excavation bottom is mucky or otherwise unstable because of ground water, lower the ground water level and stabilize the trench bottom by the use of bailing, pumps, or other suitable method. Where quicksand or other water bearing strata are encountered, install and connect the necessary number of well points with pumping equipment of sufficient capacity to prevent rise of water in the excavation.
  - 6. Bracing: Adequately brace excavation as required to protect personnel, adjacent structures, and adjacent property.

C. Placing Manhole Sections

1. Excavate the required depth and remove materials that are unstable or unsuitable for a good foundation. Prepare a level, compacted foundation extending 6 inches beyond the manhole base.
2. Set base plumb and level, aligning manhole invert with pipe invert.
3. Thoroughly clean bells and spigots to remove dirt and other foreign materials that may prevent sealing. Unroll the butyl rubber gasket directly against base of spigot. Leave protective wrapper attached until sealant is unrolled against spigot. Do not stretch. Overlap from side to side, not top to bottom.
4. Set risers and cones so that steps align above the effluent pipe connection, taking particular care to clean, prepare and seal joints.
5. After joining manhole sections, apply the butyl rubber joint tape around the outside perimeter of the joint.
6. Lift holes leaving less than 2 inches of wall thickness shall be plugged from the outside using a sand cement mortar. Lift holes penetrating the wall shall be additionally sealed with an interior application of an epoxy gel 1/8-inch-thick extending 2 inches beyond the penetration.
7. Set the manhole frames to the required elevation using no more than 12 inches of precast concrete grade rings, sealing all joints between cone, grade rings, and manhole frame with the butyl sealant rope and sheet.
8. Perform the final finishing to the manhole interior by filling all chips or fractures greater than ½-inch in length, width or depth and depressions more than ½-inch deep in inverts with a high strength grout or SikaSet Plug. Do not fill the joints between the precast concrete sections. Clean the interior of the manhole, removing all dirt, spills, or other foreign matter.

D. Manholes Installed on Existing Lines

1. For all lines 12 inches in diameter or less, a section of pipe shall be removed and a complete precast manhole installed. The existing pipes shall be joined by a flexible coupling to pipe extensions from the manhole. By-pass pumping shall be conducted in accordance with the requirements of the Owner or the regulatory agency having jurisdiction. The most stringent shall apply.
2. For all lines greater than 12 inches in diameter, the material beneath the pipe shall be removed in such a manner that a 6-inch reinforced concrete base (with Grade 60 #4 bars at 12-inch centers) may be constructed. After a 24-hour waiting period, the precast concrete riser section with “doghouse door” cutouts shall be placed on this base so that a watertight seal is achieved between the riser, pipe, and base. Portland cement grout shall be used to join the riser to the base. A water stop is required for PVC pipe, and cement grouting is not acceptable. The existing pipe within the manhole shall be saw-cut to provide a smooth edge with care to prevent pieces of pipe from entering the line. By- pass pumping shall be conducted in accordance with the requirements of the Owner or the regulatory agency having jurisdiction. The most stringent shall apply.

**3.3 FIELD QUALITY CONTROL**

- A. Engage a qualified testing agency or persons to perform tests and inspections.
- B. Tests and Inspections:
  - 1. All new, adjusted, or modified manholes are subject to Vacuum Testing in accordance with Section 33 05 05 – Sanitary Sewer Testing.
  - 2. Failure of any specified test will result in rejection of the Work.
- C. Prepare test and inspection reports.

**END OF SECTION**

**SECTION 33 05 63****CONCRETE VAULTS AND CHAMBERS****PART 1 – GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes
  - 1. Precast concrete vaults and chambers for potable and non-potable water systems.
  - 2. Frames and covers.
  - 3. Access hatches.
- B. Related Sections
  - 1. Section 33 05 61- Concrete Manholes

**1.3 SUBMITTALS**

- A. Product Data:
  - 1. Precast concrete vaults, chambers, and manholes.
  - 2. Precast concrete riser sections and grade rings.
  - 3. Gaskets, steps, joint sealant, and coatings.
  - 4. Frames and covers.
  - 5. Access hatches.

**1.4 QUALITY ASSURANCE**

- A. Obtain precast concrete products from a single source.
- B. Perform structural design for water and wastewater structures according to ACI 350.
- C. Perform Work according to NPCA Quality Control Manual for Precast and Prestressed Concrete Plants.
- D. Material and Fabrication:
  - 1. Circular Manhole Sections: Comply with ASTM C478.
  - 2. Single-Cell Box Culvert Sections: Comply with ASTM C1433.
  - 3. Underground Precast Concrete Utility Structures: Comply with ASTM C858.
  - 4. Other Structures: Comply with ASTM C913.
- E. Welding:
  - 1. Structural Steel: Comply with AWS D1/1/D1.1M.
  - 2. Reinforcing Steel: Comply with AWS D1.4/D1.4M.
- F. Welders Qualifications: AWS qualified within previous 12 months for employed weld types.



- G. Licensed Professionals Qualifications: Professional engineer experienced in design of specified Work and licensed in State of New York.
- H. Clearly mark inside of each precast concrete vault with ASTM Designation, vault size, date of manufacture, name or trademark of manufacturer. Slabs shall be marked on top and bottom surfaces.

### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Concrete Products: Do not deliver products until concrete has attained a minimum of 75% of specified 28-day compressive strength.
- B. Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Handling:
  - 1. Comply with manufacturer instructions for unloading, storing, and moving vaults or chambers.
  - 2. Lift vaults or chambers from designated lifting points.
- D. Storage:
  - 1. Store materials according to manufacturer instructions.
  - 2. Store vaults and chambers to prevent damage to Owner's property or other public or private property.
  - 3. Repair property damaged from materials storage.
- E. Protection:
  - 1. Protect materials in clean location remote from construction operations areas.
  - 2. Provide additional protection according to manufacturer instructions.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Precast construct structures shall be manufactured with 4,000 psi concrete (minimum).
- B. Structures shall be designed and constructed by the manufacturer to resist flotation with a safety factor greater than one.

### **2.2 PRECAST CONCRETE MANHOLES:**

- A. Precast manholes and components shall conform to ASTM C478.
- B. The height of the manhole barrel shall be designed such that a minimum of one and a maximum of four precast concrete grade rings will be required to bring the casting to finished grade.

### **2.3 PRECAST CONCRETE VAULTS**

- A. Precast concrete vaults and components shall conform to ASTM C858.

**2.4 FRAME AND COVER:**

- A. Frame and cover shall be grey cast iron conforming to the requirements of ASTM A48 (Class 35B), be made accurately to the required dimensions, and be sound, smooth, clean, and free from blisters and other defects. The casting shall not be plugged or otherwise treated to remedy defects.
- B. Bearing surfaces shall be machined to provide a secure fit without rocking.
- C. The frame and cover shall be thoroughly cleaned and coated with a bituminous coating before rusting begins.
- D. The actual weight of the casting (in pounds) shall be stenciled or printed by the manufacturer on each casting with white paint.
- E. The clear opening in the frame casting shall not be less than 24 inches.
- F. The cover shall weight not more than 180 pounds, and shall have the word "WATER" cast on the face of the cover.
- G. Anchor bolts and hardware shall be 316 stainless steel.

**2.5 ACCESS HATCHES:**

- 1. Size as indicated on the Drawings.
- 2. Cover shall be of aluminum construction with anti-slip coating.
- 3. Lid shall be flush to frame. Frame shall be continuously extruded channel.
- 4. Spring assist opening.
- 5. Weatherproof with continuous EPDM seal of frame.
- 6. All fasteners and hardware are to be Type 316 stainless steel.
- 7. Stainless steel lift handles.
- 8. Design Loading:
  - a. In pavement condition: H20 Traffic Load, low density traffic.
  - b. Off pavement condition: Pedestrian lad rated (300 psf).
- 9. Manufacturers:
  - a. BILCO Company,
  - b. U.S.F. Fabrication,
  - c. Halliday Products,
  - d. Or approved equal.

**2.6 PRECAST CONCRETE GRADE RINGS**

- A. Precast concrete grade rings shall conform to ASTM C478.
- B. The thickness of precast concrete grade rings shall not be less than 4 inches and shall not be greater than 6 inches.
- C. No more than four precast concrete grade rings shall be used on any structure.

**2.7 ACCESSORIES****A. Manhole/Vault Steps**

1. Install steps in precast concrete structures on 16-inch centers throughout the structure with a minimum width of 13 inches.
2. Secure steps to the wall via cast-in-place. Steps shall not be vibrated or driven into freshly cast concrete or grouted in place.
3. Steps shall be copolymer, polypropylene coated, textured, and provided with cleats to prevent slippage. Core shall be 1/2-inch, Grade 60 steel reinforced rod.
4. Steps shall be one of the following models and manufacturer's or approved equal:
  - a. No. PS-1 by M.A. Industries; or
  - b. No. 81213R by Meadow Burke.

**B. Joint Sealants and Gaskets**

1. Precast concrete riser sections for manholes and vaults shall be constructed with tongue and groove joints and sealed using two pieces of butyl rubber sealant.
2. Butyl rubber sealant shall also be utilized at connection points for grade rings and castings.
3. Butyl rubber sealant shall meet ASTM C990.
4. The outside of the manhole shall have a 4-inch-wide non-curing butyl rubber tape on all joints.
5. They butyl rubber sealant and tape shall meet or exceed the requirements:
  - a. Conseal "CS-102" and "CS-212", respectively; or
  - b. Kent-Seal No. 2

**C. Pipe Entry Connections:**

1. For pipes passing through structure that require sealing, seal to circular void with a modular mechanical seal.
2. Type: Interconnected synthetic rubber links shaped and sized to continuously fill annular space between pipe and wall sleeve opening.
3. Fabrication:
  - a. Assemble interconnected rubber links with ASTM A276, Type 316 stainless steel bolts and nuts.
  - b. Pressure plates shall be reinforced nylon polymer.
4. Size: According to manufacturer's instructions for size of pipes shown to provide a watertight seal between pipe and wall sleeve opening, and to withstand a hydrostatic head of 40 feet of water.

**D. Bituminous Coating:**

1. The inside and outside of manholes and vaults shall be sealed with a water-resistant bituminous seal coat.
2. The bituminous sealant shall be Daubert No. 68 or approved equal

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Dewater excavations sufficiently to maintain the ground water level at or below the bottom of the structure foundation prior to and during placement of the base.
- B. Obtain an adequate foundation for all structures by removing and replacing unsuitable material with well-graded granular material per Section 31 23 16 – Excavation for Utilities.

- C. When the foundation subgrade has been prepared and is approved by the Owner, carefully install the structure to the line and grade required by the Construction Drawings.

### 3.2 **INSTALLATION**

- A. Place structure base, riser sections, and cone/cap with:
  - 1. Two pieces of butyl rubber sealant between each structure section as seen in the Standard Details.
  - 2. Exterior joints wrapped with butyl rubber sealant tape.
- B. After structure stack out is complete, completely fill all lift holes and joints between precast elements with mortar.
- C. Paint the inside and outside of the structure with bituminous coating to ensure watertightness.
- D. Set the cast iron frame for the cover at the required elevation and connect it to the grade ring with stainless steel anchor bolts. Wherever manholes are constructed in paved areas, tilt the top surface of the frame and cover so as to conform to the exact slope, crown, and grade of the existing adjacent pavement.

### 3.3 **BACKFILL**

- A. Place backfill by hand around the manhole and to a distance of at least one pipe length into each trench to an elevation of 12 inches above the crown of all entering pipes.
- B. Continue backfilling in accordance with the requirements of Section 31 23 16 – Excavation for Utilities.

**END OF SECTION**

**SECTION 33 31 11****GRAVITY SEWER PIPE****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Ductile Iron Pipe and Fittings
  - 2. PVC Pipe and Fittings
- B. Related Requirements:
  - 1. 31-23-16 EXCAVATION FOR UTILITIES
  - 2. 33-01-30 SEWER FLOW CONTROL
  - 3. 33-05-05 SANITARY SEWER TESTING

**1.3 SUBMITTALS**

- A. Product Data:
  - 1. PVC Pipe
    - a. Pipe and fittings
    - b. Joints
- B. Sewer flow control plan. See Section 33 01 30 Flow Control.
- C. Post-Construction CCTV. See Section 33 05 05 Sanitary Sewer Testing

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Store materials according to manufacturer's instructions.
- C. Protection:
  - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
  - 2. Provide additional protection, such as UV protection, according to manufacturer instructions.

**PART 2 - PRODUCTS****2.1 POLYVINYL CHLORIDE (PVC) PIPE**

- A. PVC pipe shall be manufactured in accordance with ASTM D3034 or ASTM F679 as applicable.
- B. PVC material shall be 12454-B, 12454-C, or 13343-C as defined by ASTM D1784.
- C. Effluent gravity sewer pipe shall be PVC SDR 35.

**D. Joints**

1. Joints for PVC pipe used in gravity sewer shall be push-on or restrained joint, as specified or shown in the Drawings.
2. Gaskets for push-on and restrained joints shall conform to ASTM F477.
3. Gaskets shall be factory installed and positively retained by means of stainless steel, polypropylene, or PVC ring.
4. Push-on joints and restrained joints shall conform to ASTM D3212.

**E. Restrained joint PVC shall be as specified in Section 33 31 26 – Sewer Force Main.****2.2 COUPLINGS FOR GRAVITY SEWER PIPE****A. Steel Shielding Coupling:**

1. Designed to join sewer pipes of the same or different material or size and designed for resistance to heavy backfill loads and shear forces, and provide improved pipe alignment. Shielding couplings shall fit over the end of plain end or spigot pipe to form a positive seal against infiltration and exfiltration in non-pressure applications.
2. Manufactured from elastomeric polyvinyl chloride (PVC) which is unaffected by soil conditions and resistant to chemical, ultraviolet rays, and normal sewer gases. The PVC material shall contain bactericide and fungicide to inhibit growth of bacteria and fungus. The PVC material shall be 55 minimum to 65 maximum Shore A durometer hardness. Couplings shall conform to ASTM D5926 and ASTM C1173 and the applicable parts of ASTMs C443, C425, C564, and D1869,
3. The coupling shall be cased with a corrosion resistant Series 300 stainless steel band and end clamps which when tightened to 60 inch-pounds torque, seal the joint.
4. Manufactures
  - a. Fernco 5000 Series or approved equal
  - b. Approved and listed by all of the following code agencies: SBCCI (Southern Building Code Congress International, Inc.), BOCA (Building Officials & Code Administrators International, Inc.), IAPMO (International Association of Plumbing and Mechanical Officials), and CSA (Canadian Standards Association).

**B. Flexible Couplings:**

1. Designed to join sewer pipes of the same or different material or sizes. Flexible couplings shall fit over the end of plain end or spigot pipe to form a positive seal against infiltration and exfiltration in non-pressure applications. Flexible couplings shall flex with normal earth movement to maintain integrity of seal. Use of flexible couplings shall be approved by the OWNER.
2. Manufactured from elastomeric polyvinyl chloride (PVC) which is unaffected by soil conditions and resistant to chemical, ultraviolet rays, and normal sewer gases. The PVC material shall contain bactericide and fungicide to inhibit growth of bacteria and fungus. The PVC material shall be 55 minimum to 65 maximum Shore A durometer hardness. Couplings shall conform to the applicable parts of ASTM C443, ASTM C425, ASTM C564, and ASTM D1869.
3. Flexible coupling shall be supplied with two corrosion resistant Series 300 stainless steel clamps, which when tightened to 60 inch-pounds torque, seal the joint.
4. Approved and listed by all of the following code agencies: SBCCI (Southern Building

Code Congress International, Inc.), BOCA (Building Officials & Code Administrators International, Inc.), IAPMO (International Association of Plumbing and Mechanical Officials), and CSA (Canadian Standards Association).

### **2.3 WARNING TAPE AND UTILITY MARKER**

- A. See Section 31 23 16 – Excavation for Utilities.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Prior to any excavation/trenching, contact UDIG-NY at 811 to have existing underground utilities located and marked.
- B. Site clearing, excavation/trenching, rock removal, dewatering, backfill, disposal of spoils, and flowable fill shall be in accordance with Section 31 23 16 – Excavation for Utilities.

### **3.2 PVC PIPE INSTALLATION**

- A. All pipe shall be installed in accordance with the Drawings, manufacturer's recommendations, and in the presence of the Inspector. Do not begin the backfilling of trenches until the pipe in place has been visually inspected by the Inspector. Pipe installation shall begin at the lowest elevation, unless otherwise approved by the Owner.
- B. Lower pipe, fittings, and appurtenances into trench by means of crane, slings, or other suitable tools and equipment in such a manner as to prevent damage to pipe materials, protective coatings, and linings. Do not drop or dump pipe into trenches.
- C. Lasers shall be used to install sewers to the line and grade indicated on the Drawings. Reference points for both line and grade shall be set at each manhole. Check for pipe alignment and grade after each joint has been made. Measure for grade at pipe the invert, not at the top of pipe.
- D. Do not allow water to run or stand in the trench while pipe laying is in progress or before the trench has been backfilled. Do not at any time open up more trench than the available dewatering and pumping facilities are able to dewater.
- E. Trench bottoms that are found to be unsuitable shall be stabilized as specified in section 31 23 16– Excavation for Utilities.
- F. Carefully inspect each piece of pipe and special fitting before it is placed and lay no defective pipe in the trench. Pipe laying shall proceed up grade, starting at the lower end of the grade and with the bells up grade. Ensure that the bottom of the pipe is in contact with bottom of trench for the full length of each section. Place sufficient pipe bedding material to secure pipe from movement before the next joint is installed. When pipe laying is not in progress, keep the ends of the pipe tightly closed with an approved temporary plug.
- G. Excavation for bell holes shall be large enough to allow ample room for the pipe joints to be

properly made. Excavate bell holes no more than two joints ahead of the pipe laying.

- H. Bedding, pipe zone material, backfill, compaction, and detectable warning tape shall be in accordance with Section 31 23 16- Excavation for Utilities and with the Standard Details.

### **3.3 CONNECTIONS TO MANHOLES**

- A. Connections to new precast manhole shall be in accordance with Section 33 05 61 – Concrete Manholes.
- B. Unless otherwise noted on the Drawings, connections to existing manholes shall be made using a Kor-N-Seal, or equal, flexible connector in accordance with the manufacturer's recommendations.

### **3.4 SPECIAL INSTALLATIONS**

- A. Gravity sewer pipe installed in a casing pipe or crossing a stream shall be restrained joint.
- B. Where sewer crosses less than 18 inches below waterline, use restrained joint ductile iron or PVC pressure pipe or encase in concrete for a minimum distance of 9 feet each side of the waterline.

### **3.5 POINT REPAIRS**

- A. When a section of gravity sewer pipe is to be replaced between manholes, joints shall be watertight and secured with a steel shielded type coupling.

### **3.6 TESTING**

- A. Testing and inspection of installed gravity sewer shall be in accordance with Section 33 05 05 – Sanitary Sewer Testing.

### **3.7 POST-CONSTRUCTION CCTV**

- A. CCTV newly constructed sewer mains after backfill and prior to placing into service.
- B. May be used by Owner to determine acceptability of work performed.
- C. Shall be performed in accordance with Section 33 05 05 – Sewer Testing

**END OF SECTION**



**SECTION 33 31 26****SEWER FORCE MAIN PIPING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Sanitary sewer force main pipelines.
  - 2. Valves.
- B. Related Requirements:
  - 1. Section 31 23 16 – Excavation for Utilities
  - 2. Section 33 01 30 – Sewer Inspection, Cleaning, and Flow Control
  - 3. Section 33 05 05 – Sanitary Sewer Testing

**1.3 SUBMITTALS**

- A. Action Submittals:
  - 1. Complete shop drawings and laying diagrams showing location of each pipe section as requested by the Owner. Drawings shall include:
    - a. Pipe dimensions, pipe class, pipe joints, fitting fabrication details, and gasket properties,
  - 2. For ductile iron pipe indicate coating and lining data including its chemical resistance data.
  - 3. Sewer flow control plan. See Section 33 01 30 – Sewer Inspection, Cleaning, and Flow Control.

**1.4 QUALITY ASSURANCE**

- A. Materials will be visually inspected by Owner or Inspector at the Site for conformance to the Specifications. At Owner's discretion, Contractor may be required to supply certified mill tests, samples, or other suitable form of verification that the material meets the required specifications. Any material that fails to conform to these Specifications shall be rejected and removed from the project by the Contractor at no cost to the Owner.
- B. Installation of materials shall be performed by qualified personnel.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Store materials according to manufacturer's instructions.
- C. Protection:
  - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.

2. Provide additional protection, such as UV protection, according to manufacturer instructions.

## **PART 2 - PRODUCTS**

### **2.1 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS**

- A. All PVC Pressure Pipe shall be manufactured from Type I, Grade I unplasticized polyvinyl chloride (PVC) with a cell Classification of 12454-B, and shall conform to the requirements of ASTM D1784 and D1785 standards. The pipe shall be Schedule 80 PVC and shall be manufactured in strict compliance to ASTM D1785, consistently meeting and/or exceeding the Quality Assurance test requirements of this standard with regard to pressure rating, material, workmanship, burst pressure, flattening, impact resistance, and extrusion quality. The pipe shall be manufactured in the USA, using domestic materials, by ISO 9001 certified manufacturer. Pipe shall be product of Charlotte Plastics or approved equal.
- B. Joints shall solvent welded as recommended by the manufacturer.
- C. All fittings for Schedule 80 pipe shall be one-piece injection molded or fabricated from PVC (Polyvinyl Chloride) meeting ASTM D1784. Joints shall solvent welded as recommended by the manufacturer. Fittings shall be product of Charlotte Plastics or approved equal
- D. Furnish a certificate from the pipe manufacturer stating that they are fully competent to manufacture PVC pipe of uniform texture and strength and in full compliance with these specifications and further stating that they have manufactured such pipe and done so in sufficient quantities to be certain that it will meet all normal field conditions. In addition, the manufacturer's equipment and quality control facilities must be adequate to ensure that each extrusion of pipe is uniform in texture, dimensions, and strength. Also furnish a certificate from the manufacturer certifying that the pipe furnished for this project meets the requirements of these specifications.
- E. All Schedule 80 pipe shall be furnished in the manufacturer's standard laying lengths of 20 feet. The Contractor's methods of storing and handling the pipe shall be approved by the Owner. All pipe shall be supported within 5 feet of each end; in between the end supports, there shall be additional supports at least every 15 feet. The pipe shall be stored away from heat or direct sunlight. The practice of stringing pipes out along the proposed sewer line routes will not be allowed without Owner approval.
- F. Each piece of pipe shall be labelled with the following:
  1. Nominal Size
  2. Type of Material
  3. Class
  4. Manufacturer
- G. Pipe that fails to comply with the requirements set forth in these specifications shall be rejected.

### **2.2 JOINT RESTRAINT SYSTEMS**

- A. Provide pressure pipeline shall be fully restrained with joints at each bend, tee, and change in direction and as indicated in the Construction Drawings and Standard Details.

- B. All exposed bolts and hardware shall be Type 316 stainless steel.

### **2.3 WARNING TAPE, TRACER WIRE, AND UTILITY MARKER:**

- A. For product information on detectable warning tape, tracer wire, and utility markers reference Section 31 23 16 – Excavation for Utilities.

### **2.4 AIR RELEASE VALVE ASSEMBLIES**

- A. Air release assemblies shall be furnished and constructed according to the detail in the Standard Drawings. Install meter box or manhole cone as indicated.
- B. Air valves shall be located at all high points on the pipeline in accordance with the drawings, or as directed by the Owner.
- C. Combination Air Valve:
  - 1. The combination air valve shall conform to AWWA C512 and perform the functions of an air release valve and an air & vacuum valve, in a single body type, and suitable for use with municipal wastewater.
  - 2. Minimum valve size is 2-inch. Valves 3-inch and smaller shall have an NPT inlet and outlet. Sizes 4-inch and larger shall have flanged inlet and a protective cowl on the outlet. Additional plugged NPT ports shall be provided near the top and bottom of the body for testing and draining.
  - 3. Materials:
    - a. The valve body and cover shall be made from cast iron conforming to ASTM A126 Class B.
    - b. The float balls shall be spherical and made from Type 316 stainless steel. Internal linkage mechanism, plug, seat, and orifice shall be Type 316 stainless steel. Non-metallic linkage mechanism and/or float balls are not acceptable.
    - c. The air release seats shall be adjustable, replaceable and made from Buna-N rubber. The air & vacuum seat shall be replaceable and made from Buna-N rubber.
    - d. The exterior of the valve shall be shop coated with enamel primer.
    - e. Exterior bolts and hardware shall be Type 304 or 316 stainless steel.
  - 4. Valve shall be rated for 200-psi with working pressures up to 150-psi.
  - 5. Manufacturer: A.R.I., Model D-020 Combination Air Valve for Wastewater.
- D. Brass ball valve shall quarter-turn, lever handle type with zero leakage at a working pressure of 200psi. Shall comply with NSF 61.

### **2.5 CHECK VALVES:**

- A. Design and Materials: Hayward WCV Series Wafer Check Valve or approved equal
  - 1. The valve body and cover shall be constructed of ASTM D1784 PVC.
  - 2. Shall be a solvent welded true-union connection
  - 3. Shall be rated for 150 PSI at 70°F

4. 316 SS spring
5. EPDM gasket seals
6. Suitable for vertical and horizontal installation
7. Integral bolt eyes
8. Restrained with 316 SS exterior bolts

B. Valve Schedule

1. CV-01, CV-02, CV-03: 4-inch PVC check valves
2. CV-04: 6-inch PVC check valve

## 2.6 GATE VALVES

A. Design and Materials:

1. The valve body shall be ductile iron ASTM A536 65-45-12 with wedge seating surface and body seat rings cast from ASTM B148 C95800 bronze and coated internally and externally with fusion bonded epoxy.
2. Constructed in accordance with AWWA C500 standards.
3. Stem shall be non-rising with a 2-inch nut.
4. Stems shall have integral collars and be machined from corrosion resistant grade 316 stainless steel.
5. Body and bonnet fasteners shall be type 316 stainless steel.
6. Connection type shall be mechanical joint.
7. Shall be rated for 300-psi.
8. Valve box shall be installed according to section 3.2 below.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF PRESSURE SEWER PIPE

A. Excavation, Bedding, Backfill, Clean-Up, and Maintenance:

1. As specified in Section 31 23 16 – Excavation for Utilities.
2. Hand trim for accurate placement of pipe to elevations as indicated on Drawings.

B. Installation of pipe:

1. Lay pressure sewer pipe to the lines and grades required by the Drawings.
2. Unless otherwise noted on the Drawings, all pressure sewer pipes shall have a minimum of 60 inches of cover. Pressure sewer pipe with less than 60" of cover shall be heat traced and insulated with a minimum of 2" insulation thickness as shown and specified on the drawings.
3. Take every precaution to keep foreign material from getting into the pipe while it is being staged or placed in the line. Remove all debris, mud, leaves, etc., that may have accumulated within the pipe. Before any pipe is laid, brush and wipe clean the outside of its spigot end and inside the bell, and leave dry and oil-free.

4. Place no debris, tools, clothing, or other materials in the pipe during laying operations.
5. Pipe shall be placed in the center of the trench, equidistant from the walls of the trench.
6. After a length of pipe has been placed in the trench, center the spigot end in the bell of the adjacent pipe, and then insert to the depth specified by the manufacturer and bring to the correct line and grade. Pipe shall be "homed" per manufacturer's instructions.
7. Whenever pipe laying is not in progress, close the open ends of the pipe with a watertight plug. This shall be done not only at the end of each working day but also before work is stopped for lunch periods, bad weather, or any other reason. If there is water in the trench, leave the seal in place until the trench has been completely dewatered.
8. Cut pipe so that valves, fittings, or closure pieces can be inserted in a neat and workmanlike manner and without any damage to the pipe. Follow the manufacturer's recommendations concerning how to cut and machine the ends of the pipe in order to leave a smooth end at right angles to the pipe's axis.
9. Lay pipe with the bell ends facing in the direction laying unless otherwise directed by the Owner.
10. Wherever pipe must be deflected from a straight line (vertically or horizontally), the amount of deflection and/or the radius of curvature shall not exceed that recommended by the manufacturer.
11. Thrust restraint shall be installed wherever the force main changes in direction, casing pipes, stream crossings, or at any other point recommended by the manufacturer or as indicated in the Construction Drawings.
  - a. Joint restraint shall be installed:
    - 1) For all pipe joints within a stream crossing,
    - 2) For all joints within a casing pipe,
    - 3) The last joint of pipe prior to a tie-in location,
    - 4) As otherwise noted on the Construction Drawings or Standard Details.
12. Lay no pipe in water or when it is the Inspector's opinion that trench conditions are unsuitable.
13. Where a sewer line crosses a drinking water or storm sewer line, the sewer line shall be installed below the line being crossed and shall provide a minimum of 18 inches of vertical separation between the lines.
14. Where a pressure sewer line is to be installed parallel to a drinking water or storm sewer line, provide a minimum of 10 feet of horizontal separation between the lines.
15. Install tracer wire and detectable warning tape the full length of all pressure sewer lines.

15. The Contractor shall take necessary precautions to ensure that the tracer wire and marking tape are not pulled, distorted, or otherwise misplaced in completing the trench backfill.
16. Backfill trench according to Section 31 23 16 – Excavation for Utilities and the Standard Drawings.

### **3.2 INSTALLATION OF VALVES**

- A. Install valves as shown on the Construction Drawings and in accordance with the valve manufacturer's recommendations.
- B. Valves 12-inch and larger shall be provided with special supports such as crushed stone or concrete pads so that the pipe will not be required to support the weight of the valve. Valves shall be installed in the closed position.
- C. Valve boxes shall be carefully set, centered exactly over the operating nut and truly plumbed. The valve box shall not transmit shock or stress to the valve. The bottom flange of the lower belled portion of the box shall be placed below the valve operating nut. This flange shall be set on brick, so arranged that the weight of the valve box and superimposed loads will bear on the base and not on the valve or pipe. Extension stems shall be installed where depth of bury place the operating nut in excess of 60 inches beneath the grade so as to set the top of the operating nut 30 inches below finished grade. The valve box cover shall be flush with the surface of the finished area or such other level as indicated in the Construction Drawings.
- D. In no case shall valves be used to bring misaligned pipe into alignment during installation. Pipe shall be supported in such a manner as to prevent stress on the valve.
- E. A valve marker shall be provided for each underground valve. Unless otherwise detailed on the Construction Drawings or directed by the Engineer, valve markers shall be installed 6 inches inside the right-of-way or easement.
- F. Air release valves shall be installed at all high points or as directed by the Owner and as shown on the Standard Drawings.

### **3.3 INSTALLATION OF THRUST RESTRAINT FOR UTILITY PIPING**

- A. Thrust restrain system shall be joint restraint (preferred) and/or Thrust Blocking, as specified on the Drawings.
- B. Joint restraint shall be in accordance with AWWA C600.
  1. Install joint restraint system such that joints are mechanically locked together to prevent joint separation.
  2. Restrained type joints shall be assembled in accordance with the manufacturer's recommendations.
  3. The Contractor shall inspect each pipe joint within 500 feet on either side of main line valves to ensure 100 percent seating of the pipe spigot, except as noted otherwise.
  4. Each restrained joint shall be inspected by the Contractor to ensure that it has been "homed" 100 percent.

- C. Thrust blocking shall be Class A concrete and as shown in the Standard Drawings.

#### **3.4 TESTING**

- A. Testing and inspection of installed sewer force main piping shall be in accordance with Section 33 05 05 – Sanitary Sewer Testing.

**END OF SECTION**

**SECTION 46 07 00****WASTEWATER PROCESS EQUIPMENT****PART 1 - GENERAL**

The work under This project has been design, permitted and is being bid for construction based on the Amphidrome wastewater treatment system provided by FR Mahony. Alternate system may be allowed but will require detailed specifications and design submitted with the bid. This section includes furnishing and testing an Amphidrome® wastewater treatment system. The system is to treat a permitted flow of 8000 GPD of wastewater from the Chittenango Service Area, which includes public restrooms and food service facilities. All system components shall be supplied by a single process system manufacturer. The system shall be installed in accordance with the manufacturer's guidelines and in accordance with the details on the plans and specifications. The components of the system specified in this section shall include but are not limited to the following: reactor internals (i.e. block distribution under drains, stainless steel under drains, media support gravel, process filtration media, sump cover plate(s), return flow/backwash pumps, backwash check valve(s), backwash air blower(s), process air blower(s), denitrification process water supply pump(s), effluent pump(s), alkalinity mix and feed system, and system process control panel, etc. See Appendix 1 Scope of Supply

The Amphidrome® process system is especially designed for the simultaneous removal of BOD, ammonia, suspended solids, and nitrate-nitrogen. A license to use the process and apparatus shall be provided by the manufacturer of the Amphidrome® process system.

The manufacturer of the Amphidrome® process system included in this specification is F.R. Mahony & Associates, Inc. of Rockland, Massachusetts.

**1.1 PROCESS PERFORMANCE**

The Amphidrome® system shall be designed to produce an effluent that meets the design basis as indicated in Table 1, Design Criteria.

**Table 1. Design Criteria**

| INFLUENT           |           | EFFLUENT                  |
|--------------------|-----------|---------------------------|
| Flow = 8,000 gpd   |           |                           |
| BOD <sub>5</sub> = | 780 mg/L  | ≤ 30.0 mg/L               |
| TSS =              | 1080 mg/L | ≤ 30.0 mg/L               |
| TKN =              | 150 mg/L  | < 12 mg/L (Summer Months) |
| Fecal Coliforms =  |           | < 200 colonies/100 mL     |
| Min. Temperature = | 11.0 °C   |                           |



## **PART 2 - PRODUCTS**

### **PROCESS PERFORMANCE**

This design is a SINGLE train system consisting of one (1) 9.5' x 10.5' Amphidrome® reactor. All tanks will be made of precast concrete. Selected internals itemized in Appendix 1 shall be furnished.

#### **2.1 REACTOR VESSEL**

The reactor vessel shall be furnished and installed by the contractor and be made of precast reinforced concrete with dimensions and specifications as shown on the drawings. Each vessel shall be field assembled by the installing contractor complete with reactor internals, process and backwash air header, backwash trough, backwash check valve, and inlet and outlet piping.

#### **2.2 AMPHIDROME® REACTOR INTERNALS**

The Amphidrome® reactor internals shall be installed in concrete vessels as shown on the plans and in strict accordance with the manufacturer's recommendations. Reactor internals shall include the under drain, (i.e. backwash and process air distribution header and laterals), gravel support layers, backwash trough and filter media. The under-drain system shall be the nozzleless type, designed to distribute evenly, both process and backwash air.

The under-drain system serves to distribute air and water uniformly over the entire area of the reactor vessel, as well as to support the gravel and filter media. The under-drain system shall include effluent sump cover plates, backwash air distribution header and laterals and air and water distribution blocks. These internals shall be provided by one manufacturer.

##### **2.2.1 SUMP COVER PLATES**

A sump or trough shall be provided under the filter under drain system. The sump shall be covered with concrete sump cover plates at least 4-1/2" thick, spaced to provide openings for ingress and egress of backwash water and filtrate, and to support the full weight of the filter media and gravel support. The sump covers shall be grouted in place in the field utilizing a grout approved by the manufacturer. The sump covers shall be provided by the process manufacturer.

##### **2.2.2 AIR DISTRIBUTION HEADER AND LATERALS**

The air used during the process and the backwash shall be distributed evenly over the entire area of each filter vessel through an air header and laterals placed on the floor of the filter.

Air laterals shall extend completely across the filter floor under alternate rows of air and water distribution blocks. The air header and laterals shall be type 304 stainless steel. Holes shall be drilled in each air lateral to provide a separate air discharge port for each air dome in the air and water distribution blocks. A minimum of four air discharge ports shall be provided for each square foot of filter bottom area. No plastic pipe or conduit shall be used for the air distribution system unless shown differently on the plans.

##### **2.2.3 AIR AND WATER DISTRIBUTION BLOCKS**

The sump cover plates and the air distribution laterals shall be covered by precast concrete air and water distribution blocks. The blocks shall have HDPE jackets with interlocking spacer lugs to prevent block displacement. The blocks shall be factory-cast in an established precast concrete factory, which has been casting similar products for at least five years. The concrete used shall be of high quality having a 28-day compressive strength of not less than 5,000 psi and employing

not larger than 1/2" maximum coarse aggregate. Each block shall be cast without reinforcement, have a dense and smooth surface and be hollow and open at the bottom.

Air domes shall be cast into the bottom surface of each block to receive air from each air discharge port in the air laterals. Each air dome shall have an unrestricted air/water discharge port. At least eight air/water discharge ports shall be provided for each square foot of filter bottom area.

#### 2.2.4 BACKWASH TROUGH

A backwash trough shall be supplied to collect the return flow and backwash water. It shall be flanged on the ends and mate to the reactor wall and the return flow/backwash pipe. The trough will be secured at the opposite end with a bracket connected to the inside of the reactor vessel. All material shall be 304 stainless steel.

#### 2.2.5 REACTOR MEDIA

The reactor media shall be supplied by the system manufacturer.

The process reactor under drains shall be covered with a minimum of 18 inches of gravel arranged carefully in five layers. Each gravel layer shall consist of hard, durable, rounded particles of washed gravel having a specific gravity of not less than 2.6. The gravel shall be uncrushed naturally occurring materials and shall contain no more than 2% by weight of thin, flat, or elongated pieces (pieces having a ratio of largest dimension to smallest dimension greater than 5:1) as determined by handpicking from a representative sample, in accordance with AWWA Specification B100-89. The gravel shall be washed free from shale, mica, sand, clay, loam, and organic impurities of any kind. The washed and dried gravel, when digested for a period of 24 hours in cold, strong hydrochloric acid shall not suffer weight loss in excess of 5%. The percent voids in any layer shall not be less than 35% or greater than 45%.

The gravel layers shall be sized as follows:

|        |    |                |
|--------|----|----------------|
| Top    | 4" | 1/2" to 1/4"   |
| Next   | 4" | 1/4" to 1/8"   |
| Next   | 4" | 1/2" to 1/4"   |
| Next   | 2" | 3/4" to 1/2"   |
| Bottom | 4" | 1-1/2" to 3/4" |

A layer of silica sand media, six feet (6.0 ft.) deep in the Amphidrome® reactor shall be placed on top of the gravel support layers. The sand shall be Tetra #5 media, well rounded, not flat or angular, with a maximum uniformity coefficient  $\leq 1.40$ . The hardness shall be 6 to 7 on the MOH scale and the minimum specific gravity shall be 2.6. The hydrochloric acid solubility shall not exceed 3% when tested. The media should have a sphericity of 0.8 or greater as determined by methods described in *Elements of Water Supply and Wastewater Disposal*, second edition, 1971, pages 404-406, Fair, Geyer, Okun, John Wiley & Sons, Inc.

## **PART 3 - PROCESS EQUIPMENT**

### **3.01 PROCESS AND BACKWASH AIR BLOWERS**

Kaeser Compak blower units shall be supplied to provide both process and backwash air to the Amphidrome® reactor. The blowers shall be positive displacement, rotary tri-lobe type, designed for air or other inert gas service, and belt driven via electric motor on a variable frequency drive (VFD) and shall be driven by 20 hp, 208V, three phase, 60 Hertz motors.

Both the process and backwash blowers shall be as follows:

1. The blower package shall be a Com-paK Plus as manufactured by Kaeser Compressors, Inc., or an approved equal, which meets all the requirements of this specification.
2. Nameplates stating the name of the manufacturer, blower/blower package model number, blower/blower package serial number, the rated capacity, speed, and other pertinent data, shall be attached to each blower/blower package.
3. Nameplates stating the name of the manufacturer, the motor model number, the motor serial number, the rated horsepower, speed, voltage, amps, rated service factor, and other pertinent data, shall be attached to the motor.
4. The blowers shall be positive displacement, rotary tri-lobe type, designed for air or other inert gas service, and belt driven via electric motor.
5. The casing shall be made of high strength, close grained, cast iron, and shall be adequately ribbed to resist deflection and facilitate cooling. The casing shall be precision machined to allow for minimum clearances. The design of the housing shall allow for vertical or horizontal blower installation with minimal modification. The casing design shall incorporate channels at the discharge port to minimize pulsation.
6. The rotor assemblies shall be one piece and precision machined from high strength, close grain, spheroidal graphite ductile iron allowing smooth, efficient operation at all rated speeds and pressures. Rotors shall be closed-end using a threaded plug. The integral shafts shall be designed to carry higher loads than calculated for the maximum design load and shall incorporate replaceable seal ring wear sleeves. The rotor assemblies shall be statically and dynamically balanced. Removal of material from the face of the rotor for balancing purposes is not allowed. The rotors shall be a tri-lobe design in order to minimize pulsation and noise.
7. The gear-end plate shall be cast iron. The drive-end plate shall be integral to the blower casing ensuring heavy-duty construction, long life, and maximum machine noise attenuation in all applications. Bearing fits shall be precision machined to ensure accurate positioning of the rotors in the casing. Replaceable seal wear inserts shall be provided on the drive-end and gear-end plates.
8. The end plate covers shall be heavy-duty cast iron with a precision-machined sealing face.
9. Aluminum oil sump covers are not allowed.
10. The rotor timing gears shall be precision machined from case hardened and ground alloy steel. Each timing gear shall be straight cut and beveled to eliminate axial bearing loads and ensure long life as well as quiet operation.
11. Gears shall be finish ground on a precision grinder to ensure concentricity. The timing gear set shall be taper-mounted on the rotors for improved rebuild ability and accurate timing. Keyed, hub mounted, or taper-pinned timing gear mounting designs are not acceptable.

12. All four shaft support locations shall incorporate large, heavy-duty cylindrical roller bearings designed to handle extreme radial loads without sacrificing product integrity and reliability. The minimum acceptable L<sub>10</sub> design life at the blower's maximum rated speed and maximum rated differential pressure shall be no less than 70,000 hours.
13. Both the gear-end and the drive-end of the blowers shall be oil splash lubricated for minimal maintenance and long service life. Grease lubricated bearings are not acceptable. The lubrication design shall ensure adequate lubrication of the timing gears and bearings.
14. There shall be four (4) piston ring type labyrinth seals at each end of each rotor to minimize leakage and maintenance costs.
15. The cavity between the air-side and oil-side seals shall be vented through threaded ports to allow external purging or containment of any lubricating oil or process gas that may have migrated past the seals. Enough ports shall be incorporated in the design to ensure that the cavity is vented from the bottom no matter what blower drive-to-driven shaft orientation is utilized.
16. A vent cavity shall be provided on all four (4) sets of piston ring type labyrinth seals. The two (2) vent holes located on the bottom side of the blower shall be left open. The vent holes at other locations shall be closed off with threaded metal plugs.
17. The input drive shaft seal shall be a high temperature radial lip type seal with Viton elastomers. The seal design shall incorporate a replaceable wear sleeve on the input drive shaft.
18. Drive motors shall be designed, manufactured, and tested in accordance with the latest revised editions of NEMA MG-1, IEC, IEEE, ANSI, and AFBMMA standards as applicable and shall be capable of continuous operation.
19. The motor nameplate horsepower rating shall not be exceeded at the design speed.
20. The temperature rise of the motor windings shall not exceed IEC and NEMA standards when the motor is operated continuously at the rated horsepower, rated voltage, and rated frequency in ambient conditions of 40 °C.
21. The motors shall conform to the following:

|                                    |                               |
|------------------------------------|-------------------------------|
| <b>Mounting:</b>                   | Horizontal                    |
| <b>Type:</b>                       | Squirrel Cage Induction       |
| <b>Enclosure:</b>                  | Totally Enclosed - Fan Cooled |
| <b>Service Factor:</b>             | 1.15                          |
| <b>Duty Cycle:</b>                 | Continuous                    |
| <b>Ambient Temperature Rating:</b> | 40 °C                         |
| <b>Starting Current:</b>           | 6X Full Load Current Maximum  |
| <b>Winding Insulation:</b>         | Class F                       |
| <b>Temperature Rise:</b>           | Class B                       |
| <b>Voltage/Frequency/Phase</b>     | 208V/60 Hz/3 Phase            |

|                             |                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------|
| <b>Bearing Lubrication:</b> | Oil, Oil Mist, or Grease (with grease addition fittings and grease relief fittings) |
| <b>Maximum Speed:</b>       | 3,600 rpm                                                                           |
| <b>Speeds:</b>              | Variable Speed                                                                      |

22. The packaged blowers are to be standard engineered designs of a CE certified manufacturer regularly engaged in the production of packaged blowers to ensure single source accountability and shall include the following listed standard features:

- (a) The packages shall be driven through V-belts and sheaves. The drive assembly shall be of the high capacity type, oil and heat resistant, with a minimum service factor of 1.5.
- (b) Automatic tensioning of the V-belts by use of a pivoting, swing frame motor base with adjustable spring assistance and visual indication of V-belt tension shall be provided to ensure the V-belts remain properly tensioned with minimal maintenance and to extend V-belt, sheave, and bearing life. Adjustment of the tensioning device shall be accomplished without removal of the guard or loosening of the motor mounting bolts.
- (c) The drive guard shall be the manufacturer's standard sheet metal with provision for ventilation. The installed guard shall be fully enclosed, easily removable, and designed to meet current OSHA recommendations and CE standards.
- (d) The base shall be an elevated, rigid, fabricated steel design with a solid sub-base. The absorptive type discharge silencer shall be integral to the frame in order to minimize space requirements. The blower shall be mounted horizontally for a compact frame.
- (e) To prevent transmission of vibration and noise, as well as secure the package to the foundation, the base shall include vibration isolators made of rubber in a steel footing equipped with mounting holes for anchoring purposes.
- (f) Oil drains from the blower drive-end and gear-end lubricating oil sumps shall be piped to the front of the base for ease of maintenance. The drain valves shall be a ball valve with a fully retained and gasketed threaded cap.
- (g) The inlet filter shall be integral to the inlet silencer and shall include a washable and reusable polyester element for minimal pressure drop.
- (h) The inlet silencer shall be of the absorptive type, directly connected to the inlet port of the blower, and shall be mounted horizontally.
- (i) The discharge silencer shall be of the absorptive type with an integral pulsation dampener and directly connected to the outlet port of the blower. The discharge silencer shall be mounted horizontally and shall be integral to the base frame.
- (j) The relief valve shall be spring loaded and factory installed in a location to protect the blower from excessive differential pressures. The relief valve exhaust shall be piped out of the enclosure.
- (k) Flexible Connector
  1. An elastomeric compensator/flex connector shall be provided to isolate the connection of the blower package to the self-supporting system piping. Restraining rods shall not be used. Flex connectors located between the bare blower and silencers shall not be allowed.

2. The flexible connector capacity shall exceed the blower package's maximum discharge pressure and temperature.
  3. Discharge connection
    - a. 4" and smaller connection, a web reinforced silicone rubber sleeve with corrosion resistant clamps shall be provided. (Compak BBC, CBC, and DBC series)
    - b. 6" and larger connection, a ANSI/DIN flanged arch-type EPDM web reinforced connector shall be provided. (Compak EBC, FBC, and HBC series)
  4. Piped Inlet connection – When required, Reference Blower Package Configuration 2.3.
    - a. 6" or smaller connection, a web reinforced silicone rubber sleeve with corrosion resistant clamps shall be provided. (Compak BBC, CBC, DBC and EBC series)
    - b. 8" and 10" piped inlet connection, a arch-type EPDM web reinforced sleeve with corrosion resistant clamps shall be provided. (Compak FBC series)
    - c. 10" ANSI/DIN flanged inlet connection, a ANSI/DIN flanged arch-type EPDM web reinforced connector shall be provided. (Compak HBC series)
- (I) A sound enclosure shall be provided. The sound enclosure shall be sheet steel construction with powder coat finish. It shall have acoustic foam insulation and shall provide sound attenuation of up to 20 dB (A). The enclosure shall have a hinged panel on top and a removable panel on the front of the package to allow maintenance access. Panels shall incorporate locking closures. An installed, integral ventilation fan, sized to provide adequate cooling of the package, shall be provided. The following gauges shall be pre-piped and panel mounted on the front of the sound enclosure. Gauges shall not be shipped loose for field installation.
1. Discharge pressure gauge
    - a. The discharge pressure gauge shall measure the pressure at the discharge of the blower.
    - b. The discharge pressure gauge shall be dual unit (English – PSI / Metric – Bar) with a range of 0 – 23 psi (0 – 1.6 bar). Minimum dial diameter shall be 2 ½", made with a stainless steel case and be glycerin filled for pulsation dampening.
  2. Discharge temperature gauge with adjustable switch
    - a. The discharge temperature gauge shall measure the temperature at the discharge of the blower package.
    - b. The discharge temperature gauge shall be dual unit (English - °F / Metric - °C) with a range from 32 – 392°F (0 – 200°C) and include an adjustable set point dial. Minimal dial diameter shall be 2 ½", made with a black plastic case and have a liquid filled measuring system that is converted by a Bourdon tube into a rotary movement of the pointer. The rotary movement of the pointer spindle shall operate a SPDT microswitch through a lever system. Voltage rating up 220v, 5amps.
    - c. The high temperature set point shall be as recommended by the blower manufacturer.
  3. Connection of the switch to the control system is not part of the blower manufacturer's scope of supply. The switch shall be wired to shut down the blower package when actuated.
  4. Filter differential pressure gauge
    - a. The filter differential pressure gauge shall measure the pressure difference from ambient to the back side of the filter that is integral to the blower package's inlet silencer. When the filter starts to become dirty, the

resistance shall be shown on a resettable red dial indicating when the filter shall be changed.

- (m) The blower package shall be designed to allow all preventive maintenance to be performed from the front of the package. All utility connections and process connections shall be at the rear of the package.
  - (n) The blower package shall be capable of being installed directly adjacent to another blower packages of similar design and shall be capable of mounting next to the wall without maintenance interference.
23. All critical dimensions of the blower components actually provided by the manufacturer shall be verified and documented prior to assembly.
  24. The rotating parts of each blower actually provided by the manufacturer shall be statically and dynamically balanced before final assembly. The blower alone shall operate without excessive vibration. Removal of material from the face of the rotors for balancing purposes is not allowed.
  25. Each blower actually provided by the manufacturer shall be slip tested. The Slip RPM shall be documented. Each bare blower provided by the manufacturer shall be operated at its maximum rated speed and differential pressure for thirty (30) minutes. A document certifying that the supplied blowers conform to the design specifications shall be provided.
  26. On completion of final assembly of the packaged blower and prior to shipment, each packaged blower shall be mechanically run for a minimum of fifteen (15) minutes.
  27. The blowers and equipment covered by this specification are intended to be standard blower equipment, of proven ability, as manufactured by a reputable CE certified manufacturer having at least two (2) years of experience in the production of such blowers. The blowers furnished shall be designed, constructed, and installed in accordance with the best practice and methods and shall operate satisfactorily when installed.
  28. All equipment furnished under this specification shall be new, unused, and shall be the standard product of a manufacturer having a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of two (2) years.

### **3.02 AMPHIDROME® FEED PUMPS**

Two (2) Amphidrome® Feed pumps shall be supplied by the Amphidrome® process system supplier to pump the water from the anoxic/eq tank to the Amphidrome® reactor. The pumps will be submersible, centrifugal, HOMA model TP50V24/2/3 or equal, providing 80 gpm @ 12'TDH and shall be driven by a 1.2 hp, 208V, three phase, 60 Hertz motor.

### **3.03 REVERSE FLOW/BACKWASH PUMPS**

Two (2) reverse flow/backwash pumps shall be supplied by the Amphidrome® process system supplier to pump the water from the clear well to the Amphidrome® reactor during the cyclical process and during backwash. The pumps will submersible, centrifugal, HOMA model AMS434-150/3.7D/C, providing 150 gpm @ 19'TDH and shall be driven by a 3.7 hp, 208V, three phase, 60 Hertz motor.

### **3.03 ALKALINITY FEED SYSTEM**

The alkalinity feed system will include the following: One (1) chemical feed pump to supply alkalinity to Amphidrome® reactor. The pump shall be Stenner 45MJH1A3S peristaltic metering pump or approved equal, 120 volt, 1 phase. The system will also include one (1) LMI-26350-1 50-gallon polyethylene storage tank, and one (1) LMI-10590 agitator with suction shield.

**3.04 FLOAT SWITCHES**

Float switches, for locations as indicated on the plans, will be furnished with Speed-E Connect Manifolds with thirty feet (30') of cord.

**PART 4 - CONTROLS AND INSTRUMENTATION****4.0 AMPHIDROME® CONTROL**

The operational scheme of the Amphidrome® control system shall be initially set by the system supplier and shall be under the control of the system supplier until the performance testing is complete.

**4.1 – PANEL AND INSTRUMENTS**

A separate main control panel shall be supplied to operate the Amphidrome® process system. The main control panel shall be a wall-mounted NEMA 1 enclosure. The panel shall be shop wired to terminal strips for connection to field wiring as necessary.

The panel shall contain the necessary equipment, instruments, ancillary control devices, hardware and programmable logic control to perform the automation functions of the Amphidrome® process system. Panel devices shall also enable the operator to perform manual backwash sequencing for the reactors, and operation of pumps, blowers and auxiliary equipment. The panel will also include a dialer, touch screen, modem and Ethernet module.

All motor starters, and relays for the pumps and blowers.

All indicator lights, switches and wiring for a complete Amphidrome® control system.

All alarms will be set to dial out with an auto dialer.



#### 4.2 – JUNCTION DISCONNECT BOXES

Disconnect junction boxes shall be provided for all submersible pump motors. The disconnect junction box assembly shall be NEMA 4X fiberglass and shall contain an individual disconnect switch for each motor serviced. In addition to meeting NEC requirements for a local disconnect switch, the disconnect junction box also serves to isolate the wet-well wiring from the plant wiring. Thereby eliminating the possibility of gases, which may become corrosive, in the wet-well from entering the main control panel. This is accomplished by constructing the junction box into two isolated chambers. Conduits containing pump motor power cords and float switch wiring shall enter the lower compartment which is vented to atmosphere. The wires then pass, unspliced through the dividing wall into the upper compartment. Entry of the pump and float wiring into the upper compartment shall be through strain relief cord grips, properly sized for the cables. The strain relief cord grips will act as the sealing device between the upper and lower compartments. Disconnect boxes must be clearly identified with stenciled paint letters. Each pump disconnect must be labeled, for example, "Effluent Pump Disconnect".

Plant wiring from the main control panel will enter the upper compartment of the disconnect junction box and terminate on the pump disconnect switches. The upper compartment will also contain terminal blocks for termination of the float switches and main panel float switch control wiring.

Disconnect switches shall be furnished adequately sized for the motor loads served and shall have a minimum rating of 40 amps at 600 VAC. Strain relief cord grips shall be provided to accommodate each pump and all float switches. In the event that any of the cord grips provided are not used, a short piece of cord shall be inserted into the unused connectors in order to insure the proper sealing between compartments.

In general, for two and four pump installations, the dimensions of the upper enclosure shall be 12" wide x 12" high. The lower enclosure dimensions shall be 12" wide x 7" high.

Disconnect junction boxes manufactured for installations of more than four motors shall be sized to accommodate the actual number of disconnects and float switches required.

Disconnect junction boxes shall be provided.

#### 4.3 – ALARM NOTIFICATION SYSTEM

A cellular based alarm radio will be utilized to notify the plant operation staff of critical alarm conditions as well as recording the daily effluent flow rate.

This specification defines the materials, functional requirements, electrical connections, configuration, installation, testing, and acceptance criteria for a High Tide GEN-2 RTU to provide the following at wastewater site(s):

- Common alarm (site-wide alarm relay/contact)
- Power loss alarm for local mains failure / generator start indication
- Flow totalizing (pulse counting from flowmeter + reporting)

The RTU will integrate with the Owner/Operator's cellular + Ethernet communications as required.

Key product overview: High Tide GEN-2 supports pulse inputs for flow meters, event monitoring/alarm notifications, and configurable I/O for digital/analog signals.

#### **4.4 – SUMMARY**

All reactor operations are controlled from the main control panel (MCP). There are two (2) modes of operations: automatic and manual.

All automatic reactor backwash operations are controlled. Operator functions are performed through the hardwired circuit. Amphidrome® backwashing and system discharge are performed automatically at preset time intervals, which are operator adjustable. The manufacturer shall set the initial timing.

Each motor shall be capable of being operated from the main control panel through automatic and manual modes.

### **PART 5 – INSTALLATION**

#### **5.0 INSTALLATION**

Installation shall be in strict accordance with the Amphidrome® process system manufacturer's instruction and recommendations. Prior to media installation, the under-drain installation shall be inspected by the system manufacturer. Manufacturer shall observe the installation of both the gravel and the media and verify that the final elevations are correct. A final set of as built plans should be provided to Owner.

### **PART 6 – INSPECTION AND TESTING**

#### **6.0 INSPECTION AND TESTING**

The Amphidrome® process system manufacturer shall furnish the services of a competent and experienced (not less than two (2) full years) factory-trained representative who has complete knowledge of proper operation and maintenance of the equipment. The representative shall be in attendance for media installation, to provide instructions to the plant operating personnel, to assist in plant start-up, to be present during the clear water test with the Local Approving Authority (e.g. Department of Environmental Protection), and to be present during the process performance testing to the extent that it assures a complete and successful startup and operation of the facility as determined by the Owner's responsible agent.

A mechanical performance test shall be performed prior to the plant being placed into service. The design engineer, the construction supervision engineer, the system suppliers designated representative, and the contractor and the designated operator shall be present. The contractor shall furnish all labor, materials and equipment required for such tests and shall correct any deficiencies noted by repairing or replacing the defective equipment and completing the testing. Following the acceptance of the mechanical performance, manufacturer shall provide assistance in process startup including seeding media, if necessary.

### **PART 7 - GUARANTEE**

#### **7.0 GUARANTEE**

The manufacturer shall have a minimum of five (5) years of experience in the design and manufacture of factory-built BOD removal, nitrification and denitrification process reactor systems. The manufacturer shall guarantee for twelve (12) months from date of DEP approval to discharge, that the equipment furnished will be free from defects in design, material and workmanship. Warranties and guarantees of

the suppliers of various components in lieu of a single source responsibility by the manufacturer will not be acceptable.

In the event a component fails to perform as specified or is proven defective in service during the guarantee period, the manufacturer shall repair or replace, at the discretion of the engineer, upon return of such defective part to the systems supplier. The repair or replacement of those items normally consumed in service, such as seals, grease, etc., shall be considered as part of routine maintenance and upkeep.

## **PART 8 – DRAWINGS, INSTALLATION, AND O&M**

### **8.0 SHOP DRAWINGS, INSTALLATION INSTRUCTIONS AND O&M MANUALS**

One (1) electronic copy of each shop drawing and/or submittal shall be submitted to the design engineer for review and approval of all materials, equipment, furnishings and other items incorporated in the work.

Installation and start-up manuals shall be furnished for process operations and all new equipment items installed as part of this project. A total of four (4) copies shall be provided: one (1) copy shall be with the equipment when shipped, one (1) copy shall be sent directly to the office of the contractors and two (2) copies shall be sent directly to the design engineer.

One (1) electronic copy of operations and maintenance manuals shall be furnished for all process operations and new equipment items as part of this project. Installation and start-up manuals cannot be substituted as operations and maintenance manuals.

| <b>Appendix 1</b>                                                                                |                           |
|--------------------------------------------------------------------------------------------------|---------------------------|
| <b>REACTOR INTERNALS</b>                                                                         |                           |
| <b>Component</b>                                                                                 | <b>Total No. of Units</b> |
| Amphidrome® Reactor Media                                                                        | 1 lot                     |
| Amphidrome® Reactor Air Laterals and Headers                                                     | 1 lot                     |
| Amphidrome® Reactor Underdrain                                                                   | 1 lot                     |
| Amphidrome® Reactor Backwash Trough                                                              | 1                         |
| Amphidrome® Reactor Check Valve                                                                  | 1                         |
| <b>PROCESS COMPONENTS</b>                                                                        |                           |
| <b>Component</b>                                                                                 | <b>Total No. of Units</b> |
| Process And Backwash Air Blowers, Kaeser CB131C, 20 hp, three phase, 60 Hertz, 208 volt or equal | <u>2</u>                  |

|                                                                                              |                           |
|----------------------------------------------------------------------------------------------|---------------------------|
| Amphidrome® Feed Pumps 1.9 hp 208V, three phase, 60 Hertz, HOMA or equal                     | <u>2</u>                  |
| Amphidrome® reverse flow/backwash pumps, 3.7 hp, 208V, three phase, 60 Hertz, HOMA, or equal | <u>2</u>                  |
| <u>Alkalinity feed system</u>                                                                |                           |
| pump - Stenner 45MJH1A3S, 120 volt, 1 phase                                                  | <u>1</u>                  |
| poly storage tank LMI-26350-1                                                                | <u>1</u>                  |
| agitator with suction shield - LMI-10590                                                     | <u>1</u>                  |
| <b>CONTROL COMPONENTS</b>                                                                    |                           |
| <b>Component</b>                                                                             | <b>Total No. of Units</b> |
| Main Control Panel with Internet Modem – by FRMA or equal                                    | 1                         |
| Junction Disconnect Box – by FRMA or equal                                                   | 4                         |
| Flow meter – Seametrics or equal                                                             | 1                         |
| Alarm Monitoring System – High Tide Technologies or equal                                    | 1                         |
| Variable Frequency Drives – DuraPulse or equal                                               |                           |
| Blower VFDs or equal                                                                         | 2                         |
| <u>Float Switches:</u>                                                                       |                           |
| <u>Mechanical Non-Mercury –Normally Open-Externally Weighted</u>                             |                           |
| Anoxic / Equalization tank – CSI or equal                                                    | 4                         |
| Amphidrome® Main Reactor – CSI or equal                                                      | 2                         |
| Amphidrome® Clearwell – CSI or equal                                                         | 4                         |
| Float Switch Brackets                                                                        | 3                         |
| Actuated Butterfly Valves Plus– AT Controls ESP butterfly valve with electric actuator, 4”   | 1                         |

**END OF SECTION**

**SECTION 46 66 00****ULTRAVIOLET DISINFECTION EQUIPMENT****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. Scope: Furnish all labor, materials, equipment and appurtenances required to provide an open channel gravity flow ultraviolet (UV) disinfection system. To be complete and operational with all control equipment and accessories as shown and specified.
- B. Related Sections:
  - 1. Division 26 Electrical.

**1.2 QUALITY ASSURANCE**

- A. Provide the following:
  - 1. the manufacturer will be regularly engaged in the manufacture of UV systems with a proven track record of at least one hundred (100) municipal installations in North America.
  - 2. The manufacturer will provide documentation of previous experience with municipal UV disinfection systems in wastewater applications with electronic ballasts.
  - 3. Submittals from manufacturers will include a complete and detailed proposal of equipment offered, including the number of lamps proposed and a detailed description of any exceptions taken to the specification.
  - 4. The manufacturer will submit a bioassay evaluation for the proposed reactor. This bioassay will have been validated by an independent third party and have followed protocols described in the US EPA Design Manual – Municipal Wastewater Disinfection (EPA/625/1-86/021), without exception. The manufacturer's bioassay report must demonstrate that the proposed UV system design and number of lamps will deliver the specified dose.
  - 5. Documentation of UV manufacturer's service capabilities including location and experience.
  - 6. Sample disinfection performance guarantee including scope and duration of guarantee- minimum of 5 years required.
- B. Design Criteria
  - 1. Provide equipment which will disinfect an effluent with the following characteristics:
    - a. Peak Flow: 54,000 Gpd
    - b. Total Suspended Solids: 30 mg/L on a 30 day average
    - c. Ultraviolet Transmittance @ 253.7 nm: 65 %
    - d. Annual Effluent Temperature Range: 33 to 85 °F or 0 to 29 °C
    - e. Effluent standard to be guaranteed: 200 FC / 100 ml  
Based on a 30 day Geometric Mean
  - 2. The UV equipment will be installed in a concrete channel having dimensions as shown on the drawings.
  - 3. The system supplied will be arranged to match existing.
  - 4. The lamp array configuration will be evenly spaced in both horizontal and vertical rows with all lamps parallel to each other and to the effluent flow.

C. Performance Requirements:

1. The UV system will be designed to deliver a minimum UV dose of 30,000  $\mu\text{Ws}/\text{cm}^2$  or 30  $\text{mJ}/\text{cm}^2$ , in effluent with a UV Transmission of 65% after reductions for quartz sleeve absorption, sleeve fouling, and lamp aging. The basis for evaluating the UV dose delivered by the UV system will be the manufacturer's bioassay as carried out by an independent third party. Bioassay validation methodology to follow protocols described in US EPA Design Manual - Municipal Wastewater Disinfection (EPA/625/1-86/021), without exception.
2. The UV system will produce an effluent conforming to the following discharge permit: 200 FC/100 ml, based on a 30 day Geometric Mean. Grab samples will be taken in accordance with the Microbiology Sampling Techniques found in Standard Methods for the Examination of Water and Wastewater, 19th Ed.

### 1.3 SUBMITTALS

- A. Shop Drawings: Submit for review shop drawings showing the following:
1. Complete description in sufficient detail to permit an item comparison with the specification.
  2. Dimensions and installation requirements.
  3. Descriptive information including catalog cuts and manufacturers specifications for components.
  4. Electrical schematics and layouts.
  5. Independent bioassay report demonstrating dose delivered under design conditions.
  6. Experience documentation.

### 1.4 GUARANTEE

- A. Equipment: The equipment furnished under this section will be free of defects in material and workmanship, including damages that may be incurred during shipping for a period of 12 months from date of substantial completion
- B. UV Lamps: The UV lamps to be warranted for a minimum of 12,000 hours (non-prorated) or thirty-six (36) calendar months from shipment, whichever comes first. Pro-rated lamp warranties will not be accepted. On / off cycles are limited to an average of four (4) per day without exception.

**PART 2 - PRODUCTS****2.1 MANUFACTURER**

- A. Trojan Technologies or equal. If equal equipment is proposed, the Contractor must demonstrate to the Engineer and the Owner that all requirements of materials, validation, experience, performance, and workmanship have been met or exceeded by the equipment proposed.

**2.2 GENERAL REQUIREMENTS**

- A. Provide a UV disinfection system complete with UV lamp modules, effluent channel, level control, and UV monitoring system as shown on the Contract Drawings and as herein specified.
- B. UV system will be designed, without cooling or heating required.

**2.3 DESIGN, CONSTRUCTION AND MATERIALS****A. General:**

- 1. All material in contact with effluent will be stainless steel or quartz.
- 2. All material exposed to UV light will be stainless steel, anodized aluminum, quartz 214, or Teflon™.

**B. UV Module (UVM):**

- 1. Each UV lamp module will consist of 2 lamps and their corresponding electronic ballast. Each lamp will be enclosed in its individual quartz sleeve, one end of which will be closed and the other end sealed by a lamp end seal and holder.
- 2. The electrical wires connecting the lamps to the electronic ballasts will be enclosed in the stainless steel frame. Systems where lamp wiring is submerged in the effluent and exposed to UV light will not be allowed.
- 3. Each UV module will be provided with a standard 120 Volt plug and weatherproof cable for connection to a receptacle. The cable will be 10 feet (3.0 m) long. A total of 4 UV modules will be supplied. Lamp status will be displayed on top of each UV module using watertight LED indicator lights.
- 4. Modules will be approximately 40.2 inches (cm) long, 14.16 inches (cm) high and 2.8 inches (7.1 cm) wide, weighing approximately 22 (11) lbs (kg). Materials of construction will be stainless steel type 316, anodized aluminum, quartz 214, and Teflon™, with UL rating of Type 6P

**C. UV Lamps:**

- 1. UV system will use low pressure mercury slimline lamps of the hot cathode, instant start design.
- 2. 90% of UV output will be within the wavelengths of 233.7 to 273.7 nm.
- 3. The operating life of the lamp will be guaranteed for 12,000 hours, non pro-rated.
- 4. Independent validation of lamps aging factor is required.

**D. Lamp End Seal and Lamp Holder:**

1. The open end of the lamp sleeve will be sealed by means of a sleeve nut which threads onto a sleeve cup and compresses the sleeve 'O' ring.
  2. The sleeve nut will have a knurled surface to allow a positive handgrip for tightening. The sleeve nut will not require any tools for removal.
- E. UV Lamp Sleeves:
1. Quartz sleeves to be Type 214 clear fused quartz circular tubing as manufactured by General Electric or equal.
  2. Quartz to be rated for UV transmission of 89% and not subject to solarization.
  3. The nominal wall thickness will be 1.0 to 2.0 mm to maximize UV transmission.
- F. Effluent Channel:
1. Each UV unit will be provided with one (1) UV module support rack and downstream level control weir.
  2. The UV unit shall be installed in the existing concrete channel, as per the drawings
- G. Level Control Weir:
1. Weir will be located downstream of the UV modules to maintain an average water depth of 6 (15.24) inches/cm and ensure lamp submergence at all times.
  2. Maximum effluent level variance from zero to peak flow will not exceed 1.5 inches (3.8 cm).
  3. Weir will be welded water tight and include a drain.
- H. Electrical:
1. The UV disinfection system will be divided into 2 UV modules.
  2. Interconnecting Cables to be standard 120 Volt, weatherproof, 10 feet (3.0 m) long and will be suitable for outdoor installation.
  3. Power Distribution Receptacles:
    - a. 120 Volt receptacles rated for continuous outdoor use will be provided. Receptacles will be of the duplex type complete with ground fault interrupter circuitry.
    - b. Receptacles to be provided by the UV Manufacturer.
  4. Power Consumption:
    - a. Maximum power draw to UV System will be 180 watts.
    - b. All electrical supplies will be 120 Volt, 60 Hz.
    - c. A separate 120 volt, 5 amp supply to be provided for the Monitoring System.
- I. Cleaning Procedure:
- The UV lamp modules will be cleaned by removing from the effluent channel and hand wiping the sleeves with an acid solution, using a non-abrasive cloth.



**J. Monitoring System:**

1. 1 submersible UV sensor(s) will continuously monitor the UV intensity produced in the bank of UV lamp modules. The sensor will measure the germicidal portion of the light emitted by the UV lamps.
2. UV intensity will be indicated on a 3 character display in mW/cm<sup>2</sup>.
3. Elapsed time in hours (lamp age) will be indicated on a 5 character display.
4. Both displays will utilize LEDs and will be visible through the panel door.
5. A dry contact will be provided for remote indication of Low UV intensity alarm.
6. Monitoring System will be enclosed in a fiberglass Type 4X wall mounted panel and is to be located less than twelve (12) feet (3.66 m) from the LED end of the UV Module.

**K. Power Distribution Receptacle (PDR):**

1. Duplex ground fault interrupter receptacle(s) will be provided by the UV Manufacturer.
2. Receptacles will be mounted in an individual, impact resistant thermoplastic junction box complete with a Type 3R rain shield for outdoor installation.

*Contractor to supply appropriate 120 Volt, single phase, 60 Hz circuit to power the PDRs which have a total current draw of approximately 1.7 amps. Contractor to be responsible for distributing the power from the main 120 Volt feed to the individual PDRs. Responsibility to be all encompassing and in accordance with the local electrical codes.*

**L. Maintenance Rack:**

One (1) Type 304 stainless steel maintenance rack(s) will be supplied. The rack is designed to hold UV modules during service or maintenance.

**M. Spare Parts:**

The following additional parts will be furnished:

- Four UV lamps (per bank)
- Four Quartz sleeves (per bank)
- [Insert Value] Lamp holder seals (per bank)
- One Operators Kit (including face shield, gloves) (per bank)

**PART 3 – EXECUTION****3.1 INSTALLATION**

In accordance with shop drawings, and Manufacturer's instructions.

**3.2 MANUFACTURER'S REPRESENTATIVE'S SERVICES**

- A. Start-up, field testing and Operator Training: 1 full day on site.
- B. Warranty Service: As required during the warranty period.

**END OF SECTION**

**ITEM 699.04----25 - MOBILIZATION****1. DESCRIPTION:**

- 1.01 Under this work the Contractor shall provide the following:
- A. Necessary bonds, insurance, and prefinancing and set-up of necessary general plant, including shops, storage areas, Engineer's and Contractor's offices and such sanitary and other facilities as are required by local or state law or regulation.
  - B. Critical path method (CPM) schedule of operations as described in §108-01 of the TA Addendum.
  - C. M/WBE participation program meeting the M/WBE goals of the contract as described in §109-06 *Contract Payments* and in accordance with §102-12 *D/M/WBE Utilization*.

**2. MATERIALS:**

- 2.01 Unless otherwise specified, such materials as required for mobilization and are not to be part of the completed contract shall be as determined by the Contractor, except that they shall conform to any pertinent local or state law, regulation or code.

**3. CONSTRUCTION DETAILS:**

- 3.01 The work required to provide the above facilities and service for mobilization shall be done in a safe and workmanlike manner and shall conform with any pertinent local or state law, regulation or code. Good housekeeping consistent with safety and other requirements of this contract shall be maintained.

**4. METHOD OF MEASUREMENT:**

- 4.01 Payment for mobilization will be made on a lump sum basis.

**5. BASIS OF PAYMENT:**

- 5.01 The amount bid for mobilization shall not exceed four percent (4%) of the total contract bid price excluding the bid price for mobilization. Should the bidder exceed the foregoing four percent (4%), the Authority will make the necessary adjustment to determine the total amount bid based on the arithmetically correct proposal.

The amount bid shall include the furnishing and maintaining of services and facilities noted under Section 1.01 to the extent and at the time the Contractor deems them necessary for its operations, consistent with the requirements of this work and the contract.

The amount bid shall be payable to the Contractor with the first contract payment made for other contract work following acceptable completion of all requirements noted under Section 1.01.

*Payment will be made under:*

| <u>Item Number</u> | <u>Item</u>  | <u>Pay Unit</u> |
|--------------------|--------------|-----------------|
| 699.04----25       | Mobilization | Lump Sum        |

# **SPECIAL NOTES**

### **CONFIDENTIAL INFORMATION**

1. **Confidential Information:** “Confidential Information” means any information not generally known to the public, whether oral or written, that the Authority claims is confidential and discloses to Contractor for the purposes of performing work on the Project. Confidential Information may include, but is not limited to, operational and infrastructure information relating to: bid documents, plans, drawings, specifications, reports, product information and data, business and security processes and procedures; personnel and organizational data, and financial statements; information system IP addresses, passwords, security controls, architectures and designs; and such other data, information and images that the authority deems confidential. The Authority will identify written Confidential Information by marking it with the word “Confidential” and will identify oral Confidential Information as confidential at the time of disclosure to the Contractor.
2. **Exempt Materials:** Confidential Information does not include information which, at the time of the Authority disclosure to Contractor; (a) is already in the public domain or becomes publicly known through no act of Contractor; (b) is already known by Contractor free of any confidentiality obligations; (c) is information that the Authority has approved in writing for disclosure; or (d) is required to be disclosed by Contractor pursuant to law so long as Contractor provides the Authority with notice of such disclosure requirement and an opportunity to defend prior to any such disclosure.
3. **Permitted Use:** Contractor may use Confidential Information solely for the purposes of performing work on the Project. Contractor may share Confidential Information with its employees, consultants, sub-consultants, sub-contractors, suppliers, and agents that are necessary to perform work on the Project (“Authorized Personnel”), but must ensure that such Authorized Personnel execute a Confidentiality and Non-Disclosure Agreement as set forth in the Minimum requirements for the Handling and Treatment of Confidential Information. The Authority’s disclosure of Confidential Information to Contractor shall not convey to Contractor any right to or interest in such Confidential Information and the Authority shall retain all right and title to such Confidential Information at all times.
4. **Protections:** Contractor shall hold Confidential Information confidential to the maximum extent permitted by law. Contractor shall safeguard Confidential Information in accordance with the Minimum Requirements for the Handling and Treatment of Confidential Information.
5. **Return of Confidential Information:** Upon the written request of the Authority, Contractor shall return all written Confidential Information to the Authority.

### **EXTERNAL CONNECTIONS**

If in order to perform work on the Project, Contractor must make an external connection to the Authority’s data communications infrastructure and/or access Authority information systems, Contractor shall in all respects comply with all Authority policies and procedures regarding such connections and information systems access and undertake whatever actions are necessary in the discretion of the Authority to ensure such compliance. Contractor shall be responsible for all costs associated with ensuring that its own network security measures comply with all Authority policies and procedures regarding external connections.

**MINIMUM REQUIREMENTS FOR THE  
HANDLING AND TREATMENT OF CONFIDENTIAL INFORMATION**

Contractor shall meet the following minimum requirements relative to project information that is identified as **CONFIDENTIAL**.

**Authorized Personnel:**

Contractor shall require that all authorized individuals or entities (e.g., employees, consultants, sub-consultants, sub-contractors, suppliers and agents) ("Authorized Personnel") to which it discloses **CONFIDENTIAL** information sign a Confidentiality and Nondisclosure Agreement ("Agreement"). Such Agreement shall provide that Authorized Personnel: are personally responsible at all times for protecting **CONFIDENTIAL** information that is in their possession or control; must always use proper precautions to safeguard against the unauthorized access and disclosure of **CONFIDENTIAL** information; must notify Contractor of any known or suspected instances of loss or theft of, or unauthorized access to, **CONFIDENTIAL** information; and must return all **CONFIDENTIAL** information to Contractor upon completion of the project. Contractor shall be responsible for enforcing the provisions of such Agreement through personal observation and supervision of Authorized Personnel and utilization of appropriate processes.

Contractor shall maintain a list of all Authorized Personnel which have access to **CONFIDENTIAL** information and must provide the Authority with such list upon the Authority's request. Contractor shall update such list monthly and notify the Authority of any changes in such list.

**Inventory Control:**

Contractor shall create and maintain an inventory of all **CONFIDENTIAL** information that it provides to Authorized Personnel. Upon completion of the project, Contractor shall check all **CONFIDENTIAL** information returned from Authorized Personnel against the inventory. Contractor shall provide a copy of the checked inventory to the Authority.

**Use and Storage:**

Contractor shall implement reasonable processes during normal working hours to prohibit unauthorized individuals from gaining access to **CONFIDENTIAL** information that is within the Contractor's custody and control. At times other than normal working hours, Contractor shall store **CONFIDENTIAL** information in a secure area, such as a fire-proof safe, locked desk, cabinet or other secure storage facility, where access can be controlled. Contractor shall control the access that Authorized Personnel have to **CONFIDENTIAL** information stored in such secure areas through the use of manual or automated locks and keys. Contractor shall maintain a list of Authorized Personnel who have access to such secure areas and the specific **CONFIDENTIAL** information therein.

**Reproduction:**

Contractor may reproduce **CONFIDENTIAL** information only to the extent necessary to carry out contract performance. Contractor must stamp/mark all **CONFIDENTIAL** information that is reproduced with the word **CONFIDENTIAL** and protect it in the same manner as the original.

**Transportation:**

To the extent feasible and reasonable, Contractor shall hand deliver **CONFIDENTIAL** information with instructions that only the addressee is allowed to open or view it. Contractor may send **CONFIDENTIAL** information that cannot be hand delivered via the U.S. Postal Service or express mail services (e.g., FEDEX) provided: it is packaged and sealed in a way that does not disclose its contents or the fact that it is **CONFIDENTIAL** information, and a signature from the recipient is required.

Under no circumstances shall a transportation method be used that cannot guarantee that **CONFIDENTIAL** information is accessed only by the intended recipient.

**Disposal:**

Contractor shall dispose of all **CONFIDENTIAL** information, regardless of its form or format, using a destruction method that prevents its unauthorized retrieval (e.g., crosscut or micro shredding, degaussing).

**Loss, Theft or Unauthorized Access:**

Contractor shall provide timely notice to the Authority upon discovery of any incident involving the loss or theft of, or unauthorized access to, **CONFIDENTIAL** information.

**SPECIAL NOTE:**  
**CONTROL OF MATERIALS**

The Contractor's attention is directed to the TA Addendum, Section 106 – CONTROL OF MATERIAL, available from the Authority's website at: <http://www.thruway.ny.gov/business/addendum/index.html>. The Contractor understands and agrees that some or all of the off-site inspection and approval of material such as precast concrete items, structural steel, bridge bearings, concrete structural elements and/or their components to be used on this project will be done by the New York State Department of Transportation (NYSDOT) as the Authority's agent.

The Contractor agrees to the following conditions:

1. Whenever the Contractor receives direction from the NYSDOT regarding the approval/rejection of material that direction constitutes direction by the Authority under the contract and, shall be final and accepted as such by the Contractor.
2. The Contractor will not allow off-site materials subject to inspection and approval of NYSDOT to be shipped to the project site without direct authorization from the NYSDOT.
3. At the Pre-Award Meeting or as soon as practicable, but in any case, before the Pre-Construction Conference, the Contractor will provide the following information to the Thruway Authority's Director, Office of Construction Management, for transmittal to NYSDOT to arrange off-site inspections:
  - A. The name and address of each Manufacturer of all materials, and portions thereof, requiring off-site quality assurance to be incorporated into this highway project.
  - B. The name and address of each Fabricator fabricating each steel item or any portion thereof to be incorporated into this highway project.
  - C. The name and address of each Fabricator manufacturing structural pre-cast/pre-stressed items or any portion thereof to be incorporated into this highway project.
4. The Contractor agrees that it and its Subcontractors and Suppliers will acquire all materials to be incorporated into this Thruway project **only** through Manufacturing, Batching and Fabrication facilities approved by NYSDOT.

## AVAILABILITY OF ELECTRONIC BID DATA

### 1. SUMMARY:

The New York State Thruway Authority (NYSTA) uses Project Bids Software for electronic bidding. Project Bids is a product of the American Association of State Highway and Transportation Officials (AASHTO) that is currently used by the majority of State Departments of Transportation. It is provided free of charge and can be used on almost any Windows-compatible PC. It integrates with many existing electronic bid preparation software and has import/export capability for use with database and spreadsheet systems. Project Bids allows bidders to receive electronic proposal bid item information from the NYSTA's internet web site and to produce both an electronic and a paper-based bid.

For additional information and downloads, see the NYSTA website at:  
<http://www.nysthruway.gov/business/contractors/expedite/index.html>.

### 2. PARTICIPATION AND RELATIONSHIP TO PAPER DOCUMENTS:

The Authority's adoption of electronic bidding does not force any Contractor to bid electronically. Rather, participation is voluntary. If submitting a bid using infotech's Bid Express internet bidding service, no paper is required. If submitting an electronic bid on a CD, DVD or USB device delivered to the Authority in person or via a courier service, **bidders must also submit print outs that match the electronic file**. Project Bids prints a check code on every bid page that must match the check code in the computer file. As the check code changes every time the electronic file is modified, matching the codes verifies that the data on the printed bid is the same as in the electronic file. **In case of discrepancy, the printouts always prevail and are the primary legal document. Therefore, the printouts can be used to make any last-minute changes.**

### 3. THIRD-PARTY SOFTWARE:

The NYSTA endorses no particular product but expects all such vendors and individuals to voluntarily keep pace with changes in NYSTA specifications.

### 4. PROPOSAL NOTES AND CHANGES BY AMENDMENT:

**Contractors are solely responsible for recognizing and properly responding to any and all special notes and circumstances printed in the Contract Proposal and any and all changes by amendment from the amendment documents and/or notices communicated to them by the NYSTA's Contracts Unit.**

**Amendments are posted online at:** [www.thruway.ny.gov/business/contractors/documents/index.shtml](http://www.thruway.ny.gov/business/contractors/documents/index.shtml).

Whenever an amendment is issued, a Project Bids amendment file will also be issued and must be applied to your electronic bid. Do not bid without carefully reviewing the printed proposal and any and all changes by amendment. Proposal notes and circumstances include, but are not limited to, printed information on alternate, fixed and/or limited cost items and/or special circumstances regarding item placement and use.



**SPECIAL NOTE:****REQUIREMENTS FOR CONTRACTOR'S UTILIZATION OF AREAS  
OUTSIDE OF THE RIGHT-OF-WAY**

1. Before the contractor can utilize any area outside of the NYS Thruway Authority (NYSTA) Right of Way (or outside of a temporary easement obtained for the project by the NYSTA), for any work associated with this project, written approval to do so shall be obtained from the NYS Thruway Authority through the Project Engineer. The contractor's request for approval shall be in writing and the Authority shall be allowed 2 weeks to review the request and respond.
2. This requirement applies to areas such as, but not limited to: borrow areas, spoil areas, equipment and/or material storage areas, haul roads, batching areas, water points, shop areas, and all similar areas. This requirement does not apply to the Contractor's established and permanent headquarters, commercial borrow sources, commercial gravel pits, commercial quarries, and all similar areas.
3. The contractor's written request for approval shall include a letter report prepared by an Environmental Professional, acceptable to the Authority, documenting the investigation of the proposed site. The expectation is that an Environmental Professional visits the site, performs an assessment of the proposed use against all applicable environmental requirements, and then documents their findings and recommendations. The letter report shall include the following unless otherwise authorized by the Authority:
  - a) A written description of the activities the contractor wishes to perform at the proposed site, including timeframes.
  - b) Maps showing Federal and State regulated wetlands. The area proposed for use shall be depicted on each map.
  - c) A site location map which accurately shows the area proposed for use, adjacent property boundaries/owners, the location of all wetland boundaries observed, and any required erosion and sediment control measures. If present, wetlands shall be delineated in the field by the Environmental Professional with stakes and ribbon, and wetland delineation data forms shall be completed.
  - d) A written statement prepared by the Environmental Professional regarding the presence of any rare animals or plants or significant natural communities. The Environmental Professional shall use the NYSDEC Environmental Resource Mapper to make this determination. If any rare species are identified, then determine if the rare species are listed as endangered or threatened and whether the NYSDEC determines the proposed use may be harmful to the species or their habitat. If so, address to the satisfaction of the NYSDEC.
  - e) A copy of the applicable SPDES permit and any local municipal permits related to use of the site.
  - f) A listing of other Environmental Permits which were obtained by the Authority for the project. These are referenced in the contract proposal.
  - g) A completed NYSTA Property Release form. The form is available through the Project Engineer.
  - h) A plan showing all restoration work. This includes, but is not limited to, plans for grading, surface restoration details, and erosion and sediment control.
4. This requirement does not waive other provisions of the contract related to use of lands outside the Right of Way. Rather, it shall be viewed as supplementary. The following contract provisions still remain in effect:

§107-08 Protection and Restoration of Property and Landscape, Subsection B. Outside the Right of Way  
 §107-10 Managing Surplus Material and Waste

**COMPLIANCE WITH SPDES REGULATIONS**

The Contractor is advised that the NYS Thruway Authority has evaluated Stormwater requirements for this project and has determined that coverage is not warranted under NYS Department of Environmental Conservation's SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001). The Contractor shall read and understand the requirements of GP-0-20-001. In the event the Contractor's operations, e.g., clearing and grubbing, expanded staging area; will cause an increase in ground disturbance beyond the amount identified in the Contract Documents, coverage under GP-0-20-001 may be required. Prior to commencing these operations, the Contractor should immediately advise the Project Engineer, who will in turn discuss the request with the Project Designer and Division Environmental Specialist or Environmental Point of Contact.

- In the event coverage is required under GP-0-20-001 as a result of these operations, the Contractor will be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit a Notice of Intent (NOI) with the NYS Department of Environmental Conservation.
- In the event coverage is required under GP-0-20-001 as a result of changes made by the Authority, the Authority will be required to prepare a SWPPP and submit a NOI.

In either case, the Contractor will not be allowed to proceed until verification of coverage under GP-0-20-001 has been provided to the Project Engineer. The Contractor shall make no claim against the Authority for delays resulting from preparing a SWPPP, filing a NOI, and seeking verification of permit coverage.

**SPECIAL NOTE**  
**EMBODIED CARBON REPORTING and ENVIRONMENTAL PRODUCT DECLARATIONS (EPDs)**

Projects must comply with all applicable New York State (NYS) laws and policies to reduce the embodied carbon in building and infrastructure projects, including New York State Executive Order 22 (2022).

These laws and policies require Contractors to submit Environmental Product Declarations (EPDs) for certain building and construction materials supplied to State contracts. EPDs must be Product-specific Type III (Third Party Reviewed), in adherence with ISO 14025 *Environmental Labels and Declarations*, ISO 14044 *Environmental Management – Life Cycle Assessment*, and ISO 21930 *Core Rules for Environmental Product Declarations of Construction Products and Services*. Supply Chain-specific data should be used when available.

For permanently incorporated and temporary use construction materials manufactured and supplied for projects let after December 18, 2024, the Contractor shall ensure that all available EPDs are collected and submitted for asphalt mixtures, concrete mixtures (excluding precast), glass, and steel items when the quantity supplied to the project exceeds the values listed below. Units that are given in this document may differ from units listed in pay items and therefore, the Contractor must perform the necessary quantity conversion(s).

| Construction Material                                                                                                                        | Minimum Quantity for Reporting<br>(for Transportation Projects)                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete mixes                                                                                                                               | 200 cubic yards or more (per mix design)                                                                                                                                |
| Asphalt mixes                                                                                                                                | 8,000 short tons or more (per mix design)                                                                                                                               |
| Steel<br>i. Rebar<br>ii. Hollow Structural Sections<br>iii. Fabricated Steel Plate<br>iv. Hot-Rolled Sections<br>v. Cold-Formed & Galvanized | 20,000 pounds or more for rebar (category i.),<br>per fabrication location<br><br>15,000 pounds or more for all others<br>(categories ii – v), per fabrication location |
| Glass<br>i. Flat Glass<br>ii. Processed Glass<br>iii. Insulated Glazing Units                                                                | 2,000 square feet or more                                                                                                                                               |

The Contractor is not required to develop an EPD if one has not been developed by or for the manufacturer or supplier.

For projects that are active during the State Fiscal Year (April 1 - March 31) and are expected or known to meet the minimum quantities for reporting over the duration of the entire project, the Contractor shall complete and submit a “Contractor EPD Material Reporting Form” (Excel .xlsx format). The form is available on the Thruway Authority website at <https://www.thruway.ny.gov/business/contractors/forms/index.html#contractor>. The Contractor must submit the Contractor EPD Material Reporting form and all EPD(s) collected for the project to the Authority by emailing them to [CarbonReports@thruway.ny.gov](mailto:CarbonReports@thruway.ny.gov), with the Contract D number in the subject line of all e-mails. Questions about completing the form can be directed to the same e-mail address.

**SPECIAL NOTE****DIESEL EMISSION REDUCTION ACT (DERA) REGULATORY COMPLIANCE**

All New York State Thruway Authority (NYSTA) Contractors are made aware that Environmental Conservation Law (ECL) 19-0323 and the New York State Department of Environmental Conservation (NYSDEC) regulation 6 NYCRR Part 248 *Use of Ultra Low Sulfur Diesel (ULSD) Fuel and Best Available Retrofit Technology (BART) for Heavy Duty Vehicles* requires 100% compliance as of December 31, 2019 of all regulated heavy duty diesel vehicles working on all State awarded contracts. A link to NYSDEC's Part 248 Annual Reporting Requirements which states the current deadlines is located at: <https://dec.ny.gov/regulatory/regulations/chapter-iii>. NYSTA and its Contractors are responsible for annual reporting.

All NYSTA Contractors shall make determinations of regulatory applicability for vehicles in their inventory used on active NYSTA contracts during each reporting year. These determinations shall be based on the definition of Heavy Duty Vehicle (HDV) including on and off road diesel vehicles having gross vehicle weights in excess of 8,500 pounds, excluding vehicles that are exempt as defined in 6 NYCRR 248-1.1(b)(14). Contractors shall also quantify ULSD fuel used by regulated vehicles in active contract work during the reporting year.

An electronic copy of 6 NYCRR Part 248 can be accessed at <http://www.dec.ny.gov/regs/2492.html>. Electronic copies of the Regulated Entity Vehicle Inventory Form and the Regulated Entity and Contractors Annual Report Form can be accessed under Part 248 – Use of Ultra Low Sulfur Diesel Fuel and Best Available Retrofit Technology for Heavy Duty Vehicles at the following link:  
<https://www.dec.ny.gov/fs/docs/spreadsheets/248annrptfrm.xlsx>.

To allow for required reports to be submitted to NYSDEC by the regulatory deadline of November 1, each year, NYSTA Contractors shall submit DERA annual reports to NYSTA by October 1, of every year reporting the required information from the previous reporting year (i.e., all 2019/2020 information to NYSTA by October 1, 2020, etc.). The following numbered information shall be submitted:

1. Inclusion of “DERA” and calendar year being reported in subject line of email
2. Contact information including firm name, contact person, phone number and e-mail
3. Estimated annual total quantity of ULSD fuel used by covered vehicles on NYSTA contracts
4. Required Fleet information for covered vehicles on NYSTA contracts

Electronic mail submissions can be sent to [dieselreport@thruway.ny.gov](mailto:dieselreport@thruway.ny.gov)

**SPECIAL NOTES****GREEN CONSTRUCTION REQUIREMENTS****ULTRA LOW SULFUR DIESEL FUEL**

In order to reduce diesel emissions, the Contractor shall use Ultra Low Sulfur Diesel (ULSD) fuel to operate all diesel engines used to complete the work that will operate for 10 hours or more on the contract site. ULSD fuel requirements shall apply to:

- All diesel engines/equipment.
- Stationary and mobile equipment.
- Owned, leased and rented equipment.

The hours the piece of equipment is used to complete the work is defined as the actual time the engine is running. The time may be continuous or discontinuous and includes warm-up periods idling, in traffic periods, etc.

The Contractor shall repair deficiencies when any diesel powered construction equipment is in non-compliance. When non-compliance items are identified by NYSTA/CC, the Contractor will be notified for correction within a 24-hour period.

**SPECIAL NOTES****GREEN CONSTRUCTION REQUIREMENTS****CONTROLLING EXPOSURE TO DIESEL EXHAUST**

The Contractor shall exercise measures to protect “Sensitive Receptors” from the impacts of diesel exhaust fumes. Sensitive Receptors include, but are not limited to: hospitals, schools, daycare facilities, building fresh air or ventilation intakes, elderly housing or convalescent facilities. The Contractor shall ensure that diesel powered engines are located away from building air conditioners and windows.

The goal is to minimize exposure of Sensitive Receptors in close proximity to diesel exhaust, in terms of both concentration and time. In general, close proximity is defined as within 15 meters of a Sensitive Receptor. Mitigation techniques include positioning stationary equipment exhausts greater than 15 meters from Sensitive Receptors, extension of equipment exhausts through the use of flexible tubing; protecting building air intakes; and the use of moving operations.

Idling time for diesel powered equipment shall be limited to three consecutive minutes for delivery and dump trucks and all other diesel powered equipment except as follows:

- When a “mobile source” (vehicle) is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control.
- When it is necessary to operate a loading, unloading or processing device.
- When the outdoor temperature is less than - 3°C (27°F).
- When the “mobile source” is being repaired.

Arrow panels and portable variable message signs shall be solar powered wherever possible or practical.

Whenever possible and practicable, the Contractor shall establish staging areas for diesel powered vehicles waiting to load or unload materials at the work site. Such areas shall be located where diesel emissions have the least impact on Sensitive Receptors and the general public.

**SPECIAL NOTES****GREEN CONSTRUCTION REQUIREMENTS****DUST CONTROL**

The Contractor shall minimize dust from disturbed soil surfaces or other materials that can cause off-site damage, health hazards and traffic safety problems. Dusty conditions resulting from the Contractor's operations shall be corrected at no additional cost to the State. Buffer areas of vegetation should be left where practical. Water quality shall be considered when selecting materials for dust control. An approved dust palliative may be used in conformance with applicable conditions placed on its use. A list of acceptable dust palliatives is available at: [www.nysdot.gov/divisions/engineering/technical-services/geotechnical-engineering-bureau/dust-palliatives](http://www.nysdot.gov/divisions/engineering/technical-services/geotechnical-engineering-bureau/dust-palliatives) .

For areas not subject to traffic, products and materials may be applied or placed on soil surfaces to prevent airborne migration of soil particles, including:

- Vegetative Cover –provides the most practical method of dust control.
- Mulch (including rolled erosion control products) –provides a fast, effective method of dust control.
- Spray Adhesives –Generally composed of polymers in a liquid or solid form mixed with water to form an emulsion that is sprayed on the soil surface. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. Adhesives shall not be applied to wet soils or if there is a probability of precipitation within 48 hours.

For areas subject to traffic (traveling public or construction traffic) products and materials may be applied or placed on soil surfaces to prevent airborne migration of soil particles, including:

- Water Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access routes.
- Polymer Additives –Polymers shall be mixed with water and applied to the driving surface using mixing ratios and application rates in accordance with the manufacturer's recommendations. No application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Any polymers must be used in accordance with the NYSDEC issued "Conditions for Use" and "Application Instructions." This information can be obtained from the NYSDEC website.
- Barriers – Woven geotextiles or stone can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads.
- Windbreak – A silt fence or similar barrier can control air currents at horizontal intervals equal to ten times the barrier height. Preserve existing vegetation that acts as a wind barrier as much as practical.
- Wheel Washing – Mechanical or manual wet-method cleaning of on-road construction vehicle tires prior to leaving site.

**SPECIAL NOTE****GENERATOR KNOWLEDGE FOR DISPOSAL OF TREATED WOOD**

The U.S. Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (NYSDEC) technique for evaluating whether a material is hazardous for toxicity is the Toxicity Characteristic Leaching Procedure (TCLP). TCLP testing of pentachlorophenol (“penta”) and creosote treated wood by the Electric Power Research Institute, Association of American Railroads, and others has conclusively demonstrated that treated wood products are not a hazardous waste. Under EPA’s and NYSDEC’s rules, such “generator knowledge” can be utilized in place of testing to determine that a waste is not hazardous. This information can be used as evidence that treated wood products can be disposed as non-hazardous waste, based on generator knowledge, in lieu of physical testing.

Generator knowledge information, obtained from the American Wood Preservers Institute (AWPI) can be viewed at their web site located at [www.awpi.org](http://www.awpi.org) . AWPI’s information comes from studies conducted by the Electric Power Research Institute (EPRI), the Washington Public Ports Association (WPPA), and the Association of American Railroads (AAR). EPRI test results are for both penta-treated and creosote-treated wood. WPPA and AAR test results are for creosote-treated wood.

*NOTE:* Arsenically-treated (*e.g.*, chromated copper arsenate [CCA]) wood products disposed by the end user are exempt from classification as a federal hazardous waste regardless of the TCLP results for specified constituents from any individual sample. Also, wood products treated with preservatives that contain no TCLP constituents (*e.g.*, Kodiak Preserved Wood containing Copper Dimethyldithiocarbamate) are not hazardous waste.



**SPECIAL NOTES**  
**FOREST INSECT DISEASE CONTROL**

**MOVEMENT OF WOOD MATERIALS FROM PROJECT SITES**

Pursuant to New York State Department of Environmental Conservation (NYSDEC) Regulations, 6NYCRR, part 192.5, *Firewood Restrictions to Protect Forests from Invasive Species*, it is unlawful to transport any firewood material more than 50 miles from its point of origin to limit the spread of invasive insect species. “Firewood” shall mean all wood of any species, cut or not cut, split or not split, regardless of length which is (a) in a form and size appropriate for use as a fuel, or (b) which is destined for use as a fuel. Firewood shall not include kiln-dried dimensional lumber, wood that has been chipped to a maximum piece size that is no greater than 1-inch in two dimensions, or logs or wood being transported to sawmills or other manufacturing facilities for use in their primary operations. All Thruway Authority (TA) projects are subject to this requirement. Additional information can be found at the following link: <http://www.dec.ny.gov/regs/4079.html>

If firewood is to be moved within 50 miles of its point of origin a “Self-Issued Certificate of Origin for Transport and Possession of Untreated Firewood” must be completed. This form can be found at the following link: [http://www.dec.ny.gov/docs/lands\\_forests\\_pdf/selfisscert.pdf](http://www.dec.ny.gov/docs/lands_forests_pdf/selfisscert.pdf)

**INVASIVE SPECIES AND QUARANTINE MATERIALS MOVEMENT**

NYSDEC Regulations, 6NYCRR, part 192.6, *Quarantine Orders*, No person shall fail to comply with the provisions of any quarantine order issued by the Department pursuant to Environmental Conservation Law (ECL) section 9-1303. To the extent the provisions of section 192.5 *Firewood Restrictions to Protect Forests from Invasive Species* and such quarantine order are in conflict, the more restrictive provision shall apply. TA is under New York State and Federal ash quarantines where it is unlawful to transport any ash material outside of several counties (see quarantine maps at [http://www.agriculture.ny.gov/PI/eab/emerald\\_ash\\_borer\\_quarantine.pdf](http://www.agriculture.ny.gov/PI/eab/emerald_ash_borer_quarantine.pdf) and <http://www.dec.ny.gov/animals/47761.html>). Therefore, any parts of ash trees, including leaves, bark, stumps, limbs, branches, roots, and ash logs of any length, and firewood (see above for definition of firewood) from ANY tree species, are all considered regulated articles and must be handled properly. Tree-felling, clearing and grubbing operations at project sites may result in the contractor’s need to handle materials from ash tree species and/or firewood or chips from ANY tree species. To the greatest extent possible in areas of clearing and grubbing, ash trees should be pre-identified and marked prior to commencement of construction to promote the proper handling of these materials.

Un-infested ash materials in any form may be moved offsite, but only within the quarantine zone. Firewood from ANY tree species may never be moved more than 50 miles and never from the quarantine area, into non-quarantine areas. Transport of any wood needs the required transport certificate: [http://www.dec.ny.gov/docs/lands\\_forests\\_pdf/selfisscert.pdf](http://www.dec.ny.gov/docs/lands_forests_pdf/selfisscert.pdf)

Note: According to the quarantine maps, several parts of the Thruway are the boundary between the quarantine area (south) and the non-quarantine area (north). Therefore, transport of any wood material would be prohibited across the roadway from south to north, but acceptable from north to south.

Note: Any ash materials that are known or suspected to be infested with live emerald ash borer pests in any life stage must be reported immediately to the EIC and/or designee for further appropriate action and coordination with regulatory agencies.

**SPECIAL NOTES**  
**FOREST INSECT DISEASE CONTROL**

Any ash materials chipped to a size no greater than 1-inch in at least two dimensions is considered safe to be transported outside the quarantine zone, but only in accordance with a Chip/Mulch Agreement and Transport Agreement received from the NYS Department of Agriculture and Markets (NYSDAM). If any regulated ash materials must be moved outside of the currently quarantined area, a certification from the NYS Department of Agriculture and Markets (NYSDAM) or USDA Animal & Plant Health Inspection Service (APHIS) must be obtained. For further information see the following links:

<http://www.dec.ny.gov/animals/47761.html>

<http://www.agriculture.ny.gov/PI/eab.html>

**MARKER RELOCATION DURING CONSTRUCTION**  
**EXISTING MILE MARKERS AND TENTH-MILE MARKERS AND DELINEATORS**

All mile markers and tenth-mile markers are to be maintained during construction of this project. The Contractor will be allowed to temporarily relocate them to avoid damage to them or for constructability purposes. The mile markers and tenth-mile markers may be moved but the new location must be visible to traffic and be reasonably close to their original location. The mile markers must be returned to their original location upon completion of construction at that location. Cost for this work shall be included in the bid price for the various pay items in the contract, unless the work is specifically called for in the contract documents.

If the contract calls for replacement of existing mile markers and/or tenth-mile markers, they shall remain in place, or reset to a location reasonably close to their original location, until the new markers are installed.

**SPECIAL NOTE****BIRD / BAT WASTE AWARENESS**

The Contractor should be aware that there may be bird/bat waste in the work area. The waste may contain trace amounts of metals and the fungus *Histoplasma capsulatum*. Exposure to this fungus can result in the disease histoplasmosis. Proper health and safety precautions shall be identified in the contractor's health and safety plan in accordance with section 107-05. The disposal facility that accepts the bird/bat waste may need documentation as to its composition to determine that it is non-hazardous and/or otherwise suitable for disposal at that location.

# **Compliance Requirements and Procedures**

*For Participation of  
Disadvantaged/Minority/Women/Service-Disabled Veteran-Owned  
Business Enterprises  
and  
Equal Employment Opportunity  
on  
NYS Thruway Authority Contracts  
(DBE/MWBE/SDVOB/EEO)*

**CONTRACT GOALS FOR DBE/MWBE/SDVOB PARTICIPATION**

The New York State Thruway Authority herein after, (“Authority”) is committed to providing and ensuring Minority-owned Business Enterprises (MBE), Women-owned Business Enterprises, (WBE) Service-Disabled Veteran-owned Business Enterprises (SDVOB) and Disadvantaged Business Enterprises (DBE) with opportunities to participate in the Authority’s contracting and procurement processes in accordance with Title 49, Part 26 of the United States Code of Federal Regulations (CFR), New York State Executive Law, Articles 15-A, 17-B, and all applicable federal and state laws, rules, regulations and Executive Orders, including but not limited to Executive Order 177 - Prohibiting State Contracts with Entities that Support Discrimination, as incorporated herein and/or contained in the NYS Department of Transportation Standard Specifications Section 102, “Bidding Requirements and Conditions” to the extent applicable to the contract.

Goal(s) have been established for this Contract/Agreement, expressed as a percentage of the total Contract/Agreement amount as follows:

**Disadvantaged Business Enterprise - DBE** (Federal-Aid)

Disadvantaged Business Enterprise (DBE) Participation Goal: \_\_\_\_\_%

Directories and/or Information related to the current certification status of Disadvantaged Business Enterprises can be obtained from the New York State Certified DBEs website at: <https://nysucp.newnycontracts.com>

**Minority/Women-Owned Business Enterprise - MWBEs** (Non Federal-Aid)

Minority Business Enterprise (MBE) Participation Goal \_\_\_\_\_ 8 %

Women's Business Enterprise (WBE) Participation Goal \_\_\_\_\_ 8 %

Directories and/or information related to the current certification status of Minority/Women Business Enterprises can be obtained from the New York State Certified MWBE website at: [ny.newnycontracts.com](http://ny.newnycontracts.com)

**Service-Disabled Veteran-Owned Business Enterprise (SDVOB)**

Service-Disabled Veteran-Owned Business Participation Goal \_\_\_\_\_ 3 %

Directories and/or information related to the current certification status of Service-Disabled Veteran Business Enterprises can be obtained from the New York State Certified SDVOB website at: [ogs.nv.gov/veterans/](http://ogs.nv.gov/veterans/)

**Equal Employment Opportunity**

Minority \_\_\_\_\_ 0 %

Female \_\_\_\_\_ 0 %

For more information about the development of the goals, see Federal Register, Vol. 45, No. 194, at 65976-65991 (October 3, 1980) (minorities) and Federal Register, Vol. 45, No. 251 at 85750-85751 (December 30, 1980) (females). The text of these Federal Register notices can be found: • Federal Register Notice: Vol. 45, No. 194, at 65976-65991 (October 3, 1980)

Training Special Provisions \_\_\_\_\_ Yes ☒ No

Training/Special Provision supplements each of the foregoing prescribed specific Equal Employment Opportunity percentage goals for utilization of minorities and women in the performance of work for the geographic location of the contract, included in this Proposal entitled “Equal Employment Opportunity (EEO) Requirements.”

## CHART A

## GOALS FOR MINORITY PARTICIPATION

| County            | %   | County           | %    | County             | %    |
|-------------------|-----|------------------|------|--------------------|------|
| Albany .....      | 3.2 | Herkimer .....   | 2.1  | * Richmond         |      |
| Allegany.....     | 6.3 | Jefferson .....  | 2.5  | Rockland .....     | 22.6 |
| Broome .....      | 1.1 | * Kings          |      | St. Lawrence ..... | 2.5  |
| * Bronx           |     | Lewis .....      | 2.5  | Saratoga .....     | 3.2  |
| Cattaraugus ..... | 6.3 | Livingston ..... | 5.3  | Schenectady .....  | 3.2  |
| Cayuga .....      | 2.5 | Madison .....    | 3.8  | Schoharie .....    | 2.6  |
| Chautauqua .....  | 6.3 | Monroe .....     | 5.3  | Schuyler .....     | 1.2  |
| Chemung .....     | 2.2 | Montgomery ..... | 3.2  | Seneca .....       | 5.9  |
| Chenango .....    | 1.2 | Nassau .....     | 5.8  | Steuben .....      | 1.2  |
| Clinton .....     | 2.6 | * New York       |      | Suffolk .....      | 5.8  |
| Columbia .....    | 2.6 | Niagara .....    | 7.7  | Sullivan .....     | 17.0 |
| Cortland .....    | 2.5 | Oneida .....     | 2.1  | Tioga .....        | 1.1  |
| Delaware .....    | 1.2 | Onondaga .....   | 3.8  | Tompkins .....     | 1.2  |
| Dutchess .....    | 6.4 | Ontario .....    | 5.3  | Ulster .....       | 17.0 |
| Erie .....        | 7.7 | Orange .....     | 17.0 | Warren .....       | 2.6  |
| Essex .....       | 2.6 | Orleans .....    | 5.3  | Washington .....   | 2.6  |
| Franklin .....    | 2.5 | Oswego .....     | 3.8  | Wayne .....        | 5.3  |
| Fulton .....      | 2.6 | Otsego .....     | 1.2  | Westchester .....  | 22.6 |
| Genesee .....     | 5.9 | Putnam .....     | 22.6 | Wyoming .....      | 6.3  |
| Greene .....      | 2.6 | * Queens         |      | Yates .....        | 5.9  |
| Hamilton .....    | 2.6 | Rensselaer ..... | 3.2  |                    |      |

\* The following goal ranges are applicable to the indicated trades in the Counties of Bronx, Kings, New York, Queens and Richmond.

|                                 |              |                                |              |
|---------------------------------|--------------|--------------------------------|--------------|
| Electricians.....               | 9.0 to 10.2  | Bricklayers.....               | 13.4 to 15.5 |
| Carpenters .....                | 27.6 to 32.0 | Asbestos workers.....          | 22.8 to 28.0 |
| Steam fitters .....             | 12.2 to 13.5 | Roofers .....                  | 6.3 to 7.5   |
| Metal lathers.....              | 24.6 to 25.6 | Iron workers (ornamental)..... | 22.4 to 23.0 |
| Painters.....                   | 26.0 to 28.6 | Cement masons.....             | 23.0 to 27.0 |
| Operating engineers .....       | 25.6 to 26.0 | Glaziers.....                  | 16.0 to 20.0 |
| Plumbers .....                  | 12.0 to 14.5 | Plasterers .....               | 15.8 to 18.0 |
| Iron workers (structural) ..... | 25.9 to 32.0 | Teamsters.....                 | 22.0 to 22.5 |
| Elevator constructors .....     | 5.5 to 6.5   | Boilermakers .....             | 13.0 to 15.5 |
| All others .....                |              | 16.4 to 17.5                   |              |

## GOALS FOR FEMALE PARTICIPATION

Goal \_\_\_\_\_ 6.9%

## **COMPLIANCE REQUIREMENTS AND PROCEDURES**

It is the policy of the New York State Thruway Authority (“Authority”) to comply with the provisions of Article 15-A of the New York State Executive Law, which requires that every contract over \$25,000 will afford equality of economic opportunities for minority group members and women, the facilitation of participation by minority-owned business enterprises and women-owned business enterprises. The Authority shall establish separate goals for participation of certified minority-owned business enterprises and women-owned business enterprises on all Authority contracts where applicable.

In addition, it is the policy of the Authority to ensure participation of DBEs on Federal-Aid contracts, pursuant to the provisions of Title 49, Part 26 of the United States Code of Federal Regulations.

Article 17-B of the New York State Executive Law provides for more meaningful participation in public procurement by certified Service-Disabled Veteran-Owned Business Enterprises (“SDVOBs”); thereby further integrating such businesses into New York State’s economy. The Authority recognizes the need to promote the employment of service-disabled veterans and to ensure that certified SDVOBs have opportunities for maximum feasible participation in the performance of Authority contracts.

The Authority is further committed to providing equal training and employment opportunities to minorities and women to participate in the Authority’s contracting and procurement processes, and by ensuring nondiscrimination in accordance with Appendix A - Standard Clauses for New York State Thruway Authority Contracts, including Clause 4 – Non-Discrimination Requirements, Clause 11 - Equal Employment Opportunities for Minorities and Women, Executive Order 11246, Executive Order 177, Training/Special Provisions and/or all applicable, federal, state, laws, rules, regulations and Executive Orders.

### **1. GENERAL PROVISIONS**

- A. The Contractor and/or all subcontractors/subconsultants, shall comply with the applicable laws, rules, regulations and provisions governed by this Contract/Agreement, in addition to any nondiscrimination or diversity practices and provisions of the Contract/Agreement at no additional cost to Authority.
- B. These provisions and requirements shall be included in all subcontracting/subconsultant contracts/agreements so that these requirements and provisions shall be binding upon all subcontractors/subconsultants, performing work under this Contract/Agreement.
- C. The Contractor/Consultant represents and warrants that, as a condition for award of the Contract, the Contractor/Consultant has submitted a Statewide Utilization Management Plan (“SUMP”) via the NYS Contract System (NYSCS) if required by Authority, which lists all proposed Subcontractors/ subconsultants including an identification of the NYS certified DBE/MWBE/SDVOB subcontractors/subconsultants/ suppliers the Contractor/Consultant intends to use to perform the Work of the Contract and to achieve the DBE/MWBE/SDVOB Contract Goals established in the Contract Documents. In addition, or alternatively, Contractor/Consultant may have submitted a request for a waiver. Prior to award of the Contract, the Authority approved Contractor’s/Consultant’s plan to achieve the DBE/MWBE/SDVOB Contract Goals established in the Contract Documents (DBE/MWBE/SDVOB Utilization Plan) to the extent the Authority did not approve Contractor’s/Consultant’s request for a waiver of part or all of the DBE/MWBE/SDVOB Contract Goals. The Authority approval of the DBE/MWBE/SDVOB Utilization Plan approves a Subcontractor/Subconsultant only for the purpose of the DBE/MWBE/SDVOB Utilization Plan.



## **MBE PROVISIONS FOR NON-FEDERAL AID CONTRACTS AND AGREEMENTS**

### **2. MINORITY/WOMEN-OWNED BUSINESS ENTERPRISES (MWBEs)**

In accordance with Article 15-A of the Executive Law, including regulations promulgated thereunder, the Authority has established the Minority-Owned Business Enterprise (“MBE”) and/or Women-Owned Business Enterprise (“WBE”) participation goals for this Contract/Agreement.. Contractor shall facilitate MWBE participation for the scopes of work to be performed under this Contract/Agreement, to satisfy the participation goals, or document good faith efforts taken to fulfill the goals in a manner prescribed by the Authority in accordance with the Compliance Requirements and Procedures specified herein.

The goals are applicable to the total amount payable under any Contract/Agreement awarded from this procurement and any changes made to the Contract/Agreement.

1. The Authority establishes MWBE goals for all applicable contracts. The MWBE goals for this Contract/Agreement are located on the “Contract Goals” page of this document and can also be found in the contractors/consultants documents for this Contract/Agreement.
2. For purposes of providing meaningful participation to certified MWBEs on this Contract/Agreement and in an effort to attain the certified MWBEs contract goals identified for this Contract/Agreement, the Contractor should reference the directory of MWBEs at the following internet address: [ny.newnycontracts.com](http://ny.newnycontracts.com).
3. The Contractor understands that only sums paid to MWBEs for the performance of a Commercially Useful Function, as that term is defined in 5 NYCRR § 140.1, may be applied towards the achievement of the applicable MWBE participation goal.

In the performance of this Contract/Agreement, the monetary value of fees, or markup percentage, charged by the MWBE shall be deemed to represent the Commercially Useful Function of the MWBE serving as a broker.

4. The Contractor agrees to provide, upon request by the Authority, documentation and/or evidence of actions taken to demonstrate “Good Faith Efforts,” in accordance with 5 NYCRR § 142.8, to provide meaningful participation by MWBEs as subcontractors and suppliers in the performance of this Contract/Agreement.

### **3. MWBE UTILIZATION REQUIREMENTS**

The Contract’s/Agreement’s MWBE goals have been established by the Authority based on certified MWBE availability, job assignments, services to be performed and/or type of work to be performed under the Contract/Agreement.

In the performance of this Contract/Agreement, 60% of the total participation value shall be deemed to represent the Commercially Useful Function of the MWBE serving as a supplier and the mark up and/or broker’s fee shall represent the Commercially Useful Function of the MWBE serving as a broker.

- A. The Contractor shall certify that the Utilization Plan identifies all subcontractors/subconsultants reflected on Exhibit D of the Contract/Agreement.
- B. The Contractor agrees to adhere to the approved MWBE Utilization Plan in the performance of the Contract/Agreement.

- C. The Contractor further agrees that failure to submit and/or adhere to such MWBE Utilization Plan shall constitute a material breach of the terms of the Contract/Agreement. Upon the occurrence of such a material breach, the Authority shall be entitled to any remedy provided herein, including but not limited to, a finding that the Contractor is non-responsible.

#### **Utilization Plan - All Subcontractors (TA-W1022)**

### **4. REPORTING**

The Contractor is required to submit forms TA-1023 or TA-W1059 on or before the 10<sup>th</sup> of each month, following the month being reported. Monthly reports must be submitted via email, to [Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov), however, during the term of the contract, the Contractor may arrange to provide such reports via a non-electronic method to the Authority by the 10<sup>th</sup> day following the end of each month during the term of the Contract/Agreement.

#### **TA-W1023 Payments to DBE/MWBE Subcontractor Firms**

### **5. COMPLIANCE**

The Contractor will comply with any procedures and guidelines established by the Director of the Division of Minority and Women-Owned Business Enterprise (hereinafter the Director) under the authority of New York State Governor's Executive Order 8, issued August 3, 1983 (hereinafter Executive Order 8) and will comply with any rules, regulations and orders of the Director as may be promulgated pursuant to or under the authority of Executive Order 8, or other applicable law or order.

### **6. MWBE WAIVERS**

- A. Prior to submission of a request for a partial or total waiver, Contractor shall speak to someone from the Authority's Office of Compliance for guidance.
- B. In accordance with 5 NYCRR § 142.7, a Contractor that is able to document good faith efforts to meet the goal requirements, as set forth herein, may submit a request for a partial or total waiver on Form TA-W1077, accompanied by supporting documentation. A Contractor may submit the request for waiver at the same time it submits its MWBE Utilization Plan.

Supporting documentation of good faith efforts shall include, but not be limited to:

1. Evidence of targeted and specific outreach to MWBEs;
2. Logs, written correspondence, records of telephone contacts and other information to document responses from MWBEs to the Contractor outreach;
3. Copies of advertisements for participation by MWBEs in appropriate general circulation, trade, and minority or women-oriented publications;
4. The dates of attendance at any pre-bid, pre-award, or other meetings, if any, scheduled by the Authority with MWBEs; and,

5. Information describing specific steps undertaken by the Contractor to reasonably structure the Agreement's scope of work to maximize opportunities for MWBE participation.
- C. If a request for waiver is submitted with the MWBE Utilization Plan and is not approved by the Authority at that time, the provisions of clauses (C - H) will apply.  
  
If the documentation included with the Contractor waiver request is complete, the Authority shall evaluate the request and issue a written notice of acceptance or denial within 20 business days of receipt.
  - D. Contractor shall attempt to utilize, in good faith, certified MWBEs, during the performance of the Contract/Agreement. Requests for a partial or total waiver of established goal requirements may be made to the Authority, at time of bid/proposal submission, subsequent to award of the Contract/Agreement or at any time during the term of the Contract/Agreement, but must be made no later than prior to the submission of a request for final payment on the Contract/Agreement.
  - E. If the Authority, upon review of the MWBE Utilization Plan and Monthly MWBE Form TA-1023 – Payments to DBE/MWBE/SDVOBs, determines that Contractor is failing or refusing to comply with the Contract's/Agreement's MWBE goals and no waiver has been granted in regards to such non-compliance, the Authority may issue a notice of deficiency to the Contractor.
  - F. The Contractor must respond to the notice of deficiency within seven business days of receipt. Such response may include a request for partial or total waiver of the Contract's/Agreement's MWBE goals.
  - G. If the Contractor, after making good faith efforts, is unable to achieve the MWBE goals stated herein, the Contractor may submit a request for a waiver to the Office of Compliance. Such waiver request must be supported by evidence of the good faith efforts by the Contractor to achieve the maximum feasible MWBE participation towards the applicable MWBE goals. If the documentation included with the waiver request is complete, the Authority shall evaluate the request and issue a written notice of approval or denial within twenty (20) business days of receipt.
  - H. If the Authority, upon review of the MWBE Utilization Plan and the forms TA-W1023 or TA-W1059 as described in Section 4, or any other relevant information, determines that the Contractor is noncompliant, deficient or failing to document the good faith efforts to meet the Contract's/Agreement's MWBE goals or requirements and no waiver has been issued in regards to such non-compliance, the Authority may issue a notice of deficiency to the Contractor. The Contractor must respond to the notice of deficiency letter within seven (7) business days of receipt. Such response may include a request for partial or total waiver of the Contract's/Agreement's MWBE goals.

Waiver requests shall be sent to the Authority's Office of Compliance at [Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov).

**Contractor Forms:**

Forms are located at: [thruway.ny.gov/business/contractors/forms/index.html](http://thruway.ny.gov/business/contractors/forms/index.html)

Questions regarding compliance with MWBE participation goals, requirements and provisions should be directed to the Authority's Office of Compliance.

**7. NON-COMPLIANCE**

- A. Where the Authority determines that the Contractor is not in compliance with the requirements specified herein and/or other contract requirements, refuses to comply with such requirements, or if the Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, the Contractor may be found in breach of the contract, which may result in withholding of any mobilization pay item and monthly estimates, a delay in award of the Contract/Agreement, a finding that the Contractor is non-responsible, and/or the Authority may impose liquidated damages.
- B. Such liquidated damages shall be calculated as an amount equaling the difference between:
  - 1. All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and
  - 2. All sums actually paid to MWBEs for work performed or materials supplied under the Contract/Agreement.
- C. In the event a determination has been made by the Authority, after Contractor has been afforded due process, which requires the payment of liquidated damages, Contractor shall pay such liquidated damages to the Authority within sixty (60) days after such determination or the Authority shall have the ability to withhold such amount from Contractor unless prior to the expiration of such sixtieth day, the Contractor has filed a complaint with the Director of the Division of Minority and Women's Business Development pursuant to 5 NYCRR § 142.12, in which event the liquidated damages shall be payable or withheld from the Contractor only in the event of a determination adverse to the Contractor following the complaint process.

## **SERVICE-DISABLED VETERAN-OWNED BUSINESS ENTERPRISES (SDVOB)**

Article 17-B of the New York State Executive Law provides for meaningful participation in public procurement by certified Service-Disabled Veteran-Owned Business Enterprises ("SDVOB"), thereby further integrating such businesses into New York State's economy. The Authority recognizes the need to ensure that certified SDVOBs have opportunities for maximum feasible participation in the performance of Authority contracts. In recognition of the service and sacrifices made by service-disabled veterans and in recognition of their economic activity in doing business in New York State, Contractor is required to foster participation of SDVOBs in the fulfillment of the requirements of the Contract/Agreement.

In accordance with Article 17-b of the Executive Law, including regulations promulgated thereunder, the Authority has established the SDVOB participation goals for this Contract/Agreement, set forth in the "Contract Goals" page of this agreement.

Contractor shall facilitate SDVOB participation for the scopes of work to be performed under this Contract/Agreement, and/or document good faith efforts taken to achieve the goals in a manner prescribed by the Authority in accordance with the Compliance Requirements and Procedures specified herein.

### **1. SDVOB GOALS**

The goals are applicable to the total amount payable under this Contract/Agreement and any changes made to the Contract/Agreement.

1. The Authority establishes SDVOB goals for all applicable contracts/agreements. The SDVOB goals for this Contract/Agreement are located on the "Contract Goals" page of this document and can also be found in the procurement documents pertaining to this Contract/Agreement.
2. For purposes of providing meaningful participation to certified SDVOBs on this Contract/Agreement and in an effort to attain the certified SDVOB goals for this Contract/Agreement, the Contractor should reference the directory of SDVOBs at the following internet address: [online.ogs.ny.gov/SDVOB/search](http://online.ogs.ny.gov/SDVOB/search)
3. Contractor must document "Good Faith Efforts" to provide meaningful participation by SDVOBs as subcontractors or suppliers in the performance of the Contract/Agreement (see clause 4 below).

### **2. SDVOB UTILIZATION PLANS**

A. In accordance with 9 NYCRR § 252.2(i), Bidders/Proposers are required to submit a completed SDVOB Utilization Plan on Form TA-W1022 within 10 business days of letting.

B. The Utilization Plan shall list the certified SDVOBs that the Contractor intends to use to perform work on the Contract/Agreement, a description of the work that the Contractor intends the SDVOB to perform to meet the goals on the Contract/Agreement, the estimated dollar amounts to be paid to a certified SDVOB, or, if not known, an estimate of the percentage of Contract/Agreement work the SDVOB will perform. By signing the Utilization Plan, the Contractor acknowledges that making false representations or providing information that shows a lack of good faith as part of, or in conjunction with, the submission of a Utilization Plan is prohibited by law and may result in penalties including, but not limited to, termination of a

contract for cause, loss of eligibility to submit future bids, and/or withholding of payments. Any modifications or changes to the agreed participation by SDVOBs after the award of the Contract/Agreement and during the term of the Contract/Agreement must be reported on a revised Utilization Plan and submitted to the Authority's Chief Compliance Officer for approval.

C. The Authority will review the submitted SDVOB Utilization Plan and advise the Contractor of the Authority's acceptance or issue a notice of deficiency within 20 business days of receipt.

D. If a notice of deficiency is issued, Contractor agrees that it shall respond to the notice of deficiency, within seven business days of receipt, by submitting to the Authority a written remedy in response to the notice of deficiency. If the written remedy that is submitted is not timely or is found by the Authority to be inadequate, the Authority shall notify the Contractor and direct the Contractor to submit, within five business days of notification by the Authority, a request for a partial or total waiver of SDVOB participation goals on Form TA-W1077 Contractor/Consultant Waiver Request. Failure to file the waiver request form in a timely manner may be grounds for disqualification of the bid or proposal.

E. The Authority may disqualify a Contractor's bid/proposal/letter of interest as being non responsive under the following circumstances:

- (a) If a Contractor fails to submit a SDVOB Utilization Plan;
- (b) If a Contractor fails to submit a written remedy to a notice of deficiency;
- (c) If a Contractor fails to submit a request for waiver; or
- (d) If the Authority determines that the Contractor has failed to document and/or demonstrate good faith efforts.

F. If Contractor is awarded a Contract/Agreement, Contractor certifies that it will follow the submitted SDVOB Utilization Plan for the performance of SDVOBs on the Contract/Agreement in accordance with the prescribed SDVOB compliance requirements and procedures for the Contract/Agreement goals set forth in this agreement.

G. Contractor further agrees that failure to use SDVOBs as agreed in the Utilization Plan shall constitute a material breach of the terms of the Contract/Agreement. Upon the occurrence of such a material breach, the Authority shall be entitled to any remedy provided herein, including but not limited to, a finding of Contractor non-responsibility.

### **3. SDVOB WAIVER**

A. Prior to submission of a request for a partial or total waiver, Contractor shall speak with someone from the Authority's Office of Compliance for guidance.

B. In accordance with 9 NYCRR § 252.2(m), a Contractor that is able to document good faith efforts to meet the goal requirements, as set forth herein, may submit a request for a partial or total waiver on Form TA-W1077, accompanied by supporting documentation. A Contractor may submit the request for waiver at the same time it submits its SDVOB Utilization Plan.

If a request for waiver is submitted with the SDVOB Utilization Plan and is not approved by the Authority at that time, the provisions of clauses 2 (C), (D) & (E) will apply. If the documentation

included with the Contractor's waiver request is complete, the Authority shall evaluate the request and issue a written notice of acceptance or denial within 20 days of receipt.

C. Contractor shall attempt to utilize, in good faith, certified SDVOBs, during the performance of the Contract/Agreement. Requests for a partial or total waiver of established goal requirements may be made to the Authority, at time of bid submission, subsequent to Contract/Agreement award or at any time during the term of the Contract/Agreement, but must be made no later than prior to the submission of a request for final payment on the Contract/Agreement.

D. If the Authority, upon review of the SDVOB Utilization Plan and Monthly SDVOB Form TA-1023 Payments to DBE/MWBE/SDVOBs determines that Contractor is failing or refusing to comply with the contract goals and no waiver has been granted in regards to such non-compliance, the Authority may issue a notice of deficiency to the Contractor.

The Contractor must respond to the notice of deficiency within seven business days of receipt. Such response may include a request for partial or total waiver of the Contract/Agreement SDVOB goals.

Waiver requests shall be sent to the Authority's Office of Compliance at [Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov).

#### **4. GOOD FAITH EFFORTS**

In accordance with 9 NYCRR § 252.2(n), Contractor must document their good faith efforts toward utilizing SDVOBs on the Contract/Agreement. Evidence of required good faith efforts shall include, but not be limited to, the following:

- (1) Copies of solicitations to SDVOBs and any responses thereto.
- (2) Explanation of the specific reasons each SDVOB that responded to Contractor's solicitation was not selected.
- (3) Dates of any pre-bid, pre-award or other meetings attended by Contractor, if any, scheduled by the Authority with certified SDVOBs which the Authority determined were capable of fulfilling the SDVOB goals set in the Contract/Agreement.
- (4) Information describing the specific steps undertaken to reasonably structure the Contract/Agreement scope of work for the purpose of subcontracting with, or obtaining supplies from, certified SDVOBs.
- (5) Other information deemed relevant to the waiver request.

#### **5. MONTHLY SDVOB CONTRACTOR COMPLIANCE REPORT**

In accordance with 9 NYCRR § 252.2(q), Contractor is required to report Monthly SDVOB Contractor Compliance to the Authority during the term of the Contract/Agreement for the preceding month's activity, documenting progress made towards achieving the Contract/Agreement SDVOB goals.

This information must be submitted by the Contractor, using Form TA-1023 Payments to DBE/MWBE/SDVOBs available on the Authority's website, reflecting the preceding month's activities. Timely, complete and accurate forms must be submitted to



[Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov), by the 10th day of each month, with a courtesy copy to Thruway Project Engineer (TPE)/Engineer in Charge (EIC).

## **6. NON-COMPLIANCE**

Where the Authority determines that the Contractor is not in compliance with the requirements specified herein and/or other contract requirements, refuses to comply with such requirements, or if the Contractor is found to have willfully and intentionally failed to comply with the SDVOB participation goals, the Contractor may be found in breach of the contract, which may result in withholding of any mobilization pay item and monthly estimates, a delay in award of the Contract/Agreement, a finding that the Contractor is non-responsible, and/or the Authority may impose other breach of contract damages.

## **7. BREACH OF CONTRACT AND DAMAGES**

In accordance with 9 NYCRR § 252.2(s), any Contractor found to have willfully and intentionally failed to comply with the SDVOB participation goals set forth in the Contract/Agreement, shall be found to have breached the Contract/Agreement and Contractor shall pay damages equivalent to the Authority's expenses for personnel, supplies and overhead related to establishing, monitoring, and reviewing certified Service-Disabled Veteran-Owned Business Enterprise programmatic goals for the specific Contract/Agreement.

Questions regarding compliance with SDVOB participation goals should be directed to the Authority's Office of Compliance.

### **All forms are available at:**

For Contractors: [thruway.ny.gov/business/contractors/forms/index.html](http://thruway.ny.gov/business/contractors/forms/index.html)

For Consultants: [thruway.ny.gov/business/consultants/forms/index.html](http://thruway.ny.gov/business/consultants/forms/index.html)

For Purchasers: [thruway.ny.gov/business/consultants/forms/index.html](http://thruway.ny.gov/business/consultants/forms/index.html)

## **EQUAL EMPLOYMENT OPPORTUNITY AND REMOVAL OF INSTITUTIONAL POLICIES OR PRACTICES THAT FAIL TO ADDRESS THE HARASSMENT AND DISCRIMINATION OF INDIVIDUALS**

Contractor agrees to comply with all Authority Compliance Requirements and Procedures, in accordance with the terms and conditions of Appendix A – Standard Clauses for New York State Thruway Authority Contracts including Clause 4 – Non-Discrimination Requirements and Clause 11 - Equal Employment Opportunities for Minorities and Women.

Equal Employment Opportunities for minority group members and women ("EEO") and related provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State Executive Law Article 15 (the "Human Rights Law") and other applicable federal, state, and local laws.

In the performance of this Contract/Agreement, Contractor shall demonstrate compliance with the Work Force Diversity Requirements and Procedures Regarding Equal Employment Opportunities for Minority Group Members and Women, pursuant to 5 NYCRR § 143, Executive Order 177, and all other applicable federal, state and local laws, rules and regulations.



The Contractor will be required to submit its written Policy Statement ensuring “Equal Employment Opportunity and Removal of Institutional Policies or Practices That Fail to Address the Harassment and Discrimination of Individuals,” to the Authority within 10 business days after the letting/bid opening.

During the performance of this contract, the Contractor agrees to comply with the Equal Employment Opportunity (EEO) requirements specified herein.

**1. DEFINITIONS** – As used in these requirements, the following definitions will apply:

A. “Covered Area” means the geographical area described in the solicitation from which this contract resulted or the geographic area within which this contract will be performed.

B. “Authority” means the New York State Thruway Authority.

C. “Executive Director” means the Executive Director of the New York State Thruway Authority, or his/her duly authorized representative.

D. “Office of Compliance” means the Thruway Authority’s Office of Compliance or his/her duly authorized representative.

E. “Employer Identification Number” means the Federal Social Security Number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department form 941.

F. “Minority” includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (a person of Mexican, Puerto Rican, Dominican, Cuban, Central or South American descent of either Indian or Hispanic origin, regardless of race;

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast, Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification. Identification may be made by any suitable authority in the community such as an educational institution, religious organization, or a state agency).

**2. NON-DISCRIMINATION CLAUSE**

The Contractor will ensure equal employment opportunity by not discriminating against any applicant for employment because of race, color, religion, sex, national origin, age, disability, or marital status, regarding, (among other things) the following: upgrading, demotion, transfer, recruitment, recruitment advertising, layoff, termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.

**3. MINORITY AND WOMEN EMPLOYMENT GOALS**

The Contractor shall make a good faith effort to ensure equal employment opportunity by taking the affirmative action’s set forth in paragraph 5A through P of these requirements. The Bidder’s/Proposer’s/Contractor’s/Consultant’s/Engineer’s success in achieving or bettering the goals set forth on the contract goals page, shall be a substantial factor in any determination of

whether the Contractor has complied with its obligation to ensure equal employment opportunity in the performance of this Contract/Agreement. The goals are expressed as percentages of the total hours of employment and training that the Contractor should reasonably be able to give to female or minority employees in a certain covered area. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract/Agreement, and in each trade. These goals were established from materials published by the NYS Department of Economic Development based on appropriate workforce, demographic or other relevant data or labor force developed by the Division of Minority & Women's Business Development utilizing the 1990 Census Data.

#### **4. AFFIRMATIVE ACTION STEPS AND NON-FEDERAL TRAINING REQUIREMENTS**

The Contractor shall implement affirmative action steps at least as extensive as the following:

A. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority and female individuals working at such sites or in such facilities.

B. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

C. Maintain a current file of the name, address, and telephone number of each minority and female off-the street applicant and minority or female referral from a union, a recruitment source, or community organization and of the action which was taken with respect to each such individual.

If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in writing to the Office of Compliance and noted in the file with the reasons therefore, along with whatever additional actions the Contractor may have taken.

D. Provide immediate written notification to the Office of Compliance when the Contractor has information that the union referral process has impeded the Contractor's efforts to meet its obligation.

E. Develop on-the-job training opportunities and/or participation in training programs which expressly include minorities and women, including upgrading programs and apprenticeships and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the United States Department of Labor, the New York State Department of Labor, or the New York State Thruway Authority and appropriate for utilization on New York State Thruway Authority projects. The Contractor shall provide notice of these programs to the sources compiled under 5B. above. If the Contractor fails to develop or participate in such apprentice or training programs, its failure to meet the goal set forth herein will be presumed to be noncompliance with these requirements.

F. Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its equal employment opportunity obligations, by including it in any

policy, annual and collective bargaining agreement, by publicizing it in the company newspaper, annual report, and other similar items, by specific review of the policy with all management personnel and with all minority and female at least once a year, and by posting the Contractor's equal employment opportunity policy on bulletin boards accessible to all employees at each location where work under this contract is performed.

G. Review, at least annually, the Contractor's equal employment opportunity policy and affirmative action obligations under this requirement with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decision, including specific review of these items with on-site supervisory personnel such as superintendents, general forepersons, etc., prior to the initiation of work at any job site.

A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

H. Disseminate the Contractor's equal employment opportunity policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to, and discussing the Contractor's equal employment opportunity policy with, other Contractors and subcontractors with whom the Contractor does or anticipates doing business.

I. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screening procedures, and tests to be used in the selection process.

J. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.

K. State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, age, disability, or marital status.

L. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for such opportunities through appropriate training or other similar activities.

M. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the equal employment opportunity policy and the Contractor's obligations under this requirement are being carried out.

N. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

O. Send to each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representative of the Contractor's commitments under this requirement

and post copies of the notice in conspicuous places available to employees and applicants for employment.

P. Conduct a review, at least annually, of all supervisors' adherence to, and performance under, the Contractor's equal employment opportunity policies and affirmative action obligations.

## **5. CONTRACTOR/CONSULTANT ASSOCIATIONS**

Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations. The efforts of a contractor association, joint contractor union, contractor community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling one or more of its obligations under this requirement provided that the Contractor actively participates in the group, makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

## **6. TRANSFER OF MINORITY OR FEMALE EMPLOYEES**

Through implementing the affirmative action's set forth above and the Contractor's other efforts to ensure equal employment opportunity, the Contractor must have made a commitment to employ minorities and women throughout the life of the contract. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be violation of the contract.

## **7. CREDITING NON-WORKING TRAINING HOURS TOWARD EMPLOYMENT GOALS**

In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the United States Department of Labor, the New York State Department of Labor or the New York State Thruway Authority and appropriate for utilization on the New York State Thruway Authority projects.

## **8. REQUIRED RECORDS**

A. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the Contractor's equal employment opportunity policy is being carried out and to keep records. The records shall include the names, address, telephone number, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay and locations at which the work was performed for each employee.

Records shall be maintained in an understandable and retrievable form. To the extent that records kept by the Contractor for other purposes satisfy the requirements of this paragraph, the Contractor need not maintain separate records.

B. Contractor shall submit on a monthly basis “Monthly Workforce Utilization Composite” (Form TA-W1017) to the TPE/EIC for approval and submitted electronically upon approval to [Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov). The report shall reflect a monthly composite of the total cumulative hours of work for the entire project workforce (including all subcontractors) from the start of the contract through the contract ending date. For the purpose of composite reporting, the employment and training hours for females and minorities shall be calculated separately. Female utilization hours (minority and non-minority) shall be counted towards female utilization and minority female utilization hours shall also be counted towards minority utilization hours.

C. All records required by this Section must be retained for a period of six years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Authority or the Office of Compliance.

## **9. GOALS NOT TO BE USED TO DISCRIMINATE**

The Contractor shall not use the goals or affirmative action requirements to discriminate against any person because of race, color, religion, sex, national origin, age disability, or marital status.

## **10. AVAILABILITY OF CONTRACTOR’S RECORDS**

The Contractor will furnish all information and reports as may be required by the Authority or by rules, regulations and orders incorporated herein by the Authority and will permit access to its books, records and accounts by the Authority’s Office of Compliance for purposes of monitoring and investigating compliance with these requirements and such rules, regulations, orders, procedures and guidelines.

## **11. ENFORCEMENT**

In order to determine whether the Contractor has complied with the requirements, the Authority may proceed by order to show cause, compliance conference, hearing or any other lawful procedure upon due notice in writing to the Contractor. In the event the Authority finds that the Contractor has failed to comply with these requirements, this contract may be canceled, terminated, or suspended in whole or in part or liquidated damages may be imposed in accordance with the procedures authorized in Section 312 of Executive Law 15-A, Section 40 of the Highway Law, provisions of this Contract/Agreement, relevant laws and statutes as deemed appropriate by the Authority, at no cost or liability to the Authority.

In accordance with EO 177 entitled “Prohibiting State Contracts with Entities that Support Discrimination”, provisions of this Contract/Agreement and Section 40 of the Highway Law, the Contractor may be declared ineligible for further New York State government contract or construction contracts, and such other sanctions may be imposed and remedies invoked as deemed appropriate by the Authority by rule, regulation, or order of the Authority, or as otherwise provided by law.

## **12. CONTRACTOR’S RESPONSIBILITY REGARDING COLLECTIVE BARGAINING AGREEMENT**

Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor’s obligations under these requirements, any rules, regulations, procedures and guidelines promulgated or established pursuant to Executive Order 21.

### **13. APPLICABILITY TO SUBCONTRACT**

As per Section 312 of Executive Law 15-A the Contractor will physically include the document Equal Employment Opportunity Requirements as part of every subcontract or purchase order unless exempted by rules, regulations, or orders of the Director, pursuant to the Executive Order 8, and such requirements shall be binding upon each subcontractor, service provider, or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Authority may direct as a means of enforcing such provisions, including sanctions for

noncompliance; provided, however that in the event the Contractor becomes involved in or is threatened with litigation by a subcontractor or vendor as a result of any provision or direction issued pursuant to these requirements or by the Authority, the Contractor may request the State of New York to enter into such litigation or dispute to protect the interests of the State of New York.

### **14. EQUAL EMPLOYMENT OPPORTUNITY OFFICER**

The Contractor will designate and make known to the Office of Compliance who will have the responsibility for and must be capable of effectively administering and promoting an active Contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

### **15. COMPLAINTS OF ALLEGED DISCRIMINATION/SEXUAL HARASSMENT**

The Contractor will promptly investigate all complaints of alleged discrimination/sexual harassment made to the Contractor in connection with his/her obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination/sexual harassment may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor will inform every complainant of all of his or her avenues of appeal, including the New York State Division of Human Rights and Equal Employment Opportunity Commission.

The Contractor shall inform the Office of Compliance (within 24 hours) in writing of any formal or informal complaint, incident or any issue of discrimination/sexual harassment. Results of investigation must be submitted to the Office of Compliance within ten (10) days of the complaint.

### **TRAINING SPECIAL PROVISIONS**

#### **TA-1041 – Training Report**

#### **TA-1046 – Monthly Training Report**

This work shall consist of the employment and meaningful and effective training of minority and women in New York State Thruway Authority approved training programs leading to their qualification as journeyworkers in the skilled trades required in highway construction. This Training/Special Provision supplements the Equal Employment Opportunity requirements included elsewhere in this Proposal entitled “Equal Employment Opportunity (EEO) Requirements”. Each of the foregoing prescribed specific percentage goals for utilization of minorities and women in the performance of work for the geographic location of the contract.

**GENERAL:** The primary objective of this Training/Special Provision is to provide training opportunities to minorities and women in construction trades for two purposes:

1. To maintain a pool of qualified minorities and women to replace those journeyworkers who, in the natural course of events, will leave the workforce; and
2. To provide minorities and women as indentured apprentices or trainees in those geographic areas where shortages in minorities and women journeyworkers are recognized because of the Contractor's inability to meet the EEO goals set forth in this contract.

Each contract which contains this Training/Special Provision shall require the training of at least one minority or woman indentured apprentice or trainee. Such individual shall be approved by the Authority. Other than this initial training obligation, to be undertaken and provided by the Contractor, no additional training obligations will exist under this Training/Special Provision unless the goals for minority and women employment and training in the skilled workforce are not continuously met on the contract and generally distributed amongst the trades. In the five counties of New York City, the goals specified for each trade are applicable and must be met. Whenever the goals are not met, additional minorities and/or women indentured apprentices and/or trainees will be assigned or approved in numbers necessary to meet the goals. Data necessary to determine if goals are being met will be provided on Contractor and Subcontractor Employment Utilization Reports (Form TA-1017-9). The data will be verified by the visual observance of the Project Engineer, or designated project inspectors, and hours of employment reported on Contractor or Subcontractor certified weekly payrolls.

The number of minorities and women indentured apprentices and trainees required to be trained under this item shall not exceed 12% of the total journeyworker workforce on the contract, i.e. no more than 1 in 8 of the skilled workforce is required to be a minority or woman indentured apprentice or trainee. This limitation applies regardless of minority and women representation in the trades. However, this limit on required training in no way absolves the Contractor of the responsibility to comply with the EEO requirements.

**PRE-AWARD MEETING:** Before the Contractor will be allowed to begin work, the Contractor shall attend a Pre-award Meeting and shall submit for Authority use and acceptance, a Workforce and Training Utilization Schedule (Form TA-1024) which shall be correlated to the Contractor's contract work schedule. The Schedule shall include at least the following information:

1. A work schedule for the entire contract,
2. An estimate of the work force required to conform to the work schedule on a monthly basis including an estimate of the workforce in each trade and/or work classification projected to be used including Subcontractors,
3. Separate estimates of the number of minorities and women indentured apprentices or trainees that would be required in each skilled trade to meet the contract EEO employment goals for that trade assuming no minorities or women journeyworkers in the workforce,
4. The proposed training programs to be used and the starting dates for training in each trade and/or work classification,
5. An estimate of the availability of minorities and women journeyworkers in numbers sufficient to meet the EEO contract goals, and

6. Any proposal by the Contractor to use trainees or indentured apprentices to make up for anticipated EEO goal shortfalls. Such proposals shall include the name and craft of any individual proposed by the Contractor as the required trainee or indentured apprentice. In the case of an indentured apprentice, evidence of indentureship and registration of the approved apprenticeship program must be included.

No contract work may be undertaken until the Authority has accepted the Workforce and Training Utilization Schedule. The Contractor shall submit a revised Workforce and Training Utilization Schedule at such times as major changes in the contract work schedule occur which substantially affect the previously submitted schedule.

**RECRUITMENT:** Although the training requirements of this Training/Special Provision are not intended, and shall not be used to discriminate against any applicant for training, whether a member of a protected class or not, it is recognized that non-minority males have traditionally been and continue to be trained, either formally or on-the-job in an informal manner, for work in the trades utilized in construction work. Therefore, until such time that representative numbers of minorities and women complete training and their utilization as journeyworkers is demonstrated to the extent of the participation goals as set forth in the Authority's construction contract, training required under this Training/Special Provisions will be primarily limited to minorities and women.

Thus, the Contractor shall demonstrate compliance with the intent of this Training/Special Provision by affording the Authority the opportunity to:

1. First, approve the use of a minority or woman indentured apprentice known to the Contractor through an existing Joint Apprenticeship Training program, or
2. Second, provide a partially trained minority or woman trainee who is currently enrolled in a New York State Department of Labor approved training program, or
3. Third, work cooperatively with the Contractor in recruitment of new minorities or women trainees, when needed.

In conformance with the foregoing, the Authority's Form TA-1018 (Request for Personnel), should be submitted to the TPE/EIC for submission to the Authority's Office of Compliance. The Contractor shall allow reasonable time for the Authority's Office of Compliance to ensure on-the-job orientation for approved apprentices or assigned trainees within their first month of employment.

**WORK HISTORY:** No individual shall be employed as a trainee in any trade and/or work classification in which such person has successfully completed a training course providing journeyworker status in the same trade or work classification, or in which such person has been gainfully employed as a journeyworker by virtue of informal on-the-job training. Detection of individuals in the above categories may be accomplished by including appropriate questions on employee application forms, inquiries to the Authority's Office of Compliance, checking personal references, or by other suitable means. Regardless of the method used, the Contractor shall document the finding for each indentured apprentice or trainee provided training under this requirement. A copy of the finding shall be given to the Authority's Office of Compliance. In the case of indentured apprentices, evidence of indentureship in a registered approved apprenticeship program shall also be submitted.



**SUBCONTRACTING:** In the event the Contractor subcontracts a portion of the contract work, the Contractor shall ensure the requirements of this Training/Special Provision are physically incorporated in such subcontracts to ensure the workforce utilization by the Subcontractor meets the goals for minorities and women employment and training, either independently or in combination with the prime Contractor's workforce. The Contractor must determine the hours of training, if any, and in which trade or work classification, minorities or women indentured apprentices or trainees are to be trained by the Subcontractor(s). However, the Contractor shall retain the primary responsibility for meeting the training requirements of this Training/Special Provision. Subcontractors are herewith advised that disregard of these requirements may result in the Authority either rescinding approval for work on this contract or disapproving their use on subsequent Authority contracts.

**TRAINING PROGRAMS:** The minimum length, type of training, and rate of pay for the trade or the work classification of the trade will be specified in the training program approved or sanctioned by the New York State Department of Labor.

Where training is to be provided under this Training/Special Provision, the Contractor shall obtain acceptance and/or approval of the training program to be used, and the starting time for training, prior to commencing training. The Contractor shall provide on-the-job training directed toward developing journeyworkers in the trade, or work classification(s) of the trade involved. To the extent the work involved on the contract permits, such training should include all phases and facets of a trade, or work classification of a trade, to satisfy usual construction industry requirements for continued or future employment therein.

It is the intent of this Training/Special Provision that training will be provided in construction trades rather than clerical type positions. Training may be permitted, in unique circumstances, in lower level management positions such as office engineers, where the training is oriented toward construction related activities. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of an overall training program. Both off-site and lower level management training are subject to the Authority's approval.

**TRAINEE WAGES:** An employee on any New York State Public Works Contract must be paid the full journeyworker prevailing wage unless such employee is individually registered in an approved and registered New York State Department of Labor Apprenticeship Program. It is the responsibility of the Contractor to ascertain the status of any employee utilized to satisfy the trainee requirements under this contract, and to ensure that all New York State Department of Labor apprenticeship requirements are met.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyworker wage rate on the wage determination which provides for less than full benefits for apprentices.

**DURATION OF TRAINING:** Once an indentured apprentice is approved or a trainee is assigned to the contract under the Training/Special Provision, that individual shall be trained in the designed trade throughout the duration of the contract whenever such trade is in use on the

contract until the trainee or apprentice has completed the approved training program. Where training is provided under a multiphase apprenticeship or training program, it is expected that training will be provided continually through all phases to the extent that opportunities for such training exist in the work under contract. Upon satisfactory completion of a phase of training under a multiphase training program, if further appropriate and required training is not available and work in the work classification of the completed phase is available, the minority or woman indentured apprentice or trainee shall continue employment, and be compensated at the prevailing journeyworker wage rate for such work. Hours of employment as a journeyworker described above will not be credited toward training hours required by the approved training or apprenticeship program.

If an indentured apprentice or trainee is terminated before completion of the contract for any reason other than seasonal lay-off or completion of work in that trade, the Contractor shall hold a counseling session with the Authority's Chief Compliance Officer and the individual to explain the reasons for termination. Documentation that the counseling session was held and the reasons for termination shall be given to the Authority's Chief Compliance Officer.

**REQUIRED RECORDS:** The Contractor shall provide each minority or woman trained under this provision with a certification showing the type and length of training satisfactorily completed. In addition, the Contractor shall keep records on the job site indicating the nature and hours of training provided to each trainee or indentured apprentice and furnish weekly reports documenting performance under this Training/Special Provision to the Project Engineer. No measurement will be made of training provided to indentured apprentices or trainees for whom no work history has been provided to the Project Engineer. In addition, no measurement will be made of training provided to apprentices for whom no evidence of indentureship in a registered apprenticeship program has been provided to the Project Engineer.

**NO PAYMENT FOR TRAINING:** No payment will be made for the training required of the Contractor under this Training/Special Provision. The required training is a labor cost which is included in the lump sum bid by the Contractor for the items of work comprising the contract.

*(1) Journeyworker means a person who is capable of performing all the duties within a trade or a given work classification of a trade.*

## **WORKFORCE UTILIZATION/GROSS WAGES REPORTING**

In accordance with the requirements pursuant to Executive Order (EO) 162, Contractors must report employee workforce utilization on a monthly basis and gross wages on a quarterly basis for its company and all subcontractors in accordance with EO 162, as follows:

### **A. EO 162 (Monthly/Quarterly) Workforce Utilization/Gross Wages Reporting**

Construction Contractors/Subcontractors are required to submit (Monthly) Workforce Utilization and (Quarterly) Workforce Utilization/Gross Wages Reports for their firm and all subcontractors.

(Monthly) Workforce Utilization/ (Quarterly) Gross Wages Reports are required to be electronically submitted to [WorkforceUtilizationReportConstruction@thruway.ny.gov](mailto:WorkforceUtilizationReportConstruction@thruway.ny.gov).

(Monthly) Workforce Utilization report for the preceding month must be submitted by the 10th of each month, for the Contractor and all subcontractors.

The (Monthly) EO 162 Workforce Utilization/Gross Wages Reporting are located on the Thruway website @ [thruway.ny.gov/business/dmwbe/eo-162-monthly-construction.xls](http://thruway.ny.gov/business/dmwbe/eo-162-monthly-construction.xls)

(Quarterly) - Workforce Utilization, including Gross Wages Reports for quarterly reporting must be submitted by 10th of April, July, October and January, for the Contractor and all subcontractors.

The (Quarterly) EO 162 Workforce Utilization/Gross Wages Reporting are located on the Thruway website @ [thruway.ny.gov/business/dmwbe/eo-162-quarterly-construction.xls](http://thruway.ny.gov/business/dmwbe/eo-162-quarterly-construction.xls)

#### B. Form TA-1017 Monthly Workforce Utilization Composite Report

Form TA-1017 (Monthly) Workforce Utilization Composite report must be completed for each calendar month by the Contractor reflecting the cumulative total work hours of employment to date for the entire workforce.

Form TA-1017 (Monthly) - Workforce Utilization Composite Report, must be approved by the TPE/EIC and electronically submitted prior to the 10<sup>th</sup> of the month to [Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov).

Form TA-1017 (Monthly) - Workforce Utilization Composite Report is located on the Thruway website @ [thruway.ny.gov/business/dmwbe/ta-w1017.xls](http://thruway.ny.gov/business/dmwbe/ta-w1017.xls)

### **NONDISCRIMINATION**

The Contractor shall comply with the provisions of the Human Rights Law, and all other state and federal statutory and constitutional non-discrimination provisions. The Contractor and its subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

Questions regarding compliance with Workforce Utilization/Gross Wages Reporting should be directed to the Authority's Office of Compliance.

### **MOBILIZATION AND PAYMENT OF ESTIMATES/INVOICES**

Processing of mobilization, estimates and/or invoices is contingent upon Contractor demonstration and/or documentation of compliance with **all** of the Authority's Disadvantaged Business/Equal Employment Opportunity/Minority/Women and Service-Disabled Veteran Owned-Business Enterprise Contract/Agreement requirements and provisions.

Forms listed herein may be revised, updated, at the Authority's sole discretion and are required during the covered period, under the reporting schedules established by the Authority.

DBE/EEO/MWBE/SDVOB forms, requirements and reporting schedules will be discussed during the pre-award meeting or by contacting the Authority's Office of Compliance.

**REPORTING AND SUBMISSION SCHEDULES**

Contractors are required to submit the following forms or reports by the 10<sup>th</sup> of each month, for the preceding month's activities to: [Compliance@thruway.ny.gov](mailto:Compliance@thruway.ny.gov)

TA-W1017 Monthly Workforce Utilization Composite  
TA-W1023 Payments to D/M/WBE Subcontracting Firms  
TA-1024 Workforce and Training Utilization Schedule  
TA-W1046-9 Weekly Training Progress Report

The above forms or reports must accurately reflect the information reported on the following forms:

TA-W1022-9 Utilization Plan  
TA-W1024-9 Workforce and Training Utilization Schedule  
TA-W1041-9 Training Report  
TA-W1064-9 Construction Contractors Annual EEO Report

Contractors are also required to submit the following forms or reports by the 10<sup>th</sup> of each month, for the preceding month's activities to:

[WorkforceUtilizationReportConstruction@thruway.ny.gov](mailto:WorkforceUtilizationReportConstruction@thruway.ny.gov)

EO 162 - Monthly Workforce Utilization/Gross Wage Report  
EO 162 - Workforce Utilization/Quarterly Gross Wage Report

All Authority Forms are available at:

<http://www.thruway.ny.gov/business/contractors/forms/index.html>

Timely, complete and accurate reports shall be submitted as required and/or upon request.

# **STATE WAGE RATE INFORMATION**

## **WAGE RATES**

The New York State Thruway Authority does not represent or warrant that the accompanying schedule of wages with the classification of workmen, mechanics and laborers, as required by Section 220 of the Labor Law, is complete and it reserves the right to revise such schedule when required.

In the event that revisions are made before the letting date, an amendment will be issued by the Department of purchasers of plans. In the event that the current wage rate schedule should expire before the contract for this project becomes effective the said wage rate schedule will be recertified and the Contractor will be bound by such revised schedule as recertified.

Labor classifications not appearing on this rate sheet can be used only with the consent of the Chief Engineer of the Authority and then the rate to be paid will be given by the Chief Engineer of the Authority after consulting with the State Department of Labor.

All requests for minimum wage rates for additional occupations shall be directed through the Chief Engineer, Thruway Authority.

By legislation effective August 9, 1975, if the prevailing rate of wages or the prevailing practices for supplements as determined by the State Labor Department changes after the contract is let, the Thruway Authority shall request of the State Labor Department a redetermination of the schedules of wages and supplements and such revised wage rates and supplements shall be annexed to and form a part of the contract for the work. The prevailing wage rates and supplemental benefits to be paid are those in effect at the time the work is being performed. The bidder shall take into account in his bid prices all changes in wage rates and supplements that may be forthcoming during the time the contract is in force.

The bidder shall take into account in his bid prices all changes in wage rates and supplements that may be forthcoming during the time the contract is in force.

Pursuant to Section 220-A of the New York State Labor law, the prime Contractor must provide each approved subcontractor with a copy of the schedule of wages and any supplements as specified in this Contract.

The prime Contractor must immediately obtain from each approved subcontractor a certification (TA-44105) of their receipt of, and agreement to pay the applicable prevailing wages as specified in this contract. The prime Contractor shall retain all Subcontractor certifications and provide these certifications to the Authority prior to the processing of the final payment.

The prime Contractor must submit an affidavit (TA-44115) verifying the proper payment of wages to its own employees prior to the processing of the final payment. All completed certifications and affidavits must be originals and be properly signed and notarized.

## **SPECIAL NOTICE TO BIDDERS IN RELATION TO OVERTIME DISPENSATION**

All bidders, in submitting their bids, should base their bids and work progression on the assumption that Overtime Dispensation pursuant to Article 8 of the New York State Labor Law, for any workmen, laborers and mechanics to work more than 8 hours in any one calendar day or more than five days in any one week will not be granted for any operation for the contract duration. Subsequent to award, where the contract documents have imposed specific scheduling and/or phasing requirements or where it is determined by the Authority to be in the best interest of the public, the Authority may process, for approval by the New York State Department of Labor, requests for Overtime Dispensation on certain specific operations and, in the event approval is granted, there shall be no adjustments therefore in any bid prices.

## SPECIAL NOTE STATE PREVAILING WAGE RATES

The Contractor shall ensure that workers are paid the appropriate wages and supplemental (fringe) benefits. Throughout the contract, the Contractor shall obtain and pay workers in accordance with periodic wage rate schedule updates from the NYS Department of Labor (NYSDOL). Wage rate amendments and supplements are available on the NYSDOL web site at <https://dol.ny.gov/bureau-public-work-and-prevailing-wage-enforcement>. All changes or clarification of labor classification(s) and applicability of prevailing wage rates shall be obtained in writing from the Office of the Director, NYSDOL Bureau of Public Work.

The NYSDOL prevailing wage rate schedule for this contract has been determined and is available on the internet. The prevailing wage rate schedule is accessed by visiting the NYSDOL web site, navigating to the appropriate web page, and entering the Prevailing Rate Case No. (PRC#). The PRC# is provided on NYSDOL Form PW-200 included in this contract Proposal.

A copy of the project specific prevailing wage rate schedule will be provided to the successful bidder upon award of the contract. Upon written request, the schedule will be provided by the Thruway Authority to prospective bidders without internet access.

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The Thruway Authority is providing information regarding the new Public Work Contractor and Subcontractor Registry requirement recently enacted by New York State.

**Starting December 30, 2024**, all contractors and subcontractors submitting bids or performing construction work on public work projects or private projects covered by [Article 8 of the Labor Law](#) are required to register with the New York State Department of Labor (NYSDOL) under [Labor Law Section 220-i](#).

Private projects subject to Article 8 of the Labor Law include those covered by Labor Law Sections 224-a (public subsidy funded projects), 224-d (renewable energy systems), 224-e (broadband projects), 224-f (climate risk-related and energy transition projects and roadway excavations.)

The law defines a “contractor” as any entity entering into a contract to perform construction, demolition, reconstruction, excavation, rehabilitation, repair, installation, renovation, alteration or custom fabrication. The law defines “subcontractor” as any entity subcontracting with a contractor to perform construction, demolition, reconstruction, excavation, rehabilitation, repair, installation, renovation, alteration or custom fabrication, which is subject to Article 8 of the Labor Law. Contractors are responsible for verifying that any subcontractors they work with are registered.

**Contractors need to register before submitting any new bids or commencing new work on a covered project on or after December 30, 2024. Subcontractors also need to register before commencing new work on a covered project on or after December 30, 2024.** The Thruway Authority encourages all contractors and subcontractors to register as soon as possible and obtain a Certificate of Registration to avoid negatively impacting a bidding period or project schedule.

Information required to register from the New York State Department of Labor's website for this process can be found here: <https://dol.ny.gov/contractor-and-subcontractor-landing>. For any further questions you can also contact the Bureau of Public Work and Prevailing Wage at 518-457-5589.





Kathy Hochul, Governor

Roberta Reardon, Commissioner

NYS Thruway Authority

John McCool, Construction Specialist 1  
200 Southern Blvd.  
Albany NY 12209

Schedule Year 2025 through 2026  
Date Requested 01/14/2026  
PRC# 2026000706

Location MP 266.3 WB  
Project ID# D215083  
Project Type Rehabilitation of the Wastewater Treatment Plant at the Chittenango Service Area on I-90

### PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Rate Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2025 through June 2026. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website [www.labor.ny.gov](http://www.labor.ny.gov). Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

#### NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: \_\_\_\_\_ Date Cancelled: \_\_\_\_\_

Name & Title of Representative: \_\_\_\_\_

Phone: (518) 457-5589 Fax: (518) 485-1870  
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

## General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

### Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

### Contractor Registry

Effective December 30, 2024 all contractors and subcontractors submitting bids or performing construction work on public work projects, or private projects covered by Article 8 of the Labor Law, are required to register with the New York State Department of Labor (NYSDOL) under Labor Law Section 220-i. To register, contractors and subcontractors must submit an application through NYSDOL's Contractor Registry portal which is available through the agency's Management System for Protecting Worker Rights (MPWR) <https://mpwr-public.labor.ny.gov/en/login>.

For additional information, please visit [online](#).

### Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission; a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion [online](#).

### Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

### Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12226; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website [www.labor.ny.gov](http://www.labor.ny.gov).

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website [www.labor.ny.gov](http://www.labor.ny.gov).

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website

## **Payrolls and Payroll Records**

Every contractor and subcontractor **MUST** keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment. Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed \$100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds \$25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

## **Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties**

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational **ONLY** and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

## **Withholding of Payments**

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer **MUST** then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

## Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "[Public Work Project](#)" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers' compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

## Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeymen in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12226 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

## Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

## Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

## Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

## **Discrimination**

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, 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 (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b) ).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of \$50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c) ).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d) ).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

## **Workers' Compensation**

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

## **Unemployment Insurance**

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.



Kathy Hochul, Governor

Roberta Reardon, Commissioner

NYS Thruway Authority

John McCool, Construction Specialist 1  
200 Southern Blvd.  
Albany NY 12209

Schedule Year 2025 through 2026  
Date Requested 01/14/2026  
PRC# 2026000706

Location MP 266.3 WB  
Project ID# D215083  
Project Type Rehabilitation of the Wastewater Treatment Plant at the Chittenango Service Area on I-90

### Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

### Contractor Information

All information must be supplied

|                                               |                                                    |            |
|-----------------------------------------------|----------------------------------------------------|------------|
| Federal Employer Identification Number: _____ |                                                    |            |
| Name: _____                                   |                                                    |            |
| Address: _____<br>_____                       |                                                    |            |
| City: _____                                   | State: _____                                       | Zip: _____ |
| Amount of Contract: \$ _____                  | Contract Type:                                     |            |
| Approximate Starting Date: ____/____/____     | <input type="checkbox"/> (01) General Construction |            |
| Approximate Completion Date: ____/____/____   | <input type="checkbox"/> (02) Heating/Ventilation  |            |
|                                               | <input type="checkbox"/> (03) Electrical           |            |
|                                               | <input type="checkbox"/> (04) Plumbing             |            |
|                                               | <input type="checkbox"/> (05) Other : _____        |            |

Phone: (518) 457-5589 Fax: (518) 485-1870  
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226



### **Social Security Numbers on Certified Payrolls:**

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

### **Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d**

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to \$1,500 for a first offense and up to \$5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, <https://dol.ny.gov/public-work-and-prevailing-wage>

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: [dol.misclassified@labor.ny.gov](mailto:dol.misclassified@labor.ny.gov).

### **Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)**

#### **Effective June 23, 2020**

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub*\*. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website [www.labor.ny.gov](http://www.labor.ny.gov) or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. \*In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

**To all State Departments, Agency Heads and Public Benefit Corporations  
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

## **Budget Policy & Reporting Manual**

# **B-610**

### **Public Work Enforcement Fund**

*effective date December 7, 2005*

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#### **1. Purpose and Scope:**

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

#### **2. Background and Statutory References:**

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

#### **3. Procedures and Agency Responsibilities:**

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.



**To all State Departments, Agency Heads and Public Benefit Corporations  
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor  
Administrative Finance Bureau-PWEF Unit  
Building 12, Room 464  
State Office Campus  
Albany, NY 12226

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

Required Notice under Article 25-B of the Labor Law

**Attention All Employees, Contractors and Subcontractors:  
You are Covered by the Construction Industry Fair Play Act**

**The law says that you are an employee unless:**

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

**It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.**

**Employee Rights:** If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

**Independent Contractors:** If you are an independent contractor, **you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

**Penalties** for paying workers off the books or improperly treating employees as independent contractors:

- **Civil Penalty**  
First offense: Up to \$2,500 per employee  
Subsequent offense(s): Up to \$5,000 per employee
- **Criminal Penalty**  
First offense: Misdemeanor - up to 30 days in jail, up to a \$25,000 fine and debarment from performing public work for up to one year.  
Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a \$50,000 fine and debarment from performing public work for up to 5 years.

**If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to [dol.misclassified@labor.ny.gov](mailto:dol.misclassified@labor.ny.gov). All complaints of fraud and violations are taken seriously. You can remain anonymous.**

**Employer Name:**

IA 999 (09/16)

**WE ARE YOUR DOL**Department  
of LaborNew York State Department of Labor  
Bureau of Public Work

# Attention Employees

## THIS IS A: **PUBLIC WORK PROJECT**

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Your pay stub and wage notice received upon hire must clearly state your wage rate and supplement rate.

Chapter 629 of the Labor Laws of 2007:

**These wages are set by law and must be posted at the work site. They can also be found at:**  
**<https://dol.ny.gov/bureau-public-work>**



If you feel that you have not received proper wages or benefits, please call our nearest office.\*

|               |                |              |                |
|---------------|----------------|--------------|----------------|
| Albany        | (518) 457-2744 | Patchogue    | (631) 687-4882 |
| Binghamton    | (607) 721-8005 | Rochester    | (585) 258-4505 |
| Buffalo       | (716) 847-7159 | Syracuse     | (315) 428-4056 |
| Garden City   | (516) 228-3915 | Utica        | (315) 793-2314 |
| New York City | (212) 932-2419 | White Plains | (914) 997-9507 |
| Newburgh      | (845) 568-5287 |              |                |

\* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or [www.comptroller.nyc.gov](http://www.comptroller.nyc.gov) – click on Bureau of Labor Law.

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

Project Location: \_\_\_\_\_

## Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is \$250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training "prior to the performing any work on the project."

### **The Bureau will enforce the statute as follows:**

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.*)
- Training roster, attendance record or other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

\*\*A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

## Introduction to the Prevailing Rate Schedule

### Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

#### Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below. Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates. Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use. Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

\*Contractor Registry (LL 220-I): Effective December 30th, 2024

Labor Law Section 220-i(6) prohibits contractors from bidding on public work and prohibits both contractors and subcontractors from commencing work on private and public projects subject to prevailing wage requirements. This section requires contractors to submit their Certificate of Registration with their bid materials. Each Certificate of Registration will have a unique registration number. Failure to provide proof of registration, as required by Labor Law Section 220-i, as a minimum qualification will result in the bidder being deemed non-responsive. There is a public database of registered contractors and subcontractors available online at [data.ny.gov](https://data.ny.gov) to confirm registration validity. For additional information on how to register and the requirements, visit <https://dol.ny.gov/public-work-contractor-and-subcontractor-registry-landing>

\*Electronic Certified Payroll (LL 220-J): Effective December 31st, 2025

Effective December 31, 2025, all contractors and subcontractors who perform public work, or covered private work subject to the prevailing wage, will be required to submit certified payrolls electronically to the Bureau of Public Work and Prevailing Wage Enforcement. Additional information about the electronic certified payroll submission system will be made available on the Department's Website at <https://dol.ny.gov/Electronic-Payroll>

#### Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. Payrolls must be maintained for at least three (3) years from the projects date of completion. Additionally, as per Article 6 of the Labor Law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records.

At a minimum, payrolls must show the following information for each person employed on a public work project: Name; Address, Last 4 Digits of Social Security number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

Payroll records and transcripts are required to be kept on site during all the time that work under that contract is being performed.

**NOTE:** For more detailed information regarding Article 9 prevailing wage contracts, please refer to "General Provisions of Laws Covering Workers on Article 9 Public Work Building Service Contracts".

If you have any questions concerning the attached schedule or would like additional information, please write to:

New York State Department of Labor  
Bureau of Public Work  
State Office Campus, Bldg. 12  
Albany, NY 12240

OR

Contact the nearest BUREAU of PUBLIC WORK District Office

| District Office Locations:         | Telephone #  | FAX #        |
|------------------------------------|--------------|--------------|
| Bureau of Public Work - Albany     | 518-457-2744 | 518-485-0240 |
| Bureau of Public Work - Binghamton | 607-721-8005 | 607-721-8004 |

|                                        |              |              |
|----------------------------------------|--------------|--------------|
| Bureau of Public Work - Buffalo        | 716-847-7159 | 716-847-7650 |
| Bureau of Public Work - Garden City    | 516-228-3915 | 516-794-3518 |
| Bureau of Public Work - Newburgh       | 845-568-5287 | 845-568-5332 |
| Bureau of Public Work - New York City  | 212-932-2419 | 212-775-3579 |
| Bureau of Public Work - Patchogue      | 631-687-4882 | 631-687-4902 |
| Bureau of Public Work - Rochester      | 585-258-4505 | 585-258-4708 |
| Bureau of Public Work - Syracuse       | 315-428-4056 | 315-428-4671 |
| Bureau of Public Work - Utica          | 315-793-2314 | 315-793-2514 |
| Bureau of Public Work - White Plains   | 914-997-9507 | 914-997-9523 |
| Bureau of Public Work - Central Office | 518-457-5589 | 518-485-1870 |

### **Paid Holidays**

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

### **Overtime**

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

### **Supplemental Benefits**

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

### **Effective Dates**

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year.

All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website ([www.labor.ny.gov](http://www.labor.ny.gov)) for current wage rate information.

### **Shift Work**

If the timeline of the contract requires shift work be performed to meet deadlines, the BPWE will enforce the shift work rate as the required rate on the project whether or not shift work is specifically addressed in the contract.

### **Paid Prenatal Leave**

Every employer shall be required to provide to its employees twenty hours of paid prenatal personal leave during any fifty-two week calendar period. Paid prenatal personal leave shall mean leave taken for the health care services received by an employee during their pregnancy or related to such pregnancy, including physical examinations, medical procedures, monitoring and testing, and discussions with a healthcare provider related to the pregnancy. Paid prenatal personal leave may be taken in hourly increments. Benefits for paid prenatal personal leave shall be paid in hourly installments. Employees shall receive compensation at the employee's regular rate of pay, or the applicable minimum wage established by the labor law, whichever is greater, for the use of Paid Prenatal leave.

### **Apprentice Training Ratios**

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

| Title (Trade)                                  | Ratio   |
|------------------------------------------------|---------|
| Boilermaker (Construction)                     | 1:1,1:4 |
| Boilermaker (Shop)                             | 1:1,1:3 |
| Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder) | 1:1,1:4 |
| Carpenter (Residential)                        | 1:1,1:3 |
| Electrical (Outside) Lineman                   | 1:1,1:2 |
| Electrician (Inside)                           | 1:1,1:3 |
| Elevator/Escalator Construction & Modernizer   | 1:1,1:2 |
| Glazier                                        | 1:1,1:3 |
| Insulation & Asbestos Worker                   | 1:1,1:3 |
| Iron Worker                                    | 1:1,1:4 |
| Laborer                                        | 1:1,1:3 |
| Mason                                          | 1:1,1:4 |
| Millwright                                     | 1:1,1:4 |
| Op Engineer                                    | 1:1,1:5 |
| Painter                                        | 1:1,1:3 |
| Plumber & Steamfitter                          | 1:1,1:3 |
| Roofer                                         | 1:1,1:2 |
| Sheet Metal Worker                             | 1:1,1:3 |
| Sprinkler Fitter                               | 1:1,1:2 |

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor  
Bureau of Public Work  
State Office Campus, Bldg. 12  
Albany, NY 12226

| District Office Locations:             | Telephone #  | FAX #        |
|----------------------------------------|--------------|--------------|
| Bureau of Public Work - Albany         | 518-457-2744 | 518-485-0240 |
| Bureau of Public Work - Binghamton     | 607-721-8005 | 607-721-8004 |
| Bureau of Public Work - Buffalo        | 716-847-7159 | 716-847-7650 |
| Bureau of Public Work - Garden City    | 516-228-3915 | 516-794-3518 |
| Bureau of Public Work - Newburgh       | 845-568-5287 | 845-568-5332 |
| Bureau of Public Work - New York City  | 212-932-2419 | 212-775-3579 |
| Bureau of Public Work - Patchogue      | 631-687-4882 | 631-687-4902 |
| Bureau of Public Work - Rochester      | 585-258-4505 | 585-258-4708 |
| Bureau of Public Work - Syracuse       | 315-428-4056 | 315-428-4671 |
| Bureau of Public Work - Utica          | 315-793-2314 | 315-793-2514 |
| Bureau of Public Work - White Plains   | 914-997-9507 | 914-997-9523 |
| Bureau of Public Work - Central Office | 518-457-5589 | 518-485-1870 |

**AGREEMENT,  
FAITHFUL  
PERFORMANCE  
BOND,  
AND  
LABOR AND  
MATERIAL  
BOND**



CONTRACT NO:

COUNTY:

**NEW YORK STATE  
THRUWAY AUTHORITY**

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**A G R E E M E N T**

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## NEW YORK STATE THRUWAY AUTHORITY

## AGREEMENT

## CONTRACT NO:

This **AGREEMENT**, entered into this day of \_\_\_\_\_, by the **NEW YORK STATE THRUWAY AUTHORITY** (hereinafter referred to as the "**AUTHORITY**") having its principal office at 200 Southern Blvd. (P. O. Box 189, Albany, NY 12201) in the County of Albany and State of New York and hereinafter called the "**CONTRACTOR**",

☐ a corporation organized and existing under the laws of the State of

☐ a partnership, consisting of

☐ an individual conducting business as

the location of whose principal office is

**WITNESSETH:** That the Authority and the Contractor for the consideration hereinafter named agree as follows:

**ARTICLE 1. WORK TO BE DONE.**

The Contractor shall (a) furnish all the materials, appliances, tools and labor of every kind required, and construct and complete in the most substantial and skillful manner, the construction, improvement or reconstruction of the project on or before the completion date of the as further described in ARTICLE 4, and as generally identified and shown on the plans entitled:

in accordance with the "Standard Specifications" of the New York State Department of Transportation, which contain the information for bidders; form of proposal, agreement, and bonds; general specifications and conditions or contract; materials of construction; and payment items; and (b) do everything required by the Contract (Contract Documents) as defined herein.

The Contractor agrees that its proposal contained herein is based upon performing all the work of the Contract in accordance with a schedule that will result in the completion of the total works by the Date of Completion of the Contract and all intermediate stage and phase completion requirements of the contract, while adhering to all restrictions set forth in the Schedule and Suspension of Work, the Thruway Traffic Plan, and the General and Special Notes, and that the work will be performed at the unit bid prices, as shown on the contract documents and as detailed in the specifications and notes, utilizing the Labor Force, Qualified Disadvantaged, Women Owned and Minority Owned Subcontractor Entrepreneurs and Methods and Materials of Construction as described in the Contract Documents and any incorporated Addenda thereto, and conduct its operations in accordance with the Vehicle and Traffic Law, the Rules and Regulations of the NYS Thruway Authority, and the Thruway Operating Rules and General and Special Notes that are part of this proposal. The Contractor further agrees its proposal is not based upon the assumption that any specifications, traffic restrictions, scheduling or phasing/staging requirements will be waived, an extension of Contract Completion Date will be granted, a labor dispensation will be granted, substitution of non-approved products, alternatives or claimed functional equivalents for Specified Construction Materials and Methods will be allowed, or any Value Engineering Proposals will be entertained and approved by the New York State Thruway Authority, and any requests for a substitution, equivalent or alternate, which it proposes, will be accompanied by an agreed price analysis establishing an applicable credit or illustrating cost equal to or greater than the bid amount.

## **ARTICLE 2. DOCUMENTS FORMING THE CONTRACT.**

The Contract (and Contract Documents) shall be deemed to include the advertisement for proposals; the contractor's proposal; the Schedule for Participation By Disadvantaged Business Enterprise Participation goals; the agreement; the "Standard Specifications" including all addenda thereto referred to above; the plans; any addenda and/or amendments to specifications if the same are issued prior to date of receipt of proposal and all provisions required by law to be inserted in the contract whether actually inserted or not. Appendix A, standard clauses for all N.Y State contracts, is attached hereto and is hereby made a part of this agreement as if set forth fully herein.

## **ARTICLE 3. EXAMINATION OF DOCUMENTS AND SITE.**

The Contractor agrees that before making its proposal it carefully examined the contract documents, together with the site of the proposed work, as well as its surrounding territory, and is informed regarding all of the conditions affecting the work to be done and labor and materials to be furnished for the completion of this contract, including the existence of poles, wires, pipes, and other facilities and structures of municipal and other public service corporations on, over or under the site, except latent conditions that meet the requirements of §104-04 and §109-05, and that its information was secured by personal investigation and research.

## **ARTICLE 4. DATE OF COMPLETION.**

The Contractor further agrees that it will begin the work herein embraced within ten days of the effective date hereof, unless the consent of the Authority, in writing, is given to begin at a later date, and that it will prosecute the same so that it shall be entirely completed and performed on or before the completion date shown in Article 1.

No extension beyond the date of completion fixed by the terms of this contract shall be effective unless in writing signed by the Authority. Such extension shall be for such time and upon such terms and conditions as shall be fixed by the Authority, which may include the assessment of liquidated damages and a charge for engineering and inspection expenses actually incurred upon the work, including engineering and inspection expenses incurred upon the work by railroad companies on contracts for grade crossing elimination. Notice of application for such extension shall be filed with the Chief Engineer, Department of Engineering of the Authority at least fifteen days prior to the date of completion fixed by the terms of this agreement.

#### **ARTICLE 5. ALTERATIONS AND OMISSIONS.**

The said work shall be performed in accordance with the true intent and meaning of the contract documents without any further expense of any nature whatsoever to the Authority other than the consideration named in this agreement.

The Authority reserves the right at any time during the progress of the work, to alter the plans or omit any portion of the work as it may deem reasonably necessary for the public interest; making allowances for additions and deductions with compensation made in accordance with the Standard Specifications, for this work without constituting grounds for any claim by the contractor for allowance for damages or for loss of anticipated profits, or for any variations between the approximate quantities and the quantities of the work as done.

#### **ARTICLE 6. NO COLLUSION OR FRAUD.**

The Contractor hereby agrees that the only person or persons interested as principal or principals in the bid or proposal submitted by the Contractor for this contract are named therein, and that no person other than those mentioned therein has any interest in the above-mentioned proposal or in securing of the award, and that this contract has been secured without any connection with any person or persons other than those named, and that the proposal is in all respects fair and was prepared and the contract was secured without collusion or fraud and that neither any officer nor employee of the New York State Thruway Authority or the State Department of Transportation or either of them has or shall have a financial interest in the performance of the contract or in the supplies, work or business to which it relates, or in any portion of the profits thereof. (See also Section 139-a and 139-b of the State Finance Law referred to in the Standard Specifications, which are made a part of this contract.)

#### **ARTICLE 7. CONTRACT PAYMENTS.**

As the work progresses in accordance with the contract and in a manner that is satisfactory to the Authority, the Authority hereby agrees to make payments to the Contractor therefore, based upon the proposal attached hereto and made a part hereof, as follows: The Authority shall, once in each month and on such days as it may fix, make an estimate of the quantity of work done and of material which has actually been put in place in accordance with the terms and conditions of the contract, during the preceding month, and compute the value thereof and pay to the Contractor the moneys due in accordance with Public Authorities Law Section 2880, as detailed in 21 NYCRR Part 109 (Prompt Payment). No monthly estimate shall be rendered unless the Contractor has provided acceptable documentation with regard to actions taken to comply with the M/WBE goals of the contract (see also §109-06 Contract Payments) and the value of the work done equals 5% of the contract amount or \$1,000, whichever is the lesser. Semi-monthly estimates may be rendered provided (a) the value of the work performed in two successive weeks is more than \$100,000 or (b) the Chairman of

the Authority deems it to be for the best interest of the Authority to do so.

Contractor understands and agrees that payments will only be rendered electronically unless payment by paper check is expressly authorized by the Authority, in its sole discretion, due to extenuating circumstances. Contractor shall comply with the Authority's procedures to authorize electronic payments. Authorization forms are available at <http://www.thruway.ny.gov/business/purchasing/epayments/index.html>, by e-mail at [suppliermgmt@thruway.ny.gov](mailto:suppliermgmt@thruway.ny.gov), or by telephone at (518) 436-2859. Contractor acknowledges that it will not receive payment of any estimates submitted under this Agreement if it does not comply with the Authority's electronic payment procedures, except where the Authority has expressly authorized payment by paper check as set forth above.

#### **ARTICLE 8. PAYMENT DUE TO CONTRACTOR'S NON-COMPLIANCE.**

It is further agreed that so long as any lawful or proper direction concerning the work or material given by the Chief Engineer, Department of Engineering of the New York State Thruway Authority, or his/her representative, shall remain uncomplied with, the Contractor shall not be entitled to have any estimate made for the purpose of payment, nor shall any estimate be rendered on account of work done or material furnished until such lawful or proper direction aforesaid has been fully and satisfactorily complied with.

#### **ARTICLE 9. FINAL ACCEPTANCE OF WORK.**

When in the opinion of the Thruway Division Director, a Contractor has fully performed the work under the contract, the Thruway Division Director shall recommend to the Chief Engineer, Department of Engineering of the New York State Thruway Authority, the acceptance of the work so completed. If the Chief Engineer, Department of Engineering accepts the recommendation of the Thruway Division Director, he/she shall thereupon by letter notify the Contractor of such acceptance. Copies of such acceptance shall be sent to other interested parties. Prior to the final acceptance of the work by the Chief Engineer, Department of Engineering of the New York State Thruway Authority or a designee, the contract work may be inspected, accepted and approved by other agencies and/or municipalities who will have jurisdiction of the work after final acceptance.

Final acceptance shall be final and conclusive except for defects not readily ascertainable by the New York State Thruway Authority, actual or constructive, fraud, gross mistakes amounting to fraud or other errors which the Contractor knew or should have known about as well as the New York State Thruway Authority's rights under any warranty or guarantee. Final acceptance may be revoked by the New York State Thruway Authority at any time prior to the issuance of the final check, upon the New York State Thruway Authority's discovery of such defects, mistakes, fraud or errors in the work.

#### **ARTICLE 10. FINAL PAYMENT.**

After the final acceptance of the work, the Engineer shall prepare a final agreement of the work performed and the materials placed and shall compute the value of such work and materials under and according to the terms of the contract.

This agreement shall be certified, as to its correctness, by the Engineer. Upon approval of such final agreement by the Director, Office of Construction Management, it shall be submitted to the Chief Engineer,

Department of Engineering for final approval. The right, however, is hereby reserved to the Chief Engineer, Department of Engineering to reject the whole or any portion of the final agreement, should the said certificate of the Engineer be found or known to be inconsistent with the terms of the agreement or otherwise improperly given. All certificates, upon which partial payments may have been made being merely estimates, shall be subject to correction in the final certificate or final agreement.

## **ARTICLE 11. RIGHT TO SUSPEND WORK AND CANCEL CONTRACT.**

### **Article 11.1 General Right to Suspend and Cancel Contract.**

It is further mutually agreed that if at any time during the prosecution of the work the Authority shall determine that the work is not being performed in accordance with the Contract or for the best interest of the Authority, the Chief Engineer, Department of Engineering, may proceed in any of the following ways:

- 1) Temporarily suspend the execution of the work by the Contractor, and the Chief Engineer of the Authority may then proceed with the work under his/her own direction in such manner as will accord with the Contract Documents and be for the best interests of the Authority; or
- 2) Terminate the Contract while it is in progress, and thereupon proceed with the work by a new contract negotiated or publicly advertised, by the use of his/her own forces, by calling upon the Surety to complete the Work in accordance with the Contract Documents, or by a combination of any such methods; or
- 3) Cancel the Contract and re-advertise and re-procure in accordance with applicable law; or
- 4) Complete the Work under the Authority's direction in such a manner as will accord with the Contract Documents and be for the best interests of the Authority.

Any excess in the cost of completing the Contract beyond the Contract Price for which it was originally awarded shall be charged to and paid by the Contractor failing to perform the Work or its Surety, all pursuant to the provisions of Section 40 of the New York State Highway Law.

In the event of suspension or termination, the Contractor shall be paid its costs, including contract close-out costs, and profit on work satisfactorily performed and project design costs actually incurred up to the time of termination, less an amount necessary to satisfy any claims, liens or judgments against the Contractor. The Contractor shall promptly submit its termination claim. The Contractor will only be paid the contract price for materials delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract, less an amount necessary to satisfy any claims, liens or judgments against the Contractor.

Whenever the Authority determines to suspend or stop Work under this Contract, a written notice sent by mail to the Contractor at its address and to its Sureties at their respective addresses shall be sufficient notice of its action in the premises.

### **Article 11.2 Termination for Cause.**

- A. If at any time during the prosecution of the work the Chief Engineer shall determine that the work under the Contract is not being performed according to the Contract or any

provision of the Contract is violated by the Contractor or by any subcontractor or that an Event of Default (as defined below) has occurred hereunder, the Chief Engineer, in his or her sole and absolute discretion, may proceed in any of the following ways:

- (1) Suspend or stop work by the Contractor, and the Chief Engineer may then complete the Work under his/her own direction in such manner as further described in the Contract Documents and as determined by the Chief Engineer to be in the best interests of the Authority; or
- (2) Terminate the Contract while it is in progress, and thereupon complete the work by: a new contract negotiated or publicly advertised; use of the Authority's own forces; calling upon the Surety to complete the Work in accordance with the Contract; or a combination of any such methods; or
- (3) Terminate the Contract and re-advertise as provided in law or if applicable, demand upon the Surety to complete any and all remaining work pursuant to the terms of the Contract and the Faithful Performance Bond.

As used herein, an "Event of Default" shall mean a material breach of the Contract by the Contractor which, without limitation, the following has occurred: (i) the Contractor has failed to begin the work in accordance with the Contract requirements; (ii) performance of this Contract has been unnecessarily or unreasonably delayed, (iii) the Contractor has willfully violated any of the provisions of the Contract or has not executed the same in good faith and in accordance with this Contract; (iv) the Contractor has abandoned the work; (v) the Contractor has become insolvent (other than as a bankrupt), or has assigned the proceeds of this Contract for the benefit of creditors, or taken advantage of any insolvency statute or debtor or creditor law or if his property or affairs have been put in the hands of a receiver; (vi) the Contractor has failed to obtain an approval required by the Contract; (vii) the Contractor has failed to provide the required insurances; (viii) the Contractor has failed to provide "adequate assurance" as required; or (ix) the Contractor is found to be non-responsible.

- B. Any excess in the cost of completing the Contract beyond the price for which it was originally awarded shall be charged to and paid by the Contractor failing to perform the work or by the Contractor's Surety, pursuant to the terms and conditions of Section 40 of the New York State Highway Law and the Faithful Performance Bond.
- C. Whenever the Authority determines to suspend, stop work, or terminate under this provision of the Contract, the Contractor and Surety shall receive written notice specifying the basis for such default (the "Default Notice"). Contractor shall have fifteen (15) days from the date of the Default Notice to cure such default, except that, at Authority's sole discretion, the Authority may extend such fifteen (15) day period for such additional period as the Authority shall deem appropriate without waiver of any of its rights hereunder. The Default Notice shall specify the date the Contractor is to discontinue all work if such default is not timely cured (the "Termination Date"). If the Event of Default is not cured or arrangements satisfactory to the Authority are not made (as evidenced in writing by the Authority) within the designated cure period, then Contractor shall suspend work and/or the Contract shall terminate, as the case may be, upon the Termination Date.

- D. Upon occurrence of an Event of Default or a termination for cause pursuant to this Article, the Authority has the remedies set forth in the Faithful Performance Bond, the Contract, and all remedies at law or in equity.
- E. In the event the termination for cause is determined to be improper, the termination shall be deemed a Termination for Convenience as identified in Article 11.3.

### **Article 11.3 Termination for Convenience.**

- A. The Authority, at any time, may terminate the Contract in whole or in part. Any such termination shall be effected by delivering to the Contractor a written notice of termination specifying the extent to which performance of work under the Contract is terminated and the date upon which the termination becomes effective. Upon receipt of the notice of termination, the Contractor shall act promptly to minimize the expenses resulting from the termination.
- B. The Authority shall pay the Contractor for work of the contract performed by the Contractor and accepted by the Authority for the period extending from the end of the period covered by the last approved Application for Payment up to the effective date of the termination, an amount determined in accordance with the Contract Documents. In no event shall the Contractor be entitled to compensation in excess of the total consideration of the Contract. In no event shall the Contractor be entitled to overhead or profit on the work not performed.
- C. In the event of such termination, the Authority may take over the work and prosecute the Contract to completion and may take possession of and may utilize such materials, appliances, and equipment on the site and necessary or useful in completing the work. The Authority also has the right to suspend the execution of the Work for convenience and/or to terminate the Contract for convenience.

Whenever the New York State Thruway Authority determines to suspend or stop work under the contract, a written notice sent by mail to the Contractor at its address and to the sureties at their respective addresses, shall be sufficient notice of its action in the premises.

### **Article 11.4 Termination for Vendor Responsibility.**

- A. Contractor shall at all times during the Contract term remain responsible. Contractor agrees, if requested by the Authority, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.
- B. The Authority, in its sole discretion, reserves the right to suspend any or all activities under this Contract, at any time, when it discovers information that calls in to question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor shall comply with the terms of the suspension order. Contract activity may resume at such time as the Authority issues a written notice authorizing a resumption of performance under the Contract.
- C. Notwithstanding any other provision of this Contract, if the Authority determines Contractor to be non-responsible, the Authority shall have the right to terminate the Contract for cause pursuant to the terms of Article 11.2 - Termination for Cause herein.



In such event, the Authority shall have all rights and remedies set forth in Article 11.2, including, without limitation, the right to complete Contractor's contractual requirements in any manner the Authority may deem advisable and to pursue available legal or equitable remedies for the breach.

- D. In no event shall termination of the Contract by the Authority for reasons of Contractor's non-responsibility be deemed a breach by the Authority, nor shall the Authority be liable for any damages or lost profits or otherwise that Contractor may incur as a result of such termination.
- E. The Authority may require at any time the removal of a subcontractor to the Contractor that the Authority determines is not responsible.

#### **ARTICLE 12. DETERMINATION AS TO VARIANCES.**

In any case of any ambiguity in the plans, specifications or maps, or between any of them, the matter must be immediately submitted to the Chief Engineer, Department of Engineering, who shall adjust the same, and his/her decision in relation thereto shall be final and conclusive upon the parties.

#### **ARTICLE 13. SUCCESSORS AND ASSIGNS.**

This Agreement shall bind the successors, assigns and representatives of the parties hereto.

#### **ARTICLE 14. INTERNATIONAL BOYCOTT PROHIBITION.**

In accordance with Chapter 406 of the Laws of 1981, the Contractor hereby promises, asserts and represents that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating or shall participate in an international boycott in violation of the provisions of the United States Export Administration Act of 1969, as amended, or the United States Export Administration Act of 1979, or the effective Regulations of the United States Department of Commerce promulgated under either act.

It is understood further that the Authority in awarding a contract does so in material reliance upon the promise and representation made by the Contractor in the foregoing paragraph and that such contract shall be rendered forfeit and void by the State Comptroller if subsequent to the bid execution date, the Contractor or such owned or affiliated person, firm, partnership or corporation has been convicted of a violation of the aforesaid Acts or Regulations or has been found upon final determination of the United States Commerce Department or any other appropriate agency of the United States to have violated such Acts or Regulations.

The Contractor agrees to and shall notify the Chief Engineer, Department of Engineering and the Director of the Office of Construction Management and the Director of State Expenditures in the Office of the State Comptroller of any such conviction or final determination of violation within five (5) days thereof.

#### **ARTICLE 15. CERTIFICATION OF STATE FINANCE LAW SECTIONS 139-J AND 139-K.**

By execution of this Agreement the Contractor certifies that all information provided with respect to New York State Finance Law Section 139-j and Section 139-k is complete, true and accurate. The Authority shall have a right to terminate this Agreement in the event the Authority finds that the certification made by the Contractor in accordance with New York State Finance Law Sections 139-j and 139-k was intentionally false or intentionally incomplete. This

includes the Authority's right to terminate this Agreement at any time in the event the Authority finds that Contractor is non-responsible or has failed to accurately disclose vendor responsibility information.

#### **ARTICLE 16. WRITTEN NOTICES.**

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

- a. certified or registered United States mail, return receipt requested;
- b. facsimile transmission;
- c. personal delivery;
- d. expedited delivery service; or
- e. e-mail.

Such notices shall be addressed to the individuals or titles named in the contract documents, or which are designated by the Contractor or the Authority at the pre-construction meeting, or which are designated by the Authority or the Contractor from time to time during the course of the Contract pursuant to the requirements herein.

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 case of facsimile transmission or email, upon receipt.

The parties may, from time to time, specify a new or different address in the United States as their address for the purpose of receiving notice under this Agreement by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Agreement. 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.

#### **ARTICLE 17. SUBCONTRACTING.**

Contractor agrees not to subcontract any of its services without the prior written approval of the Authority.

Contractor retains ultimate responsibility for all services performed under the Agreement and shall pay any subcontractors promptly for work performed under this Agreement. Contractor shall be fully responsible to the Authority for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, just as Contractor is fully responsible to the Authority for the acts and omissions of persons directly employed by Contractor.

All subcontracts shall be in writing and shall contain provisions, which are functionally identical to, and consistent with, the provisions of this Agreement including, but not limited to, the body of this Agreement, Appendix A – Standard Clauses for New York State Thruway Authority Contracts, and the Contract Documents. Unless expressly waived in writing by the Authority, all subcontracts between the Contractor and its subcontractors shall expressly name the Authority, as the sole intended third party beneficiary of such subcontract. The Authority reserves the right to review and approve or reject any subcontract, as well as any amendment to said subcontract(s), and this right shall not make the Authority a party to any subcontract or create any right, claim, or interest in the subcontractor or proposed

subcontractor against the Authority. The Authority shall have the right to withdraw its consent to a subcontractor if, at the sole discretion of the Authority, it appears that the subcontract will delay, prevent, or otherwise impair Contractor's performance of services under this Agreement. Upon request, Contractor shall furnish to the Authority copies of all Contracts between Contractor and its subcontractors used to perform services for this Agreement.

The Authority reserves the right, at any time during the term of the Agreement, to verify that the written subcontract between Contractor and its subcontractors is in compliance with all of the provisions of this Article 17 and any subcontract provisions contained in this Agreement.

Contractor shall give the Authority immediate notice in writing of the initiation of any legal action or suit which relates in any way to a subcontract with a subcontractor or which may affect the performance of the Contractor's duties under the Agreement. Any subcontract shall not relieve the Contractor in any way of any responsibility, duty and/or obligation of the Agreement.

If at any time during performance under this Agreement total compensation to a subcontractor exceeds or is expected to exceed \$100,000, said subcontractor shall be required to electronically submit and certify a new Vendor Responsibility Questionnaire directly to the Office of the New York State Comptroller, or submit and certify all necessary updated information thereof.

Nothing contained in this Agreement shall create any contractual relationship between a subcontractor and the Authority.

#### **ARTICLE 18. CONFIDENTIALITY AND NON-DISCLOSURE.**

- A. "Confidential Information" means any information not generally known to the public, or that the Authority claims is confidential, whether oral, written, or electronic, that the Authority discloses, directly or indirectly, through any means of communication, to Contractor. Confidential Information includes, but is not limited to, operational and infrastructure information relating to: bid documents, plans, drawings, specifications, reports, product information and data; business and security processes and procedures; personnel and organizational data; financial statements; information system IP addresses, passwords, security controls, architectures and designs; and such other data, information and images that the Authority deems confidential.
- B. Confidential Information does not include information which, at the time of the Authority's disclosure to Contractor: (1) is already in the public domain or becomes publicly known through no act of Contractor; or (2) is already known by Contractor free of any confidentiality obligations.

If Contractor wants to disclose Confidential Information, it shall notify the Authority and specify the Confidential Information it wants to disclose. Contractor may only disclose such Confidential Information if the Authority approves such disclosure in writing, subject to such other terms and conditions as the Authority may require. Such approval, if given, shall only apply to the particular request and the specific Confidential Information for

which it is given.

If Contractor is required to disclose or make available, directly or indirectly, Confidential Information pursuant to statute, court or administrative order, subpoena, contractual obligation, or otherwise by law, Contractor shall: (1) notify the Authority that it has received such legal demand as soon as practicable, but in all events prior to any disclosure; (2) permit the Authority to take the steps it deems necessary and appropriate to protect the Confidential Information from disclosure; (3) cooperate to the fullest extent possible under the law with the Authority's efforts to protect the Confidential Information from disclosure; and (4) disclose only such Confidential Information, and only such portions thereof, as is required to satisfy the legal demand, and limit any such disclosure of Confidential Information to the fullest extent permissible under the law.

- C. Contractor may use Confidential Information solely for the purposes of providing services to the Authority pursuant to this Agreement. Contractor may make copies of Confidential Information but only to the extent necessary for the disclosures and uses permitted by this Agreement. Contractor will make commercially reasonable efforts to ensure that any copy of Confidential Information that is made is marked to show that it is or contains Confidential Information. Contractor may share Confidential Information with third parties: (i) that are required for Contractor's provision of services to the Authority pursuant to this Agreement (e.g., Contractors and subcontractors); and (ii) that agree in writing to be bound by the confidentiality provisions of this Agreement; however, Contractor may share only that Confidential Information that is necessary to the third party's contribution to Contractor's provision of services to the Authority pursuant to this Agreement and Contractor must first obtain the Authority's prior written consent.

The Authority's disclosure of Confidential Information to Contractor shall not convey to Contractor any right, title, or interest in or to such Confidential Information, and this Agreement does not transfer ownership of Confidential Information or grant a license thereto. The Authority shall retain all right, title, and interest in and to all such Confidential Information at all times.

- D. Contractor shall hold Confidential Information confidential to the maximum extent permitted by law. Contractor shall safeguard Confidential Information with at least the same level of care and security that Contractor uses to maintain and protect from disclosure its own confidential information, using all reasonable and necessary security measures, devices, and procedures that Contractor uses to maintain its own confidential information, but in all events with not less than reasonable care.

Contractor shall take reasonable steps to prevent unauthorized access to, use of, or disclosure of Confidential Information, including without limitation, by protecting its passwords and other log-in information. Contractor shall notify the Authority immediately of any known or suspected misuse or misappropriation of Confidential Information and shall use its best efforts to stop said misuse or misappropriation.

- E. Upon written request of the Authority, or upon expiration or termination of this Agreement, Contractor shall return all Confidential Information to the Authority, or certify in writing that it has been destroyed and no copies exist.

- F. Contractor agrees that breach of this Article 18 would cause the Authority irreparable

injury, for which monetary damages would not provide adequate compensation, and that in addition to any other remedy, the Authority will be entitled to injunctive relief against such breach or threatened breach, without proving actual damages or posting a bond or other security.

- G. Without limiting the foregoing, the obligations and assurances involving Confidential Information pursuant to this Agreement shall survive termination or expiration of this Agreement.

#### **ARTICLE 19. NEW YORK STATE HUMAN RIGHTS LAW, ARTICLE 15 OF THE EXECUTIVE LAW.**

The New York State Human Rights Law, Article 15 of the Executive Law, prohibits discrimination (including to refuse to hire or employ or to bar or to discharge from employment an individual or to discriminate against such individual in compensation or in terms, conditions or privileges of employment) and harassment based on age, race, creed, color, national origin, sex, , sexual orientation, gender identity or expression, disability, marital status, familial status, domestic violence victim status, prior arrest or conviction record, military status or predisposing genetic characteristics, or because the individual has opposed any practices forbidden under the Human Rights Law or because the individual has filed a complaint, testified or assisted in any proceeding under the Human Rights Law, regardless of whether such harassment would be considered severe or pervasive under precedent applied to harassment claims. Harassment is an unlawful discriminatory practice when it subjects an individual to inferior terms, conditions or privileges of employment because of the individual's membership in one or more of these protected categories.

The Human Rights Law may also require reasonable accommodation for persons with disabilities and pregnancy-related conditions. A reasonable accommodation is an adjustment to a job or work environment that enables a person with a disability to perform the essential functions of a job in a reasonable manner. The Human Rights Law may also require reasonable accommodation in employment on the basis of Sabbath observance or religious practices.

Generally, the Human Rights Law applies to:

- all employers of four or more people, employment agencies, labor organizations and apprenticeship training programs in all instances of discrimination or harassment;
- employers with fewer than four employees in all cases involving sexual harassment; and,
- any employer of domestic workers in cases involving sexual harassment or harassment based on gender, race, religion or national origin.

In accordance with New York State Executive Order No. 177, by execution of this Agreement, Contractor hereby certifies, that it does not have institutional policies or practices that fail to address the harassment and discrimination of individuals on the basis of their age, race, creed, color, national origin, sex, sexual orientation, gender identity, disability, marital status, military status, or other protected status under the Human Rights Law.

Executive Order No. 177 and the aforementioned certification do not affect institutional policies or practices that are protected by existing law, including but not limited to the First Amendment of the United States Constitution, Article 1, Section 3 of the New York State Constitution, and Section 296(11) of the New York State Human Rights Law.

**ARTICLE 20. DEBARMENT CERTIFICATION.**

A. The Contractor certifies to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this contract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (A)(2) of this certification; and
4. Have not within a three-year period preceding this application/proposal/contract had one or more public transactions (Federal, State or local) terminated for cause or default.

**ARTICLE 21. CONFLICTS OF INTEREST.**

- A. Contractor has provided as Exhibit V (attached hereto and made a part of this Agreement), the Vendor Assurance of No Conflict of Interest or Detrimental Effect form, signed by an authorized executive or legal representative attesting that Contractor's performance of the services does not and will not create a conflict of interest with, nor position Contractor to breach any other contract currently in force with the Authority or the State of New York, that Contractor will not act in any manner that is detrimental to any Authority or State of New York project for which Contractor is rendering services.
- B. Contractor hereby reaffirms the attestations made in its proposal and covenants and represents that there is and shall be no actual or potential conflict of interest that could prevent Contractor's satisfactory or ethical performance of duties required to be performed pursuant to the terms of this Agreement. Contractor hereby agrees it shall have a continuing affirmative duty and obligation to notify the Authority immediately of any actual or potential conflicts of interest.
- C. In conjunction with any subcontract under this Agreement, Contractor shall obtain and deliver to the Authority, prior to entering into a subcontract, a Vendor Assurance of No Conflict of Interest or Detrimental Effect form, signed by an authorized executive or legal representative of the subcontractor. Contractor shall also require in any subcontracting agreement that the subcontractor, in conjunction with any further subcontracting agreement, obtain and deliver to the Authority a signed and completed Vendor Assurance of No Conflict of Interest or Detrimental Effect form for each of its subcontractors prior to entering into a subcontract.
- D. The Authority and Contractor recognize that conflicts may occur in the future because

Contractor may have existing, or establish new, relationships. The Authority will review the nature of any relationships and reserves the right to terminate this Agreement for any reason, or for cause, if, in the judgment of the Authority, a real or potential conflict of interest cannot be cured.

## **ARTICLE 22. ETHICS.**

Contractor and subcontractors may hire former State agency or Authority employees. However, as a general rule and in accordance with New York Public Officers Law, former employees of the Authority may neither appear nor practice before the Authority, nor receive compensation for services rendered on a matter before the Authority, for a period of two years following their separation from Authority service. In addition, former Authority employees are subject to a "lifetime bar" from appearing before the Authority or receiving compensation for services regarding any transaction in which they personally participated or which was under their active consideration during their tenure with the Authority.

During the term of the Agreement, Contractor and its subcontractors shall not engage any person who is, or has been at any time, in the employ of the Authority or New York State to perform services under the Agreement in violation of: the provisions of the Public Officers Law ("POL"); the rules, regulations, opinions, guidelines, or policies promulgated or issued by the New York State Joint Commission on Public Ethics ("JCOPE Regulations"); and any other laws applicable to the service of current or former Authority or New York State employees ("Other Laws," and, together with POL and JCOPE Regulations, collectively, the "Ethics Provisions"). Contractor certifies that all of its employees and employees of any subcontractor who are former employees of the Authority or New York State and who are assigned to perform services under the Agreement shall be assigned in accordance with all Ethics Provisions. Further, during the term of the Agreement, no person who is employed by Contractor or its subcontractors and who is disqualified from providing services under the Agreement pursuant to any Ethics Provisions may share in any net revenues Contractor or its subcontractors derives from the Agreement.

Contractor shall identify and provide the Authority with notice of those employees of Contractor or its subcontractors who are former employees of the Authority or New York State and who will be assigned to perform services under the Agreement, and shall ensure that such employees comply with all applicable laws and prohibitions. The Authority may, request that Contractor provide it with whatever information the Authority deems appropriate about each such person's engagement, work cooperatively with the Authority to solicit advice from the New York State Joint Commission on Public Ethics, and, if deemed appropriate by the Authority, instruct any such person to seek the opinion of the Joint Commission on Public Ethics. The Authority shall have the right to withdraw or withhold approval of any subcontractor if utilizing such subcontractor for any work performed hereunder would be in conflict with any of the Ethics Requirements. The Authority shall have the right to cancel or terminate the Agreement at any time if any work performed under the Agreement is in conflict with any Ethics Provisions.

## **ARTICLE 23. MINORITY AND WOMEN BUSINESS ENTERPRISE GOALS AND SERVICE DISABLED VETERANS OWNED BUSINESS GOALS.**

This Contract is subject to State provisions (including State Executive Law 15-A and 5 NYCRR Parts 140-145) concerning the utilization of Minority-Owned Business Enterprises (MBE) and Women-Owned Business Enterprises (WBE) (collectively M/WBE). All State M/WBE requirements are applicable to this Contract. The approved overall combined MBE and WBE participation goal for the project is established in the Contract Documents.

This Contract is subject to State provisions (including State Executive Law 15-A and 5 NYCRR Parts 140-145) concerning the utilization of Service Disabled Veterans Owned Business (SDVOB). All State SDVOB requirements are applicable to this Contract. The approved overall SDVOB participation goal for the project is established in the Contract Documents.

**ARTICLE 24. IRAN DIVESTMENT ACT- SECTION 2879-C OF THE PUBLIC AUTHORITIES LAW.**

- A. As used in this Article 24, "person" has the meaning set forth in paragraph (e) of subdivision 1 of Section 165-a of the State Finance Law.
- B. As used in this Article 24 "Contract" means this Agreement.
- C. Contractor hereby provides the following certification: By signing this Contract, each person and each person signing on behalf of any other party certifies, and in the case of a joint bid or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each person is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the State Finance Law.

**ARTICLE 25. COVENANT AGAINST CONTINGENT FEES.**

Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working for Contractor, to solicit or secure this Agreement, and has not paid or agreed to pay any company or person, other than a bona fide employee, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this Agreement. In the event Contractor violates this warranty, Authority shall have the right to terminate this Agreement without liability, or, in its discretion, to deduct from payments otherwise owed to the Contractor for services provided pursuant to this Agreement the full amount of such fee, commission, percentage, brokerage fee, gift or other consideration.

**ARTICLE 26. COMPLIANCE MONITORING.**

In the event that the Contractor, its affiliates or any subcontractor is or becomes subject to a compliance monitoring requirement consequent to an agreement with a governmental entity at any time prior to completion of the contract, the Contractor shall promptly notify the Authority of the same. Compliance monitoring means any requirement imposed by a governmental entity arising from an investigation of activities of the Contractor, its affiliates, or any subcontractor concerning alleged compliance violations, pursuant to which the subject entity is obligated to allow an independent third party to review, analyze, investigate or report on that entity's future compliance with governmental rules and/or contractual requirements arising from governmental rules. Said notice shall be in writing and shall include (i) a copy of the order, settlement or other document setting forth the requirement to implement a monitoring program and (ii) the specific requirements and conditions of the required program. If the order, settlement or other document is subject to confidentiality protection that cannot be unilaterally waived by the Contractor or the entity that is subject to the requirement, the Contractor shall cause the subject entity to confirm that it is subject to a compliance monitoring requirement

and to provide a confidential summary of the terms and conditions of the monitoring requirement to the Contractor, with a copy to the Authority.



The Contractor shall further cause the subject entity to promptly notify the Contractor, with a copy to the Authority, of any violations of the monitoring program by the subject entity and of any other concerns expressed by the monitor regarding compliance with the monitoring program requirements. In such event, the Contractor shall provide to the Authority a detailed written report as to whether and to what extent, if any, the violation or concerns expressed by the monitor are relevant to the Contractor's compliance with its Contract obligations, or to the performance of work by the Contractor. The Authority shall at all times have the right to independently investigate whether any matter raised by the monitor will have any effect upon the Contractor's compliance with its Contract obligations or performance of work by the Contractor and/or subject entity. If any such violation occurs or concerns expressed by the monitor involve compliance requirements that are deemed by the Authority to be relevant to the Contract, the Authority shall have the right to require the Contractor to institute, at Contractor expense, additional data keeping, reporting, and/or other safeguard measures, including permitting independent auditing and access to pertinent records of the Contractor or the subject entity to mitigate risk that a similar violation will occur on the project or be a cause for concern with respect to the Contractor's performance of its obligations under the Contract. The Authority's audit rights under the Contract shall include the right to audit and access pertinent records of the Contractor or the subject entity relating to compliance issues described herein.

The Authority agrees to take all reasonable measures to maintain the confidentiality (to the extent permitted by law) of any information provided by Contractor and/or the subject entity pursuant to this Article 26 which the Contractor has reasonably designated as confidential, and the provisions of Appendix A, Section 9 of the New York State Thruway Authority Addendum to the Standard Specifications, of the Agreement shall apply with respect to disclosure of any such Records under the Statute (as defined in such section). Any intra-agency written materials prepared by the Authority, or any written inter-agency materials that are in the possession or control of the Authority, to the extent based on information or records designated as confidential or exempt from disclosure under the Statute as provided in the preceding sentence, shall also be designated and treated as such by the Authority to the fullest extent permitted by law. The Authority may disclose any of the aforementioned information, records and materials to the New York State Department of Transportation, provided that the Department agrees to treat such information, records and material in the same manner as required of the Authority under this paragraph.

The rights and remedies granted to the Authority under this Article 26 are in addition to, and not to the exclusion of, any and all of its rights and remedies under the Contract or at law or in equity.

#### **ARTICLE 27. INDEMNIFICATION.**

The Contractor shall be responsible for all damage to life and property due to negligent or otherwise tortious acts, errors or omissions of the Contractor in connection with its services under the Contract Documents. To the fullest extent permitted by law: (a) the Contractor shall indemnify, hold harmless, and release the Authority, the State of New York, any municipality in which the Work is being performed; and/or any public benefit corporation, railroad or public utility whose property or facilities are affected by the Work from suits, claims, actions, damages, and costs of every name and description resulting from the Work under this Contract and until the Final Acceptance thereof; (b) with respect to personal injury or property damage occurring after Final Acceptance and not covered by the indemnity in clause Article 27 (a), the Contractor shall indemnify, hold harmless, and release the Authority, the State of New York, any municipality in which the Work is being performed;

and/or any public benefit corporation, railroad or public utility from suits, claims, actions, damages, and costs of every name and description resulting from negligent or otherwise tortious acts, errors or omissions of the Contractor in connection with its services under the Contract Documents; and (c) the Contractor shall indemnify, hold harmless, and release the Authority's Inspector from suits, claims, actions, damages, and costs involving personal injury and property damage resulting from the Contractor's Work under the Contract during its prosecution and until the Final Acceptance thereof. The Authority may retain such monies from the amount due the Contractor as may be necessary to satisfy any claim for damages recovered against the Authority, the State of New York, any municipality in which the Work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the Work, or the Authority's Inspectors. The Contractor's obligation under this paragraph shall not be deemed waived by the failure of the Authority to retain the whole or any part of such monies due the Contractor, or where such suit, action, damages, and/or costs have not been resolved or determined prior to release of any monies to the Contractor under the Contract. Such obligation shall not be deemed limited or discharged by the enumeration or procurement of any insurance for liability for damages imposed by law upon the Contractor, Subcontractors, the Authority, the State, any municipality in which the Work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the Work, or any Department consultants or contractors working relative to the Project.

The Contractor has the obligation, at its own expense, for the defense of any action or proceeding which may be brought against the parties specified in this Article. This obligation shall include the cost of attorney fees, disbursements, costs, and other expenses incurred in connection with such action or proceeding. The provisions of this Article shall survive the expiration or termination of the Contract.

Without limiting the generality of the foregoing, Contractor's obligation to indemnify, save harmless and release the Persons identified in this article specifically includes any suits, claims, actions, damages, and costs of every name and description resulting from any spill or release or threatened spill or release of a Hazardous Material (i) attributable to the negligence, willful misconduct or breach of contract by Contractor, its Subcontractors or agents, or (ii) which was brought onto the Site by Contractor or any of its Subcontractors or agents.

Notwithstanding the foregoing, the Authority reserves the right to join such action, at its sole expense, when it determines there is an issue involving a significant public interest. Such obligation does not extend to those suits, actions, damages, and costs of every name which arise out of the sole negligence of the Authority, the State of New York, any municipality in which the Work is being performed, any public benefit corporation, railroad, or public utility whose property or facilities are affected by the Work of the Project, or any Authority consultants or Contractors working relative to the Project, their agents, or their employees.

#### **ARTICLE 28. NOTICES REGARDING CLAIMS, LITIGATION AND RULINGS.**

The Contractor shall promptly provide written notice to the Authority of all claims, litigation and governmental rulings pertaining to the work where such claims, litigation or rulings could subject the Authority to liability or substantially impair the completion of the Contract work. With such notice, the Contractor shall include a brief summary of the issue involved and the Contractor's position on such issue. Such written notice is additional to and not in place of any other notices required by the Contract Documents. The Contractor shall cooperate and provide, and shall require all subcontractors to cooperate and provide, such information or

records as may be reasonably requested by the Authority concerning such claims, litigation or rulings.

#### **ARTICLE 29. COOPERATION AND FURTHER ASSURANCES.**

Contractor shall cooperate and provide, and shall cause all subcontractors to cooperate and provide, such information as is necessary or requested by the Authority to assist or facilitate the submission by the Authority of any documentation, reports or analysis required by the State, and/or any other governmental entity with jurisdiction over the work. The Contractor shall promptly execute and deliver to the Authority all such instruments and other documents and assurances as are reasonably requested by the Authority to further evidence the obligations of the Contractor under the Contract.

#### **ARTICLE 30. SEVERABILITY.**

If any clause, provision, section, article or part of any of the Contract Documents is ruled invalid by a court having proper jurisdiction, the invalidity or unenforceability of any such clause, provision, section, article or part shall not affect the validity or enforceability of the balance of the Contract Documents, which shall be construed and enforced as if the Contract Documents did not contain such invalid or unenforceable clause, provision, section, article or part.

#### **ARTICLE 31. ENVIRONMENTAL REVIEW**

##### **Article 31.1 Lead Agency**

The Authority reserves the right to be “lead agency” for any compliance with the New York State Environmental Quality Review Act (SEQRA), and the appropriate federal agency shall serve as “lead agency” for the National Environmental Policy Act (NEPA), as may be required for this Agreement or any activity undertaken by Contractor pursuant to this Agreement.

##### **Article 31.2 Executive Order 22**

Embodied Carbon Disclosure: For building materials covered by the GreenNY Council Embodied Carbon Guidance, Contractors and designers shall disclose, at regular intervals during the course of the contract period (and no less than once a year), the exact materials/product type and estimated quantities used. For materials for which Environmental Product Declarations (EPDs) exist that comply with the GreenNY Council requirements, Contractors are also required to submit kgCO<sub>2</sub> equivalent estimates by material/product, and quantity used, on the project to date, with a .pdf copy of the EPD or a link to the digital EPD. (Please see the EO22 Special Note contained in the Special Notes section of this proposal).

**Contract Number:**

In addition to the acceptance of this contract, I also certify that original copies of this signature page will be attached to all other exact copies of this contract.

IN-WITNESS WHEREOF, the parties hereto have executed this agreement on the day and year first above written.

NEW YORK STATE  
THRUWAY AUTHORITY

By \_\_\_\_\_  
Chief Engineer

Date \_\_\_\_\_

\_\_\_\_\_  
Contractor

NEW YORK STATE  
THRUWAY AUTHORITY

Recommended as to Availability of Funds:

By \_\_\_\_\_  
Chief Financial Officer

Date \_\_\_\_\_

**(ACKNOWLEDGMENT BY INDIVIDUAL CONTRACTOR)**

STATE OF NEW YORK

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_,  
 before me personally came \_\_\_\_\_ to me  
 known and known to me to be the person described in and who executed the foregoing instrument,  
 and acknowledged that he executed the same.

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

**(ACKNOWLEDGMENT BY CO-PARTNERSHIP CONTRACTOR)**

STATE OF NEW YORK

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_  
 before me personally came and appeared \_\_\_\_\_ to me known and known  
 to me to be the person who executed the above instrument, who, being sworn by me, did for himself  
 depose and say that he is a member of the firm of \_\_\_\_\_ consisting of  
 himself and \_\_\_\_\_ and that he executed the foregoing instrument in the  
 firm name of \_\_\_\_\_ and that he had authority to sign same, and he did duly  
 acknowledge to me that he executed the same as the act and deed of said firm of  
 \_\_\_\_\_, for the uses and purposes mentioned therein.

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

**(ACKNOWLEDGEMENT OF A CORPORATION)**

STATE OF NEW YORK    }  
                                      }  
 COUNTY OF                }

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_,  
 before me personally came \_\_\_\_\_, to me known and known to me to  
 be the person who executed the above instrument, who being duly sworn by me, did depose and  
 say that he/she resides in \_\_\_\_\_, that he/she is the  
 \_\_\_\_\_ of \_\_\_\_\_, the corporation  
 described in and which executed the above instrument, and that he/she signed his/her name thereto  
 on behalf of said Corporation by order of the Board of Directors of said Corporation.

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

**Exhibit V****Vendor Assurance of No Conflict of Interest or Detrimental Effect**

The undersigned entity ("Contractor"), offering to provide services pursuant to this Agreement, as a contractor, joint venture contractor, subcontractor, or consultant, attests that its performance of the services outlined in this Agreement does not and will not create a conflict of interest with nor position the Contractor to breach any other contract currently in force with the New York State Thruway Authority ("Authority").

Furthermore, the Contractor attests that it will not act in any manner that is detrimental to any Authority project on which the Contractor is rendering services. Specifically, the Contractor attests and certifies that:

1. The fulfillment of obligations by the Contractor does not violate any existing contracts or agreements between the Contractor and the Authority;
2. The fulfillment of obligations by the Contractor does not and will not create any conflict of interest, or perception thereof, with any current role or responsibility that the Contractor has with regard to any existing contracts or agreements between the Contractor and the Authority;
3. The fulfillment of obligations by the Contractor does not and will not compromise the Contractor's ability to carry out its obligations under any existing contracts between the Contractor and the Authority;
4. The fulfillment of any other contractual obligations that the Contractor has with the Authority will not affect or influence its ability to perform under the Agreement;
5. During the negotiation and execution of any contract, the Contractor will not knowingly take any action or make any decision which creates a potential for conflict of interest or might cause a detrimental impact to the Authority as a whole including, but not limited to, any action or decision to divert resources from one Authority project to another;
6. In fulfilling obligations under each of its Authority contracts, including this Agreement, the Contractor will act in accordance with the terms of each of its Authority contracts and will not knowingly take any action or make any decision which might cause a detrimental impact to the Authority as a whole including, but not limited to, any action or decision to divert resources from one Authority project to another;
7. No former officer or employee of the Authority or State of New York ("State") who is now employed by the Contractor, nor any former officer or employee of the Contractor who is now employed by the Authority or State, has played a role with regard to the administration of this contract procurement in a manner that may violate section 73(8)(a) of the New York State Public Officers Law; and
8. The Contractor has not and shall not offer to any employee, member or director of the Authority any gift, whether in the form of money, service, loan, travel, entertainment, hospitality, thing or promise, or in any other form, under circumstances in which it could reasonably be inferred that the gift was intended to influence said employee, member or director, or could reasonably be expected to influence said employee, member or director, in the performance of the official duty of said

employee, member or director or was intended as a reward for any official action on the part of said employee, member or director.

Contractor agrees that the Authority recognizes that conflicts may occur in the future because a Contractor may have existing or new relationships. The Authority will review the nature of any such new relationship and reserves the right to terminate the contract for cause if, in its judgment, a real or potential conflict of interest cannot be cured.

This form must be signed by an authorized executive or legal representative.

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Contractor Name

---

Name of Signatory

---

Title of Signatory

---

Signature:

---

Date:



CONTRACT:

COUNTY:

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## FAITHFUL PERFORMANCE BOND

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**BOND**

Know all men by these presents, that we (hereinafter called the "Principal")

and \_\_\_\_\_

of \_\_\_\_\_ (hereinafter called the "Surety") are held and firmly bound unto the New York State Thruway Authority, (hereinafter called the "Authority"), in the full and just sum of \_\_\_\_\_ good and lawful money of the United States of America for the payment of which said sum of money, well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators or assignees and the said SURETY binds itself, its successors or assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this \_\_\_\_\_ of \_\_\_\_\_, 202 \_\_\_\_\_,

Whereas, said Principal has entered into a certain written contract bearing date of the \_\_\_\_\_ day of \_\_\_\_\_, 202 \_\_\_\_\_ with the Authority for:

Now, therefore, THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Principal shall well, truly and faithfully perform the work in accordance with the terms of the contract, and with the plans and specifications, and will commence and complete the work within the time prescribed in the contract, on his part to be kept and performed according to the terms and tenor of said contract, and shall protect the said N.Y.S. Thruway Authority against, and pay any excess of cost as provided in said contract, and all amounts, damages, costs and judgments which may be recovered against said N.Y.S. Thruway Authority, N.Y.S. Dept. of Transportation the Commissioner of Transportation and the State of N.Y. or its or any of their officers or agents or which the said aforementioned may be called upon to pay to any person or corporation by reason of any damages, direct or indirect, arising or growing out of the doing of said work, or from the negligence, non-feasance, misfeasance, or malfeasance of any officer, agent or employee of the aforementioned, or suffered or claimed on account of aforesaid work during the time thereof and until the final completion and acceptance of the work, or the manner of doing the same, or the neglect of the said Principal, or his agents, or servants, or the improper performance of the said work by the said Principal, or his agents, or servants, or from any other cause, then this obligation shall be null and void, otherwise to remain in full force and virtue.

In the event of a failure of performance of the contract by the Principal, which shall include, but not be limited to, any breach or default of the contract by the Principal, or in case said contract is forfeited by the Principal in the manner provided for in the contract and the said Surety, for value received, hereby stipulates and agrees, if requested to do so by the Authority, has the option to either remedy the default, or breach or forfeiture of the Principal or take charge and fully perform and complete the work, mentioned and described in said contract and specifications, pursuant to the terms, conditions and covenants thereof and as may be amended, at its own expense. The procedure by which the surety undertakes to discharge its obligations under the bond shall be subject to the advance written approval of the Authority. If the Surety completes the contract, it shall be paid for the actual items of work performed in accordance with the Principal's contract terms and prices. In the event the Surety assumes the rights and obligations of the Principal.

It shall be the duty of the Surety to give unequivocal notice in writing to the Authority, within forty-five (45) days after receipt of written notice from the Authority to the Surety, of the Surety's election to remedy default(s) or breach(es) or forfeiture(s) promptly or to perform and fully complete the contract promptly as provided herein, time being of the essence of this bond. In said notice of election, the Surety shall state the date on which the remedy or performance shall commence. During the period between the Authority's notice and Surety's performance of the contract or remedy of the default, breach or forfeiture, the Surety shall be liable for and agrees to pay any and all reasonable and necessary costs as determined by the Authority to maintain the project site safe and convenient to the public.

It shall also be the duty of the Surety to give prompt notice in writing to the Authority upon completion of the remedy and/or correction of each breach or default or completion of the contract. The surety shall not assert solvency of its Principal or its Principal's denial of default as justification for its failure to give notice of election or for its failure to promptly remedy the breach or default or to complete the contract.

In the event the Surety shall fail to exercise either option or to act promptly then the Authority shall give ten (10) days notice of such failure, both to the Principal and the Surety, and after the expiration of the 10 days the Authority may cause the work to be completed in accordance with the contract, and the Surety and the Principal shall be jointly and severally liable for the amount of the excess cost of completing the contract work beyond the amounts remaining for this contract adjusted for the work actually performed. When the cost of completion of performance by the Obligee is estimated, the Principal and Surety shall pay, free from all liens and encumbrances, the Authority determined estimated completion costs above funds remaining for this contract, to the Authority within 30 days of receipt of the estimate. Adjustment to the Authority's estimated completion cost will be made upon the Authority's final acceptance of the work and appropriate refunds, if any, will be promptly made to the Surety. Any actual costs in excess of the estimated price shall be paid to the Authority promptly on demand. Additionally, Principal and Surety shall be liable for any applicable liquidated and/or engineering costs or damages.

In addition, the said Principal and Surety further agree, as part of this obligation, to pay all damages of any kind to person or property that may result from a failure in any respect to perform and complete said contract including, but not limited to costs necessary to protect the traveling public or to avoid inconvenience to the traveling public, (liquidated damages as provided above) all repair and replacement costs necessary to rectify construction errors, architectural and engineering costs and fees, all Contractor fees, all testing and laboratory fees, and all interest, legal fees and litigation costs incurred by the Authority.

And the said Surety hereby stipulates and agrees that no change, extension, alteration, deduction of addition in or to the terms of the said contract or the plans or specification accompanying the same shall in any wise affect the obligation of said Surety on its bond.

Contractor Name \_\_\_\_\_ L.S.

(Corporate seal of \_\_\_\_\_ L.S. Principal

principal if a corporation.) \_\_\_\_\_ L.S.

(Corporate seal of \_\_\_\_\_ L.S.  
surety.)

\_\_\_\_\_ L.S. Surety

STATE OF NEW YORK  
OFFICE OF THE ATTORNEY GENERAL

I hereby approve the foregoing contract and bond as to form and manner of execution.

Dated \_\_\_\_\_  
\_\_\_\_\_  
Attorney General

**(ACKNOWLEDGMENT BY PRINCIPAL, UNLESS IT BE A CORPORATION)**

STATE OF NEW YORK,

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_, before me personally came \_\_\_\_\_ to me known, to be the person described in and who executed the foregoing instrument and he acknowledged that he executed the same.

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

(Notary's seal to be attached.)

\_\_\_\_\_

**(ACKNOWLEDGMENT BY PRINCIPAL, IF A CORPORATION)**

STATE OF NEW YORK,

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_, before me personally came \_\_\_\_\_ to me known, who being by me duly sworn, did depose and say that he resides in \_\_\_\_\_, that he is the \_\_\_\_\_ of \_\_\_\_\_, the corporation described in and which executed the foregoing instrument: that he knew the seal of the said corporation: that the seal affixed to said instrument was such corporate seal: that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

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

**(ACKNOWLEDGED BY SURETY COMPANY)**

STATE OF NEW YORK,

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_, before me personally came \_\_\_\_\_ to me known, who being by me duly sworn, did depose and say that he resides in \_\_\_\_\_, that he is the \_\_\_\_\_ of \_\_\_\_\_, the corporation described in and which executed the foregoing instrument: that he knew the seal of the said corporation: that the seal affixed to said instrument was such corporate seal: that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

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*Notary Public*

(Notary's seal to be attached.)

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(The Surety Company must append statement of its financial condition and a copy of the resolution authorizing the execution of Bonds by officers of the Company.)

## NEW YORK STATE THRUWAY AUTHORITY

**LABOR AND MATERIAL BOND**

Know all men by these presents,

That, \_\_\_\_\_  
(Name of Principal)

of \_\_\_\_\_

(hereinafter called the Principal, and \_\_\_\_\_  
(Name of Surety Company)

a corporation of the State of \_\_\_\_\_, authorized to do business in the State of New York, as  
Surety and whose principal office is located in the City of \_\_\_\_\_, State of \_\_\_\_\_  
(hereinafter called the Surety), are held and firmly bound unto the NEW YORK STATE THRUWAY AUTHORITY,  
(hereinafter called the Authority), in the full and just sum of

\_\_\_\_\_ good and lawful money of the United  
States of America, for the payment of which said sum of money, well and truly to be made and done, the said  
Principal and Surety bind themselves, their and each of their heirs, administrators, executors, successors and  
assigns, jointly and severally, firmly by these presents.

Whereas, said Principal has entered into a certain written contract, with the Authority bearing date \_\_\_\_\_  
\_\_\_\_\_ day of \_\_\_\_\_ 202\_, with the New York State Thruway Authority for:

Which contract is hereby referred to and made a part here of as fully and to the same extent as if copied at length  
herein.

Now therefore, the condition of this obligation is such that if the said Principal shall promptly pay all moneys due  
to all persons furnishing labor and materials to him or his subcontractors in the prosecution of work provided for  
in said contract. Then this obligation shall be void, otherwise to remain in full force and effect;

Provided, however, that the Comptroller of the State of New York having required the said Principal to furnish  
this bond in order to comply with the provisions of Section 137 of the State Finance Law, all rights and remedies  
on this bond shall inure solely to such persons and shall be determined in accordance with the provisions,  
conditions and limitations of said Section to the same extent as if they were copied at length herein; and

Further, provided, that the place of trial of any action on this bond shall be in the county in which the said contract  
was to be performed, or if said contract was to be performed in more than one county, then in any such county,  
and not elsewhere.

SIGNED, SEALED AND DELIVERED THIS \_\_\_\_\_ day of \_\_\_\_\_, 202\_

(Principal(s) Sign Here)  
(Affix Corporate Seal If a Corporation)

(Surety Signs Here)  
(Affix Corporate Seal of Surety Co.)

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**FOR PRINCIPAL'S USE ONLY (Use Only One)**

**(INDIVIDUAL ACKNOWLEDGMENT)**  
UNLESS A CORPORATION

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

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_, before me personally came \_\_\_\_\_ to me known and known to me to be the person mentioned and described in and who executed in foregoing instrument and he duly acknowledged to me that he executed the same.

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

**(ACKNOWLEDGEMENT OF A CORPORATION)**

STATE OF NEW YORK     }  
                                     }  
COUNTY OF                }

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_, before me personally came \_\_\_\_\_, to me known and known to me to be the person who executed the above instrument, who being duly sworn by me, did depose and say that he/she resides in \_\_\_\_\_, that he/she is the \_\_\_\_\_ of \_\_\_\_\_, the corporation described in and which executed the above instrument, and that he/she signed his/her name thereto on behalf of said Corporation by order of the Board of Directors of said Corporation.

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

**FOR SURETY'S USE ONLY**

**(SURETY ACKNOWLEDGMENT)**

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

COUNTY OF \_\_\_\_\_ ss.:

On this \_\_\_\_\_ day of \_\_\_\_\_, 202\_, before me personally came \_\_\_\_\_ that he is the \_\_\_\_\_ of the \_\_\_\_\_ the corporation described in and which executed the above instruments; that he knows the seal of said corporation, that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of Said corporation, and that he signed his name thereto by like order.

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



**APPENDIX A****Standard Clauses For New York State Thruway Authority Contracts**

The parties to the attached contract, license, lease, amendment or other agreement of any kind (“the contract” or “this contract”) agree to be bound by the following clauses which are hereby made a part of the contract (the word “Contractor” herein refers to any party and its agents, successors and assigns, other than the Thruway Authority (“Authority”), whether a contractor, licensor, licensee, lessor, lessee or any other party):

1. **NON-ASSIGNMENT CLAUSE.** This contract may not be assigned by the Contractor nor may its right, title or interest therein be assigned, transferred, conveyed, subcontracted, sublet or otherwise disposed of without the previous consent, in writing, of the Authority and any attempts to assign the contract without the Authority’s written consent are null and void.

2. **COMPTROLLER APPROVAL.** Where required by law, this contract may require approval of the State Comptroller and shall not be valid until it has been approved by the State Comptroller and filed in its office.

3. **WORKERS’ COMPENSATION AND DISABILITY BENEFITS.** This contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the State Workers’ Compensation Law. If employees will be working on, near or over navigable waters, a U.S. Longshore and Harbor Workers’ Compensation Act endorsement must be included.

4. **NON-DISCRIMINATION REQUIREMENTS.** To the extent required by Article 15 of the State Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the 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 or because the individual has opposed any practices forbidden under the Human Rights Law or has filed a complaint, testified, or assisted in any proceeding under the Human Rights Law. Furthermore, in accordance with State Labor Law §220-e, if this is a contract for the 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 the State of New York, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, disability, sex or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and

available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in State Labor Law §230, then, in accordance with §239 thereof, the Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. The Contractor is subject to fines of \$50 per person per day for any violation of State Labor Law §§220-e or 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

5. **WAGE AND HOURS PROVISIONS.** If this is a public work contract covered by Article 8 of the State Labor Law or a building service contract covered by Article 9 thereof, neither the Contractor’s employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the State Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, the Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the State Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the New York State Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with subdivision 3-a of §220 of the New York State Labor Law shall be a condition precedent to payment by the Authority of any Authority approved sums due and owing for work done on the project.

6. **NON-COLLUSIVE BIDDING CERTIFICATION.** In accordance with State Public Authorities Law §2878, if this contract was awarded based upon the submission of bids, the Contractor warrants, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. The Contractor further warrants that, at the time the Contractor submitted its bid, an authorized and responsible person executed and delivered to the Authority a non-collusive bidding certification on the Contractor’s behalf.

7. **INTERNATIONAL BOYCOTT PROHIBITION.** In accordance with State Labor Law §220-f, if this contract exceeds \$5,000, the Contractor agrees, as a material condition of this contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership, or corporation has participated, is participating, or shall

participate in an international boycott in violation of the Federal Export Administration Act of 1979 (50 USC App. §§2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of the Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the Authority within five (5) business days of such conviction, determination or disposition of appeal.

8. **SET-OFF RIGHTS.** The Authority shall have rights of set-off. These rights shall include, but not be limited to, the Authority's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing by the Contractor to the Authority with regard to this contract, or any other contract with the Authority, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the Authority for any other reason including, without limitation, monetary penalties, adjustments, fees, or claims for damages by the Authority and third parties in connection therewith.

9. **RECORDS.** The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (collectively, "Records") for a period of six (6) years (or any other longer period required by law) following final payment or the termination of this contract, whichever is later, and any extensions thereto. The Authority, State Comptroller, State Attorney General and any other person or entity authorized to conduct an examination shall have access to the Records during normal business hours at an office of the Contractor within New York State, or, if no such office is available, at a mutually agreeable and reasonable venue within the State, during the contract term, any extensions thereof and said six (6) year period thereafter, for purposes of inspection, auditing and copying. As used in this clause, "termination of this contract" shall mean the later of completion of the work of the contract or the end date of the term stated in the contract. The Authority will take reasonable steps to protect from public disclosure those Records which are exempt from disclosure under State Public Officers Law §87 ("Statute") provided that: (i) the Contractor shall timely inform an appropriate Authority official, in writing, that said records should not be disclosed; (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the Authority's right to discovery in any pending or future litigation.

10. **IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.** All invoices or New York State standard vouchers submitted for payment for the sale of goods or services or the lease of real or personal property to the

Authority must include the payee's identification number, i.e., the seller's or lessor's identification number. The number is either the payee's Federal employer identification number or Federal social security number, or both such numbers when the payee has both such numbers. Failure to include this number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or New York State standard voucher, must give the reason or reasons why the payee does not have such number or numbers.

The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in State Tax Law §5. Disclosure of this information by the seller or lessor to the Authority is mandatory. The principal purpose for which the information is collected is to enable the 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 State Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law.

The above personal information is maintained at the New York State Thruway Authority, Department of Finance and Accounts, P.O. Box 189, Albany, New York 12201.

11. **EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN.** In accordance with State Executive Law §312, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000, whereby the Authority is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the Authority; or (ii) a written agreement in excess of \$100,000 whereby the Authority is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, or major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this contract the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

(a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability, or marital status, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on Authority contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal

employment opportunities without discrimination. As used in this clause, "affirmative action" shall mean recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, lay-off or termination, and rates of pay or other forms of compensation.

(b) At the request of the Authority, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status, and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

(c) The Contractor shall state, in all solicitations or advertisements for employees, that in the performance of this contract all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

The Contractor shall include the provisions of (a), (b) and (c) above in every subcontract over \$25,000 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon except where such work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The Authority will consider compliance by a Contractor or its subcontractor with the requirements of any Federal law concerning equal employment opportunity which effectuates the purpose of this section. The Authority shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such Federal law, and if such duplication or conflict exists, the Authority may waive the applicability of §312 of the Executive Law to the extent of such duplication or conflict. The Contractor shall comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining thereto.

**12. CONFLICTING TERMS.** In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.

**13. GOVERNING LAW.** This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

**14. LATE PAYMENT.** Timeliness of payment and any interest to be paid to the Contractor for late payment shall be governed by State Public Authorities Law §2880 and 21 NYCRR Part 109.

**15. NO ARBITRATION.** Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized) but must, instead, be heard in a court of competent jurisdiction of the State of New York.

**16. SERVICE OF PROCESS.** In addition to the methods of service allowed by the State Civil Practice Law & Rules, the Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon the Contractor's actual receipt of process or upon the Authority's receipt of the return thereof by the United States Postal Service as refused or undeliverable. The Contractor must promptly notify the Authority, in writing, of each and every change of address to which service of process can be made. Service by the Authority to the last known address shall be sufficient. The Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

**17. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS.** The Contractor certifies and warrants that all wood products to be used under this contract will be in accordance with, but not limited to, the specifications and provisions of State Finance Law §165 (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the Contractor to establish to meet with the approval of the Authority.

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 prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in State Finance Law §165. Any such use must meet with the approval of the Authority; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the Authority.

**18. MACBRIDE FAIR EMPLOYMENT PRINCIPLES.** In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in State Finance Law §165), and shall permit independent monitoring of compliance with such principles.

**19. OMNIBUS PROCUREMENT ACT OF 1992.** It is the policy of New York State to maximize opportunities for the

participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development  
Division for Small Business  
30 South Pearl Street – 7th Floor  
Albany, NY 12245  
Phone: (518) 292-5220  
Fax: (518) 292-5884  
<http://www.esd.ny.gov>

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development Minority and Women's Business Development Division  
30 South Pearl Street – 2nd Floor  
Albany, NY 12245  
Phone: (518) 292-5250  
Fax: (518) 292-5803  
<http://www.esd.ny.gov>

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, the Contractor certifies that whenever the total bid amount is greater than \$1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the Authority;

(b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the NYS Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the Authority upon request; and

(d) The Contractor acknowledges notice that the Authority may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the Authority in these efforts.

**20. RECIPROCITY AND SANCTIONS PROVISIONS.** Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or

political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapters 684 and 383, respectively) require that they be denied contracts which they would otherwise obtain. Contact the Department of Economic Development, Division for Small Business, 30 South Pearl Street, Albany, New York 12245, for a current list of jurisdictions subject to this provision. NOTE: As of October 2019, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii.

**21. NON-PUBLIC PERSONAL INFORMATION.** The Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law §899-aa; State Technology Law §208). In addition to any relief or damages that may be imposed pursuant to the provisions of this Act, the Contractor shall be liable for the costs imposed upon the Authority which are associated with breach of the Act if caused by Contractor's negligent or willful acts or omissions, or the negligent or willful acts or omissions of the Contractor's agents, officers, employees or subcontractors.

**22. IRAN DIVESTMENT ACT.** In accordance with State Public Authorities Law §2879-c, if this is a contract for work or services performed or to be performed, or goods sold or to be sold, the Contractor subscribes and affirms, under penalty of perjury, that: by signing this contract, each person and each person signing on behalf of any other party certifies, and in the case of a joint bid or partnership each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each person is not on the list created pursuant to paragraph (b) of subdivision 3 of §165-a of the State Finance Law, entitled "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at: <https://ogs.ny.gov/list-entities-determined-be-non-responsive-biddersofferers-pursuant-nys-iran-divestment-act-2012>.

For the purposes of this clause, the term "person" shall be as defined in subdivision (1)(e) of §165-a of the State Finance Law.

Contractor further certifies that it will not utilize on this contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or extend this contract, it must provide the same certification at the time the 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 contract assignment will be approved by the Authority.

During the term of the contract, should the Authority receive information that a person (as defined in State Finance Law § 165-a) is in violation of the above-referenced certifications, the Authority 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 Act within 90 days after the determination of such violation, then the Authority 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 the Contractor in default.

**23. OBSERVANCE OF LAWS.** The Contractor agrees to observe all applicable Federal, State and local laws and regulations, and to procure all necessary licenses and permits.

**24. NO WAIVER OF PROVISIONS.** The Authority's failure to exercise or delay in exercising any right or remedy under this contract shall not constitute a waiver of such right or remedy or any other right or remedy set forth therein. No waiver by the Authority of any right or remedy under this contract shall be effective unless made in a writing duly executed by an authorized officer of the Authority, and such waiver shall be limited to the specific instance so written and shall not constitute a waiver of such right or remedy in the future or of any other right or remedy under this contract.

**25. ENTIRE AGREEMENT.** This contract, together with this Appendix A and any other appendices, attachments, schedules or exhibits, constitutes the entire understanding between the parties and there are no other oral or extrinsic understandings of any kind between the parties. This contract may not be changed or modified in any manner except by a subsequent writing, duly executed by the parties thereto.

**26. ADMISSIBILITY OF REPRODUCTION OF CONTRACT.** Notwithstanding the best evidence rule or any other legal principle or rule of evidence to the contrary, the Contractor acknowledges and agrees that it waives any and all objections to the admissibility into evidence at any court proceeding or to the use at any examination before trial of an electronic reproduction of this contract, in the form approved by the State Comptroller, if such approval was required, regardless of whether the original of said contract is in existence.

**27. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.** To the extent this agreement is a contract as defined by Tax Law § 5-a, if the Contractor fails to make the certification required by Tax Law § 5-a or if during the term of the contract, the Department of Taxation and Finance or the Authority, as defined by Tax Law § 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a

material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if the Authority determines that such action is in the best interest of the Authority.

**28. CONTRACT INVOLVING STEEL PRODUCTS.** Contracts involving steel products are subject to Public Authorities Law § 2603-a, and steel products to be provided or incorporated by Contractor must be produced or made in whole or substantial part in the United States as set forth therein.